

Field Artillery

A Professional Bulletin for Redlegs

September-October 1997



The Old and The New—
Change, A Constant

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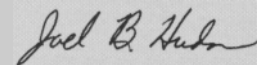
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Field Artillery: *On The Cutting Edge*



Throughout history, Redlegs have pushed the envelope—maximized technology and, indeed, forced the advent of new technologies based on the requirements our Army placed upon us for fires. From the days that our gunner ancestors developed the long bow to counter the mounted knight to our leap-ahead technologies in Crusader, the Field Artillery has had to think outside normal parameters to provide fires for the force. This is the heritage of our Field Artillery—we're on the cutting edge.

Historical Perspective. As leaders of change, the FA has always taken creative approaches to maximize effects on the battlefield. During World War I, the Field Artillery was a leader in melding our air and ground forces. Redlegs exploited greater artillery ranges by employing aerial observers to gain increased line-of-sight range. These aerial observers, initially in balloons and subsequently in airplanes, provided observation in-depth. During World War II, the Field Artillery became the first to use radar against a ground threat. The FA capitalized on current technologies to create counter mortar radars, which became the cornerstone in defeating the German mortar.

During the Vietnam War, the Field Artillery was the first to own and use attack helicopters. It was the Field Artillery that saw attack possibilities for the helicopter...aerial rocket artillery. Often forgotten is that the 1st Cavalry

(Airmobile) Division Artillery had a battalion of Cobra gunships assigned. Unrestrained by roads and terrain features, aerial rocket artillery delivered timely fires repeatedly to augment the ground artillery. Our calling to be the leaders for change stems from our contributions on the battlefield.

The Demand for Foresight. From direct engagements, close supporting and suppressive fires, to precision strikes, the Field Artillery has provided the ground commander the ability to leverage massed combat power on the battlefield. Today, Redlegs must be prepared to support all aspects of a full dimensional joint force throughout the battlespace. Our fires save friendly lives, conserve combat power and provide the lethality for decisive victory. Today's vast spectrum of threats and widely varying environment will only increase demand for responsive, precision fires. For this reason, the Field Artillery must continue to spearhead change.

Our Future in Fires. The FA has led in the development of many futuristic endeavors—including precision weapons and leveraging the information age. Precision munitions were in our Field Artillery arsenal well before CNN mesmerized us with scenes of pinpoint accuracy during the Gulf War. In the 70s and early 80s, the Field Artillery developed the precision-guided Copperhead and began initial work on smart anti-armor munitions such as the sense and destroy armor munition (SADARM). We're currently developing precision munitions that will range the depth and width of the future battlefield and destroy targets with one round—including moving armored vehicles and short-dwell missile launchers 300 kilometers away. The FA led and still leads the way in precision munitions.

The Army will computerize the battlefield in Army XXI, but this is not a new initiative for the Field Artillery community. The computer on the battlefield is our norm. In the early 60s, we employed the FA digital automatic computer (FADAC) to automate fire direction. We followed FADAC with the tactical fire direction system (TACFIRE). Through the 80s, the artillery expanded this computer base to incorporate observers, maneuver tactical operation centers (TOCs), radars

and, of course, Field Artillery TOCs. The initial fire support automation system (IFSAS) and now the advanced FA tactical data system (AFATDS) digitally link fire direction and fire control from planner to sensor to shooter. The Field Artillery is leading the way in automating the battlefield—on the cutting edge.

The Challenge of Change. As we enter the 21st century, the Army and the Field Artillery will continue to change. The initiatives of the Army XXI advanced warfighting experiments will come to fruition, and the Field Artillery will forge ahead with not only new technological initiatives, but also the tactics, procedures, organizations and doctrine to employ the new capabilities. Additionally, we'll develop leaders who can harness long-range precision fires in decentralized, high-tempo operations...while still understanding our fundamental, core mission to provide close fires in support of the soldier on the ground.

Change is a Field Artillery constant—it's part of who we are and what we do. As I come on board, I'm committed to continuing that momentum—keep the Field Artillery at the forefront of change as we enter the 21st century. In future "From the Firebase" columns, we'll examine some specific cases. Together, we must embrace change as it facilitates our ability to provide the future joint force commander the firepower for decisive victory. It's just one more challenge in the tradition of the Field Artillery—on the cutting edge.

Major General Leo J. Baxter commands the Field Artillery Center and Fort Sill, Oklahoma, and is Commandant of the Field Artillery School. Also at Fort Sill, he was the Deputy Commanding General for Training/Assistant Commandant of the Field Artillery School and Chief of Staff of the Field Artillery Center. Before taking command of Fort Sill, he commanded the Total Army Personnel Command (PERSCOM), Alexandria, Virginia. Among other assignments, General Baxter served as Assistant Division Commander for Support in the 3d Infantry Division (Mechanized) in Germany, where he also commanded the Division Artillery.

NEW DATES for Senior Fire Support Conference

The new dates for the next Senior Fire Support Conference at the Field Artillery School, Fort Sill, Oklahoma, have been set for 9 through 13 February 1998. The Senior Fire Support Conference theme is "Joint Fires for the 21st Century...The Cutting Edge" and will focus on fire support issues in doctrine, materiel development and joint operations as we proceed toward Army XXI and the 21st century.

Conference attendees will include Army corps and Marine expeditionary

force (MEF) commanders; Reserve Component and (RC) and Active Component (AC) Army and Marine division commanders; selected retired general officers; Training and Doctrine Command school commandants; AC and RC corps artillery, FA brigade, division artillery and Marine regimental artillery commanders and their command sergeants major; and US Field Artillery Association corporate members. Corporate members and other companies also may have displays at the conference.

If units need more information, they should contact the G3, Training Command at Fort Sill: DSN 639-5460/4203 or commercial (405) 442-5460/4203. The Fax number is 7494 and works with both prefixes.



Three Letters: Risk Estimate Distances for Close Fires

Editor's Note: We received five letters-to-the-editor that praised the article "Risk Estimate Distances for Indirect Fires in Combat" by Major Gerard Pokorski and Lonnie R. Minton that appeared the March-April 1997 edition. Here are three.

1. Former Redleg and Range Officer, Fort Lewis, Washington. Just wanted to congratulate the authors on the "Risk Estimate Distances" article in the March-April 1997 issue. As a civilian Range Officer, I'm the enforcer of the artificial limits in "AR 385-63 Policies and Procedures for Firing Ammunition for Training, Practice and Combat."

As a Field Artilleryman and forward observer in Vietnam, I put the big bullets where the company commander wanted them—right up close and personal—because that's where the bad guys were. It made sense to me, especially since I was behind the same log as my company commander. Today's commanders and FSOs [fire support officers] also want—or had better want—those fires up close and personal.

The "how close" question is still alive and well; I hear it regularly. We all understand that "the rules" have been, are and will be different in a fight as opposed to our friendly local artillery impact area. I

plan to distribute this article to all my favorite infantrymen and tankers. Thanks for a solid product.

John Weller, Range Officer
Fort Lewis, WA

2. A Former Live-Fire FSO Observer/Controller (O/C) at the National Training Center (NTC), Fort Irwin, California. Having read the article, "Risk Estimate Distances for Indirect Fires in Combat," I would like to add the following information. For air-delivered ordnance, a more up-to-date reference for risk estimate distances can be found in *Joint Pub 3-09.3 Joint Tactics, Techniques and Procedures for Close Air Support*, 1 December 1995, Appendix G. Many of the distances not found in the table referenced by the authors (*FM 71-123 Tactics and Techniques for Combined Arms Heavy Forces: Armored Brigade, Battalion/Task Force, and Company Team*, Table 7-2 on Page 7-12) are found in this J-Pub.

Chapter V, Page V-4, Paragraph 6 and Appendix G of the J-Pub provide information about how these distances are established in much the same detail as Major Pokorski and Mr. Minton describe in their article. However, it's imperative to note that while the indirect fire distances in their Figure 2 [Page 10 of the March-April edition] are calculated *perpendicular* to the FLOT [forward line of own troops] (as

cited in the article), the distances for close CAS [close air support] are computed *parallel* to the FLOT: "Distances [for CAS] are computed from the intended impact point of the center of a stick of bombs or pod of rockets. Deflection distance (from the aiming point toward friendly troops) is built into the risk estimate distance." This is a key point to understand because the aircraft must receive an attack heading or an attack zone to ensure that long and (or) short ordnance deliveries do not affect friendlies.

CPT Donald L. Barnett, FA
Corps and Division Doctrine Writer
Command and General Staff College
Fort Leavenworth, KS

3. Battalion Fire Support NCO O/C, Joint Readiness Training Center (JRTC), Fort Polk, Louisiana. "Risk Estimate Distances for Indirect Fires in Combat" was outstanding and should be read by all fire supporters. With the exception of peacetime live-fire exercises, FSOs should always talk in terms of risk estimate distances (REDs) instead of minimum safe distances (MSDs).

The article presents a chart from FM 71-123 showing risk estimate distances for some aerial-delivered munitions. Several of the weapons are missing distances and several CAS aircraft weapons are missing, such as the AGM-65 Maverick and 20/25/40-mm and 105-mm cannon on the AC-130. Joint Publication 3-09.3, dated 1 December 1995, contains risk-estimate distances for Air

Force, Marine Corps and Navy aircraft weapons. *FM 90-20 J-Fire-Multi-Service Procedures for the Joint Application of Firepower* contains a similar chart. FSOs should reference these charts when training with fixed- or rotary-wing aircraft.

Additionally, future revisions of *FM 6-71 Tactics, Techniques and Procedures for Fire Support for the Combined Arms Commander* and *FM 6-20-20 Tactics, Techniques and Procedures for Fire Support at Battalion Task Force and Below* and similar manuals should contain the

latest chart of REDs for aerial-delivered munitions and for Field Artillery, mortars and naval gunfire.

SFC Sean E. Harris, FA
Fire Support O/C, JRTC
Fort Polk, LA

The FA Cascade: Flexibility for the Future

The technological advances that have occurred in the FA during this decade coupled with those in place for the future have created an environment with the potential for changing the way we think about FA tactics. The fielding of the advanced FA tactical data system (AFATDS) and its subsequent iterations through the year 2000 will provide a high level of rapid communications throughout the fire support spectrum of our military establishment—a continuum that reaches from the theater/army level down to the individual team or squad. This digital data transfer capability, coupled with the development of new and improved FA weapons, munitions and target acquisition (TA) systems, presents an opportunity to change the way we deploy the FA.

Traditionally, FA has been viewed as a supporting arm. Providing fires for maneuver forces has been the forte of the FA for most of its existence in modern

warfare. This association probably will continue well into the next century; however, the time has come to contemplate an additional, more prominent direct offensive role for FA.

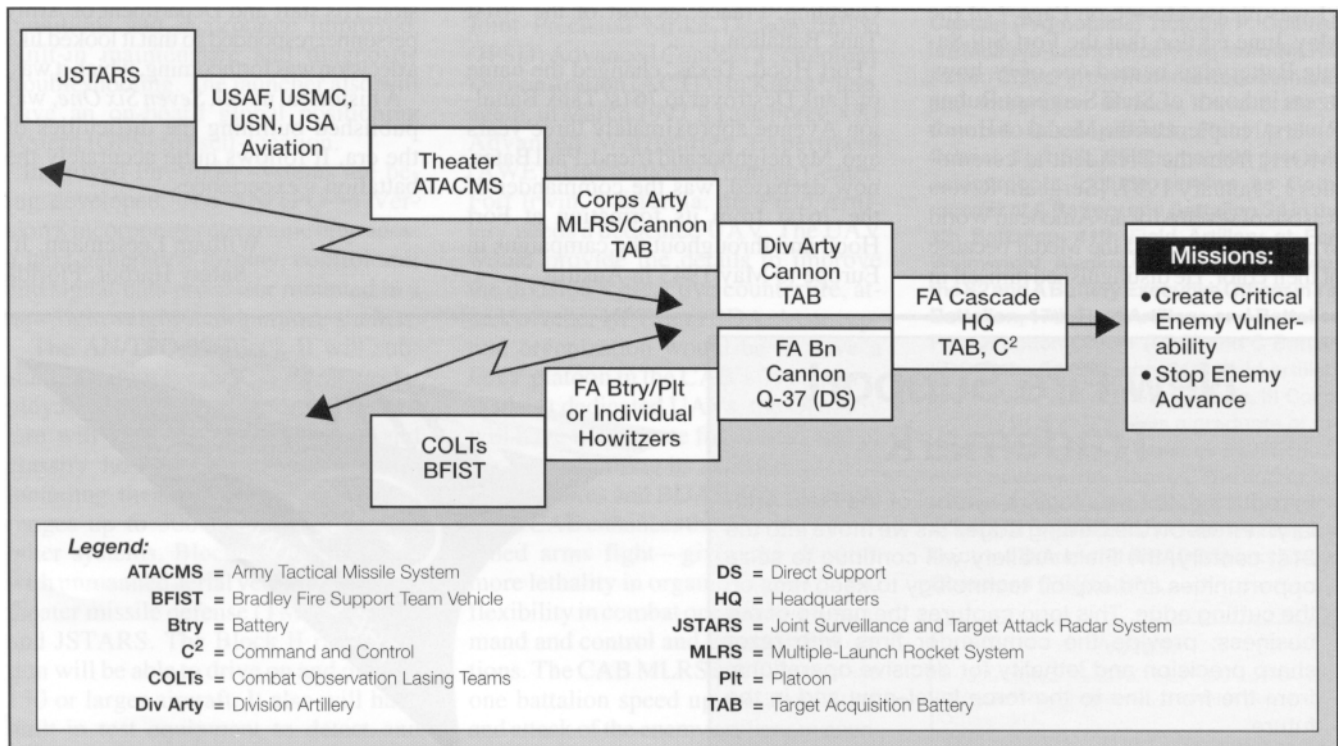
Imagine the following scenario from a battlefield of the future. A corps offensive is stalled against an enemy with armored capabilities arrayed in depth. The corps armored strength has been depleted by hard fighting and no longer has the strength ratio necessary to make victory likely. The corps commander calls on an FA brigade-level unit to create a critical enemy vulnerability at a specific narrow point (in both time and space) along the front. This "gap" then would be exploited by a division armored task force.

The selected FA unit commander is given *direct control* of corps-level FA/sensor assets, FA weapons systems, air fires assets and some theater/army-level elements, as relevant. (See the figure.) The

FA commander directs a synchronized attack on the target area with a wide spectrum of weapons, including tactical and strategic aviation and naval gunfire. When the FA commander, in conference with the corps and division armored task force commanders, decides the gap has been developed sufficiently, he hands the battle off to maneuver to exploit the situation. The FA units then revert back to their original associations and, once again, become combat support assets.

To implement this concept, a new FA unit would be developed: the FA Cascade. Such a unit would contain elements cascading from the theater level down to the actual team on the ground. The novel concept is that the FA Cascade commander would have direct control of selected corps and army assets for a temporary, but specified, time.

The FA Cascade would be an electronic entity. All associations could be created digitally with very little unit repositioning. Because the FA Cascade



Hypothetical FA Cascade

could be a "virtual" unit invoked for a finite time and then, basically, cease to exist, certain FA brigade headquarters units would be designated as "Cascade capable" to ensure they have the electronic assets to build and maintain the unit associations.

The following are some possible advantages of the FA Cascade. The Cascade would be flexible, adaptable and tailorable; operations would be conducted via electronic and robotics systems, reducing the potential for friendly casualties. The command and control of

the operation would be pushed closer to the actual fighting for maximum effectiveness. The organization would be a virtual unit, which can use its existing logistics systems.

The following are possible drawbacks to this concept. The Cascade would rely heavily on technology, and current capabilities may not allow the concept to be implemented-or, at least, implemented yet. Higher command elements would have to relinquish control of traditional assets, almost surely resulting in resistance.

And last, creating the capabilities may be limited by funding.

The FA Cascade role would not replace the traditional role of the artillery. Cascade operations would seize no ground, but they would create the conditions for maneuver forces to seize ground or destroy enemy forces more efficiently and with fewer friendly casualties.

LTC Michael D. Armour, FA
Commander, 3-115 FA, TNARNG
Memphis, TN



Sill Salute Battery Howitzer Named After MOH Winner

I was pleased to see on Page 7 of the May-June edition that the Fort Sill Salute Battery has named one of its howitzers in honor of Staff Sergeant Ruben Rivers, recipient of the Medal of Honor [MOH] from the President at ceremonies 13 January 1997. [Sergeant Rivers was one of seven African-American World War II heroes denied the Medal because of their color. He distinguished himself in

Guebling, France, as part of the 761st Tank Battalion.]

Fort Hood, Texas, changed the name of Tank Destroyer to 761st Tank Battalion Avenue approximately three years ago. My neighbor and friend, Paul Bates, now deceased, was the commander of the 761st from its formation at Fort Hood and throughout the campaigns in Europe to May 1945 in Austria.

The 761st departed New York Port of Entry 27 August 1944 in the same convoy with the 26th Yankee Infantry Division and was assigned to the Yankee Division in October 1944 in the zone east of Nancy, France. The Third Army began a major offensive 8 November 1944 with the 761st supporting the Yankee Division in the Lorraine area. The significant tank battle at Guebling in support of the Yankee Division became part of my life with the division's 101st Engineer Combat Battalion.

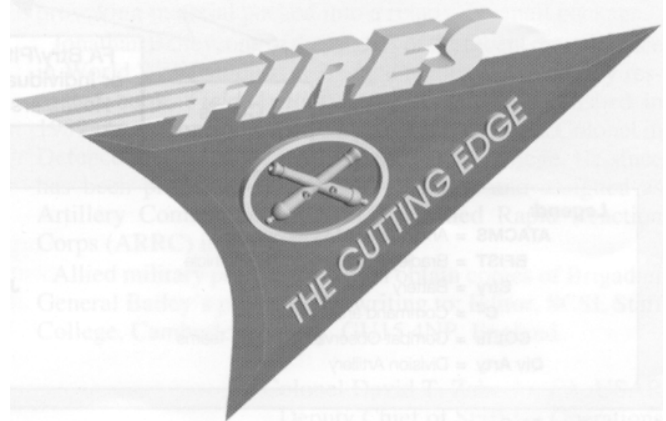
Paul Bates, in conjunction with others, tried for years to have black soldiers of World War II decorated with the Medal of Honor. The committees were endless. In January 1996, I wrote the President to assist in arriving at a decision. His staff and Department of Army personnel responded so that it looked like a decision was forthcoming, which it was.

A historical novel, *Seven Six One*, was published outlining the difficulties of the era. It follows quite accurately the battalion's experiences.

William Leesemann, Jr.
Safety Harbor, Florida

New Fire Support Trademark

Introducing, the new logo, a symbol of the Field Artillery: "Fires-On the Cutting Edge." As we move into the 21st century, the Field Artillery will continue to seize opportunities and exploit technology to keep fires on the cutting edge. This logo captures the nature of our business: provide the commander fires with razor sharp precision and lethality for decisive operations, from the front line to the force level-now and in the future.



The New FM 100-5 and the Fundamentals of Fires

by Colonel Michael L. Combest

In April 1998, the Army expects to publish the newest *FM 100-5 Operations*—the 14th edition of the Army's primary doctrinal manual. A key aspect of this new manual is its discussion of the fundamentals of Army operations, which provides the theoretical and intellectual foundation for Army doctrine and the subordinate doctrine that springs from it.

These fundamentals probably won't change the purpose of fire support: "to place the correct type and volume of fire at the right time and on the right target to ensure the success of the force commander's plan."¹ They also probably will have minimal impact on the *science* of fire support, the tactics, techniques and procedures (TTP) for coordinating and delivering fires. But they will have significant impact on fire support doctrine and the *art* of fire support, the creative means by which we plan and integrate fires into a scheme of maneuver to generate decisive combat power.

This article examines four of the sets of fundamentals in the new FM 100-5—operational concept, combined arms synergy, core functions and orchestration/characteristics of Army operations—and their impact on the art of fire support.

• **The Operational Concept.** The idea of an operational concept was first introduced in the 1982 edition of FM 100-5. The 1998 edition gives a concise—less than 200 words—description of "the Army's fundamental approach to applying military power in campaigns, major operations, battles, and engagements."² The core of the operational concept is the idea that in every operation, "our constant aim is to seize the initiative, maintain momentum and exploit success."³

We *seize the initiative* by throwing an enemy off balance with overpowering blows. These blows should be precise, violent, unpredictable and delivered simultaneously throughout the battlespace against critical targets.⁴ Best results are obtained by striking in unexpected ways at unexpected times, hitting those targets whose loss shatters the coherence

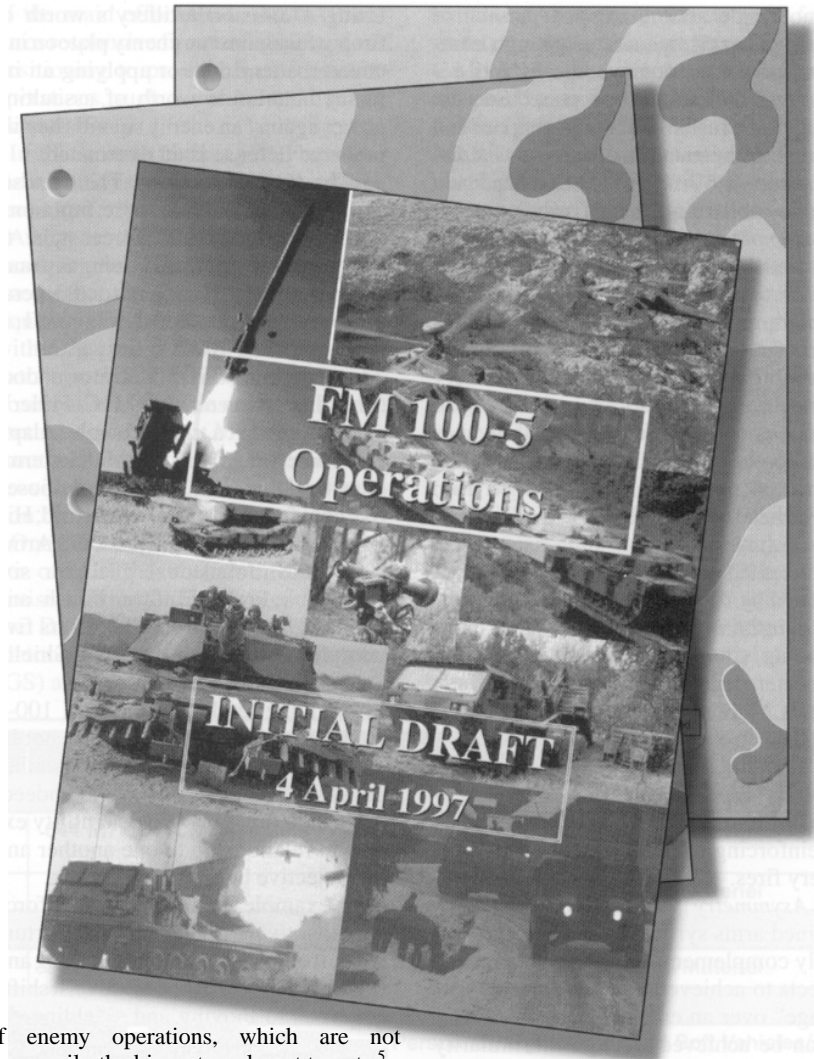
of enemy operations, which are not necessarily the biggest or closest targets.⁵

We *maintain momentum* by following up rapidly to prevent the enemy's recovery.⁶ A capable enemy who has lost the initiative will desperately try to regain it. He will attempt to adjust to our blows and deliver counterblows that throw *us* off balance.

To maintain momentum, we must apply relentless pressure. This doesn't necessarily mean repeating or pressing an initially successful action. In fact, such repetition risks predictability and loss of momentum. We must be prepared to rapidly change the way we generate and

apply combat power before an enemy can adapt.⁷

We *exploit success* by following through. Exploiting success implies driving a broken foe to his final destruction.⁸ This requires organizing and resourcing forces to conduct operations beyond the initial objective. Commanders must realize that "fighting has a disintegrating effect on the winner and loser alike," and that "fresh forces and formations must be ready to ensure that victory is fully realized and success does not slip away."⁹



• **Combined Arms Synergy: Complementary and Reinforcing Effects and Asymmetry.** The 1998 edition of FM 100-5 reintroduces the discussion of combinations and combined arms synergy, which was initially introduced in 1982.¹⁰ This fundamental asserts that the heart of combined arms warfare is combined arms synergy.

Combined arms synergy proposes that "no single action, weapon, branch or arm of service generates enough combat power to achieve the effects required" to defeat an opponent.¹¹ Success requires a fusion of actions, weapons and other components to generate *complementary* and *reinforcing* effects and gain an *asymmetric* advantage over an enemy.

Complementary effects are those generated by combining systems and effects to put an enemy on the horns of a dilemma. Combining direct and indirect fires offers a classic illustration. By combining machinegun and artillery fires, we pose a lose-lose proposition to an enemy dismounted force. If he goes to ground to avoid the effects of the machinegun, he can be destroyed from overhead by high-explosive (HE) rounds with time or variable-time fuzes. If he moves to avoid the indirect fire, he is cut down by the machineguns.¹²

Reinforcing effects result from combining similar systems to generate a greater degree of the same type of effects. Mortar fire reinforces artillery fires, and machineguns reinforce rifle fire.¹³

Some combinations don't categorize neatly. For example, air-delivered precision antitank fires can be argued to be reinforcing or complementary to artillery fires.

Asymmetry is the second half of combined arms synergy: "Army forces apply complementary and reinforcing effects to achieve an asymmetric advantage" over an enemy. This asymmetry can be achieved through dissimilarity or overmatch.¹⁴

We achieve a dissimilar advantage over an opponent by forcing him to fight against things for which he is unprepared. "This is the exact opposite of fighting fire with fire; it is fighting fire with water."¹⁵

We achieve an overmatching advantage by generating and applying combat power similar to that of the enemy's at a level and in a manner he can't match.¹⁶ Using a division artillery's worth of firepower against an enemy platoon in a counterbattery duel or applying an infantry battalion's worth of assaulting power against an enemy squad's hastily prepared defense is an overmatch.¹⁷

• **The Core Functions.** The third set of fundamentals is the core functions. These are the actions forces take to apply military power.¹⁸ Using a functional model to frame and focus operational thinking, as shown in Figure 1, is new to the FM 100-5 series.

Incorporating this model into our doctrinal discussion reflects J.F.C. Fuller's admonition that a truly versatile, adaptable force "must learn to think in terms of tactical functions."¹⁹ Fuller proposed five core functions: Discover, Hold, Hit, Protect and Smash.²⁰ In 1934, US Army Major E.S. Johnston argued for six: Find, Fix, Fight, Follow, Finish and Fend.²¹ The 1998 FM 100-5 offers five core functions: See, Shape, Shield, Strike and Move.²²

Like Fuller and Johnston, FM 100-5 argues that the functions should not be viewed independently of one another but as separate parts of a whole. Indeed, these core functions have no utility except in relationship to one another and the objective being sought.²³

For example, in an attack, as a force prepares to cross the line of departure (LD), it emphasizes seeing, shaping and shielding. To reach the objective, it shifts emphasis to moving and shielding. In the assault, the force stresses striking, moving and shielding. Having accomplished

its initial objective, the force moves into an exploitation phase, placing emphasis on moving, seeing and striking to keep the enemy off balance and drive it to its final destruction. Following the attack, the force may throw out a detachment that focuses on seeing, shielding and striking to protect the main force from counterattack.

During each stage of the attack, the force never forsakes any function. It only places greater or lesser emphasis on the different functions as the stage requires.²⁴

Whereas Fuller's and Johnston's models focused almost exclusively on an enemy force, FM 100-5 proposes that forces direct the execution of core functions toward enemy forces, friendly forces, neutral elements and the environment.

Take shaping for example. To shape the enemy, a commander makes him fight in the weakest possible condition—strength, position, awareness, etc. He accomplishes this by using feints, preparation fires, raids, psychological operations and other means.

To shape friendly forces, the commander uses task organizing, resourcing, positioning, rehearsing and training.

The neutral elements are shaped—for example, the local populace and media—through rules of engagement (ROE) that limit collateral damage and the full range of information operations. The commander shapes the environment by applying engineer resources to perform mobility and survivability operations.

Forces apply this same all-encompassing approach to each of the functions as they plan and execute operations.

• **Orchestration/Characteristics of Army Operations.** The fourth set of fundamentals is made up of the five characteristics of Army operations. First introduced as four tenets of AirLand Battle in 1982, these characteristics established the essential makeup of successful operations: agility, initiative, depth and synchronization. In 1993 the Army added a fifth tenet, versatility.

The 1998 edition of FM 100-5 carries these forward but views them as characteristics expressed rather than tenets that compel, a relatively minor revision. There is, however, a major revision to the tenets/characteristics—the new FM substitutes "orchestration" for synchronization.

Previous editions of FM 100-5 established synchronization as the linchpin of Army operations. FM 100-5 currently states that synchronization—"arranging

See	Gain and maintain knowledge of the elements of mission, enemy, terrain, troops and time available plus civilians in the area (METT-TC) at all appropriate echelons.
Shape	Establish the optimum environment for conducting operations; shape enemy, friendly and neutral elements.
Shield	Deny opponents the ability to threaten the force or interfere with operations and preserve strength through preventive actions.
Strike	Apply lethal and nonlethal capabilities to achieve objectives.
Move	Position and reposition forces.

Figure 1: The Five Core Functions. These are the basic actions forces take to apply military power (1998 FM 100-5, Final Draft, Page 11-3-1).

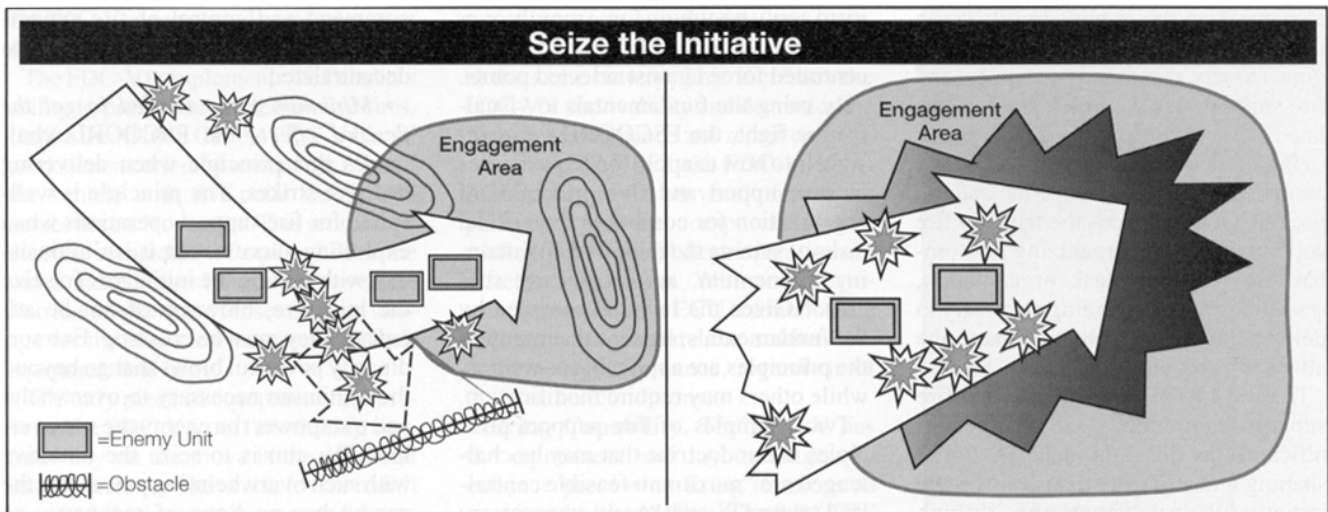


Figure 2: Seize the Initiative. The force shapes the battlespace by maneuvering the enemy into a planned engagement area while isolating and degrading his echelons and reserves. Shaping sets the conditions for a crushing combined arms strike with overmatching combat power – the second requirement for seizing the initiative. Seizing the initiative is accomplished in centralized operations using predictive planning.

activities in time and space to mass at the decisive point"—is essential to victory.²⁵ It also states that "synchronization usually requires explicit coordination" of the elements of combat power.²⁶ The 1998 draft takes a broader view. It argues that synchronization is indeed essential, but not sufficient. The manual proposes orchestration in its stead.

The draft FM defines orchestration as "applying the right mix of forces, using the right degree of control, operating at the right tempo, at the right level of intensity to accomplish assigned missions."²⁷ It is a characteristic that includes, but is larger than synchronization.

According to the manual, operational conditions often may demand forgoing detailed coordination and synchronization.²⁸ In pursuits, exploitations, and counterattacks for example, commanders will need to "take risk and trade synchronization for speed, agility and opportunity."²⁹ As the nature and tempo of the fight change, commanders must be able to move between tightly synchronized and opportunistic, asynchronous operations. They must be able to switch between classical symphonies and jazz as the situation dictates.

The Fundamentals and Fire Support.

Okay, so what's the impact of these fundamentals on fire support doctrine and the art of fire support? A lot. The fundamentals allow Redlegs to recognize and fully comprehend the operational requirements inherent in their missions. The fundamentals frame and focus the way fire supporters apply the fire support

principles and doctrinal tenets found in *FM 6-20 Doctrine for Fire Support* (Final Draft, June 1996). They also cause us to reexamine some of those tenets and principles. Examination of a typical defensive action offers one illustration.

A defending commander expects an enemy attack along an anticipated avenue of approach at a high rate of speed, the enemy's apparent aim being to penetrate a line of defense and seize some terrain-oriented objective. The defender's requirement is to stop him.

A typical—and valid—solution includes maneuvering the attacker into an engagement area (EA) and destroying him there. Let's walk through the problem in light of the proposed fundamentals of Army operations and see how they might typically influence a combined arms commander's and his fire support coordinator's (FSCOORD's) approach.

First, using the operational concept, the commander and his FSCOORD recognize that defeating the attacking enemy includes three subordinate requirements: seize the initiative, maintain momentum and exploit success. Understanding that, the commander and his FSCOORD see the fight generally unfolding as shown in Figure 2 and Figure 3 on Page 8.

This does not imply that the fight will move neatly through this sequence. The length and nature of each stage of the fight will vary with each situation. Also, the various stages tend to flow into each other with no clear break—an operation may even skip a stage entirely. For example, a

force may be so successful in striking to seize the initiative that it proceeds directly to exploiting success. Nonetheless, each stage of the operational concept poses significantly different problems and should be analyzed in planning and preparation. Having determined the flow of a fight, the FSCOORD uses the fundamentals to determine the principle fire support requirements for each stage of that fight and identify the essential tasks that will form the basis of the fire support plan.

As shown in Figure 2, seizing the initiative imposes two requirements. The first is to shape the battlespace to set the enemy up for a crushing strike. The second is to deliver the strike.

The FSCOORD helps maneuver the enemy into the EA by employing fire support assets to help close certain avenues and "open" others. By providing covering fires for blocking and turning obstacles, the FSCOORD helps close avenues. He plans delivery of family of scatterable mines (FASCAM) to augment deliberately laid ones. He helps "open" an avenue for an attacking force by not delivering fires into designated areas, thereby creating the perception of poorly defended avenues and lightly covered obstacles.

The FSCOORD helps weaken the enemy force by disrupting its rate of march. Attacking forces normally want to travel in formations that facilitate the greatest speed. The FSCOORD helps force the enemy out of his formation by engaging him at long ranges early and often to cause casualties and force time-consuming deployments. Fire supporters

also weaken the enemy by stripping away critical air defense resources, engineer assets, command and control and fire support. They employ fires to isolate reserves and follow-on echelons.³⁰

Having determined what actions and assets are required to shape the enemy, the FSCOORD shapes the friendly fire support system by organizing for combat. He plans the task organization, resourcing and positioning necessary to deliver the strikes that will shape the attacker as required.

The FSCOORD understands that fire support requirements will change significantly as the fight changes. Initial shaping and striking efforts to gain the initiative likely will impose a fairly high degree of centralization. Because initial friendly actions are likely to stem from predictions made as a result of the intelligence preparation of the battlefield (IPB), fires will tend to be predictive and, therefore planned, rehearsed and carefully timed.

However, when the enemy begins to react to shaping efforts and the initial blows, our ability to accurately predict his reactions diminishes (Figure 3). If we are to maintain momentum, we must be able to react to enemy attempts to recover with both speed and power. This implies a lesser degree of centralized control for both maneuver and fire support formations. But it also mandates retaining the ability to mass fires quickly to those points in the battlespace where the enemy focuses his efforts to regain balance and control.

Exploiting success implies very decentralized operations. In this scenario, pursuing a broken foe implies the ability to

apply minimum force rapidly over a wide area rather than massive, concentrated force against selected points.

By using the fundamentals to visualize the fight, the FSCOORD gains insight into how to apply the 13 principles of fire support and five principles of organization for combat to the critical tasks of seizing the initiative, maintaining momentum, and exploiting success.³¹ Given the insights provided by the fundamentals, he sees that many of the principles are applicable as written, while others may require modification.

Two examples of fire support principles in our doctrine that may be challenged are "maximum feasible centralized control"³² and "avoid unnecessary duplication...[use] only the minimum force needed to get the desired effects..."³³

- *Maximum feasible control* is one of the principles of organizing Field Artillery for combat.³⁴ However, understanding that a fight will likely move from a centralized (seize the initiative) to decentralized (exploit success) stage suggests that minimum feasible centralized control is a sounder approach.

Knowing that an operation likely will move into a stage that calls for chasing remnants of enemy formations to keep them from coalescing, FSCOORDs are compelled to shape the friendly force in a way that prepares for rapid, decentralized command and control of fire support assets. Employing the fundamental of orchestration, the FSCOORD identifies those portions of the fight that will likely require massive, tightly synchronized fires and those that will require minimum essential, opportunistic fires. He also

identifies those key points where command and control of fire support assets should shift from centralized to decentralized.

- *Minimum force needed to get the desired effect*—the FSCOORD challenges this principle when delivering decisive strikes. The principle is well-suited for fire support operations when exploiting success, but it isn't consistent with seizing the initiative. To seize the initiative, blows must not be adequate, they must be crushing. Extraordinarily powerful blows that go beyond the minimum necessary to overwhelm and overpower the enemy are not overkill. The aim is to seize the initiative with such overwhelming power that the enemy has no hope of recovery—so there's no need to maintain the momentum.

- *Preparation Fires*. Just as the fundamentals will require fire supporters to reexamine some long-standing principles, they will also compel us to rethink some of the traditional approaches to the decisive application of fires. Take, for example, preparatory fires.

The fundamental of complementary effects leads fire supporters to view with suspicion any application of indirect fires not complemented by ground or aerial maneuver—including the prep. Traditionally, we regard a prep as an exclusively fire support event. Indeed, we believe the effectiveness of preparation fires "depends on such factors as surprise, deployment, ammunition supply and type of weapons available."³⁵ Note the absence of any mention of complementary actions.

The fundamental of complementary effects asserts that to be truly effective,

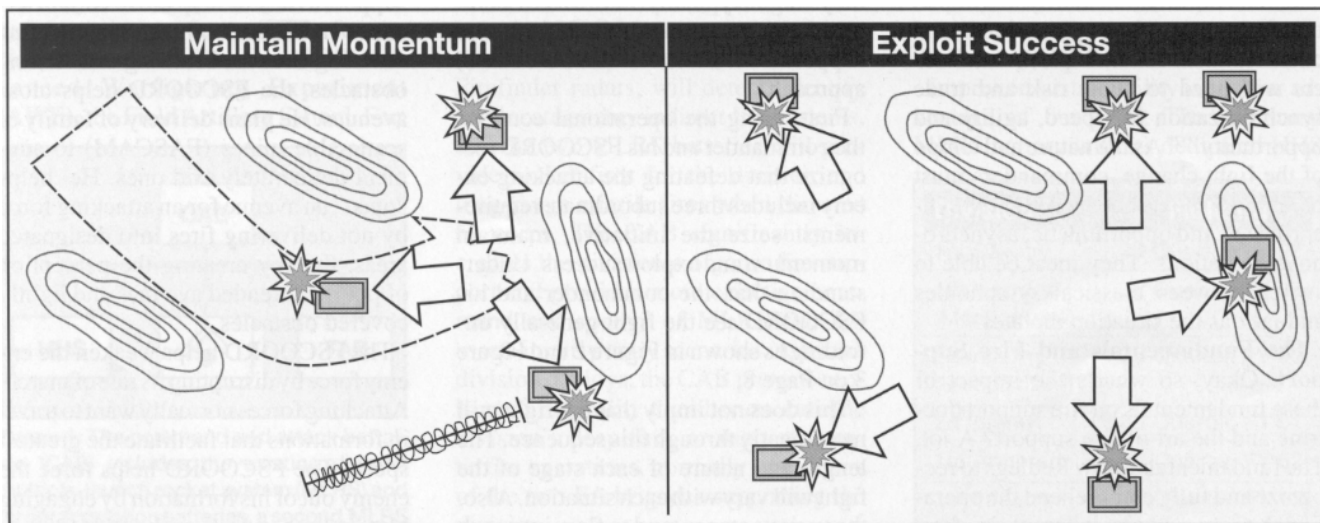


Figure 3: Maintain the Momentum and Exploit Success. To maintain the momentum, the force reacts to the enemy's attempts to recover, moving to more decentralized operations. Finally, the force exploits success by conducting decentralized operations to finish off the enemy.

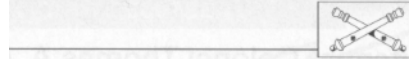
preparation fires should be combined with other actions or effects that force the enemy into a lose-lose situation. If we only apply fire support assets to preparation fires, the enemy is offered the option of simply weathering the storm, moving out from under the fires or concentrating all his efforts on counterfire, etc.

Preparation fires normally should include some type of ground or aerial maneuver; the aim is to not only punish the enemy, but also to dislocate him and force him into a no-win proposition. To be effective, preparation fires must be part of a whole array of complementary actions and effects—in fact, the term "preparatory fires" should only be used in the context of fires and maneuver for combined arms synergy.

Conclusion

Obviously, a complete assessment of the relationship between the new FM 100-5 and FM 6-20 requires much more analysis than can be covered in one article. Indeed, I've only scratched the surface.

Until we've had FM 100-5 in the hands of doctrine writers, trainers and users, we won't fully comprehend the nature or degree of its impact on fire support. But even a brief examination of some of the fundamentals in the manual shows that significant change is promised.



Colonel Michael L. Combest, until recently, was the Chief of the FM 100-5 Operations

Writing Team at the Combined Arms Center, Fort Leavenworth, Kansas. He commands the 75th Field Artillery Brigade, III Armored Corps Artillery at Fort Sill, Oklahoma. He commanded the 6th Battalion, 8th Field Artillery, 7th Infantry Division (Light) at Fort Ord, California; and C Battery, 1st Battalion, 3d Field Artillery, 2d Armored Division at Fort Hood, Texas. In other assignments, he was the G3 Plans and Deputy G3 of the 6th Infantry Division (Light) at Fort Richardson, Alaska; S3 and Fire Support Officer of the Egyptian/Saudi Liaison Team in Operations Desert Shield and Storm; and FA Branch Chief at the Total Army Personnel Command in Alexandria, Virginia. He is a graduate of the School of Advanced Military Studies and was a War College Fellow in Advanced Operational Art Studies, both at the Command and General Staff College, Fort Leavenworth.

Notes:

1. *FM 6-20 Doctrine for Fire Support*, (Final Draft, June 1996). V.
2. *FM 100-5 Operations* (Initial Draft, 4 April 1997), II-1-1.
3. *Ibid.*
4. *Ibid.*, II-1-2.
5. *Ibid.*
6. *Ibid.*
7. *Ibid.*
8. *Ibid.*
9. *Ibid.*
10. *FM 100-5 Operations*, (Washington, DC: Headquarters, Department of the Army, 1982), 2-4.
11. *FM 100-5* (Initial Draft, 4 April 1997), II-1-3.
12. *Ibid.*
13. *Ibid.*
14. *Ibid.*, II-1-4.
15. *Ibid.*
16. *Ibid.*
17. *Ibid.*, II-1-5.
18. *FM 100-5* (Initial Draft, 4 April 1997), II-3-1.
19. *Ibid.*

20. Major J.F.C. Fuller, "Tactics and Mechanization" (*Infantry Journal*, No. 5, 1927), 457-465.
21. E.S. Johnston, "A Science of War," *Review of Military Literature XIV*, No. 53 (June 1934), 115.
22. *FM 100-5* (Initial Draft, 4 April 1997), II-3-1.
23. *Ibid.*
24. *Ibid.*, II-3-2.
25. *FM 100-5 Operations* (Washington, DC: Department of the Army, 1993), 2-7.
26. *Ibid.*
27. *FM 100-5* (Initial Draft, 4 April 1997), II-5-4.
28. *Ibid.*, II-5-5.
29. *Ibid.*
30. *Ibid.*, IV-2-5.
31. *FM 6-20*, (Final Draft, June 1996), 4-10 and 3-4.
32. *Ibid.*, 2-10.
33. *Ibid.*, 3-5.
34. *Ibid.*, 2-10.
35. *FM 6-20-30 Tactics, Techniques and Procedures for Fire Support for Corps and Division Operations* (Washington, DC: Headquarters, Department of the Army, 1989), b-10.

Field Artillery accepts articles on subjects related to Field Artillery or fire support leadership; doctrine; tactics, techniques and procedures; training; personnel;

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For publication consideration, authors should submit the following:

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- Comprehensive biography with current job, address and Fax and telephone numbers.
- Photographs, crests, etc., for article illustration.

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Field Artillery Themes for 1998

Edition	Theme	Copy Deadline
Jan-Feb	Fire and Counterfire	15 Sep 97
Mar-Apr	Joint and Combined Operations	17 Nov
May-Jun	21st Century Fire Support	19 Jan 98
Jul-Aug	History	2 Feb (Contest*) 16 Mar (Other)
Sep-Oct	TTP for the Close Fight	18 May
Nov-Dec	Red Book	13 Jul

*Deadline for the US Field Artillery Association 1998 History Writing Contest. (The 1998 contest rules appear on Page 33.)

Inside the Professional Development System: The New



by Lieutenant Colonel Thomas A. Kolditz

In an ideal world, an organization would recruit members who share common values, reinforce those values, use them as a basis for gauging job performance and then tie that performance to a personnel management and development system. Using values as a base, performance as a standard and personnel management as a means, this ideal organization could map its destiny and maintain excellence.

The Army aspires to this ideal, and the method to achieve it has taken the form of three related actions: the revised *FM 22-100 Army Leadership*, a redesigned Officer Professional Management System (OPMS XXI); and the next evolution in the Officer Evaluation and Reporting System. The new OER system, the subject of this article, matches the doctrine, values and leader development tactics, techniques and procedures (TTPs) in the other two actions.

The new OER system will begin with the adoption of the upgraded DA Form 67-9 OER, DA Form 67-9-1 OER Support Form and the new DA Form 67-9-1a Junior Officer Development Support Form on 1 October 1997. Also in October, OPMS XXI will go into effect (see the article "OPMS XXI: What Does It Mean for Your Future?" by Lieutenant Colonel Rhett A. Hernandez and Major Terry M. Lee in this edition) followed by the final version of FM 22-100 hitting the streets in 1998. The concepts, contents and implementation time lines of these three actions, which could otherwise be construed as independent, were synchronized by the Army Staff.

As this article is published, Total Army Personnel Command traveling teams will have provided FA commands their initial

training on the new OER. The purpose of this article is to add to your frame of reference to this revised "support and report card."

Mandatory Counseling. Under the new system, quarterly counseling is mandatory using both the OER Support Form and Junior Officer Development Support Form. The new system ensures more consistent counseling across a broader range of assignments, benefiting the rater and rated alike.

Masking Second Lieutenant OERs. A second feature of the new system is the requirement for the Department of the Army to move second lieutenant OERs to the restricted portion of the microfiche after an officer is promoted to captain.

Field Artillery lieutenants are given enormous responsibility and opportunity early in their careers. Masking second lieutenant OERs will help ensure early minor mistakes don't inadvertently become "career busters" down the road. Junior Redlegs who come from diverse backgrounds across the spectrum of commissioning sources will benefit from this powerful medicine for the "zero defects" mentality.

Revised Senior Rater Technique. During the initial development of the new OER, the Management Systems Division of the Total Army Personnel Command (PERSCOM) in Alexandria, Virginia, surveyed junior officers who were nearly unanimous in their demand that senior raters be held accountable for their profiles. That meant the practice of giving the vast majority of officers top-block ratings had to be eliminated and senior raters had to be required to manage their profiles in detail.

The revised senior rater portion of the new OER (Part VII) shown in Figure 1

allows a maximum of 49 percent of the rated officers to receive an "Above Center of Mass" rating. As noted on the form in "b. Potential compared with officers senior rated in the same grade," if the senior rater puts 50 percent or more of his ratees in the top block ("Above Center of Mass"), the box then automatically becomes a "Center of Mass" rating.

When an OER arrives at PERSCOM, the OER Branch will cover the boxes in Part VII b. with a label listing the actual rating, based on the senior rater's profile at the time the OER was processed at PERSCOM. For example, if the officer received an "Above Center of Mass" block-check and the senior rater has rated less than 50 percent of his officers of the same grade in that block, then the label will remain "Above Center of Mass." If the senior rater has top-blocked 50 percent or more his officers in the same grade, then the label will read "Center of Mass."

Senior raters are not, however, completely constrained by the required percentages. OER processing windows have been lengthened to 90 days to ensure a proper sequencing of reports, and the senior rater still controls his or her rating scheme, which determines the total number of officers by grade in the profile. This permits maximum flexibility in getting the right officer the right rating, especially in large, hierarchical organizations such as our traditional combat arms units. Thus senior raters can (and indeed must) manage their profiles to "zero mils."

Potential for Future Assignments. The requirement for senior raters to recommend three assignments ("d." in Figure 1) is another improvement, one

PART VII - SENIOR RATER	
a. EVALUATE THE RATED OFFICER'S PROMOTION POTENTIAL TO THE NEXT HIGHER GRADE <input type="checkbox"/> BEST QUALIFIED <input type="checkbox"/> FULLY QUALIFIED <input type="checkbox"/> DO NOT PROMOTE <input type="checkbox"/> OTHER (Explain below)	
I currently senior rate _____ officer(s) in this grade <small>A completed DA Form 67-9-1 was received with this report and considered in my evaluation and review</small> <input type="checkbox"/> YES <input type="checkbox"/> NO (Explain in c)	
b. POTENTIAL COMPARED WITH OFFICERS SENIOR RATED IN SAME GRADE (OVERPRINTED BY DA)	c. COMMENT ON PERFORMANCE/POTENTIAL
<input type="checkbox"/> ABOVE CENTER OF MASS <small>(Less than 50% in top box; Center of Mass if 50% or more in top box)</small>	<div style="border: 1px solid black; height: 150px; margin-bottom: 5px;"></div>
<input type="checkbox"/> CENTER OF MASS	
<input type="checkbox"/> BELOW CENTER OF MASS RETAIN	
<input type="checkbox"/> BELOW CENTER OF MASS DO NOT RETAIN	
d. LIST 3 FUTURE ASSIGNMENTS FOR WHICH THIS OFFICER IS BEST SUITED FOR ARMY COMPETITIVE CATEGORY CPT THROUGH LTC. ALSO INDICATE A POTENTIAL CAREER FIELD FOR FUTURE SERVICE.	

Figure 1: Revised Senior Rater's Portion of the New OER

New OER – Redleg Thoughts

The new OER is prompting many questions in both formal and casual settings. Anxiety levels are high as we transition to the DA Form 67-9 OER, but remember, this is the norm when any organization makes this type of change. As the Army transitioned to our current DA Form 67-8 OER, the same anxiety was felt throughout the force. The 67-8 has proven to be the best our Army has ever used, and we expect nothing less from the new DA Form 67-9.

Complete-the-Record (CTR) OER. On 1 October 1997, the new OER takes effect and, simultaneously, a positive change takes place in AR 623-105 Officer Evaluation Report System. The CTR OER rules in AR 623-105 currently state that an officer is eligible for a CTR OER if he has 180 days in the current position (excluding non-rated days) and has not received an OER. The regulation has changed to read 90 vice 180 days in the position. Also, the current regulation limits an officer to one CTR OER in any position where as the new regulation removes that restriction and allows the officer to receive a CTR OER, even if he already has one in that position.

The Labels. When an OER is processed by the OER Branch at PERSCOM, a label ("Above Center of Mass," "Center of Mass," "Below Center of Mass-Retain" or "Below Center of Mass-Do Not Retain") will cover the senior rater's "box check" in Part VII b (see Figure 1). The

label will reflect the actual rating, based on the senior rater's rating profile. Many officers are concerned that this will hurt them because they have so many top-block OERs.

The truth is, since 12 July 1997, 84 percent of the Field Artillery lieutenant OERs have been top-block reports while more than 90 percent of the captain, major and lieutenant colonel OERs have been top-block reports. With such inflated ratings, the impact of the top-block for selections and promotions is reduced.

To help ease the concern of "not being in the top block," officers should look at their OERs for the past two years and apply the new OER senior rater rules. Probably, many officers with top-block OERs under our current inflated system would find some OERs to be "Center of Mass" under the new OER rules.

Senior raters currently are using their narratives to help board members make tough decisions on selections for promotions, schools and command; this is expected to continue in the future, particularly for the "Center of Mass" ratings.

Special Assignments. Many officers are concerned about being selected for a special assignment and rated as part of a small group of officers—not your "average" population. But they must remember, an officer's entire file is reviewed by each board. Officers selected

for "key" positions are chosen based on their overall outstanding record. While some of these superb officers will receive "Center of Mass" OERs due to the new OER rules, boards certainly will recognize their positions are key and understand the new rules.

Further, officers in assignments with small populations will have to be differentiated by the senior rater in the narrative. Remember, boards consist of officers who serve as we do; we must continue to trust in their experience and understanding of our system as we transition to this new OER.

Leader "Word Picture." PERSCOM is receiving questions about the new leader word picture completed by the rater (Figure 2 on Page 12). Many officers and potential raters are asking which words are the right ones for each type of job.

Eventually, PERSCOM will be able to provide trends and board feedback to ensure we remain on the correct azimuth; however, PERSCOM won't try to guess what field commanders will determine those trends to be.

As we go through this very important transition, I encourage you to remain connected to PERSCOM On Line via the FA Branch Situation Report: <http://perscom.army.mil/opmd/fasitrep.htm> and your assignments officer at DSN 221-0116 or (703) 325-0116 if you have additional questions or concerns.

LTC Mark A. Graham, FA
Former Chief, FA Branch
PERSCOM, Alexandria, VA

PART IV - PERFORMANCE EVALUATION - PROFESSIONALISM (Rater)															
CHARACTER Disposition of the leader: combination of values, attributes, and skills affecting leader actions															
a. ARMY VALUES (Comments mandatory for all "NO" entries. Use PART Vb.)															
1. HONOR: Adherence to the Army's publicly declared code of values					5. RESPECT: Promotes dignity, consideration, fairness, & EO										
2. INTEGRITY: Possesses high personal moral standards; honest in word and deed					6. SELFLESS-SERVICE: Places Army priorities before self										
3. COURAGE: Manifests physical and moral bravery					7. DUTY: Fulfills professional, legal, and moral obligations										
4. LOYALTY: Bears true faith and allegiance to the U.S. Constitution, the Army, the unit, and the soldier															
b. LEADER ATTRIBUTES/SKILLS/ACTIONS: First, mark "YES" or "NO" for each block. Second, choose a total of six that best describe the rated officer. Select one from ATTRIBUTES, two from SKILLS (COMPETENCE), and three from ACTIONS (LEADERSHIP). Place an "X" in the appropriate numbered box with optional comments in PART Vb. Comments are mandatory for all "NO" entries in PART Vb.															
b.1. ATTRIBUTES (Select 1) Fundamental qualities and characteristics	1.	MENTAL	YES	NO	2.	PHYSICAL	YES	NO	3.	EMOTIONAL	YES	NO			
	Possesses desire, will, initiative, and discipline				Maintains appropriate level of physical fitness and military bearing				Displays self-control; calm under pressure						
b.2. SKILLS (COMPETENCE) (Select 2) Skill development is part of self-development; prerequisite to action	1.	CONCEPTUAL	YES	NO	2.	INTERPERSONAL	YES	NO	3.	TECHNICAL	YES	NO			
	Demonstrates sound judgment, critical/creative thinking, moral reasoning				Shows skill with people: coaching, teaching, counseling, motivating and empowering				Possesses the necessary expertise to accomplish all tasks and functions						
b.3. ACTIONS (LEADERSHIP) (Select 3) Major activities leaders perform: influencing, operating, and improving															
INFLUENCING Method of reaching goals while operating/improving	1.	COMMUNICATING	YES	NO	2.	DECISION-MAKING	YES	NO	3.	MOTIVATING	YES	NO			
	Displays good oral, written, and listening skills for individuals/groups				Employs sound judgment, logical reasoning and uses resources wisely				Inspires, motivates, and guides others toward mission accomplishment						
OPERATING Short-term mission accomplishment	4.	PLANNING	YES	NO	5.	EXECUTING	YES	NO	6.	ASSESSING	YES	NO			
	Develops detailed, executable plans that are feasible, acceptable, and suitable				Shows tactical proficiency, meets mission standards, and takes care of people/resources				Uses after-action and evaluation tools to facilitate consistent improvement						
IMPROVING Long-term improvement in the Army, its people and organizations	7.	DEVELOPING	YES	NO	8.	BUILDING	YES	NO	9.	LEARNING	YES	NO			
	Invests adequate time and effort to develop individual subordinates as leaders				Spends time and resources improving teams, groups, and units; fosters ethical climate				Seeks self-improvement and organizational growth; envisioning, adapting and leading change						
c. APFT: DATE: HEIGHT: WEIGHT:															
d. JUNIOR OFFICER DEVELOPMENT: - MANDATORY YES OR NO ENTRY FOR RATERS OF LTs AND WO1s.										YES		NO		NA	
WERE DEVELOPMENTAL TASKS RECORDED ON DA FORM 67-9-1a AND QUARTERLY FOLLOW-UP COUNSELINGS CONDUCTED?										YES		NO		NA	

Figure 2: Rater's "Word Picture" of the Officer's Professionalism in Part IV, DA Form 67-9 OERP

familiar to officers who have used the NCO Evaluation Report (NCO-ER). This feature communicates two things to assignment officers and promotion boards. First, it proposes a realistic development path for the officer so the FA Branch can more appropriately match officers with requirements. This process will be important as OPMS XXI requires changes in career fields. Second, the recommendations may reflect an additional assessment of potential because, at any given grade, some assignments present greater challenges than others.

Officer "Word Picture." In the new OER, the rater selects value and leadership terms from "Part IV - Professionalism" to form a word picture of the officer (Figure 2). For example, the rater marks "Yes" or "No" for each of the three adjectives used to describe the officer's "Attributes" in Part IV b.1.: "Mental," "Physical" and "Emotional." If the rater marks a "No" on any of the choices, he must comment in "Part V - Performance and Potential Evaluation." The rater then selects one of the three words in b.1. as *best* describing the officer's attributes. The same basic process is true for Part IV b.2. "Skills (Competence)" and b.3. "Actions

(Leadership)" in Figure 2. The FA Branch will use the information to match the right Redleg with the right job.

OER System Design Process. To revise the OER system, the Management Systems Division at PERSCOM conducted extensive research and analysis, reviewing the civilian and sister service performance appraisal systems and the theories behind them. The new OER was carefully vetted among the Army senior leadership—first among the senior general officers and selected retired generals and then among the major command (MACOM) and division commanders, often down to the battalion level.

This process served two functions. First, it guaranteed a warfighting focus, tightening the link with our fundamental purpose of growing leaders to fight and win wars. Second, it ensured that every alternative would be considered and analyzed before the system took its final form.

Whether the initial training you received on the new OER has made you a true skeptic or an ardent supporter, one thing is certain. The OER, itself, has *no meaning*. It only has meaning when used as a tool in a decision process, such as a centralized selection board or an assignment

determination. And these decisions still are controlled by officers with perspectives, backgrounds and concerns similar to yours. It's a system designed to work for the officer and the Army—the Army is staking its future officer corps on it.



Lieutenant Colonel Thomas A. Kolditz, until recently, was the Special Assistant to the Deputy Chief of Staff for Personnel on the Army Staff at the Pentagon and helped develop the new Officer Evaluation and Reporting System being implemented in October. Currently, he commands the 2d Battalion, 17th Field Artillery, part of the 2d Infantry Division in Korea. Among other assignments, he served as the Executive Officer of the 3d Battalion, 320th Field Artillery and Deputy Fire Support Coordinator, both in the 101st Airborne Division (Air Assault), Fort Campbell, Kentucky. Lieutenant Colonel Kolditz was the Fire Support Officer for Task Force 3-12 Infantry and Commander of A Battery, 4th Battalion, 29th Field Artillery in the 8th Infantry Division (Mechanized) in Germany. He holds a Master of Arts in Social Psychology and a Doctorate of Philosophy in Psychology, both from the University of Missouri in Columbia.

FA NCO

Restructuring—FY 2000

by Sergeant Major Wayne S. Hashimoto and
Command Sergeant Major William J. Perry III

In April 1996, The Vice Chief of Staff of the Army (VCSA) initiated a program to reduce the current Army NCO content of 50 percent to 47 percent, beginning in FY 2000. The FA's lead agency for this program—originally called "NCO Reduction" but later known as "Change In NCO Structure" or CINCOS—is the Field Artillery Proponency Office (FAPO) of the Field Artillery School, Fort Sill, Oklahoma.

When the program began, the Field Artillery's NCO content stood at 46.2 percent and was targeted to go down to 44.9 percent. We recommended reducing the FA NCO content to 46.1 percent and increasing our skill level one content proportionally by implementing a series of proposals. The recommendations were approved by the Chief of Staff of the Army (CSA) in July 1997.

Restructuring Criteria. The guidelines stated that we were to review every table of organization and equipment (TO&E) and table of distribution and allowances (TDA) for any grade reductions

without hurting our warfighting capabilities. We were to use the US Army Total Personnel Command (PERSCOM) average grade distribution matrix (AGDM) to bring our promotion pyramid closer to the Army model for good career progression.

Figure 1 shows the NCO grade distribution "pyramid" for the FA currently, the Army model and the FA approved NCO structure that goes into effect in FY 2000. We were able to bring the FA closer to the AGDM in nine out of 10 of our MOS. The approved FA NCO grade structure takes into account guidance from the Training and Doctrine Command's (TRADOC's) guidance that no drill sergeant, recruiter, instructor-doctrine writer or observer/controller position would be downgraded.

Additionally, guidance targeted a savings of 3.5 million dollars in restructuring the FA NCO grades. We were able to save an estimated 1.7 million dollars.

FA NCO Restructuring Process. The branch guidance from the Assistant Commandant of the FA School for FA

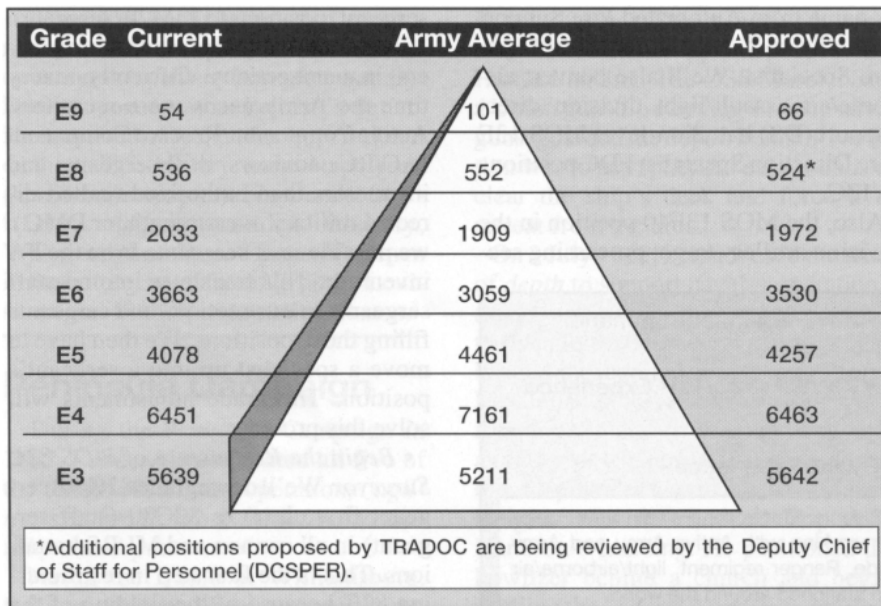
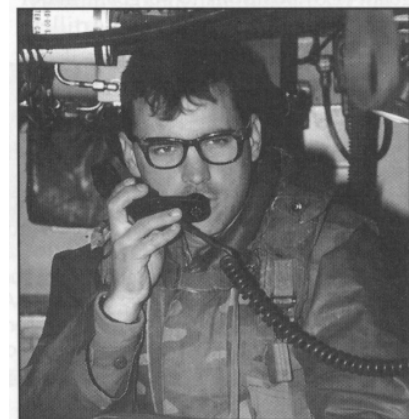
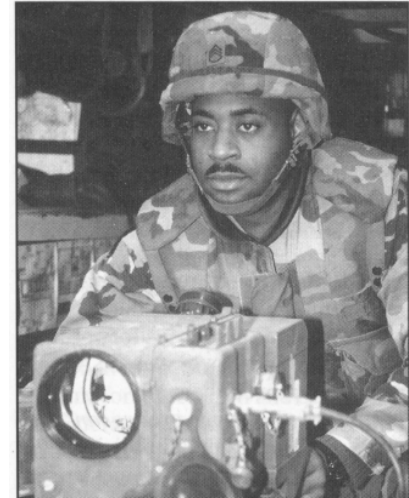
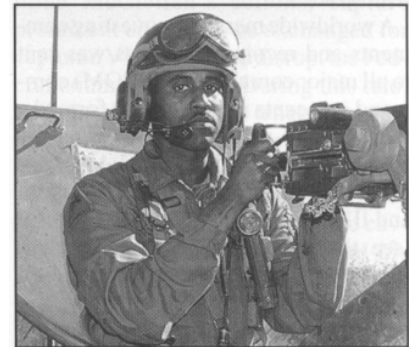
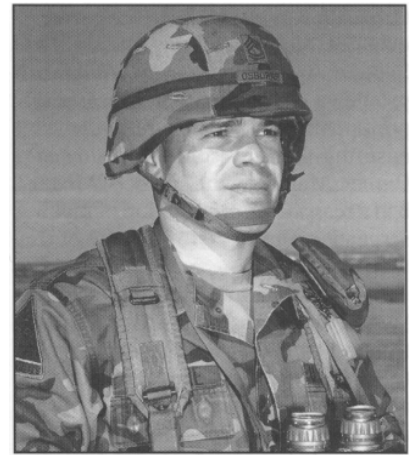


Figure 1: NCO Grade Distribution for Career Management Field (CMF) 13: Current, Army Average and Approved (Effective FY 2000)



CINCOS was twofold: first, we were to enhance our warfighting capabilities. Second, we were to use the AGDM to provide a viable career progression opportunity for all FA soldiers. That meant ensuring that any soldier coming into Career Management Field (CMF) 13 had a reasonable expectation of making sergeant major in 20 to 24 years of service.

Based on that criteria, if we needed to "grow" or upgrade a position for warfighting or AGDM purposes, we were to send that recommendation forward along with any recommendation to downgrade positions that were clearly over-graded.

A worldwide message requesting comments and recommendations was sent to all major command (MACOM) command sergeants major. FAPO formed a task force to analyze restructuring the FA NCO corps with additional personnel from other parts of the FA School and III Corps Artillery, also at Fort Sill (see the membership composition in Figure 2). The task force reviewed all the FA TOEs/TDAs and comments and recommendations coming in from the field for inclusion into the FA proposals.

Midway through the process, an integrated concept team (ICT) was formed, consisting of the membership shown in Figure 3. The purpose of the ICT was to review the proposals and recommendations/comments from the field before we sent the proposals forward to the CSA.

FA CINCOS Recommendations. To implement the grade distribution pyramid shown in Figure 1, we forwarded a series of proposals to the CSA who recently approved them all.

- *Upgrade Positions to Sergeant Major.* We will upgrade all division-type fire support element (FSE) master sergeant (E8) positions to sergeant major (E9). This will bring the Field Artillery

NCO grade structure on line with the other elements in the division headquarters.

We also added a sergeant major to the Directorate of Combat Developments at the Field Artillery School and the Depth and Simultaneous Attack Battle Lab, both at Fort Sill. These actions resulted in a net gain of 12 sergeant major authorizations to provide the FA NCO a better career progression structure.

- *Create Master Gunner/Assistant Operations Sergeant Positions.* We created MOS 13B402S Cannon Crewmember and 13M402S Multiple-Launch Rocket System (MLRS) Crewmember Master Gunners who will serve in assistant operations sergeant positions. They will carry the Battle Staff Additional Skill Identifier (ASI) of 2S and provide the unit training expertise and a new opportunity for 13B40s and 13M40s to work in operations positions. The 13B40 Master Gunner positions will be in all cannon battalions, and 13BM40 Master Gunner positions will be at the FA brigade level for those brigades that have MLRS.

- *Convert Positions in FDCs and FA TOCs for AFATDS.* We'll restructure the corps through division artilleries and FA brigade down to the FA battalion tactical operations centers (TOCs) and fire direction centers (FDCs) to accommodate the fielding of the advanced FA tactical data system (AFATDS). Some MOS 13F Fire Support Specialist positions will be converted to MOS 13C, which will change its name from Automated Fire Support Specialist to Tactical Fire Control System Specialist. We'll also convert airborne/air assault/light division direct support (DS) battalion-level MOS 13E Fire Direction Specialist FDC positions to 13C.

Also, the MOS 13F40 position in the division artillery target processing section

will change to MOS 13R40 FA Firefinder Radar Operator to help provide 24-hour radar expertise in the division artillery TOC. To provide MLRS expertise in the division artillery and corps artillery TOCs, some of the 13F40 positions will be converted to MOS 13P40 MLRS Fire Direction Specialist positions.

- *Convert Selected Driver Positions to Enhance Unit Operational Readiness.* We will convert the cannon firing battery commander's driver MOS 13B10 position to MOS 13E10. We'll also change the MOS 13B10 drivers for the headquarters and headquarters battery (HHB) commander, the cannon battalion commander and S3 to MOS 13C10. The MLRS firing battery commander's driver will be converted from MOS 13M10 to MOS 13P10.

Qualified operators were needed to operate the forward entry device (FED) in the cannon units and AFATDS equipment mounted in the unit commander's vehicle for cannon and MLRS units. This also provides a qualified AFATDS operator to use in the FDC or TOC when the soldier isn't driving the commander's vehicle.

- *Adjust Grades to Provide More NCO Leaders in FA Ammunition Sections.* We'll downgrade one of two 13B30 (staff sergeant) positions to 13B20 (sergeant) and upgrade one 13B10 (specialist) position to 13B20 (sergeant) in each heavy cannon firing battery ammunition section. In every MLRS firing battery ammunition platoon, we'll downgrade two of the three 13M30 (staff sergeant) positions to 13M20 (sergeant).

These actions will provide more leaders in our sections. Currently, every time the Army needs more recruiters, Active Component/Reserve Component (AC/RC) advisors, drill sergeants and instructors than authorized (called directed military overstrength, or DMO), we provide staff sergeants from the FA inventory. This translates into no staff sergeants in our sections and sergeants filling those positions. We then have to move a specialist up into a sergeant's position. The grade adjustments will solve this problem.

- *Begin the Restructure of MOS 82C Surveyor.* We'll downgrade 82C40 (sergeant first class) to 82C30 (staff sergeant) in all cannon and MLRS battalions. This is the first step in restructuring 82C because of the fielding of the gun laying and positioning system (GLPS) and the position and azimuth

<p>1 MOS 13Z50, Sergeant Major with Total Army Personnel Command (PERSCOM) FA Branch/13M Experience</p> <p>3 MOS 13Z50, Master Sergeants with 13F/13P/93F/82C/13R Experience</p> <p>1 MOS 13C40 with 13C/13E Experience</p> <p>1 MOS 13B40 with Active/Army National Guard Experience</p>
<p>Range of Assignments: Recruiter, Instructor, Observer/Controller, Paladin New Equipment Training Team and Branch Career Advisor working with Active Army and Army National Guard units from the FA battalion/brigade, Ranger regiment, light/airborne/air assault/heavy division to corps-level positions and stationed around the world.</p>

Figure 2: Members of FAPO CINCOS Task Force

Membership* included Personnel from –

- Office of the Deputy Chief of Staff for Personnel (ODCSPER)
- Office of the Deputy Chief of Staff for Operations (ODCSOPS)
- Total Army Personnel Command (PERSCOM) Deputy Chief of Staff for Plans (DCSPLANS)
- PERSCOM Enlisted Personnel Management Directorate
- Army National Guard
- Field Artillery School Directorates
- III Corps Artillery
- XVIII Airborne Corps Artillery
- 82d Airborne Division Artillery
- 10th Mountain Division (Light Infantry) Artillery
- 4th Infantry Division (Mechanized) Artillery
- 1st Cavalry Division Artillery

*Although the following units did not have members on the ICT, they provided comments and recommendations in the FA CINCOS process: 101st Airborne Division (Air Assault) Artillery, 1st Armored Division Artillery, 1st Infantry Division (Mechanized) Artillery, 2d Infantry Division Artillery, V Corps Artillery, I Corps Artillery and several other Army National Guard Field Artillery units.

Figure 3: The FA CINCOS Integrated Concept Team (ICT).

determining system (PADS) retrograde. In addition, the promotion matrix, or pyramid, for this MOS was too heavy at the top.

•*Change TDA Positions at Some Installations.* Many range control positions will be converted into other MOS strictly for AGDM reasons. We also will downgrade some training NCO positions from staff sergeant to sergeant.

In a related matter, Cadet Command recommended to TRADOC that six sergeant major and 39 master sergeant ROTC positions be converted to MOS 13Z50 (sergeant major/master sergeant) positions. The changes currently are being reviewed by the Deputy Chief of Staff for Personnel at the Pentagon.

•*Create MOS 13D Tactical Data Systems Specialist.* We'll create the new MOS by merging MOS 13C and 13P. We're also studying the possibility of including MOS 13E in MOS 13D, if the software version the 13Es need is available in AFATDS by FY 2000.

As we field AFATDS to units in FY 2000, we'll convert those positions affected into MOS 13D. We won't convert any soldier to 13D until that soldier receives either institutional or new equipment training (NET) on that version of AFATDS.

In those units fielded before FY 2000 with an earlier version of AFATDS, we'll review each soldier's records to see if he received training on the correct version of AFATDS before he'll be allowed to

convert to 13D. After AFATDS is fielded, we'll eliminate MOS 13C and 13P that merged into 13D.

Conclusion. In CMF 13, CINCOS will improve the career progression in nine of our MOS. Our tenth MOS, 93F FA Meteorological Crewmember, will be unaffected. We were unable to find ways to restructure 93F positions because of the manning and grading levels needed for equipment configurations.

The real challenge is now at hand; once these changes take effect, we must have the training and force structure documentation to support them. For example, in addition to documenting the positions in our TOEs, the new Master Gunners will need ASI 2S training.

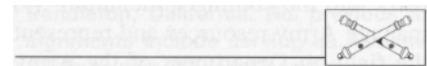
We'll have to program recruiting and retention incentives because of the increases/decreases in our MOS. This will translate into a surge in training seats for some MOS and a decrease for others. For all the changes in our MOS, we'll have to review the course programs of instruction (POIs) and course administrative data to ensure we'll train the right soldier in the right skills. After the approved changes are implemented, we'll review recruiter, drill sergeant and AC/RC advisor positions to determine if CMF 13 has its fair share of those positions.

The many concepts being tested in Army warfighting experiments (AWEs) may require us to revise some of our proposals. This could be due to advances

in technology and changes in the political climate that dictate the type of threat we'll face. Those changes could cause us to increase or decrease our current structure.

The goal is for the 21st century Field Artillery soldier to be highly qualified and have a reasonable expectation to progress through the ranks to sergeant major. The soldier will have time at each level to gain the maturity and experience necessary to provide the unit a seasoned soldier without suffering too much stagnation.

By no means will the changes create the perfect promotion pyramid for CMF 13, but they will improve the pyramid a great deal. Although we'll experience some growing pains as we change the CMF 13 NCO grade distribution, when all is said and done, the FA and Army will have benefitted.



Sergeant Major Wayne S. Hashimoto is the Sergeant Major of the Field Artillery Proponency Office in the Office of the Chief of Field Artillery at the Field Artillery School, Fort Sill, Oklahoma. In his previous assignment, he was the Division Artillery Operations Sergeant Major for the 2d Infantry Division in Korea. He served as First Sergeant for two batteries in the 6th Battalion, 27th Field Artillery (Multiple-Launch Rocket System), 75th Field Artillery Brigade, III Corps Artillery, Fort Sill. He also served as First Sergeant for D Battery, 2d Battalion, 9th Field Artillery (Pershing) in the 56th Field Artillery Command, Germany. He was Senior Career Advisor in the Field Artillery Enlisted Branch at the Total Army Personnel Command, Alexandria, Virginia. He has completed three years at the University of Maryland.

Sergeant Major William J. Perry III is the Command Sergeant Major (CSM) of the Field Artillery and Fort Sill, Oklahoma. He also has served as CSM of the 25th Infantry Division (Light) Artillery, Schofield Barracks, Hawaii; and CSM of the 7th Infantry Division (Light) Artillery, Fort Ord, California, and its 6th Battalion, 8th Field Artillery, with which he deployed to Panama in Operation Just Cause. He was the Operations Sergeant for the 8th Battalion, 8th Field Artillery, 2d Infantry Division in Korea and First Sergeant of Headquarters Battery, 1st Battalion, 77th Field Artillery, Fort Knox, Kentucky. CSM Perry holds a Master of Science in Human Resource Management and Development from Chapman University in California.

OPMS XXI: What Does It Mean for Your Future?

By Lieutenant Colonel Rhett A. Hernandez and
Major Terry M. Lee

Twenty-first century technology will bring changes in high-end equipment to allow the Army to deploy faster; detect the movement, size and capabilities of enemy forces better; and outmaneuver and overpower any adversary. But what type of officer corps do we need to lead these high-tech soldiers into the coming millennium—to manage Army resources and represent the field on Department of the Army and Joint staffs? What type of officers do we need for a Total Quality Force? The Chief of Staff of the Army (CSA), chartered the Officer Personnel Management System (OPMS) XXI Task Force to answer these questions in a year-long effort.

This article outlines the basic recommendations of the task force and how OPMS XXI will affect Field Artillery officers. The CSA has approved OPMS XXI in concept, and the task force has developed an implementation plan. The revised OPMS is scheduled to begin taking effect 1 October but could be implemented gradually during the next five years.

Historical Look. OPMS XXI is the third major officer personnel management study since the Army War College's 1970 study on professionalism. The follow-on studies, OPMS I and OPMS II, were conducted in 1971 and 1983, respectively.

OPMS I recommended the centralized command selection process, designated command tours, created primary and secondary specialties for officers and abolished the Chemical Corps. The changes were implemented by July 1974.

OPMS II established single branch development, functional areas not related to any branch, multiple career tracks and a revised officer classification system. The results of this study were approved in 1984; OPMS II was implemented by 1985.

The OPMS XXI Task Force began by

looking at the current system and the changes that have occurred since its implementation. These changes were generated by force reductions, declining resources, increased statutory requirements, unit operations tempo (OPTEMPO) and the explosion of information age technology, just to name a few, and have placed demands on the Officer Personnel Management System that it was never designed to handle. The question followed: Can the current system meet the needs of the environment today and into the future? The task force concluded...it cannot.

To help shape the officer corps for Army XXI and the Army After Next, the task force developed the three-part design criteria as listed in Figure 1. After an October 1996 briefing for the CSA, the task force began developing the characteristics of the next OPMS, defining the problems and designing options for a new officer development system. In January, the CSA and the Board of Directors—Title X four-star

1. Enhance the warfighting capabilities of the Army.
 - Increase branch qualification time for majors.
 - Reduce turbulence for all branches.
2. Provide all officers a reasonable opportunity for success.
 - Increase promotion opportunities.
 - Increase command opportunities.
3. Balance grades and skills at the field-grade level.
 - Reduce upward grade substitution.
 - Increase the level of fill.
 - Improve colonel-level experience.

Figure 1: Task Force's Criteria for Designing OPMS XXI

generals—were briefed on four options. They ranged from simply tweaking the current system to reorganizing the Army competitive category into four distinct career fields aligned with the officer requirements for the battlefield outlined in Army Vision 2010.

During April's in-progress review, the CSA asked the task force to further develop the four career field option. Under this option, today's company grade officer development and personnel management remain generally unchanged and career fields commence for officers selected for major.

Four Career Fields. The four career fields are Operations, Information Operations, Institutional Support and Operational Support. The task force developed these career fields within the Army competitive category by grouping interrelated branches and functional areas into occupational categories. Each career field will have its own development track. This will provide the opportunity to develop officers with warfighting skills and officers with specialty skills.

Additionally, officers will compete for promotion within their career fields. This will end the current "dual tracking" promotion system in which an officer counts both within his branch and functional area for promotion.

1. Operations Career Field supports organizational units with officers qualified by training, education and experience in Army operations. It will draw from officers in the Army's 16 branches and the two functional areas of 39 Psychological Operations and Civil Affairs and 90 Multifunctional Logisticians.

The current system of assigning officers functional areas in their fifth year of service will continue; however, most will not serve in their functional areas once assigned to the Operations Career Field as a major. The designated functional areas will serve as indicators of special aptitudes and skills that may provide flexibility for field grade assignments.

2. Information Operations Career Field will meet the requirements of the 21st century information age. This career field brings together related disciplines with associated functional areas and creates several new ones. The officers in this career field, as with the other specialty career fields of Institutional Support and Operational Support, will continue to be assigned across the Army in table of organization and equipment

(TOE) and tables of distribution and allowances (TDA) organizations performing a wide variety of information operations missions and tasks.

This career field will have Functional Areas 30 Information Operations, 34 Strategic Intelligence, 40 Space Operations, 46 Public Affairs, 53A and 53B Systems Automation and 57 Simulations. With the exception of the 46 and 53B, the functional areas for this career field are new.

3. Institutional Support Career Field focuses on the increasingly technical and complex nature of running the Army as an organization. In this career field, the emphasis is on managing, planning and programming Army resources for today and into the future by projecting requirements and developing capabilities in the mid- and long-term.

The functional areas for the Information Operations Career Field are 43 Human Resource Management, 45 Comptroller, 47 US Military Academy (Permanent Associate Professor), 49 Operations Research/Systems Analysis, 50 Strategy and Force Development and 52 Nuclear Research and Operations. The Institutional Support Career Field has two functional areas that are new: 43 and 50.

4. Operational Support Career Field strengthens current readiness while building the future force through its liaison, procurement, programming and development specialties. This career field contains the Army Acquisition Corps, which includes Functional Areas 51 Research, Development and Acquisition; 53B/C Systems Automation Acquisition; and 97 Contracting and Industrial Management. The career field also includes 48 Foreign Area Officer.

Career Field Promotions and Command Selections. Throughout the task force's design process, warfighting remained job Number One for our Army and the primary focus. However, the task force also needed to create viable alternative career paths for those officers who have the skills the Army needs for the 21st century but who choose not to follow the traditional command path.

Today, if you do not follow the traditional command path—attend the Command and General Staff College (CGSC) and serve as an executive officer (XO), S3 or brigade fire support officer (FSO)—your chances for continued service past the grade of major are

significantly decreased. Despite the needs of the Army and the desires of the officer, we are forcing all officers to pass through the "eye of the needle"—follow the traditional command track.

The Army needs officers with special skills, education and training to be tracked differently, beginning at the grade of major. These officers must concentrate their efforts in their fields of expertise, ensuring a diverse, world-class officer corps for our Total Quality Force.

The career field designation and development process begins as officers approach selection for promotion to major. At that time, they'll submit a career field preference statement indicating through which career field they would like to be managed and developed after selection to major. The designation process will consider, among other things: the officer's preference, manner of performance, rater and senior rater input from the new officer evaluation report (OER) and the needs of the Army. A board of officers (separate from the major promotion board) recommend where officers can best serve the Army.

The majority of officers selected for major, including about half of the Field Artillery (FA) selectees, will be designated to serve in the Operations Career Field. These officers will serve in branch assignments in operational units as S3s, XOs, commanders, etc. and in "functional integrator jobs." A functional integrator position will broaden the officer's experience outside of his branch and help the Army develop a cadre of officers capable of integrating Army systems.

If you are designated into the Operations Career Field, your time with troops will increase. Three years in an operational unit—to include up to 24 months in a branch-qualifying position as a major, such as S3, XO or brigade FSO—will become the norm. This will help reduce today's turbulence, increase experience and enhance our warfighting capabilities.

All officers, regardless of career field, will have reasonable opportunity for success. Future promotion opportunities to lieutenant colonel will be slightly better. Promotion opportunities to colonel for former battalion commanders will be less than it is today, but opportunities for colonel in the other career fields will be significantly greater.

Additionally, all unit commands are in the Operations Career Field. With fewer officers in the Operations Career Field

than eligible for command consideration today, selection opportunities for battalion- and brigade-level command will increase.

The other 50 percent of Field Artillery officers selected for major will serve in one of the other three career fields. (This percent includes those already designated for the Army Acquisition Corps.) These FA officers will become specialists serving repetitive assignments in their designated functional areas as well as in functional integrator positions. Developing these experts will improve Army skills critical for shaping and preparing our force of the future.

Finally, the task force proposed a change for military education level four (MEL 4) that would impact all officers. If approved, all officers selected for major will attend resident CGSC. The Training and Doctrine Command (TRADOC) will study this proposal during the next year.

The Implementation Process. The task force has prepared recommendations for CSA approval and developed a strategy for the Army to implement these changes. The final report will be completed prior to implementation, which begins 1 October.

The Army won't implement the new officer development system completely this fall. The plan calls for implementation through FY 02. But some key facets of the plan will be implemented almost immediately. These include restructuring and recoding authorizations, developing life cycle functions by proponents and educating the officer corps on OPMS XXI initiatives. Other facets will take longer to implement. For example, transitioning the field grade officers to career fields will take four years.

The plan transitions the Army into the new career field-based management system over time to provide officers reasonable alternatives and adequate time to react. To accomplish this transition as fairly and smoothly as possible, the task force developed two guidelines.

First, an officer will be designated into a career field only if he has at least two years available for service in that career field before his promotion board meets. This attempts to provide the officer experience in his field before he's considered among his career field peers for promotion.

Second, for those officers who cannot meet the first guideline, career field

Year Group	Career Field Designation	LTC Promotion (New System)	COL Promotion (New System)	Remarks
80	FY 1999		FY 2001	First affected YG.*
81	2000		02	
82	01		03	
83	01		04	
84	02		05	
85	02		06	
86	99	FY 2002	07	First YG promoted to LTC under CF system.
87	00	03	08	
88	01	04	09	
89	99	05	10	First YG to come completely under CF system (as field grade officers).
90	00	06	11	
91	01	07	12	
92	02	08	13	

*Officers in year groups (YGs) older than 1980 will transition to career fields (CFs) voluntarily from FY 99 to FY 02.

Figure 2: Career Field Designation and Promotion Boards Under OPMS XXI

designation will occur after their second opportunity to be selected for battalion command. This ensures that all officers who "grew up" under the old system receive a fair chance to be selected for command before their career fields are designated.

Before the new system can be implemented, however, the Army must prepare the management structure. This involves determining final career field designation and promotion board procedures; designing and distributing career field preference statements; updating the design of the officer record brief (ORB) to reflect career field information; and educating the officer corps.

All this takes time, which is why the first career field designation boards will not occur until FY 99. The initial career field promotion boards for colonel and lieutenant colonel will occur in FY 01 and 02, respectively. Given the guidelines and requirements for implementation, Figure 2 outlines the schedule proposed for career field designation and promotion boards under the new system, starting with year group (YG) 1980. Year groups older than 1980 will transition to career fields voluntarily between FY 99 and FY 02.

Officer Development Action Plans (ODAPs). Longer-range objectives and decisions required the task force to build an adaptable plan. ODAPs, one for each career field, will assist with the development and management of career fields. Each ODAP will group sets of

related issues for further development, decision or implementation in a logical sequence synchronized with other affected ODAPs.

Additionally, each ODAP will have a proponent charged with executing that ODAP and monitoring its progress. For example, TRADOC will be the proponent for the Operations Career Field. Further, the ODAP will include a long-range piece that identifies potential events or actions that could trigger the Army to change how it implements the ODAP or even alter the nature of the ODAP itself.

Underpinning all these plans will be an annual process to review the progress of each career field ODAP and determine any changes required. A transition team of current OPMS XXI task force members will remain behind to oversee the implementation of the new system and ensure a smooth "hand-off" to the career field ODAP proponents.

The OPMS XXI design goal is to create a "win-win" system for both the Army and its officer corps, a system flexible enough to balance the Army's diverse personnel requirements while providing Army XXI with a technically and tactically competent officer corps.

For more information about OPMS XXI or to review the briefing charts, readers can visit the task force web site: <http://www.army.mil/opms>. The site also provides information on how to submit comments and concerns and contact task force members.



Lieutenant Colonel (Promotable) Rhett A. Hernandez, until recently, was the Senior Field Artillery Branch Representative and Strategic Planner for the Officer Personnel Management System (OPMS) XXI Task Force, Office of the Chief of Staff of the Army at the Pentagon. Currently, he's a student at the National War College in Washington, DC. Before serving on the OPMS XXI Task Force, he commanded 3d Battalion, 16th Field Artillery in the 4th Infantry Division (Mechanized) at Fort Hood, Texas. He also served as Executive Officer (XO) of the Combined Arms Center, Fort Leavenworth, Kansas; Observer/Controller of the Battle Command Training Program at Fort Leavenworth; and commander of two batteries. He's slated to command the 4th Infantry Division Artillery in 1998.

Major Terry M. Lee, until recently, was a Total Army Personnel Command Field Artillery Branch Representative on the OPMS XXI Task Force, Office of the CSA. Currently, he's a student at the Command and General Staff College, Fort Leavenworth. In other assignments, he served as a Joint Staff Intern in the Strategic Plans and Policy Directorate (J5) at the Pentagon; Comptroller for the Special Security Group at Fort Meade, Maryland; and Commander of C Battery, 1st Battalion, 41st Field Artillery and A Battery, 13th Field Artillery in the 24th Infantry Division (Mechanized) at Fort Stewart, Georgia. Major Lee also was the Battalion Fire Direction (FDO) Officer for the 1st Battalion, 41st Field Artillery during Operations Desert Shield and Desert Storm.

Force projection, as the central element of our US military strategy, usually begins as a contingency operation—a rapid response to a crisis. The deployment of continental US (CONUS)- and European-based heavy units in support of Operations Desert Shield and Storm, Somalia, Haiti, responses to continued provocations by Iraq, contingency requirements in Korea and ongoing operations in Bosnia demonstrate that all forces, not just light, must prepare for contingency operations.

This article discusses challenging areas of contingency operations for units during rotations at the Joint Readiness Training Center (JRTC), Fort Polk, Louisiana. Although primarily light infantry units train at the JRTC, mechanized forces also need to be prepared for contingency operations.

Initial Entry Operations – Planning Ahead

Contingency operations will not provide the luxury of casualty "re-key" (automatic replacements) the Combat Training Centers (CTCs) provide. We

Fire Support Challenges in Contingency Operations

by Lieutenant Colonel Gregory E. Beach
and Colonel Bruce A. Brant

have to get it right from the start. Units fail to appreciate how battlefield conditions affect their ability to accomplish the mission in initial entry operations.

Mission Transition. A common shortfall is a focus on producing "things"—FA support plan (FASP), radar deployment order (RDO), jump tactical operations center (TOC) or tactical command

post (TAC)—without identifying the tasks critical for the success of the mission. For example, a unit may recognize a requirement for a jump TOC during initial entry operations but fail to identify the critical tasks the jump TOC needs to execute to provide command and control and who accomplishes the tasks. A unit often plans the initial movement in great detail, yet fails to plan for contingencies, redundancies in case of catastrophic equipment failure, restrictive rules of engagement (ROE), civilians, weather and enemy activities.

The problem isn't in understanding principles or producing a fairly complete plan—it's in mastering the mental process of "mission transition"—*visualizing* how the plan will unfold, *anticipating* impacts inherent with operations on a fluid battlefield and *remembering Murphy* will always be alive and well. A real, unscripted opposing force (OPFOR) in a truly new environment will be a tremendous challenge for leaders and planners, highlighting the requirement to master mission transition.





Units can practice the challenges of ammunition resupply in contingency operations by training with inert rounds and powder cannisters the same weight and size as the actual projectiles shown here.

To visualize the battlefield, leaders and planners need in-depth knowledge and understanding of threat tactics, doctrine, patterns, capabilities and limitations, and vulnerabilities. These are critical to early success and require a more thoughtful approach than "just getting there." This intelligence focus must be carried throughout the fight by the FA battalion S2.

Part of visualization includes realistic wargaming. JRTC experience shows four critical factors in contingency operations that must be considered during course-of-action development: weather, communications, equipment and leadership. At some point, the weather and (or) level of light seem to work against the unit. During the operation, communications *will* be lost and a key piece of equipment *will* break. Last, a key leader will die or be injured early. Without taking these critical factors into consideration, a plan can look good on paper and fall apart in execution.

Leaders and planners must transition their mind-set to encompass the impact of civilians on the battlefield (friendly and not-so-friendly) and ROE. They should objectively assess doctrine against their unit's capabilities and vulnerabilities. They first identify the critical tasks to accomplish the mission. Next, they determine the details from the critical tasks: who does what, when, where and how. Then they can articulate equipment and personnel requirements, taking into account the need for flexibility and redundancy in continuous operations. Although units never have enough time for planning, they need to build in a healthy respect for the impact of the battlefield on the mission

from the beginning—planning time only gets shorter after they leave home station.

Just as intelligence preparation of the battlefield (IPB) and targeting remain a continuous process, so do mental visualization and anticipation of the battlefield. The mind-set transition requires a clear read of all the battlefield conditions and a firm understanding of the effects of these conditions on friendly unit operations. This is critical to ensure adjustment of tactics, techniques and procedures (TTP) to mitigate risk, maximize staff planning effectiveness and provide timely support to subordinate batteries.

Logistics. Everything entering an immature theater must arrive by air and (or) sea lines of communication. In response to crisis situations, personnel and equipment are brought from home

station or through an intermediate staging base (ISB) using strategic and (or) theater airlift. Because units are not deploying into in a mature logistical theater, commanders are forced to make resource decisions they normally don't have to make during training.

Units accustomed to having their ammunition required supply rate (RSR) equal their controlled supply rate (CSR) soon find that ammunition management is paramount. Planning requirements, such as when to send the supporting naval gunfire ship off station to refurbish or moving mortar ammunition from the forward flight landing strip to troops in contact, stress fire supporters in new ways, often pointing out training shortcomings. For example, units can practice the challenges of ammunition resupply in contingency operations by training with inert rounds and powder cannisters the same weight and size as actual projectiles to more realistically stress resupply vehicles and personnel. Other conditions that can aggravate ammunition resupply and dictate fire planning parameters in contingency operations, such as ambushed convoys or canceled resupply planes, should be built into training.

Loading Aircraft. Problems associated with using an air line of communications include getting equipment on the aircraft. All loads must go through a joint inspection with the Air Force. Often, loads do not pass and are sent to the rear of the line. Other loads then may be moved up or back in the air flow and might not arrive in theater when expected.



Units must remember the paperwork for hazardous cargo. Several soldiers must be trained and have the forms or the Air Force won't accept the loads on the aircraft.

Also, units must remember the paperwork for hazardous cargo. Several soldiers must be trained and have the forms or loads won't be accepted on the aircraft.

Using airlift also means that a unit's entire equipment package doesn't arrive at the same time. A priority vehicle list must be made but kept flexible enough to get a firing capability and command and control vehicles in theater as soon as possible. Units used to having all their equipment when they train at home station need to learn to "make do" with what they get in the air flow.

The Battlefield – Taking It into Account

The most likely battlefield scenario contingency forces will face in the future is certain to involve stability and support operations. These operations include peace operations, support for insurgencies and counterinsurgencies, noncombatant evacuation operations (NEO), drug interdiction, disaster relief and shows of force. Units should never lose sight of the fact that contingency operations that begin with a peaceful purpose, such as noncombatant evacuation (NEO) or peacekeeping, can escalate into combat.

Major threats to fire supporters are not tons of artillery rounds dumped on firing positions or air strikes. Our most likely adversary is a Third World force with an organized insurgency, limited air capability and an army with older armored weapons systems. The OPFOR knows the terrain and has a civilian informant intelligence network. Threats to a firing battery include snipers, mines, ambushes, limited indirect fire and ground assaults (usually during emplacement or march order).

Units tend not to train for some major battlefield factors: civilians, the media and nongovernmental agencies (NGOs), such as the Red Cross, CARE, etc. Even though most contingencies will be near populated areas, these influences come as a surprise to most soldiers when they start a rotation at the JRTC. In an actual contingency operation, the press and NGOs usually will be in theater before the military forces.

Because of civilians, stringent ROEs are established. The civilians may or may not be friendly, which adds to the confusion.

The presence of the media needs to be played on the training battlefield. A battery



Units should get access to satellite imagery and photos of the area to which they're deploying to use later for targeting. Also, OH-58D Kiowa Warriors, such as the one shown here; AH-64 Apache helicopters; AC-130 fixed-wing aircraft; and unmanned aerial vehicles (UAVs) are excellent sources that provide eight-digit grids for targeting.

commander inexperienced with the media who is asked by a reporter about a fratricide and then has a microphone stuck in front of him usually is unprepared to respond credibly.

A third element usually not played at home station is NGOs, which don't always adhere to US military policy. They are independent of any government and follow their own rules and regulations. A unit may be required to support them while having little control over their actions.

On the contingency operations battlefield, fire support is especially difficult. The target-rich environment of 250 BMPs and T-72 tanks coming out of the sunrise is the least likely scenario. Applying restrictive ROE while firing into populated areas all under the close scrutiny of the international media is the most likely fire support environment. Indirect fire fratricide—on both friendly forces and civilians—is a major concern and could eliminate the use of fires altogether.

Fratricide. To reduce the risk of fratricide, units adhere to the fundamentals outlined in the figure. The most important fundamental is battle tracking and reporting. Battle tracking is the process of knowing where everything is on the battlefield, including friendly units and civilians. The best computer systems and survey methods and the most accurate howitzers and gunnery techniques are worthless unless you can clear targets.

Two techniques implemented by the task force psychological operations

(PSYOPS)/civil affairs (CA) officer help control civilians and reduce the risk of fratricide. A dusk-to-dawn curfew gets civilians off the battlefield during darkness, making identification of insurgents and clearance of fires easier. Also, the PSYOPS/CA staff can warn civilians about weapons systems, such as enemy mortars, that our forces quickly return fire against. This warns civilians and reduces the support they'll give insurgents trying to set up mortars in their backyards.

1. Develop a tactically sound and simple scheme of maneuver.
2. Execute detailed tactical and technical fire support rehearsals.
3. Establish fire control measures and boundaries on identifiable terrain features.
4. Establish a simple but accurate clearance of fire procedure.
5. Emphasize target identification.
6. Standardize maps and overlays.
7. Use simple, accurate graphics.
8. Maintain vertical and horizontal information flow.
9. Practice detailed battle tracking and reporting.

Fundamentals of Reducing the Risks of Indirect Fire Fratricide in Contingency Operations. The most important fundamental is the last: Practice detailed battle tracking and reporting.

Firing Operations — Being Very Careful

As soon as a unit enters the theater, it must establish an accurate firing capability. Because of the ROE, civilians and closeness of most indirect fires to maneuver, fires must be placed where they can minimize the chance of collateral damage and fratricide while still providing the requested support.

Accurate, Predicted Fires. The main challenge is to meet the five requirements for accurate and predicted fires.

1. *Target Location and Size.* Before deployment, units should get access to satellite imagery and photos of the area that can be used later for targeting. AC-130s give real-time accurate target locations. The cameras of AH-64s, OH-58Ds and unmanned aerial vehicles (UAVs) are excellent sources that provide eight-digit grids for targeting. Forward observers (FOs) need to be proficient with the global positioning system (GPS) and the GVS-5 hand-held laser range finder, giving them their own location, range-to-target and one-round adjustment capability.

2. *Firing Unit Location.* Battery commanders must be prepared to go to an area of operations where there's no known survey or declination station, establish survey and provide it to the mortars.

Fire support officers (FSOs) must make sure the mortars have declinated their compasses and aiming circles when a declination station is established in theater. An initial declination station should be established at the forward landing strip and drop zone. Several stations should be established throughout the area as mortars can't be expected to travel long distances to declinate.

3. *Weapon and Ammunition Information.* Most units have ammunition set aside for deployments. Rounds should be taken from those lots and calibrated before the units assume mission status. Once in theater, units may not have the time to calibrate or an area in which they can do it. However, units need to use the M90 chronograph during all fire missions.

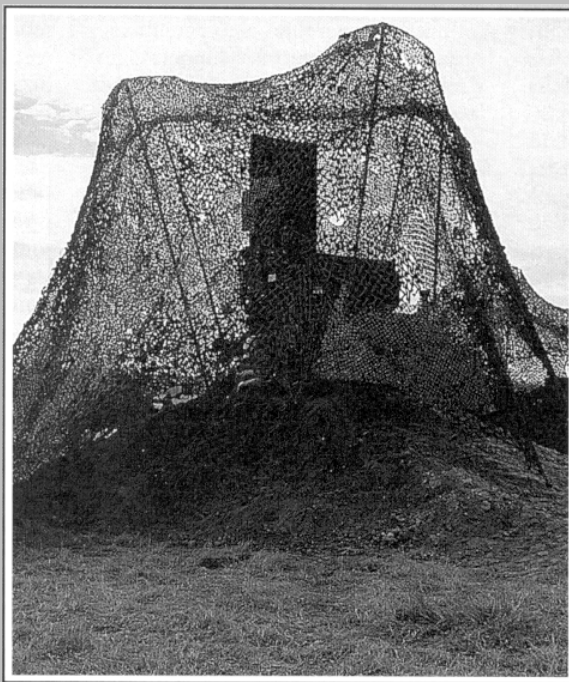
4. *Meteorological Information.* It may take several days in the air

flow for the meteorological (Met) station to arrive. Until the Met station is operational, units need to use the piball technique in collecting Met data (see *FM 6-15 Field Artillery Meteorology*). All that's required is a theodolite, balloons and a half dozen bottles of helium. A balloon is released and tracked giving wind speed and direction. Surface temperature and density are taken, and units can derive Met data, using the back-up computer system (BUCS).

5. *Computational Procedures.* Units should take the battery computer system (BCS), BUCS and charts. They also should bear in mind that repair parts and facilities might not be available for a long time. FSOs need to ensure that mortars bring mortar ballistic computers (MBC) and plotting boards.

Registering. Even if units meet the five requirements for accurate and predicted fires, sometimes they'll need to fire a registration. If "danger close" fires are predicted, units must fire a registration (or at least check rounds).

The ROE may make registering difficult. However, in most situations, there are ways to get registration data that don't violate the ROE. For example, if a battery is on the coast, a radar registration over the ocean would probably be allowed. During peace enforcement operations, registering



The Q-36 Firefinder radar is a major force protection item. It needs to arrive early in the air flow before the enemy can close the airfield with mortar fire.

in each belligerent's territory not only will provide data, but also a show of force. Units might have to use nonlethal munitions to fire a registration, such as a radar registration with white phosphorous air burst.

Target Acquisition. The Q-36 Firefinder radar is a major force protection item. It needs to arrive early in the air flow before the enemy can close the airfield with mortar fire.

Deploying units often experience difficulty in employing the Q-36 during initial entry operations. Several factors contribute to this difficulty, ranging from ineffective wargaming at the battalion level to poor section load plans.

But the most significant challenge facing the radar section in entry operations is unrealistic in-position-ready-to-observe (IPRTO) times. During planning, decision makers rarely address and wargame the unique tactical and technical considerations associated with the radar. Times for the radar to be in position and ready to observe the battlefield's firing activities usually are based on textbook optimum radar positions, which are incredibly hard to replicate in theater during initial entry operations.

Other operations hinge on the timing of the radar's operational status. Task force leaders consistently emphasize the importance of the radar's being operational as a condition for follow-on combat operations.

The times outlined in *FM 6-121 Field Artillery Target Acquisition* provide an excellent standard for evaluating crew drill proficiency at home station. However, assuming sections can consistently achieve these times during combat operations without effective reconnaissance, route clearance and security is impractical.

These challenges become exponentially more difficult when radar warrant officers waste precious time looking for "the optimum" site. The key is to determine what coverage is essential for providing immediate support to the brigade combat team (BCT) and, as quickly as possible, find the site that will accommodate that coverage. Improving coverage is an option that can be exploited after the task force secures its initial objectives.

Guidance provided by the commander or his representative

tends to come in the form of not-later-than (NLT) times. This infers acceptance of a position for the sole purpose of achieving the IPRT0 time, instead of allowing additional time to select the best available position within the immediate area.

The asset used to insert the radar will have a significant effect on IPRT0. Basically, three options are available: ground convoy, fixed-wing aircraft or rotary-wing aircraft. The minimal amount of equipment the radar needs for operations will fit into one C-130. However, units tend to plan radar loads that include other vehicles. This causes the system to get spread over two or three different aircraft chocks and delays the radar's operational time.

When using Air Force aircraft, an individual knowledgeable about radars needs to be present with the airfield control group when the equipment arrives, ensuring a smooth transition. This individual helps establish communications and tactically updates the radar section leadership. Simultaneously, the section can reconfigure loads in a secure environment.

Traditionally, radars collocate with a firing battery in a perimeter to facilitate security. The radar technician and the battery commander must have an appreciation of the unique requirements of both the radar and the howitzers. The typical scenario has them wasting precious time trying to grasp each others basic needs. To gain experience integrating radars with the firing battery, key personnel should approach collocation at home station from a hostile fire perspective.

Employing the Q-36 radar effectively during initial entry operations requires a concerted effort that starts with the battalion commander and ends with that soldier operating the equipment. Clear, concise and realistic guidance is an absolute. The radar technician must provide candid advice to the staff on the section's ability to accomplish assigned tasks within the allotted time. Back briefs, rehearsals and pre-combat checks and inspections (PCCIs) will ensure all personnel and equipment are ready to execute.

The Firebase. As always, placement of the firing battery depends on mission, enemy, terrain, troops and time available (METT-T). Because the main threat will probably be from ground forces, a strongpoint or firebase provides the best defense. Also, the firing units will probably have to be able to fire 6400 mils, which can be accomplished from a

firebase.

Most units have never built a firebase. At home station, units need to train with engineers to establish standing operating procedures (SOPs) for building a firebase in a realistic time estimate.

Battle drills for all contingencies in the firebase and movement in and out of the firebase need to be established and practiced. The drills should include reaction to snipers, daily mine clearing of routes into the battery, convoy counterambush, repelling ground attacks, security during march order and emplacement, patrolling, security when picking up container delivery system (CDS) resupply, convoy operations, reporting inventory of items leaving the battery and battle tracking.

If the enemy has air capabilities and friendly forces don't have air superiority, units should not use a firebase. In that situation, excellent passive air defense measures while still maintaining a ground attack defense may be the battery's best protective posture.

Clearing Targets. Probably the hardest part of fire support in a contingency operations is clearing a target, especially in close terrain with civilians on the battlefield. With rare exception, all indirect fires must be observed fires. The observer must know where he is—if possible, using a GPS. If there is the least doubt about his location, he should call for a ground burst illumination round or air burst white phosphorous to get his bearings before calling for high-explosive rounds.

Next, the observer must know where other units are and if civilians are in the area. Detailed battle tracking, diligent reporting, and the execution of disciplined immediate action (infantry) battle drills are the keys to success. When observers report every hour or so (sooner if moving) and all elements in the area of operations get the information, the risk of fratricide decreases significantly.

Getting indirect fire rapidly has always been a problem, especially when trying to target insurgents. But using priority targets and mortars can decrease the response time. The company FSO and commander decide who gets priority of fire in their area and provide, at least, mortars and an FO.

The mortars lay on a priority target. As the unit moves close to the target, the soldiers have the option of reconnoitering by fire or deleting the target and having the mortars lay on another one. If the unit receives fire, it can quickly shoot the priority target and then start adjusting the

rounds toward itself until the effects are on the enemy.

Another problem is attacking an objective when the terrain confines observation to only 100 to 200 meters. If the exact location of the target is not known, adjustment is required. Observers need to get as close to the target as possible with local security and adjust with a ground burst illumination round, smoke or white phosphorous until the rounds are within minimum safe distance to the observer. The observer then may have to move away from the objective before he can fire for effect.

Whether deploying to the CTCs or on an actual contingency mission, the keys to success are tough realistic training, thorough planning and SOPs that are detailed and followed.

Fire support for contingency operations means being flexible, versatile, and disciplined.



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Colonel Bruce A. Brant commands the 214th Field Artillery Brigade, III Corps Artillery at Fort Sill. He also commanded the Combined Battlefield Coordination Detachment (BCD) in Korea and the 1st Battalion, 319th Airborne Field Artillery Regiment, 82d Airborne Division at Fort Bragg. Other assignments include serving as Senior Fire Support Observer/Controller at the Joint Readiness Training Center, Fort Polk and S3 of the 25th Infantry Division (Light) Artillery, Schofield Barracks, Hawaii. Colonel Brant holds three master's degrees and is a graduate of the School of Advanced Military Studies (SAMS) at Fort Leavenworth and Army War College, Carlisle Barracks, Pennsylvania.

Serenade 1944: Fire Support in Combined Operations

by Second Lieutenant Brian C. Hayes, AR



US M3 105-mm Howitzer

The history of modern warfare is replete with examples of the use of artillery fires—particularly massed fires—to blunt an attack for which the defenders are unprepared. From the devastating effects of Grant's massed artillery on the Confederate advance of 6 April 1862 at Shiloh to the "wall of steel" protecting 1-7 Cavalry at the battle of the Ia Drang in Vietnam, artillery support has allowed many an American commander to stabilize his defense and prevent his units from being overrun and destroyed.

However, in the opening days of the Normandy campaign of World War II, American artillery fired one of its most critical missions—not in support of American GIs, but rather their Allies. On 14 June 1944 during the battle of Villers-Bocage, V Corps gunners played a decisive role in halting the attack of two German panzer divisions against the exposed and vulnerable British 7th Armored Division.

The lessons of this action—the need for courage to break "the rules" and the

importance of effective liaison between nations—are especially vital to Field Artillerymen deployed, or about to be deployed, with soldiers of other nationalities in combined operations.

A Serenade of Fires. The 7th Armored Division had jumped off from Livry on the afternoon of 12 June in a sharp left hook into the heart of the German defense. (See the map on Page 25.) Lead elements of the division's 22d Armored Brigade met little resistance en route and reached their first objective, the town of Villers-Bocage, about 0800 the next morning. One squadron of tanks and a company of infantry immediately moved beyond the village to secure Point 213, the high ground to the northeast on the Caen Road.

Just over an hour later, this force arrived at Point 213 and was deploying to hold it when a company of German tanks attacked.¹ During the next few hours A Squadron, 4th County of London Yeomanry, and A Company, 1st Battalion, The Rifle Brigade, were surrounded and cut to pieces while enemy

tanks and infantry struck the British troops in Villers-Bocage itself. The 22d Armored Brigade lost 53 vehicles, including 25 tanks.²

As night fell, the division's position was critical. Its units still held part of Villers-Bocage, but they had been battered by the day's fighting. To make matters worse, the road, which was the division's only avenue of communication (and, if necessary, escape) was under attack from the newly arrived 2d Panzer Division.

In light of the situation, the British division commander, Major General G. W. E. J. Erskine, made the decision the next morning to withdraw. Throughout the day on 14 June, the 22d Armored Brigade prepared to disengage from Villers-Bocage, but the situation in its rear had become even more serious. The Panzer Lehr Division had turned south to assist the 2d Panzer Division; British troops defending the road in the vicinity of Tracy-Bocage were fighting off attacks from both sides. The threat of envelopment was very real.³

The advancing Germans were well supported by artillery and mortar fires as well as by tanks, but at this critical moment, Allied artillery made an appearance in dramatic fashion.⁴

Colonel G.P. Gregson and the 5th Regiment, Royal Horse Artillery, had been firing all day in support of the troops along the road, but the attackers had moved to within 300 meters. Needing more fire than his guns could provide, Gregson turned to an American officer at his side. "I had with me a US liaison officer, Captain Chuck Babcock, and he called for a 'Serenade' [a concentration of all available fires on a specific target]." Gregson later wrote, "I remember Babcock said: 'If we get out of this, I'll be court-martialed—only commanding generals can order a Serenade.' The Serenade duly arrived in minimum time and [was] very accurate....The effect was devastating and we knocked out some 11 tanks and completely broke up the attack; all was quiet except for snipers in the trees outside our position."⁵

The Serenade Babcock had requested and received brought about 160 guns, including self-propelled 155-mm howitzers, to bear on the attacking panzer troops. One British officer described the scene as "pandemonium....Afterwards, two Germans who surrendered said...in the woods, they must have had some 800 or 900 casualties. Although this is no doubt

a gross exaggeration, it will give you some idea of the sort of shoot it was."⁶ The Serenade, as the official British historian concluded, "settled the issue."⁷

That night and under the cover of continued American artillery fire and Royal Air Force (RAF) bombers, the 7th Armored Division withdrew from Villers-Bocage and made its way safely back to British lines. The shell-shocked Germans made no attempt to interfere.⁸ The 7th Armored had failed in its mission, but the timely intervention of V Corps' gunners had prevented the disappointment from becoming a disaster.

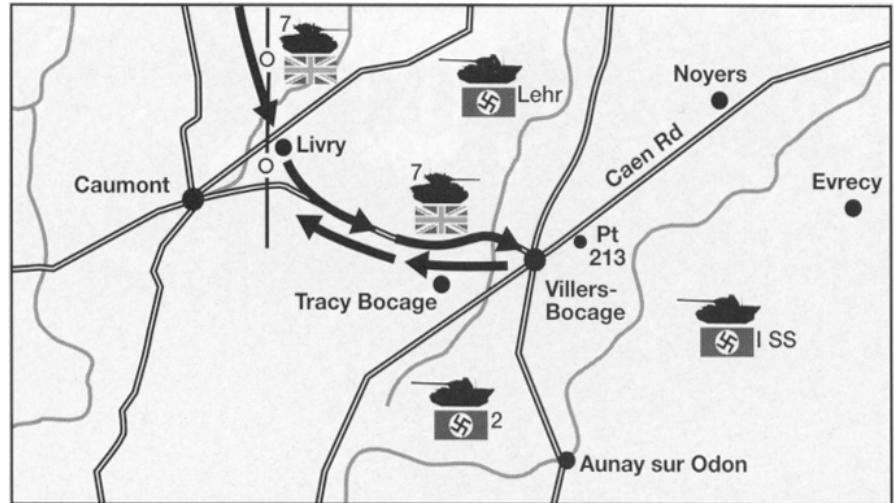
Lessons for Today and Tomorrow.

What lessons are Redlegs to draw from the events of 12 to 14 June 1944? They can learn two: have the courage to do the right thing and devote the resources required to make the liaison between different national forces work.

First, Redlegs must have initiative and moral courage in decision-making. Recognizing the plight of the British, Captain Babcock had the strength of character required to break regulations and risk court-martial to bring the British troops the fire support they so desperately needed. His example should remind officers and NCOs of today's Field Artillery that regulations and standing operating procedures (SOPs) do not replace the duty to think and act in accordance with one's own judgment and values. This principle transcends time and circumstance and is as old as the military profession itself; on tomorrow's information-age battlefield, it will continue to be a foundation of successful soldiering.

The second lesson of the battle for Villers-Bocage is related to the realities of the security environment in which the Army exists today—the necessity of planning for effective fire support in combined operations.

Our doctrine tells us we must plan to fight as part of a coalition or alliance.⁹ Field Artillery leaders must be prepared for the difficulties of supporting a force that includes soldiers of many nations. The British and Americans in Normandy enjoyed the luxury of a common language, but operations in Korea and with NATO



Battle of Villers-Bocage, June 1944

and the United Nations probably won't be so accommodating.

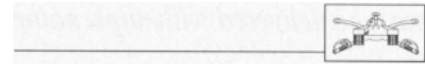
It's essential that artillery and maneuver commanders of US and allied forces be linked by liaison officers with not only the quick thinking and courage of Captain Babcock, but also the language ability and professional knowledge to coordinate between forces.

In addition, the experience of the last five years tells us that operations other than war (OOTW)—stability operations—will occupy an increasing amount of the Army's attention. This will pose even more difficulties for the coordination of fires. In a high-intensity conflict environment such as in Korea, it's common to assign liaison officers and coordinate fires at the brigade or division level.¹⁰

However, peacekeeping missions demand a decentralized approach to fire support operations. One American direct support artillery battalion commander, whose unit supported a multinational (and multi-lingual) force in Bosnia, wrote, "Every task force, company, platoon, checkpoint, patrol and logistics convoy must know the fire support plan and be prepared to call-for-fire."¹¹ Allied and coalition forces will have to extend their fire support coordination to these levels. The fluid, 6400-mil nature of OOTW and the potential human and political tragedy

of fratricide between coalition forces make fire support in this environment even more challenging.¹²

Whether firing from the corps level to defend a division in the next major conflict or from the battery level to save an allied patrol in the next peacekeeping scenario, the Redlegs of today and tomorrow must be ready to support their friends to the fullest—in the best traditions of the heroic American gunners in Normandy on a deadly June day 53 years ago.



Second Lieutenant Brian C. Hayes, Armor, was an ROTC Cadet at Princeton University in New Jersey at the time he wrote this article, which won First Place in the US Field Artillery Association's 1997 History Writing Contest. In June, he was commissioned an Armor officer; currently he's the Gold Bar Recruiter for the Princeton University ROTC Battalion. Previously, he completed Cadet Troop Leader Training (CTLT) as Assistant Detachment Commander of Operational Detachment A-336, 3d Special Forces Group, at Fort Bragg, North Carolina. Second Lieutenant Hayes is a graduate of Airborne School, Fort Benning, Georgia, and the airborne course of the Polish Army's High Officers Academy in Wroclaw.

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 2. Major L.F. Ellis. *Victory in the West*, Vol. 1. (London: Her Majesty's Stationary Office, 1962), 254.
 3. *Ibid.*, 255.
 4. *Ibid.*
 5. Letter from Gregson to Carlo D'Este, cited in D'Este, 189.
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 7. *Ibid.*, 255.
 8. D'Este, 189.

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 10. Captain David T. Vacchi, "Combined Operations and the Korean Culture," *Field Artillery* (February 1995), 31.
 11. Lieutenant Colonel Peter S. Corpac, "Evolving Tactics, Techniques and Doctrine for Fire Support in Peace Enforcement Operations," *Field Artillery* (July-August 1996), 37.
 12. On the complexity of fire support in OOTW, see Colonel Keith W. Dayton and Lieutenant Colonel Richard P. Formica, "Morne Thunder: FA in OOTW and the Div Art METL," *Field Artillery* (February 1995), 9-13.



Tempo and Fires in Support of WW I German Infiltration Tactics

by Captain Scott E. Ukeiley, USMC

What is of the greatest importance in war is extraordinary speed; one cannot afford to neglect opportunity....An attack may lack ingenuity, but it must be delivered with supernatural speed.

Sun Tzu, *The Art of War*



By 1918, the failure of the Schieffen Plan and development of trench warfare on the Western Front had bled the German Army white. The devastating effects of artillery and automatic weapons had ended the war of maneuver and given the Allied defense a decisive edge. A tactical *break-in* of the Allied defense was possible, provided the German attacker was willing to sacrifice the lives to do so. But because the defender's reserves were mobilized by railway and motor transport faster than the attacker on foot, a strategic *breakout* was impossible.¹

In March of 1918, the German Army unleashed its Peace Offensive. With new "infiltration" tactics, the Germans immediately secured a break-in and even a breakout appeared imminent. The offensive created a gaping hole in the British defense 80 kilometers wide and 40 kilometers deep. In a single day, the defending British V Corps suffered

17,000 casualties, had 21,000 prisoners taken and ceased to exist as a combat force. The British were shattered, both mentally and physically, by the ferocity of the onslaught. German infiltration, or "stormtroop," tactics had brought the German Army within reach of regaining the war of mobility.²

This article examines the infiltration tactics that brought Germany to the brink of success during World War I. Specifically, I examine the fire support doctrine supporting the tempo of the German stormtrooper attack. Tempo is defined as maneuver and speed of operations in relation to the enemy.³

German Infiltration Tactics

General Erich Ludendorff, First Quartermaster General and *de facto* Commander of the Western Front, and his staff are credited with creating and

implementing infiltration tactics.⁴ Though many commands and officers had experimented with novel assault tactics, Ludendorff was in a position of authority to disseminate and enforce these tactics across the Western Front.⁵ In January of 1918, the German High Command published *The Attack in Position Warfare (Attacks)*. During the next few months, this new doctrine was disseminated and taught to every German soldier on the Western Front.

Speed and surprise were critical to the success of the new German tactics.⁶ Preliminary bombardments were short, but incredibly violent. On 21 March 1918 alone, 6,500 artillery pieces fired 3,200,000 rounds on a front of less than 50 miles.

Ludendorff recognized that the destruction of enemy defenses was an unattainable goal; therefore, poison gas and high-explosive rounds were combined to neutralize, not destroy, enemy forces.⁷ Fires were used to support decisive maneuver, and all supporting arms on the battlefield worked to assist the infantry.⁸ In 1918, this was a new way of warfighting.

The 12-man squad provided the nucleus of the German combined arms team.⁹ Armed with rifles, machineguns, grenades, flamethrowers and light mortars, the squad could fire and maneuver. Squads advanced on a broad front, used terrain for cover and sought enemy weak spots and gaps. Enemy strongpoints were avoided. The guiding principle was to maintain the momentum of the advance.¹⁰

The principle of "close with and destroy" was replaced with "bypass and collapse."¹¹ Enemy strongpoints were swallowed whole as lead squads bypassed them and drove ever farther into enemy rear areas. Here, critical targets, such as artillery parks and command posts, were located. As lead squads attacked these valuable and vulnerable facilities, follow-on units attacked bypassed enemy positions from all sides. Reserves were continually pushed to locations where success and penetration were greatest.¹²

The dominant principle was the critical need for rapid tempo. Rapid tempo allowed the stormtroopers to seize and maintain the initiative: choose the point of attack, mass against it, bypass and collapse the enemy defense and continue movement before the enemy could react. In sum, tempo was the German offensive's center of gravity.

Preliminary Bombardment

In previous offensives, preliminary bombardments had lasted for weeks with millions of shells fired. The objective was to destroy everything in the attacker's path. Light field pieces fired on enemy obstacle belts and artillery. Medium and heavy guns were responsible for destroying trenches, roads, railways, strongpoints and bunkers. Mortars focused on close-in enemy trenches.¹³ This reliance on destruction was slow, tedious and costly.

It also didn't work. Shrapnel from light field guns was unable to destroy enemy barbed-wire obstacles. Light and heavy guns failed in their destruction missions; no matter how long the bombardment, defenders always survived the bombardment, and their fires ripped gaping holes in the infantry attackers' ranks.¹⁴

Additionally, the sheer number of shells fired created a nearly impassable obstacle for the attacker.¹⁵ The shell-scarred ground frequently hindered the tempo of an attack as much as the enemy.

The Chief German Artillery Officer on the Western Front, Lieutenant Colonel Georg Bruchmuller, recognized that artillery destruction doctrine was inadequate.¹⁶ Therefore, he introduced and implemented the doctrine of neutralization fires. Instead of destroying the enemy, Bruchmuller sought to neutralize him or render him temporarily combat ineffective. This meant the artillery was to perform the simpler task of keeping the enemy disoriented and under cover while the German infantry maneuvered in the attack.¹⁷

Bruchmuller understood that the duration of artillery fire was less critical than its strength and intensity.¹⁸ He realized that after a few hours of artillery fire, defenders built up psychological resistance. He also knew that the longer the bombardment, the more time the enemy had to react. For example, in the Somme Offensive of 1916, the British preliminary bombardment lasted an entire week. This sacrificed tactical and operational surprise and gave German commanders time to commit reserves. The loss of time and tempo and the impotency of artillery resulted in a shattered offensive and more than 500,000 British casualties.¹⁹

Bruchmuller would not repeat the British mistake. He directed short, violent artillery preparations designed to stun and

disorient the Allies just long enough for the German stormtroopers to overrun them.²⁰ This was a monumental shift in doctrine—artillery supported decisive maneuver.

As Bruchmuller himself said, "We only desired to break the morale of the enemy, pin him to his position and then overcome him with an overwhelming assault."²¹ Bruchmuller accepted that artillery was incapable of decisive engagement. He believed that only the infantry could achieve decision and that the artillery's new mission should be to facilitate that decisiveness.

Bruchmuller also recognized that high-explosive shells created insurmountable mobility problems for the attacker.²² He favored using poison gas. Gas was an ideal neutralization weapon as it did not tear up the ground the attacker would have to maneuver upon. An additional benefit was that gas caused mass casualties, if few fatalities. This worked in Bruchmuller's favor because a wounded casualty was a much greater strain on resources and manpower than a fatality. A wounded soldier required immediate attention from those around him. Killing an enemy soldier removed one combatant; wounding one meant up to four additional men were temporarily combat ineffective. Additionally, the requirement for soldiers to don masks and focus on individual survival tended to isolate units into small pockets distracted from their tactical mission.

Bombardments in the German Peace Offensive ranged from two to seven hours.²³ The fire support concept of operations consisted of three phases. The first was 30 minutes of heavy gassing designed to draw enemy artillerymen to their guns. This phase was followed by up to two and one-half hours of heavy counterbattery fire with gas, high explosives and smoke. The intent was not to destroy enemy artillery but to put it out of action or slow its rate of fire. Enemy command and control and reserves were targeted at this time with the same mix of gas, high explosives and smoke.

As fires degraded enemy counteroffensive preparations, stormtroopers massed at their final assault positions. At this point, German tempo was quicker than the Allies'. The degraded enemy artillery threat permitted German forces to reorient and mass while German fires prevented similar enemy movement. The degraded Allies' command and control ensured that their reserves remained immobile and uncommitted.

The final phase of fires lasted up to two hours and focused on enemy infantry.²⁴ Mortars and light field pieces shifted fires to front-line trenches. The shell mix was 80 percent high explosives and 20 percent gas. For counterbattery work, heavy guns fired a few gas shells to stoke the poisonous clouds that already lingered on the enemy batteries. Ten minutes before the assault, every artillery piece and mortar shifted to engage enemy front-line positions.

And that was it. Without obliterating the ground the German stormtroopers soon would have to cover rapidly, the five-hour bombardment prevented Allied commanders from shifting reserves to the break-through sites. The stormtroopers knew that although Allied soldiers were still alive, they were extremely disoriented and vulnerable to attack. Even before the first stormtrooper had left his assault position, the German Army was winning the battle for tempo and speed.

The Assault

As the stormtrooper left the safety of his trench in the attack, a rolling barrage preceded his movement. The purpose of the barrages was no different than other barrages of World War I that sought to neutralize enemy positions until the infantry was on top of them. But the way in which Bruchmuller executed those barrages was decidedly different.

Previously, fires had initially been placed 300 meters in front of the infantry and held for three minutes. For shifts, light and medium pieces advanced 200 meters every four minutes and heavy pieces jumped 400 meters every eight minutes.²⁵



Gas caused mass casualties, if few fatalities. A wounded casualty was a much greater strain on resources and manpower than a fatality, as shown by these British soldiers waiting for medical attention after being gassed.



Ludendorff recognized that troops in the assault were extremely vulnerable and kept assault teams small. Frequently, a squad was the assault element for an entire company. The intent was to get inside the enemy's position, not smash it.

All too frequently, the artillery set its time table as to when the barrage would lift and it was the infantry's responsibility to keep up.²⁶ Maneuver supported fire support. This resulted in insurmountable problems for the infantry as well as mass casualties. When the artillery went too fast, it would run away from the infantry, leaving the infantry to face entrenched and non-suppressed enemy forces. This cost the attacker lives, which then resulted in loss of time. If the barrage was too slow, the tempo of the offensive was lost. This cost the attacker time, which then resulted in loss of lives.

The Bruchmueller rolling barrage, however, tied the artillery to the advance of the infantry, a revolutionary idea at the time.²⁷ Bruchmueller ensured optimum tempo by having his artillery lift fires to match the required rate of the infantry.²⁸ He demanded his artillery remain flexible to the needs of the infantry, not vice versa. The published barrage shift schedule previously blindly adhered to was changed to a flexible planning tool and used as a common basis for change.

Infiltration tactics decentralized command and control to lower levels than previously accepted. Battery commanders and forward observers had the authority to modify firing time tables to meet the demands of the infantry. One paragraph of Bruchmueller's instructions is worth noting: "...artillery commanders and forward observers may intervene on their own

responsibility to modify a *Feuerwalze* [rolling barrage] if they believe it necessary...."²⁹ This tremendous latitude granted to junior officers and NCOs ensured that fires were adjusted by soldiers with the best situational awareness due to their front-line positions.

When properly executed, artillery supported the tempo of the infantry and enemy forces were hit with combined arms fire and maneuver simultaneously, vice sequentially. This put the enemy on the horns of a dilemma whereby dealing with one threat exposed him to the effects of the other.³⁰ In this manner, the Germans ensured the most rapid tempo possible in their attacks.

A stormtrooper attack was not a race between infantry and artillery to see which could penetrate an enemy defense first. Instead, it was a cooperative effort where the pace of the artillery was deliberately matched to the infantry so it could run its own race against enemy reserves being committed to the point of attack.

Organic Fire Support

Even with improved fire support, stormtroopers realized that artillery alone could never be decisive. The idea of "artillery conquers, infantry occupies" had no place in infiltration tactics.³¹ Ultimate responsibility to close with the enemy rested with the stormtroopers.³²

When artillery and mortars were not available, the stormtrooper squad had to rely on its organic fires.³³ Due to tactics, weapons and organization, every stormtrooper squad could subdivide into fire and maneuver elements capable of providing organic fires in support of its own maneuver. The doctrine of suppress-assault-exploit was the result.³⁴

When stiff resistance was encountered, the stormtroopers realized that success lay in mobility. When an enemy position could not be bypassed or required reduction, the first step was to lay down suppressive fires with every weapon that could immediately be brought to bear. As a combined arms team, the squad had its own rifles, machineguns, grenades, mortars and, occasionally, flamethrowers. Upon contact, the squad laid a base of fire from a relatively safe position (prone) and attempted to suppress the enemy position. Follow-on squads from the platoon or company contributed their fires while unit commanders attempted to get artillery and air on target.

Lieutenant Erwin Rommel, a company commander in the 124th Wurtemberg Mountain Battalion and future German Field Marshal during World War II, was a master at massing automatic weapons.³⁵ With initial contact with the enemy, Rommel quickly massed the fires of every machinegun he could lay his hands on. As guns laid suppressive fires, he massed the fires of battalion mortars and direct support artillery. Within minutes, the fires of an entire company reinforced by mortars and artillery were brought to bear on a single target. Smoke was laid and a steady rate of fire maintained to ensure fire superiority. Only at this point would the stormtroopers begin the assault.

Ludendorff recognized that troops in the assault were extremely vulnerable and kept assault teams small.³⁶ Frequently, a squad was the assault element for an entire company. The intent was to get inside the enemy's position, not smash it.³⁷

The assault unit used terrain for maximum cover and closed with the enemy position. Once inside, the assault unit had many tasks.³⁸ Most critical was to focus the enemy's attention away from the company. Other tasks were to secure a safe axis of advance for the unit and delay enemy reserves committed to defend the position.

Once inside an enemy position, a small German assault element caused psychological and physical damage out of proportion to its small size.³⁹ Frequently, the enemy had no idea how many attackers there were and assumed the situation was worse than it actually was. Even a small force inserted into the enemy's rear was normally able to distract defenders from their front.

At this point, exploitation occurred.⁴⁰ Actually, the proper term is "overkill." The unit that had been conducting suppressive fires in support of the assault element now attacked under the cover of suppressive fires from the assault squad. The intent was to morally and physically overwhelm the enemy with shock, speed and fires. With the assault elements inside the enemy's position and a large overwhelming assault just outside it, the enemy's will to resist often was shattered completely.

Due to intensive training, initiative and judgment of small unit leaders, this tactic of suppress-assault-exploit was a very rapid and violent affair.⁴¹ The high standards of stormtrooper training ensured that each man knew his responsibilities

and could fit his actions to support the actions of the rest of the unit. The individual effects of fire and maneuver were synergistic because the actions were concurrent, not sequential.⁴²

Although initially, it may appear that stormtroopers did not operate at a rapid tempo due to the time invested to build a base of fire and establish fire superiority, this doctrine actually saved time and lives for later action. To attack rapidly through a non-suppressed defense was suicidal folly; four years in the trenches had demonstrated the decisive effects of automatic weapons and artillery. Stormtroopers were to destroy an enemy position as quickly as possible and "get it right the first time." Once the position was destroyed, large follow-on forces and reserves could maneuver at a more rapid tempo.

At the operational level, German commanders realized what was important: it was not how fast the lead squads moved on the battlefield, but whether or not they could set the conditions for entire divisions, corps and armies to maneuver their combat power forward faster than the enemy's reserves could react.⁴³ The race was between the German's getting the bulk of its combat power through the initial enemy defenses and the Allies' moving to block the operation.

After the Assault

German artillery assisted with rapid tempo by decentralizing command and control to lower and lower levels as the assault progressed.⁴⁴ At this point, the

infantry needed responsive fires, not massed fires. Mortars reverted back to infantry control, giving the infantry commander some indirect fires available to deal with contingencies.

Once lead units passed beyond the effective range of light and medium guns, the artillery batteries and battalions reverted back to the command of the infantry divisions they supported.⁴⁵ As the mortars came under the control of infantry units and the heavy guns could still range deep targets, the medium and light guns displaced forward to establish advanced firing positions. Because these guns were relatively light and mobile, they displaced in a few hours. Also, with the German emphasis on gas over high-explosive rounds, roads and trails were frequently trafficable.

Heavy guns, less mobile and harder to supply logistically, were kept in place even after they were no longer able to support the infantry.⁴⁶ The weight, slow movement and limited volume of fire made the guns not worth the time and clogging of roads their displacement would cause. Medium and light field pieces had to "pick up the slack."

The most important aspect of infiltration tactics was maintaining the tempo, the momentum, of the attack. Artillery fire support previously employed for decisive effects on the enemy took too much time to achieve those effects. German stormtrooper tactics changed the nature of fire support. By 1918, the infantry was recognized as the decisive force on the battlefield. Fires supported the infantry and had to meet the infantryman's tempo

and operational pace.

Under the direction and leadership of Lieutenant Colonel Bruchmueller, German fire support played the critical role in the German tactical success of 1918. The tempo of the stormtrooper matched by the responsiveness and flexibility of artillery provide an excellent example of the decisive results that can be achieved through tempo and combined arms operations.

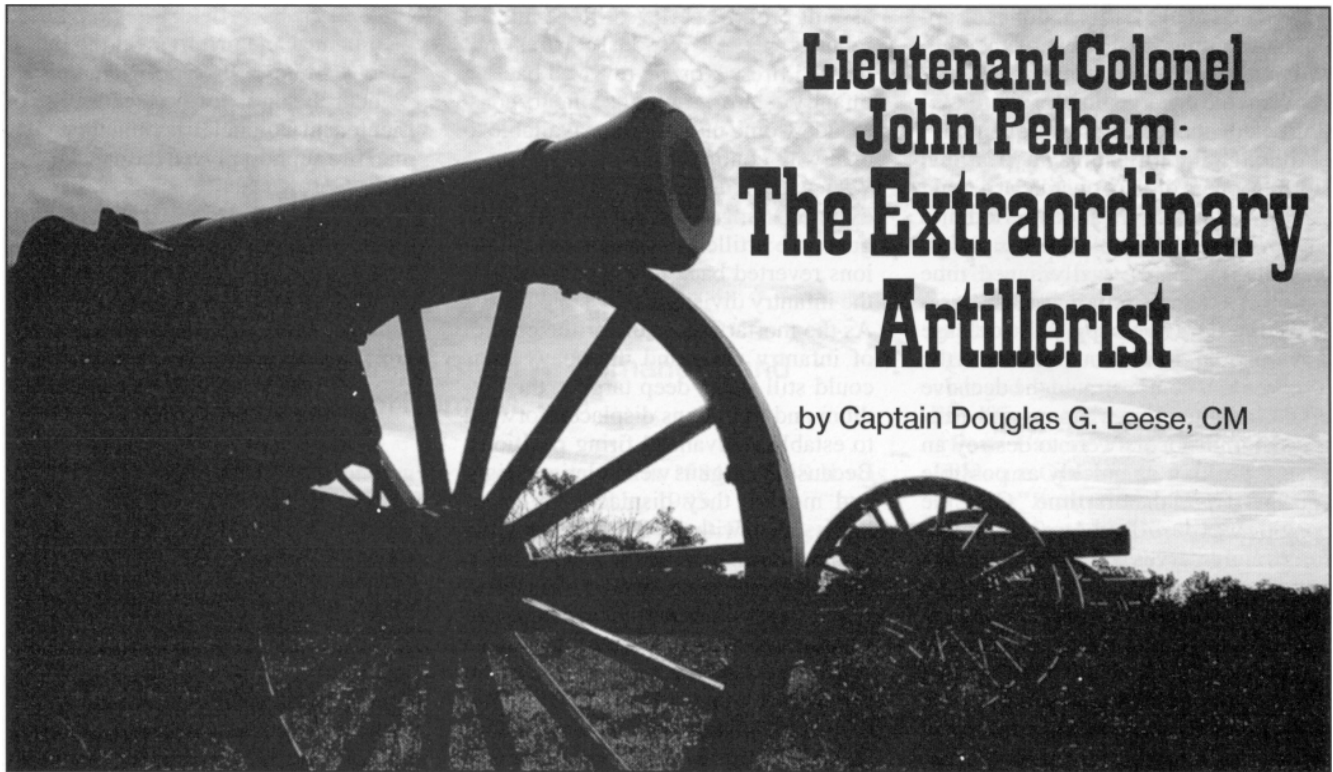


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Lieutenant Colonel John Pelham: The Extraordinary Artillerist

by Captain Douglas G. Leese, CM

***Times change, men
often change with them,
principles never.***

Inscription on Confederate Soldiers' Memorial
Jacksonville, Alabama



his application of the modern tenets of military operations.

Pelham's Background

John Pelham was born 7 September 1838 and grew up near Alexandria, Alabama. He entered the US Military Academy at West Point in 1856 where he was an exceptional athlete, a renowned horseman and well liked by his fellow cadets. He earned the nickname "Sallie" because of his youthful appearance.

As the Civil War loomed, Pelham was reluctant to leave the academy before graduation. In letters to his mother and Jefferson Davis, President of the Confederacy, he wrote of his wish to graduate. But the pressure on Southern cadets was great after Southern states started seceding. In April 1861, because of rumors of the possible detainment of Southern cadets, Pelham and Tom Rosser (later a cavalry Brigadier General) left West Point and made their way to Alabama.²

Pelham offered his services to the Confederate Army and first served under General Joseph Johnston in Virginia. He undertook the task of training the Wise (Arbutis) Battery on the proper procedures for cannon drill.³ By all accounts, he was a strict taskmaster and soon drilled his artillerists into a disciplined team. A Richmond newspaper,

Lieutenant Colonel John Pelham, first commander of General J.E.B. Stuart's Horse Artillery during the Civil War, epitomized the meaning of "dedication." In examining his short but illustrious career, he serves as a role model for today's artillerists. He was brave, intelligent, displayed an inordinate concern for his soldiers and was extremely effective in combat.

One hundred and thirty years after his death, his exploits as have taken on a mythical quality. At the core of the legend, however, is the real John Pelham, the young artilleryman who lived and breathed as we do.

As the first commander of Stuart's Horse Artillery, Pelham developed doctrine on how to employ his force. He was a strict disciplinarian who molded his soldiers into a synchronized and highly mobile cohort. He drilled his crews at every opportunity, and their proficiency paid handsomely in combat. He also was skilled at protecting his force. In more than 60 engagements,

some within yards of Union skirmishers, he never had a gun captured by the enemy. He quickly could determine the best terrain for his battery but frequently moved to avoid enemy counterfire.

John Pelham possessed high personal standards of courage, bearing and integrity. He led his men from the front and by example. The military qualities that made Pelham successful in battle and immortal in the hearts of Southerners were undefined in his lifetime. Today we recognize that he regularly used the principles defined as the tenets of Army operations.

FM 100-5 Operations (1993) lists the base tenets of the United States Army to be *initiative, depth, agility, versatility* and *synchronization*. These tenets are the foundation for doctrine and guide the development of tactics.¹ Examination of his actions during the Peninsula Campaign; during Stuart's raid to Chambersburg, Pennsylvania; and at Fredericksburg illustrate Pelham's abilities and underscore

the *Virginia Republic*, complimented Pelham's battery and gave him credit for molding it into a proficient team: "It is justly regarded as amongst [sic] the most efficient components of the artillery corps, for which it is indebted to Lieutenant John Pelham."⁴ He soon had the opportunity to put the long weeks of drill to use.

On 20 July 1861, Pelham, who was in temporary command of the battery, arrived at Manassas Junction. Around noon, he wheeled his guns into position beside the lines of General Thomas (Stonewall) Jackson near the Henry House. As other batteries withdrew to replenish their caissons, Pelham exclaimed, "I'll be dogged if I'm going any farther back."⁵ Pelham was able to quickly move his battery to ward off a flank attack by Colonel William Sherman's brigade.

In September 1861, Pelham became commander of C Company, Grove's Culpepper Battery, during a drive to create more artillery units following the success at Bull Run.⁶

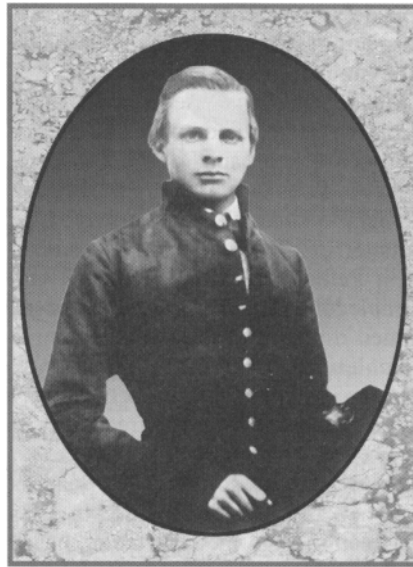
In August 1861, Stuart reorganized the cavalry. Stuart envisioned a mobile horse artillery force to support his cavalry operations. In November, Special Orders 557 from General Johnston's headquarters assigned Pelham's battery to Stuart's command. His battery became the nucleus for the cavalry horse artillery in the eastern theater. The Confederates used the horse artillery extensively in the eastern theater throughout the war.⁷

Stuart's Horse Artillery initially, on paper, had six cannons, 110 horses and 150 men in each battery. In reality, rarely were there enough mounts, men or cannons to fill any complete battery. During most actions, Pelham's batteries consisted of two or three operational cannon. The battery used Napoleons (his favorite weapon); 12-pounder howitzers; and six-pounder, Blakely, Whitworth and Parrott guns. The men in the battery were from Virginia, Louisiana and his home state of Alabama.⁸

Peninsula Campaign

During the Peninsula Campaign in 1862, Pelham demonstrated all five of the tenets of military operations: *agility*, *synchronization*, *initiative*, *versatility* and *depth*.

During the Battle of Williamsburg, Pelham's battery displayed *agility* by rapidly moving across the entire battlefield to provide fires when needed. At



the conclusion of the battle, they had fired 360 rounds, 290 from two howitzers, and were instrumental in checking the Federal Army's advance.⁹

Gain's Mill is a good example of the effectiveness of the tenet of *synchronization*. Pelham used two guns, a Napoleon and a Blakely, in support of attacking infantrymen to repel two Federal batteries (eight guns) that threatened General Stonewall Jackson's flank.¹⁰

During the Seven Days Battle, Pelham demonstrated the tenet of *initiative* by setting the terms of the battle. Acting independently, his battery repeatedly stopped Federal advances and disrupted cavalry charges.

Throughout the campaign, the horse artillery practiced the tenet of *versatility* to creatively engage unusual targets. In one instance, Stuart received orders to seize a Federal supply depot at White House Landing. The USS *Marblehead*, a Union gunship carrying 11-inch naval guns, guarded the depot. Pelham's solution was to use spherical case rounds to clear the ship's deck and force it to retreat from the area.¹¹

On 3 July 1862, Pelham used the tenet of *depth* to support cavalry operations. Stuart ordered Pelham to reconnoiter the location of the Federal Army. Pelham located and reported that General George McClellan's force was at Harrison's Landing. Stuart led a legion of cavalry against McClellan, and Pelham took one 12-pounder howitzer to Evelington Heights, which overlooked the plain at Harrison's Landing. He positioned the howitzer behind a church and began shelling the Federal Army. For approximately four hours, he fired on the entire army until he ran out of ammunition.¹²

Throughout the campaign, Pelham led his battery to provide critical covering fires for Stuart, often within yards of the Union forces. His tactics were innovative and daring and were critical to the cavalry's freedom of maneuver.

Stuart's Raid to Chambersburg

On 8 October 1862, Stuart ordered Pelham to prepare four of his best pieces and crews to participate in a raid with 1,800 cavalymen into Pennsylvania. The raid had three purposes: to determine McClellan's actions, capture prominent citizens to be exchanged for captured Virginians and disrupt the Federal communications. During this raid, Pelham used four of the tenets of operations: *agility*, *depth*, *versatility* and *initiative*.

Pelham's force demonstrated *agility* by sustaining the rapid pace of the cavalry during the raid. He arranged his guns to cover Stuart's column's front and rear during movements. He also provided a classic supporting fire for a river crossing for Stuart's return to Virginia.

The integration of Pelham's artillery with the cavalry gave Stuart the ability to project fires in *depth*. The raid began in Martinsburg, Virginia. Stuart crossed through western Maryland into Pennsylvania. Stuart's force raided the towns of Mercersburg and Chambersburg. He then moved south back through Maryland on a circuitous 130-mile route.

McClellan dispatched cavalry troops commanded by Generals Pleasanton and Stoneman to fix Stuart long enough for infantry forces to reach and destroy the Confederates. Stuart reached White's Ford on the Potomac River where he intended to cross back into Virginia.

Pelham exhibited the tenet of *versatility* and *initiative* in his classic support of a river crossing. He used his artillery to provide supporting fires to cover Stuart's river crossing. He projected two guns forward and displaced a Federal artillery battery protecting the river. Colonel Rooney Lee's cavalry division then moved forward against 200 Federal soldiers guarding the ford. Pelham's guns and Colonel Lee's cavalry division forced them from the area. Pelham then took one of his guns across the 400-yard wide river to provide far-side security for Stuart's men. Pelham provided nearside security for two hours with his

remaining guns while the main body crossed.

He demonstrated versatility through the creative way he provided continuous support fires. The tactic he used to accomplish this was to maintain a constant fire while moving his guns individually, thus giving the impression of having more firepower. While two of his guns forded the river, his remaining gun executed a mobile retrograde to the river, thus keeping a route open for the cavalry rear guard that had not yet crossed.

Pelham faced fires from Federal batteries north at Hauling's Ford and south at Edward's Ferry when he reached the Potomac. He demonstrated his initiative by using his gun to hold the passage open by alternating fires against both Federal batteries. Near noon, the rear guard force crossed. Stuart then ordered Pelham to cross, which he accomplished under fire. The raiding force returned to Martinsburg on 11 October.

The raiding party, which had traveled 130 miles in three days through enemy territory, returned to Martinsburg on 11 October. It had captured 1,200 horses and 30 political hostages while destroying 250,000 dollars' worth of supplies and equipment. Support from Pelham's horse artillery was instrumental in the success of the raid.¹³

Fredericksburg

On 13 December 1862, General Ambrose Burnside poised to attack the Confederate Army of Virginia, across the Rappahannock River at Fredericksburg. Burnside intended to destroy Lee's army before capturing Richmond, the capital of the Confederacy. Pelham supported Lee's defense using the tenets of *depth*, *agility*, *initiative*, and *synchronization*.

Lee entrenched his army on a ridgeline overlooking the river. On the morning of 13 December 1862, a fog across the river bottom obscured the Union forces. Stuart ordered Pelham to advance with two guns to determine the Federal Army's strength and location. Pelham moved his guns, a Napoleon and a Blakeley, forward of the line to Hamilton's Crossing where the Richmond Stage and Massaponax Roads intersected. He chose a grove of cedar trees as his fighting position. Pelham was able to provide *depth* to Lee's defense from this forward position.

At approximately 0900, the fog suddenly lifted and Major General George Meade's division stood lined up in battle

formations. Pelham began an enfilade fire on the ranks of soldiers.

Meade's men sustained heavy casualties, so Meade called up the batteries of Simpson, Cooper and Ransom to silence Pelham. Soon two more batteries from Abner Doubleday's division joined the counterfire. Twenty-four guns duelled with Pelham. Enemy fire struck and disabled the Blakeley, but Pelham continued directing the fire of his single Napoleon against the Union Army. Pelham used *agility* to protect his small force by moving his piece frequently to avoid Federal fires.

Thousands of soldiers and leaders watched the lopsided battle. In lulls between firing, the spectators heard Pelham's Napoleon crew, all from Louisiana singing "Marseilles." Lee remarked to Stuart, "It is glorious to see such courage in one so young."¹⁴

Stuart, fearing the loss of Pelham, sent a courier to advise Pelham to withdraw when he deemed it advisable. Pelham answered, "Tell the general [Stuart] I can hold my ground."¹⁵ His ability to determine the situation and hold his position in the face of superior firepower demonstrated Pelham's *initiative*.

Pelham's gunners continued to fire on the Federals while snipers from Stuart's cavalry kept the infantry at bay. A bursting shell killed one of the Napoleon's gunners and wounded several others. Stuart sent another courier to Pelham ordering him to withdraw. Pelham told the courier, Churchill Cooke, "Tell General Stuart that I'm getting on fine and I've only lost one man so far."¹⁶

Finally, General Jackson sent a courier with orders for Pelham to withdraw. The courier, Captain James Smith, later remarked, "I remember my ride across the field under fire to bear orders to Pelham to retire his guns and how cool and quiet he was as he sat on his horse in the open field in the center of the converging fire of a hundred guns."¹⁷ Pelham drove the Federal columns back three times, delaying the attack for two hours.

When Doubleday's and Meade's divisions began their advance, Jackson again called upon Pelham. He attached guns from six other batteries to Pelham's command. In essence Pelham was in command of all artillery on the right wing (Jackson's Corps) of the Confederate Army. He had a total of 13 guns under his command. Although he had never commanded such a large force, he demonstrated *synchronization* by massing

fires on the Federal attackers. Pelham placed his force in a position forward of Jackson's trenches and directed enfilade fire on advancing Federal infantry and artillery. Eventually, the attack stalled and the battle ended.

Lee's general orders following the battle of Fredericksburg record Pelham's courage. Lee specifically reported on Pelham's brave actions, thus immortalizing him as "the gallant Pelham."¹⁸

A Short Career

Major John Pelham died on 17 March 1863 at Kelly's Ford, Virginia. He had been conducting inspections at Culpepper when he heard of an impending cavalry battle. He borrowed a horse and rode with Stuart to attempt to repel the Federal cavalry.

Ironically, cannon shrapnel struck him in the back of his head as he participated in a cavalry charge. After being evacuated from the battlefield, he died during the night. Confederates transported his body to Richmond for public viewing in the Capitol. He received a posthumous promotion to Lieutenant Colonel and was buried in Jacksonville, Alabama.¹⁹

Pelham's death was a tremendous loss for the Confederacy. His contributions to the Confederate's military effort and his performance brought recognition from his superiors. Robert E. Lee personally commended Pelham's bravery for his actions at Fredericksburg. At the battle of Second Manassas, General Stonewall Jackson gave Pelham rare discretion to employ his mobile artillery anywhere on the battlefield.

Praise for his accomplishments continued after his death. The correspondent for the *London Times* wrote of Kelly's Ford that, "The shell that killed Pelham extinguished one of the purest and bravest spirits which have been yielded up in this desolating war."²⁰ People throughout the Confederacy mourned and eulogized Pelham. But one of the greatest tributes to John Pelham may have been when General Stuart named one of his daughters Virginia Pelham Stuart.²¹

Pelham's artillery contemporaries also admired him as a leader and skilled Redleg, particularly those who served under him. P. P. Johnston, last commander of Pelham's original battery, praised him: "Under his eyes, with his example, men who had merely been good soldiers became the greatest heroes

equal to the highest achievement."²² H. H. Mathews served under Pelham and wrote, "Pelham was dashing and, at the same time, courageous to a very high degree....he was a genius in the handling of the Horse Artillery."²³

John Pelham skillfully used mobile horse artillery to support cavalry operations. Clearly the concept was not new, even in the United States Army. However, Stuart's cavalry relied on and was successful largely because of Pelham's batteries.

Pelham's sterling reputation and model character that inspired his men serves today as a shining example for

artillerymen. Jennings C. Wise, an artilleryman who also served with Pelham, wrote: "It is impossible to define the extent of his moral ascendancy."²⁴

A monument was erected in honor of John Pelham near Kelly's Ford. The inscription reads, "In Memory of Major John Pelham. Like Marshall Ney, One of the Bravest of the Brave."



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1998 History Writing Contest

The US Field Artillery Association is sponsoring its 13th annual History Writing Contest with the winners' articles to be published in *Field Artillery*. To compete, submit an original, unpublished manuscript on any historical perspective of Field Artillery or fire support by 2 February 1998.

The Association will award \$300 for the First Place article, \$150 for Second and \$50 for Third. Selected Honorable Mention articles also may appear in *Field Artillery*.

Civilians or military of all branches and services, including allies, are eligible to compete. You don't have to be a member of the Association. Your submission should include (1) a double-spaced, typed manuscript of no more than 5,000 words with footnotes, (2) bibliography, (3) your comprehensive biography and (4) graphics (black and white or color photographs, slides, charts, etc.) to support your article.

The article should include specific lessons or concepts that apply to today's Redlegs — it should not *just* record history or document the details of an operation. Authors may draw from any historical period they choose.

A panel of three historians will judge the manuscripts without the authors' names.

The panel will determine the winners based on the following criteria:

- Writing clarity (40%)
- Usefulness to Today's Redlegs (30%).
- Historical Accuracy (20%).
- Originality (10%).

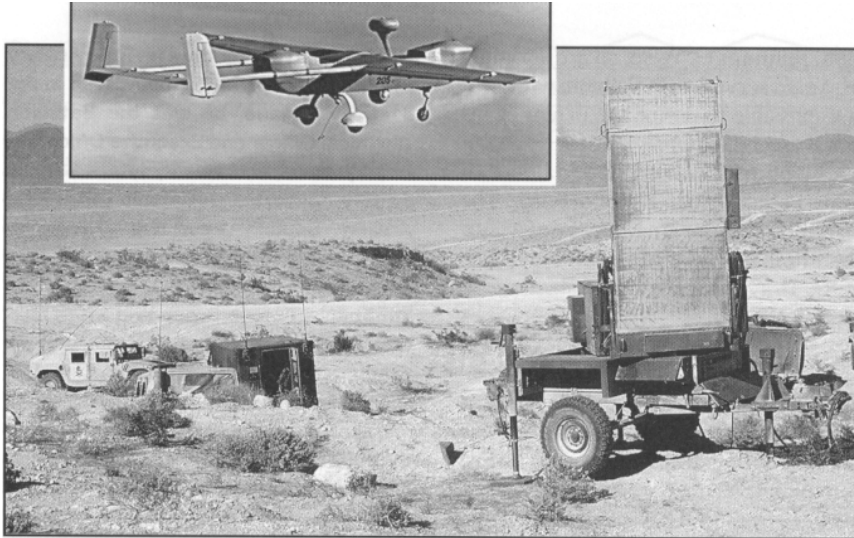
By 2 February 1998, send the manuscript to the US Field Artillery Association, ATTN: History Contest, P.O. Box 33027, Fort Sill, Oklahoma 73503-0027. For more information, call DSN 639-5121/6806 or commercial (405) 442-5121/6806.

Judges of the 1997 History Writing Contest

Brigadier General Colby M. Broadwater III is Commanding General of III Corps Artillery at Fort Sill, Oklahoma. He holds a Bachelor of Art in History from the Citadel in South Carolina and a Master of Art in International Relations from Salve Regina University in Rhode Island. Among other assignments, General Broadwater commanded the 1st Cavalry Division Artillery at Fort Hood, Texas.

Colonel Leonard J. Fullenkamp, Field Artillery, holds the Dwight D. Eisenhower Chair of National Security and is Director of Military History teaching in the Department of National Security and Strategy at the Army War College, Carlisle Barracks, Pennsylvania. He taught Military History at the US Military Academy at West Point and holds a Master of Art in History from Rice University in Texas.

Lieutenant Colonel (Retired) John A. Hixson, Field Artillery, is a Consultant with RAND Corporation and a Training Analyst with Logicon Corporation at the Battle Command Training Program, Fort Leavenworth, Kansas. He was Chief of Oral History in the US Army Military History Institute and Adjunct Faculty at the Army War College at Carlisle Barracks. He holds a Master of Art in History from Rice University and taught Military History at the US Military Academy at West Point. Lieutenant Colonel Hixson has co-authored two history books.



Counterfire Operations for Task Force XXI

by Captain Christopher P. Taylor

At 0530 as the experimental force (EXFOR) prepared to cross the line of departure, the brigade's Q-36 Firefinder radar transmitted an acquisition. Within 30 seconds, the 3d Battalion, 16th Field Artillery's tactical operations center (TOC) had the mission; two minutes later, the first volley of dualpurpose improved conventional munitions (DPICM) was impacting.

As the opposing force's (OPFOR's) regimental artillery group (RAG) displaced, the Strikers-combat observation lasing teams in high-mobility multipurpose wheeled vehicles (HMMWVs)-sent in target grid corrections. Within ten minutes, it was over. The RAG had suffered 33 percent losses and never recovered, setting the conditions for Task Force XXI's dominant maneuver throughout its sector.

During our March 1997 Task Force XXI advanced warfighting experiment (AWE) at the National Training Center (NTC), Fort Irwin, California, the improved reconnaissance, intelligence, surveillance and target acquisition (RISTA) capabilities coupled with the Q-36 radar gave us unique opportunities for the counterfire fight. These counterfire assets allowed our brigade task force to track the OPFOR's artillery early enough for not only reactive, but also proactive counterfire.

Proactive Counterfire. Before the fight, the brigade S2 templated the enemy artillery groups. Using terrain products provided by the engineer battalion that highlighted artillery slope, the reinforcing FA battalion S2 refined the template and placed call-for-fire zones (CFFZs) around them. This allowed the radar technician, S2 and S3 to determine and coordinate for the primary, alternate and supplemental

positions for the radar as well as coordinate for division artillery (Div Arty) Q-37 support for any zones the Q-36 was unable to cover.

Once the fight started, the joint surveillance and target attack radar system (JSTARS) began to confirm the initial template. JSTARS was linked to the brigade TOC, and the moving target indicators (MTIs) it produced allowed us to see formations and routes of march plus count the number of vehicles. Combined with the OPFOR order of battle, JSTARS allowed us to assess the total enemy strength, differentiate between the artillery groups and reposition our assets (Q-36 or Paladins), as necessary, for the counterfire fight. JSTARS was available throughout each battle for the majority of the rotation.

As the fight moved closer, the enemy artillery moved into the range of our unmanned aerial vehicle (UAV).

Depending on whether or not the UAV was being used to target or collect, it was the first set of "eyes" that allowed us to begin the proactive counterfire fight. If the fire support element (FSE) could focus the UAV on targeting, we processed proactive counterfire missions. However, if the UAV focused on collecting intelligence, we received enough information to refine our template, identify weapons types and confirm the enemy's true strength, but not enough details for targeting. The UAV served two purposes: it allowed us time to reposition our assets for the reactive fight and time to refine the CFFZs.

By far the most valuable assets we had were the abundance of human eyes to see and send accurate grids as well as designate for laser-guided munitions. With six Strikers and the reconnaissance battalion's 18 recon teams, the brigade S2 dedicated assets to search for OPFOR artillery and cover named areas of interest (NAIs).

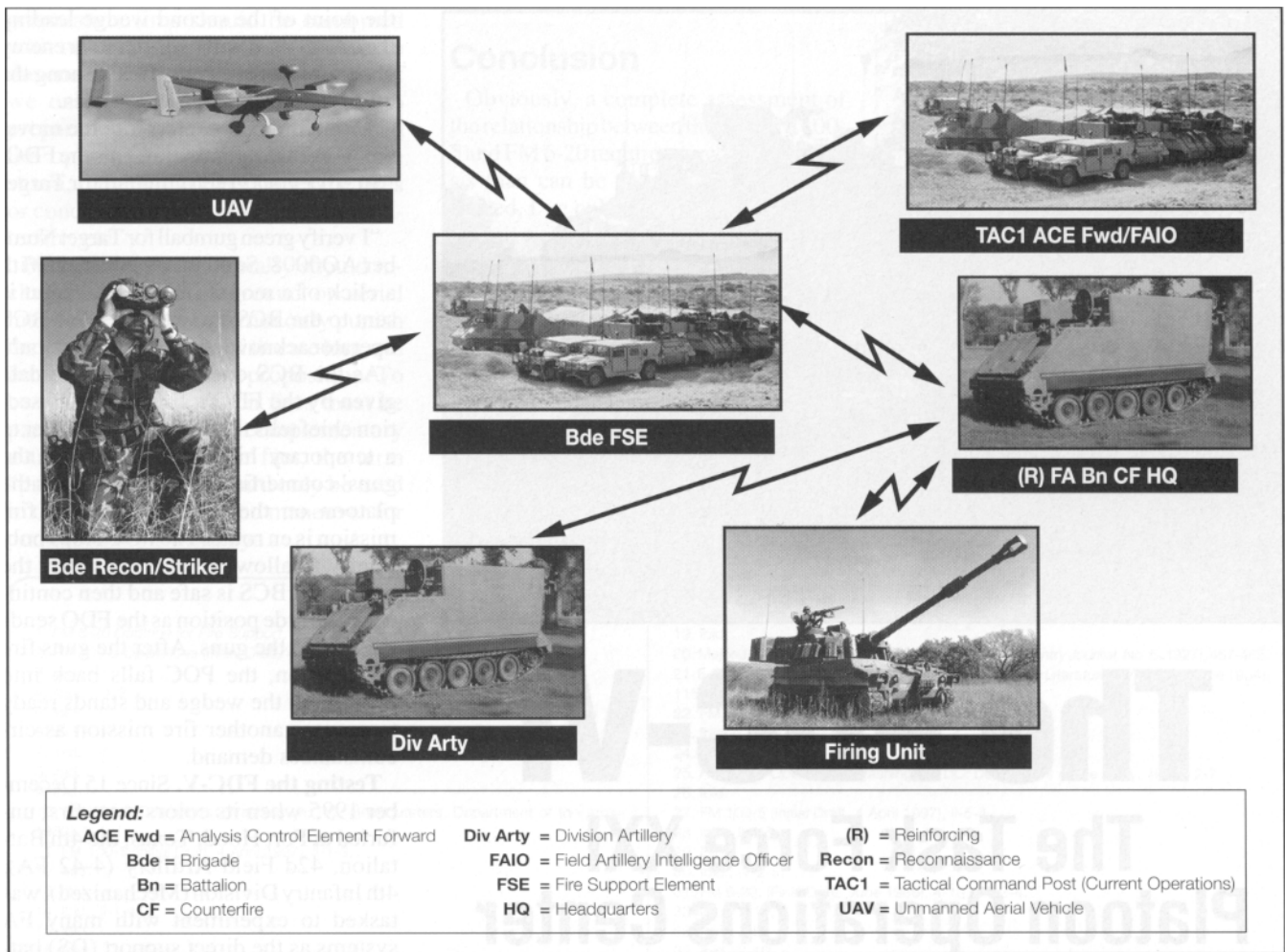
These brigade assets sent calls-for-fire directly to the FSE, which processed them digitally if they were from the Strikers or by voice if from a recon team. Other brigade assets that contributed to seeing and killing the enemy artillery counterfire fight included the OH-58D Kiowa Warrior helicopters, Army attack aviation and close air support (CAS) aircraft.

Reactive Counterfire. Once the remainder of the RAG began to fire, we transitioned to the reactive fight. Throughout the proactive fight, we had prepared for this transition using all sensors available, including the Applique, to refine our zones.

The Applique, which shows where approximately 85 percent of the vehicles on the battlefield are, provided two distinct advantages. First, it allowed the counterfire headquarters to concentrate on updating and refining critical friendly zones (CFZs) which, in turn, allowed the FSE to concentrate on other events. All the fire support coordinator (FSCoord) had to provide was the commander's intent to ensure the headquarters' focus was correct.

Second, because we had nearly perfect battlefield awareness and could superimpose the zones on a digital map, our zones were much more efficient. That meant our zones covered friendly formations, areas and battle positions but very little empty desert.

During the battle, adjusting the zones was as easy as moving the icon on the Applique and updating the radar deployment order (RDO). Sending the



Proactive Counterfire Operations

RDO also was simplified. The Force XXI software package in the advanced Field Artillery tactical data system (AFATDS) allowed radar zones to be entered as battlefield geometry. We entered and verified all zones in AFATDS before crossing the line of departure (LD). Transmitting the zones to the radar was as simple as clicking on the Q-36 symbol, selecting the zones from the menu and transmitting them directly to the radar shelter.

Execution of the reactive counterfire fight was digital. The Q-36 transmitted acquisitions to the S2's AFATDS. If the acquisition violated either a CFZ or CFFZ, it appeared as an active target. After analysis by the S2, the S3 decided if the target could be serviced and it was then transmitted directly to the reinforcing battalion fire direction center (FDC) through a local area network (LAN). Any acquisition that did not violate a zone appeared as an inactive target and was plotted and processed. Those targets that could not be serviced were sent to the brigade S2 along with the S2's analysis.

Depending on the phase of the battle and the target, requests for additional fires were sent to the Div Arty to engage with general support (GS) assets.

Conclusion. Task Force XXI AWE initiatives brought many new capabilities to the counterfire fight. Our improved ability to find and destroy enemy artillery early with the UAV and the brigade's Strikers and recon teams allowed the EXFOR to disrupt the enemy RAG early and never let it recover.

When the remnants of the enemy artillery finally were ready to fire, innovations such as the Applique and AFATDs allowed us greater efficiency and improved zone management for the reactive counterfire fight, reducing the acquire-to-fire times and denying the enemy the ability to mass effectively.

While these initiatives enhanced the fight, the keys to a reinforcing Field Artillery battalion S2's counterfire success are still the basics: conduct a thorough intelligence preparation of the battlefield (IPB); know the enemy's capabilities and tactics; and

fight him, not the plan. These skills, combined with tomorrow's technology, will ensure the Field Artillery continues to be the King of Battle.



Captain Christopher P. Taylor is the Assistant Operations Officer for the 3d Battalion, 16th Field Artillery, 4th Infantry Division (Mechanized), Fort Hood, Texas. During the Task Force XXI Advanced Warfighter Experiment, he was the S2 for the same battalion, which reinforced 4th Battalion, 42d Field Artillery, also in the 4th Infantry Division. His previous assignments include Fire Support Officer (FSO) for A Company, 3d Battalion, 67th Armor, and Assistant FSO for 2d Brigade, both in the 4th Infantry Division; and Fire Direction Officer and Platoon Leader in B Battery, 1st Battalion, 15th Field Artillery, 2d Infantry Division in Korea. Among other schools, Captain Taylor is a graduate of the Multiple-Launch Rocket System (MLRS) Cadre Course at Fort Sill, Oklahoma, and the University of Maine.



The FDC-V: The Task Force XXI Platoon Operations Center

by First Lieutenant F. Michael Marty

“**M**arch order! Time now!” yells the fire direction officer (FDO) to his section after having just received the order to move his platoon operations center (POC) and the Paladin platoon 10 kilometers west down the Central Corridor. The deliberate attack is going well for the friendly force. But due to the swift pace of battle, the guns have to move immediately. The POC won't be able to displace fast enough to catch up.

Or will it? In the March 1997 Task Force XXI (TF XXI) advanced warfighting experiment (AWE) at the National Training Center (NTC), Fort Irwin, California, the POC installed in the M992 FAASV ammunition supply vehicle (FAASV) chassis could move out quickly enough. During the rotation, the POC in its fire direction center vehicle (FDC-V) pulled out of its hide position in a wadi and maneuvered toward the guns in less

than two minutes after the march order.

“Send the move order to the guns,” the FDO says over the voice-activated intercom to his battery computer system (BCS) operator. Then with the turn of a knob, the FDO views any of three computer screens in his track—applique, advanced Field Artillery tactical data system (AFATDS) or BCS—on his 21-inch flat panel display screen. This allows him to supervise what all three of his computer operators are inputting into their systems.

He checks the BCS screen. “Roger send it,” the FDO says as he flips back to the Applique screen and says to the fire direction NCO in the commander's hatch, “I've spotted an enemy FASCAM [family of scatterable mines] minefield on East Range Road north of Hill 780 on the Applique. I don't see any friendlies. Make sure the platoon stays well north of it, and keep your M60 oriented on the North Wall.”

The guns move out in wedge formation, and the POC takes its position at the point of the second wedge leading the FAASVs. It will be difficult for enemy observers to identify the POC among the other ammunition carrier vehicles.

About three kilometers into the move, the AFATDS operator informs the FDO, “Sir, I've got a green gumball for Target Number AQ0008.”

“I verify green gumball for Target Number AQ0008. Send it to the BCS.” With a click of a mouse button, the target is sent to the BCS by wire line. The BCS operator acknowledges, “Fire Mission!”

As the BCS operator inputs the data given by the FDO's fire order, the section chief tells the driver to maneuver to a temporary hide position out of the guns' counterfire footprint and calls the platoon on the radio to tell it a fire mission is en route. The POC stops only briefly to allow the chief to verify the data in the BCS is safe and then continues to its hide position as the FDO sends the data to the guns. After the guns fire the mission, the POC falls back into position in the wedge and stands ready to process another fire mission as circumstances demand.

Testing the FDC-V. Since 15 December 1995 when its colors were first unfurled at Fort Hood, Texas, the 4th Battalion, 42d Field Artillery (4-42 FA), 4th Infantry Division (Mechanized), was tasked to experiment with many FA systems as the direct support (DS) battalion to the 1st Brigade Combat Team (BCT), Task Force XXI. One such system was the M992 FDC-V, a prototype POC in support of an M109A6 Paladin platoon.

Three FDC-Vs were manufactured by United Defense, two of which went to A Battery, 4-42 FA, one for each platoon. The battery's mission was to test the FDC-V and compare it to the M1068/M577 command post (CP) carrier, the CP vehicle fielded throughout the Army.

The battery field tested the FDC-V extensively for 13 months, including five battalion field training exercises (FTXs) and culminating with the TF XXI AWE at the NTC. The M992 used as an FDC-V is far superior to the M1068 CP. The vehicle increased the POC's mobility, survivability and firing capability.

- **Mobility.** The M992 chassis required minimal changes on the outside, but it was outfitted with fire direction operations equipment in the inside, decreasing its overall weight. This allows the FDC-V to outrun the Paladin and its companion FAASV. During the AWE,

the FDC-V maneuvered across desert at more than 45 miles per hour.

The FDC-V complements the Paladin's ability to provide rapid, responsive fires. Unlike the M1068 CP, the FDC-V has all workstations oriented toward the front of the vehicle with five-point safety harnesses for each operator. This setup helps the crew complete POC tasks while on the move and increases its safety. The vehicle also has ample space for seating and storage for the nine crewmembers and their equipment and bags.

The only piece of equipment that prevents the FDC-V from functioning continuously on the move is the 10-meter mast antenna. The vehicle shouldn't move while the mast is extended due to the damage that could occur to the antenna when the vehicle maneuvers over rough terrain.

The mast may be raised or lowered electronically from inside the vehicle in only 35 seconds. The driver sees a warning light when the antenna is raised to keep him from moving the vehicle and possibly damaging the antenna.

Survivability. The most obvious survivability characteristic of the FDC-V is that it looks like the FAASVs, with slight variances, which decreases the FDC-V's signature. The FDC-V has five whip antennas versus the FAASV's one and has a carrying case for the mast antenna and an environmental control unit (ECU) in the back. These additions are minor and make it difficult for enemy observers to identify the POC from among the rest of the platoon M992s, especially from long distances.

The fact that the FDC-V is, essentially, an M992 also provides maintenance

parts and tools that are interchangeable with Paladins and FAASVs in the same battery. This increases the FDC-V's survivability and decreases the Army's maintenance and repair costs.

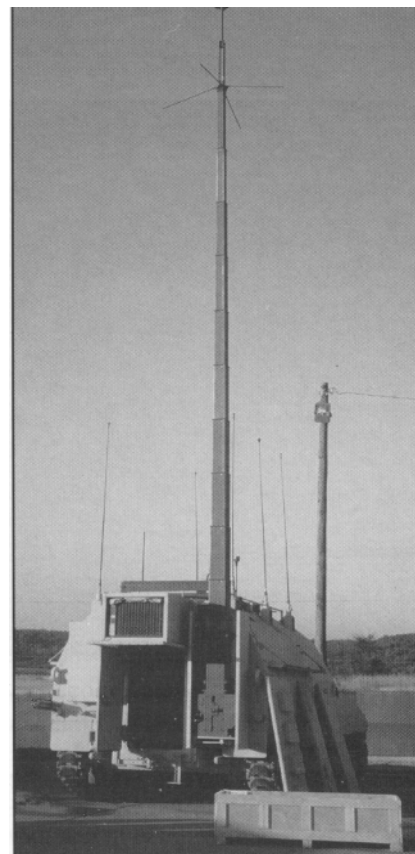
Unlike the M1068, the FDC-V has an ECU, a key to the survival of both the personnel and the computer systems while conducting 24-hour operations in a field environment. With an easy-to-use thermostat, the ECU maintains the optimum temperature for soldier and equipment performance, regardless of the weather conditions.

Firing Capability. The FDC-V has the equipment and layout to greatly enhance processing firing missions as compared to the M1068. The AFATDS and BCS operators are side-by-side and within arm's length of the Applique operator. The section chief can stand over the three soldiers and ensure his knowledge and expertise are available to them during operations.

The FDO has his own work area, which includes a desk top, storage for manuals and references, the flat panel display and the situation map. Charts and status boards are posted on the walls so both the section chief and FDO can stay informed of the situation easily. The vehicle has additional space for seating a radio/telephone operator (RTO) and fire mission recorder, and there's still room for the driver to lay down and rest during 24-hour operations.

Similar space and ease of access to systems and information to process fires is not available in an M1068—even with a tent extension.

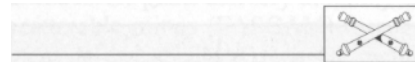
The Future. During the AWE, we ran into a few problems: two ECUs went



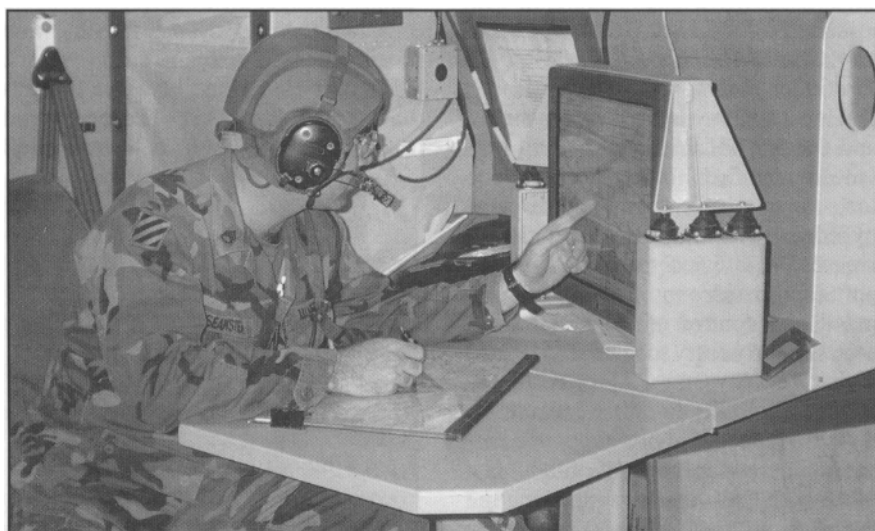
The FDC-V has a 10-meter mast antenna that's extended and lowered remotely from inside the vehicle.

down, the auxiliary power unit (APU) needed more amps to run the vehicle's electrical system and the mast wasn't hardened enough to endure the wind, rain and dust. But the problems were relatively minor and expected while testing a prototype in a tough, realistic environment.

Although the Army hasn't decided whether or not to buy the FDC-V as the POC partner for the Paladin platoon, there's no question in the minds of the crews who spent months operating and testing the vehicle: the FDC-V increases the POC's ability to shoot, move and communicate with a Paladin platoon.



First Lieutenant F. Michael Marty is the Battalion Fire Direction Officer (FDO) for the 4th Battalion, 42d Field Artillery, 4th Infantry Division (Mechanized) at Fort Hood, Texas. He worked with the 1st Brigade Combat Team as a Platoon FDO in A Battery, 4th Battalion, 42d Field Artillery during the March 1997 Task Force XXI Advanced Warfighting Experiment (AWE) rotation at the National Training Center, Fort Irwin, California. Lieutenant Marty is a graduate of the Field Artillery Officer Basic Course, Fort Sill, Oklahoma; Airborne School at Fort Benning, Georgia; and the University of Notre Dame in Indiana.



Staff Sergeant Robert Seamster, fire direction NCO for 2d Platoon, A Battery, 4-42 FA, verifies his map spot of the howitzers using the 21-inch flat panel display.

The FA's New Command and Attack Battalion

by Captain Timothy P. Goldfish

A21 FA in Kuwait



On 16 September 1997, the Army's first multiple-launch rocket system (MLRS) command and attack battalion (CAB), 1st Battalion, 21st Field Artillery, 1st Cavalry Division, will activate in ceremonies at Fort Hood, Texas. Designed with two firing batteries, each with nine MLRS launchers (2x9); a target acquisition battery (TAB); and a headquarters, headquarters and service (HHS) battery; a CAB will be activated for each active Army heavy division through FY 2003. (See Figure 1.)

FM 6-60 Tactics, Techniques and Procedures for Multiple Launch Rocket System (MLRS) Operations does not address CAB procedures. However, as one might expect, MLRS battery operations outlined in the FM don't change significantly in the CAB.

In the process of updating tactics, techniques and procedures (TTP) for the November 1997 Division XXI Advanced Warfighting Experiment (AWE), the Field Artillery School, Fort

Sill, Oklahoma, drafted several manuals, including *ST 6-60 Command and Attack Battalion Operations* and *ST 6-20-30 Fire Support for Division XXI*. This article uses the information in the two manuals as a point of departure for discussing the organization and employment of the CAB.

In 1996, the Vice Chief of Staff of the Army approved the concept of creating the MLRS command and attack battalion (2x9) in each heavy division artillery (Div Arty) in conjunction with the 3x6 Paladin conversion plan.¹

The CAB activations outlined in Figure 2 are programmed into the Army's budget; however, the Army is working to accelerate CAB activations to fill the gap in FY 99 and complete all fieldings a year early in FY 02.

The CAB incorporates the existing divisional MLRS battery and TAB with a second MLRS battery and HHS battery. The TAB, with its Q-36 and Q-37 Firefinder radars, will detect, identify and locate enemy indirect fire systems, and the two MLRS batteries will provide rocket fires for the division and long-range missile fires when directed by corps. The CAB significantly increases the division's organic fire support and provides more effective command and control of MLRS and TA assets in early entry scenarios. After the division deploys, the CAB provides enhanced flexibility to either execute the division's deep fires or support counterfire operations, normally run by one of the two FA brigades supporting the division.

The CAB tactical operations center (TOC) with its fire direction center

(FDC) and operations, intelligence and liaison sections will improve divisional MLRS planning, coordination and execution. The CAB TOC can be positioned in several locations in the division area of operations: at the division tactical command post (DTAC) to facilitate the synchronization of deep fires, at the Div Arty TOC to facilitate the Div Arty's fires or positioned alone (with additional sections of the HHS for security) to reduce the signature of a larger command and control center.

With the addition of some resources, the CAB could serve as the counterfire headquarters, pending the arrival of the FA brigade headquarters to assume that role. It could also serve as the nucleus for a Div Arty assault TOC and then "TOC backup" after the Div Arty arrives. As always, the positioning and employment of the CAB depends on the mission, enemy, terrain, troops and time available (METT-T).

Improved sustainability is another advantage of the CAB. The additional MLRS battery with its dedicated HHS

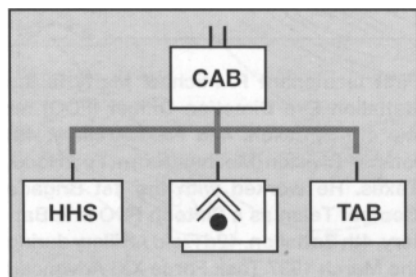


Figure 1: The command and attack battalion (CAB) includes the existing division multiple-launch rocket system (MLRS) and target acquisition batteries, a second MLRS battery and a headquarters, headquarters and service (HHS) battery.

Division	Fielding
1st Cavalry	3d Quarter, FY 97
4th Infantry (Mechanized)	3d Quarter, FY 98
3d Infantry (Mechanized)	3d Quarter, FY 00
2d Infantry	3d Quarter, FY 01
1st Armored	3d Quarter, FY 02
1st Infantry (Mechanized)	3d Quarter, FY 03

Figure 2: CAB Fielding

support increases the division's capacity for continuous MLRS operations.

Power Projection. An early entry force projection technique is to send a conceptual division ready force (DRF) CAB package with a Div Arty assault command post (CP) early in a heavy division's deployment to an immature theater. This assault DRF consists of an MLRS battery (-), one Firefinder Q-37 radar, a CAB assault CP and a Div Arty assault CP. The assault CPs are collocated to plan and execute fires as the division deploys.

In this scenario, a brigade combat team (BCT) (-) with its habitually associated direct support (DS) cannon battalion already has deployed to secure the lodgment area. The Div Arty assault DRF receives counterfire data digitally from the Q-37.

The Div Arty assault DRF protects the vulnerable, deploying force with 24-hour, all-weather fires, including attacking the enemy deep with MLRS. The capabilities of the MLRS family of munitions allow the division to conduct suppression of enemy air defenses (SEAD) for air interdiction and Army aviation operations and attack other high-payoff targets (HPTs). (See Figure 3.) As the remainder of the Div Arty deploys into the theater, the temporary FA organization phases into more traditional Div Arty operations.

Offensive and Defensive Operations.

The CAB can be tailored to support the division's offensive objectives. In one attack scenario, the two supporting FA brigades provide counterfire and reinforcing fires for the Div Arty while the CAB provides general support reinforcing (GSR) fires in support of the division's deep fires. (See Figure 4 on Page 40.) Integrated into the march columns of the main effort BCT, the CAB ensures responsive fires and advantageous positioning to provide fires for future operations, such as for preparations or exploitation.

In this scenario, the Q-37 Firefinder radar sections and the target processing section are attached to one of the two FA brigades that serves as the counterfire headquarters. The CAB TOC controls two of the three Q-36 Firefinder sections to provide reactive counterfire within the zone of fire of the DS artillery battalion. The CAB TOC also moves, positions and provides tactical fire direction for the two MLRS batteries. Another role for the CAB could be to provide on-order DS fires to the aviation brigade.

One advantage of doubling the number of MLRS launchers in the heavy division is that the Div Arty can provide the DS battalions reinforcing MLRS platoons and still have general support (GS) assets available.

In the defense, the Div Arty commander normally will use the CAB in GS to mass fires. However, he has other CAB employment options. For example, an MLRS battery could provide fires in support of the divisional cavalry squadron during the initial phase of the defense.

The CAB also can support a division's defense by serving as the counterfire battalion. All the essential elements for counterfire operations are organic to the CAB: MLRS launchers, radars, the target processing section and a battalion TOC. Linking the Q-37s directly to MLRS—sensor-to-shooter—speeds the destruction of enemy artillery units.

Fires Strike Force Operations. The Fires Strike Force combines the capabilities of sensor and collection assets with attack systems to engage specific enemy targets. The following Fires Strike Force scenario shows how the FA shapes battlespace by defeating enemy artillery in the first phase, resulting in favorable force ratios for decisive divisional operations in the second phase. (See Figure 5 on Page 41.)

In this scenario, a Fires Strike Force's mission is to maneuver to an attack position to destroy 50 percent of the divisional artillery group (DAG) and provide SEAD for the aviation brigade's deep attack to defeat the enemy's independent tank regiment (ITR).

Munition	Range (kms)*	Payload	Targets
Fielded			
M26 Rocket	10 - 32.5	644 M77 DPICM Bomblets	Personnel, Light Armor and Soft Vehicles Materiel
ATACMS Block I	25 - 165	950 APAM Bomblets	Personnel and Soft Vehicles/Materiel
In Production			
ATACMS Block IA	70 - 300	310 APAM Bomblets	Personnel and Soft Vehicles/Materiel
In Development			
Extended-Range Rocket	15 - 45	518 XM85 Improved DPICM Bomblets	Personnel, Light Armor and Soft Vehicles/Materiel
Guided MLRS	15 - 60+	322 - 469 (TBD) XM85 Improved DPICM Bomblets	Personnel, Light Armor and Soft Vehicles/Materiel
MSTAR	15 - 60+	TBD	Hot/Cold, Moving/Stationary, Armored/Soft Vehicles
ATACMS Block II	35 - 140	13 Bat Submunitions	Moving Armored Vehicles
ATACMS Block IIA	100 - 300	6 Bat P ³ I Submunitions	Hot/Cold, Moving/Stationary, Armored/Soft Vehicles,
<p>*For the munition ranges, the lower number in kilometers (kms) is the minimum range and the higher the maximum.</p> <p>Legend:</p> <p>APAM = Anti-Personnel and Anti-Materiel ATACMS = Army Tactical Missile System Bat = Acoustic Infrared Submunition to Kill Moving Armored Vehicles DPICM = Dual-Purpose Improved Conventional Munition MLRS = Multiple-Launch Rocket System MSTAR = Multiple-Launch Rocket System P³I = MLRS Smart Tactical Rocket Preplanned Product Improvement</p>			

Figure 3: MLRS Family of Munitions

In this scenario, FA Brigade 1 (-) is the Fires Strike Force headquarters. The Strike Force also includes one battalion task force and one 155-mm self-propelled DS artillery battalion, both from the "reserve" mechanized BCT; one troop from the divisional cavalry squadron; the CAB; a second MLRS battalion from the FA brigade; and a headquarters and headquarters company (HHC) (-) from the aviation brigade with its combat service support assets. (FA Brigade 2 provides reinforcing (R) fires for the Div Arty.)

The Fires Strike Force crosses the line of departure and maneuvers to an attack position. Divisional cavalry assets provide reconnaissance during the Fires Strike Force's movement to the attack position. The DS cannon batteries move in battery formation behind the lead elements of the maneuver forces with the remaining elements of the Fires Strike Force following closely.

Intelligence and targeting data on the locations of DAG units is updated via the common ground station (CGS) attached to the FA brigade headquarters; JSTARS info is used to cross cue the unmanned aerial vehicle (UAV) to locate enemy artillery moving into firing positions. The Fires Strike Force uses intelligence electronic warfare (IEW) assets, including advanced Quick Fix and Guardrail common sensor aviation assets, to target the DAG CP for

destruction. The FA brigade headquarters fuses the targeting/intelligence data and generates fire missions for the brigade's MLRS battalion and the DS cannon battalion to execute. The CAB uses its two Q-37 radars for reactive counterfire.

Next, the Fires Strike Force's batteries fire SEAD for the aviation brigade's attack on the ITR. After the Strike Force meets the commander's intent for fires, it reforms and moves to a follow-on assembly area to prepare for the next phase of the divisional operation.

Sensor-to-Shoot Linkages. The CAB's sensor-to-shooter link allows the battalion to engage targets in the minimum time to help the division gain and maintain the initiative. Considerations during planning include target location error (TLE) and an analysis of the time it takes from TA through battle damage assessment (BDA).

The CAB ensures its sensor-to-shooter operations target the priorities derived from the division's targeting process. The advanced FA tactical data system (AFATDS) helps in the linkage and keeps the decision makers involved. In AFATDS, the CAB filters out targets not to be engaged, screens for targets that don't meet the commander's guidance and designates intervention points (IPs) where the fire mission needs to stop for unit coordination or decision.

The TAB's radar platoon and target

processing section can be task organized, based on METT-T. Most likely, the Q-36 sections will be task organized by attaching them to the DS cannon battalions to cover the supported maneuver brigade's zone of responsibility. The longer range Q-37 radars and target processing section could be under the CAB's control to support sensor-to-shooter links for short-dwell targets or attached to the counterfire headquarters.

Future Capabilities. Precision rocket and missile munitions in development now will significantly increase the lethality of operations in the future. Munitions such as the extended-range rockets, guided MLRS rockets (GMLRS), MLRS smart tactical rocket (MSTAR) and Army tactical missile system (ATACMS) Blocks IA, II and IIA with the Bat and Bat preplanned product improvement (P³I) smart submunitions will allow the division to simultaneously attack a wider array of targets throughout its battlespace. (See Figure 3 and the article "Improving the Effects of Fires with Precision Munitions" by John K. Yager and Jeffrey L. Froyland in the March-April edition.)

The improvements in the M270A1 launcher, with its proposed initial fielding of FY 2000, will have an impact on tactical operations. The launcher will have the improved launcher mechanical

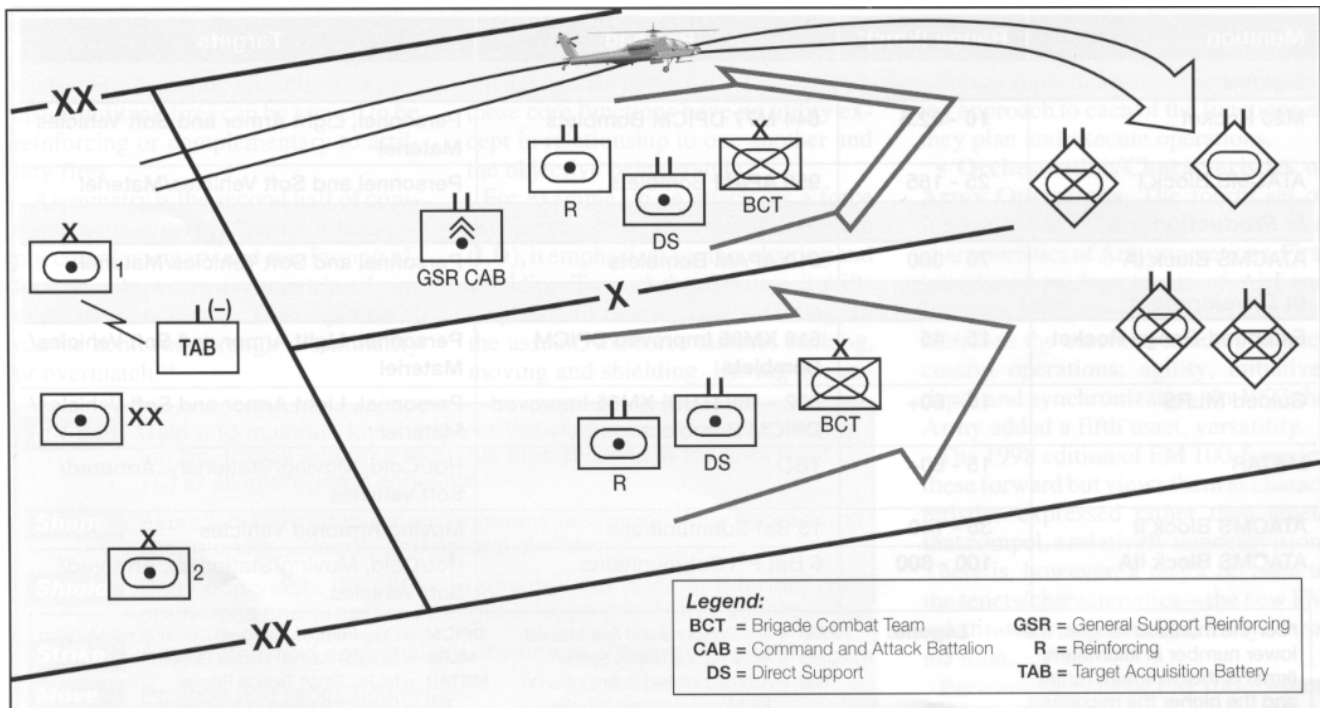


Figure 4: CAB Supporting the Division Attack. In this scenario, the CAB has a general support reinforcing (GSR) mission to support the division main effort. The Q-37s and target processing section of the TAB are attached to FA Bde 1, which is the counterfire headquarters.

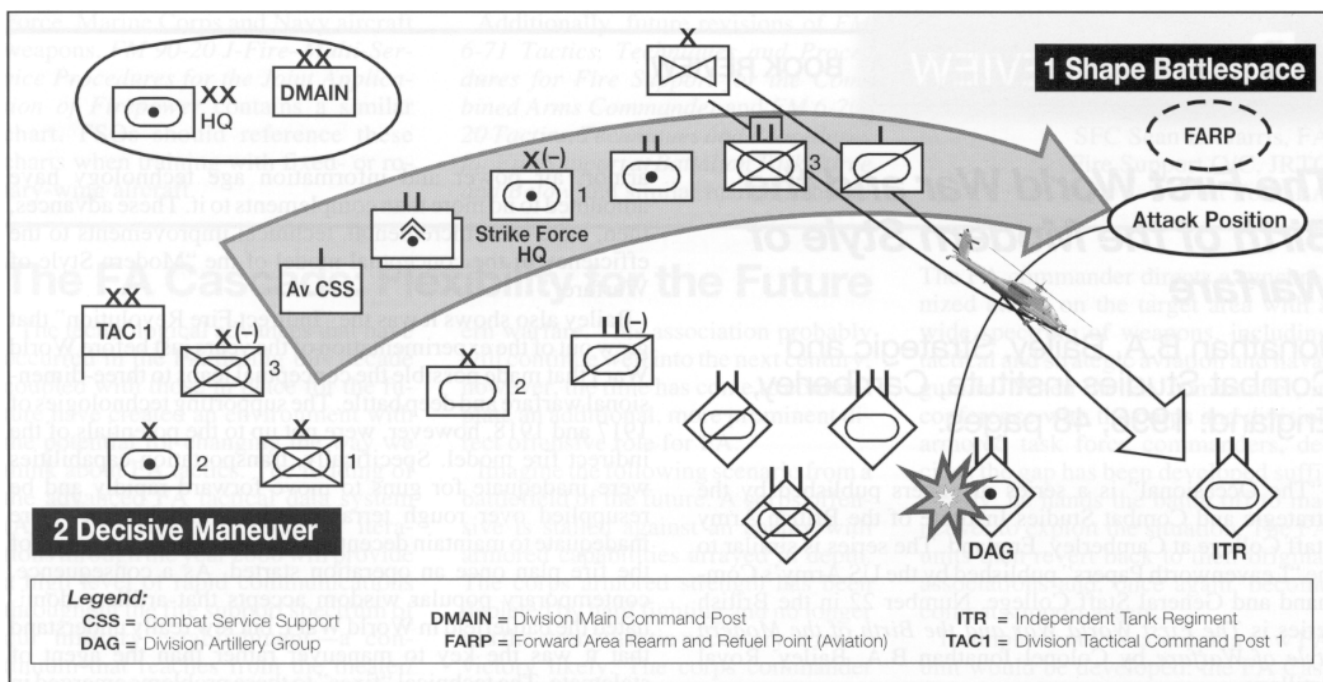


Figure 5: CAB in a Fires Strike Force. In the first part of the operation, the strike force forms in an assembly area, moves to its attack position, attacks the enemy artillery deep and provides suppression of enemy air defenses (SEAD) for the aviation brigade's attack on the enemy independent tank regiment (ITR). The goal is to shape the battlespace for the division's decisive maneuver in the second phase. In the Strike Force, one of the MLRS battalions is the CAB and the second is from the FA brigade, which serves as the Strike Force headquarters. (The two ground maneuver brigades depicted in phase two include direct support (DS) artillery battalions.)

system (ILMS) and the improved fire control system (IFCS). The ILMS will slew the launcher/loader module much faster, thereby improving responsiveness and survivability. The IFCS will allow the launcher to fire future munitions and incorporate improved, built-in maintenance and diagnostic troubleshooting. The launcher also will have an on-board global positioning system (GPS) for self-location.

Improved Firefinder systems are being developed. The AN/TPQ-36 Version 8 incorporates electronic upgrades: a next-generation display, control unit and signal/data processor mounted in a new lightweight multipurpose shelter.

The AN/TPQ-37 Block II will substantially improve the Q-37's range, deployability and sustainability. The system will be able to detect, locate and classify hostile indirect fire sources, including theater ballistic missiles, at ranges up to 300 kilometers. Among other systems, Block II will interface with unmanned aerial vehicles (UAVs), theater missile defense (TMD) systems and JSTARS. The Block II radar section will be able to drive on and off a C-130 or larger aircraft. It also will have built-in test equipment to detect and isolate maintenance faults down to a specific line replaceable unit (LRU).

The Q-36 Version 8 is in low-rate initial

production with fielding to begin in second quarter FY 98. The Q-37 Block II is projected for fielding in FY 2003.

As was demonstrated in 1991's Operation Desert Storm; during FY 96's Joint Precision Strike Demonstration (JPSD) Advanced Concept Technology Demonstration (ACTD) in Korea²; and, again, in March 1997's Task Force XXI Advanced Warfighting Experiment (AWE) at the National Training Center, Fort Irwin, California, the Field Artillery needs a dedicated UAV. The UAV would provide the details to improve the division's proactive counterfire, attack of other HPTs and BDA. A conceptual organization would be to have a UAV platoon in the CAB's TA battery. Without dedicated UAVs, the Div Arty will have to compete for priority use of the UAV, limiting its ability to execute the deep fires and BDA for the division.

The CAB enhances the division's combined arms fight—gives the division more lethality in organic firepower and flexibility in combat organization, command and control and employment options. The CAB MLRS and TA assets in one battalion speed up the acquisition and attack of the enemy artillery in counterfire and other HPTs in close and deep operations. Activating CABs in the heavy divisions is a winning proposition for the

Army.



Captain (Promotable) Timothy P. Goldfish is a Multiple-Launch Rocket System (MLRS) Action Officer in the Materiel Requirements and Integration Division, Directorate of Combat Developments, Field Artillery School, Fort Sill, Oklahoma. His previous assignments include serving as Commander of A Battery and Battalion S4 in the 4th Battalion, 11th Field Artillery at Fort Wainwright, Alaska. Captain Goldfish was the S2 and A Battery Executive Officer in 1st Battalion, 17th Field Artillery, and Battalion Fire Direction Officer (FDO) and C Battery FDO in the 2d Battalion, 34th Field Artillery in the 75th Field Artillery Brigade, III Corps Artillery at Fort Sill. He's a graduate of the Combined Arms and Services Staff School, Fort Leavenworth, Kansas. The author acknowledges the contributions to this article of several organizations in the Training and Doctrine Command (TRADOC) and Forces Command (FORSCOM).

Notes:

1. Major General Randall L. Rigby, "3x6 Cannon—2x9 MLRS Transition," *Field Artillery*, PB6-96-5, (September-October 1996), 20-23.
2. Major General Randall L. Rigby, "Targeting UAVs" *Field Artillery*, PB6-97-1 (January-February 1997), 1.

The First World War and the Birth of the Modern Style of Warfare

Jonathan B.A. Bailey, Strategic and Combat Studies Institute, Camberley, England: 1996, 48 pages.

"The Occasional" is a series of papers published by the Strategic and Combat Studies Institute of the British Army Staff College at Camberley, England. The series is similar to the "Leavenworth Papers" published by the US Army's Command and General Staff College. Number 22 in the British series is *The First World War and the Birth of the Modern Style of Warfare* by Colonel Jonathan B.A. Bailey, Royal Artillery.

The Birth of the Modern Style of Warfare is an important and thought-provoking pamphlet that challenges most of the long-held assumptions and stereotypes about World War I, especially its significance in the history of warfare. As an artilleryman—or gunner, as our British allies would say—Bailey also offers a fresh look at the role of artillery on the modern battlefield.

For many people, World War I has become virtually synonymous with brutal and grinding attrition warfare, tactical and operational gridlock, and criminal stupidity in command. Bailey, however, argues that between 1917 and 1918, "a Revolution in Military Affairs (RMA) took place which, it is contended, was more than merely that; rather it amounted to a Military Revolution which was the most significant development in the history of warfare to date, *and remains so*" (emphasis added). Bailey then proceeds to build a strong and logical argument to support this seemingly radical thesis.

Bailey draws a sharp distinction between a "Revolution in Military Affairs" and a "Military Revolution." According to a standard definition, a revolution in military affairs is "a discontinuous increase in military capability and effectiveness arising from simultaneous and mutually supportive change in technology, systems, operational methods and military organizations." A military revolution, on the other hand, "embodies a more fundamental and enduring transformation brought about by military change." The key distinction is that a military revolution introduces an entirely new concept in warfighting rather than just quantum improvements in current ways of operating.

Bailey argues that the period on the Western Front from 1917 to 1918 introduced a military revolution, one that brought about the birth of the modern style of warfare "with the advent of three dimensional artillery indirect fire as the foundation of planning at the tactical, operational and strategic levels of war." The result was something fundamentally different and new in warfare—operations in three dimensions and in depth. The resulting paradigm shift to the modern style of warfare was so revolutionary that the subsequent introductions of armor, air power and information age

technology have amounted to no more than complements to it. These advances, then, have been incremental, technical improvements to the efficiency of the conceptual model of the "Modern Style of Warfare."

Bailey also shows it was the "Indirect Fire Revolution" that grew out of the experimentation of the years just before World War I that made possible the conceptual leaps to three-dimensional warfare and deep battle. The supporting technologies of 1917 and 1918, however, were not up to the potentials of the indirect fire model. Specifically, transportation capabilities were inadequate for guns to move forward rapidly and be resupplied over rough terrain, and communications were inadequate to maintain decentralized command and control of the fire plan once an operation started. As a consequence, contemporary popular wisdom accepts that artillery dominated the battlefield in World War I, but few really understand that it was the key to maneuver rather than the agent of stalemate. The technical "fixes" to these problems emerged in the years between the world wars and have proved themselves on the battlefields of World War II and since.

The "Revolution in Military Affairs" we are experiencing today is, essentially, an echo of World War I and hardly revolutionary by comparison. Key elements of today's revolution include precise standoff strikes; real-time command, control, communications, computers and intelligence (C⁴I); information operations; and non-lethality. In 1917 to 1918 terms, these would have been called accurate indirect fire; improvement in command and control and intelligence; the means of acting upon it; and the munitions and techniques of neutralization and suppression.

In his pamphlet, Bailey concludes that the next true military revolution may occur when the three-dimensional geometry of the geographically defined battlefield is replaced with the addition of some fourth dimension. That dimension might be something like cyberspace, synthetic relationships, the mind ("*genomekampf*"), weather or climate warfare or designer diseases.

The First World War and the Birth of the Modern Style of Warfare is a pamphlet every military professional should read and think about. Redlegs in particular will find much thought-provoking material packed into a relatively small package.

Jonathan Bailey, one of the leaders of the recent renaissance in World War I studies, is also the author of the widely respected book, *Field Artillery and Firepower*, published in 1989. At the time he wrote his pamphlet, he was a Colonel in Defence Studies at the British Army Staff College. He since has been promoted to Brigadier General and assigned as Artillery Commander of NATO's Allied Rapid Reaction Corps (ARRC) in Germany.

Allied military professionals can obtain copies of Brigadier General Bailey's pamphlet by writing to: Editor, SCSI, Staff College, Camberley, Surrey, GU15 4NP, England.

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Deputy Chief of Staff for Operations
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Fort Kamehameha: The Story of the Harbor Defenses of Pearl Harbor

William H. Dorrance, White Main Publishing Company, Shippensburg, Pennsylvania: 1993, 162 pages, \$22.50.

The Hawaiian island of Oahu was a virtual military fortress during the first half of the 20th century. The rest of the islands in the chain were relatively unmilitarized, but Oahu had the Pearl Harbor Naval Base, Hickam Air Force Base, Schofield Barracks and scores of other smaller military posts, airfields and coastal defense emplacements scattered throughout.

In the years before World War II, the battleship was the principal strategic weapon of the day. Defending America's primary military outpost in the Pacific required a ring of coastal artillery forts around Oahu. Even the famous Waikiki landmark, Diamond Head, was a coastal (and later an air defense) observation post. The linchpin in this defensive network was Fort Kamehameha (named after Hawaii's first king), which sat on the eastern side of the entrance to the Pearl Harbor channel.



The artillery tradition continues on the islands of Hawaii. Shown here are forward observers from 3d Battalion, 7th Field Artillery, 25th Infantry division (Light), training on the "Big Island."

In his short book, William Dorrance does an excellent job of chronicling the history of Fort Kamehameha from its establishment in 1908 to its inactivation in 1950. "Fort Kam," as it was called in the Old Army, was really a series of heavily reinforced, ferro-concrete main batteries, anti-aircraft batteries, ammunition magazines, observation posts and searchlight posts all tied together with a narrow-gauge railroad and a telephone system. During its period of active service, Fort Kam mounted every type of coastal artillery weapon in the US inventory. Its history, then, is that of the final 50 years of the Coastal Artillery Corps in microcosm.

Dorrance expertly interweaves the history of Fort Kam with not only the lives of the men and women involved with the fort, but also with the development of the military technology that made possible the fort's existence and eventually brought about its demise. As a former Army Air Force pilot and a retired weapons systems analyst, Dorrance is well qualified to explain the complex technical workings of coastal gunnery. These are especially interesting for modern artillerymen because many of the earliest advances in indirect fire, aerial observation and meteorological corrections came from the Coast Artillery.

By the end of World War II, the aircraft carrier had replaced the battleship as the principal naval strike weapon. The Coastal Artillery Corps, in turn, shifted accordingly to meet the new threat and emerged as the Air Defense Artillery. This shift to lighter and more mobile weapons systems meant the massively fortified, fixed-gun emplacements were no longer needed. By the early 1950s, all of America's big-gun coastal batteries were inactivated. Today, Fort Kam is part of Hickam Air Force Base. The big guns are long gone, but many of the massive ferro-concrete batteries survive as storage bunkers.

Fort Kamehameha is well written, well documented and contains many maps, diagrams and photographs. I highly recommend the book to anyone with an interest in the technical development of artillery or with a general interest in American military history.

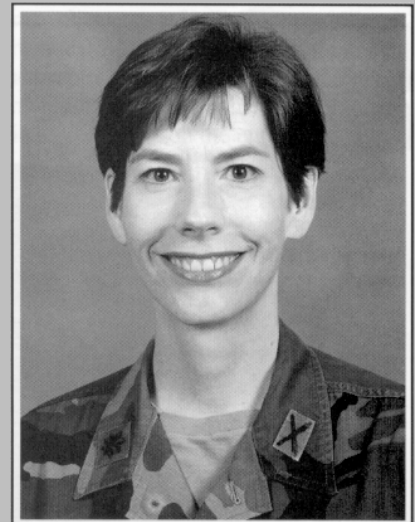
Colonel David T. Zabecki, FA, USAR
Deputy Chief of Staff for Operations
7th Army Reserve Command, Germany

The FA Battalion Commander is a Lady

On 10 July 1997, Lieutenant Colonel Ann L. Horner took command of the 2d Battalion, 80th Field Artillery of the US Army Field Artillery Training Center (USAFATC) at Fort Sill, Oklahoma, and is the first woman to command a Field Artillery battalion in the history of the US Army. She entered the Army in 1979, the first year women were commissioned in the Field Artillery.

Lieutenant Colonel Horner served as Brigade Deputy Commanding Officer for the USAFATC before taking command of the battalion and also commanded E Battery, 4th Training Battalion in USAFATC. Among other assignments, she was Director of the Office of the

Chief of Field Artillery in the Field Artillery School, Fort Sill; Assistant Executive Officer in the Office of the Deputy Chief of Staff for Personnel at the Pentagon; the Division Artillery S1 and Assistant S3 in the 25th Infantry Division (Light), Schofield Barracks, Hawaii; and Field Artillery Assignments Officer in the Total Army Personnel Command, Alexandria, Virginia. Lieutenant Colonel Horner holds a Master of Public Administration (MPA) from the University of Missouri in Kansas City. She is married to Lieutenant Colonel Thomas W. Weafer who commands the 1st Battalion, 30th Field Artillery, US Army Training Command, Fort Sill.



Tips on the MVS Fielding with Paladin

The Paladin new equipment training team (NETT) trained the 2d Infantry Division Artillery in Korea on its new weapon and also, for the first time, the M93 chronograph muzzle velocity system (MVS) that works with Paladin's automated fire control system (AFCS) Version 10.5 software. The following are Paladin NETT observations that will help units fielding or about to field MVS with their Paladins.

MVS Works. Once the cannon is warm and there are no faults in the AFCS, the MVS computes muzzle velocities (MVs) with as little as three rounds in one mission. It also sends MV variations (MVs) to the platoon operations center (POC) if digital communication is working properly. The system greatly improves the accuracy of each weapon across many different extended lots of propellant. MV management is now automated.

Mount the Head Before Operations. The M93 chronograph MVS head must be mounted and connected before AFCS initializes so the AFCS recognizes it. This is analogous to any computer peripheral that must be attached before the computer is booted.

If the operator mounts the MVS after initialization, he must re-initialize or restart the AFCS for it to detect the MVS' presence and allow MVS to operate.

Once Mounted, Don't Mess With It. If the operator disconnects or tampers with the MVS after the AFCS is initialized, he probably will create faults in the AFCS—but the AFCS won't necessarily warn the operator there are faults. The operator has to go into the maintenance mode in the AFCS and check for faults in the built-in test (BIT). If there are faults, the operator re-initializes or restarts the system for the MVS to work.

Fire at Least Three Rounds. The MVS must sense at least three rounds fired in the same mission before it generates an average MV for the extended lot of propellant being fired. If it's an "adjust fire" mission with two rounds in effect, only the



adjusting pieces will generate MVs because they'll fire at least three rounds before the end of the mission.

Use Digital Communications. The MVS won't read MVs if "shot" is not displayed on the AFCS display unit. For instance, if the fire mission is sent to the howitzer's AFCS as a digital "when ready" mission, then "shot" is automatically displayed; however, if the mission is sent as a digital "at my command," "shot" is not displayed. In this case, "shot" won't be displayed unless the AFCS receives a digital command to "fire" from the POC or a "cancel at my command."

If the POC gives the command to "fire" by voice without giving any digital commands, the howitzer crew fires the round without "shot" being displayed and the MVS won't be prepared to read MVs. But the round is fired safely because it was laid on the command deflection and quadrant when it reported "ready."

No Need to Press "Shot." The MVS automatically sends "shot," and the AFCS deducts a round from the database each time the MVS senses a round fired. Before MVS, some Paladin crewmen were trained to press "shot" after the round was fired. In this case, the MVS would count the real round fired and, after the operator presses "shot," a ghost round.

AFCS and LCU Data Still Agree. AFCS won't automatically apply a new MV to compute firing solutions unless it sends its MVV to the POC and receives a digital "ack" back from the lightweight computer unit (LCU). The LCU is the independent secondary check of the AFCS; both must have identical databases (including MVVs) to check/verify with each other. The AFCS, in effect, plays "Mother May I?" with the LCU to get permission to apply its MVs.

POCs Must Use Common Sense. Infrequently, the MVS yields erroneous MVVs to the POC's LCU in the battery computer system (BCS) MVV format. Readings have varied by as much as +9 m/s and -20 m/s from standard.

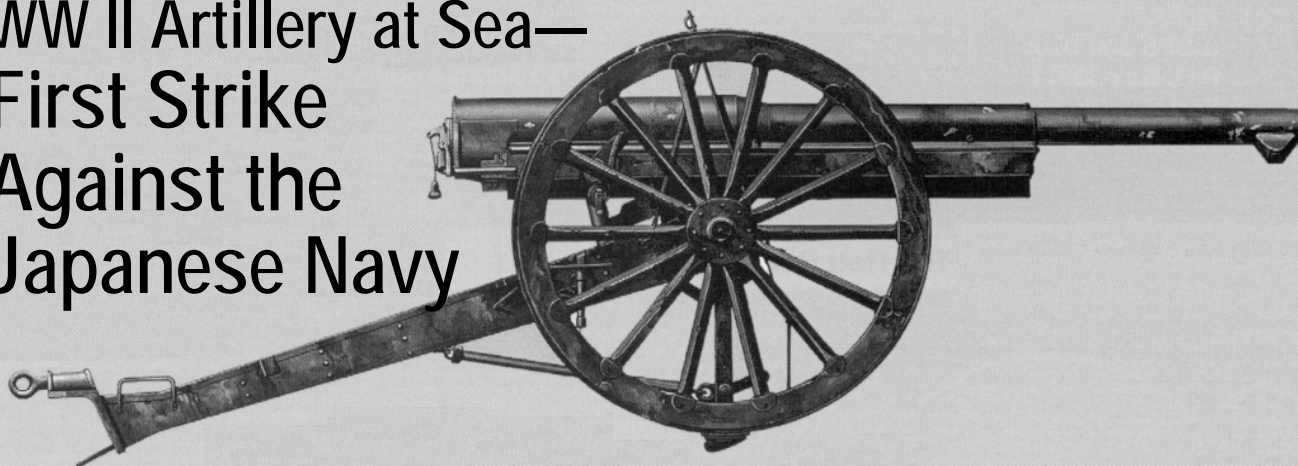
The POC decides whether or not to let the AFCS use this data or to throw the MVVs out. If the LCU operator accepts the erroneous MVVs, then the LCU and AFCS both will apply them and "verify" each other. The POC must not allow the howitzer's AFCS to apply MVs that don't pass the commonsense test.

Manually Entering MV Data is an Option. Just as the operator can fire the Paladin manually, he can apply MVs manually. If digital communication is out and the MVS/AFCS computed an average MV, the operator can apply the MV in the AFCS by entering the data in the MV historical files and entering the MVV in the LCU as usual. But the operator must remember that a change in MV data constitutes a change in the AFCS and LCU databases that requires a verification mission to ensure both computers are generating firing solutions within tolerance.

If units have questions about the M93 chronograph MVS or M109A6 Paladin operations, they may contact the Paladin NET Team at the Gunnery Department (GD) of the Field Artillery School: DSN 639-4418 or commercial (405) 442-4418 or E-Mail the author at hallr@usafas.army.mil

MAJ Robert Gregory Hall, FA
Chief, Paladin NET Team, GD
Field Artillery School Fort Sill, OK

WW II Artillery at Sea— First Strike Against the Japanese Navy



“**C**ap'n, periscope aft! Even today, those words bring an immediate pain to my stomach. I'm taken back to that day so many years ago when my world was turning every way except right side up.

The journey had started easy enough. *The New Republic* was an old troop transport ship that had been confiscated by the United States from the Germans after World War I. She was a solid ship, well built. We had departed from San Francisco in late November 1941 with a cargo of men and supplies bound for Clark Air Force Base in the Philippines. More specifically, the cargo was a battalion of US Army M1897 guns bound for mainland China. Commonly called the French 75, the Chinese used these guns in their war with Japan.

On December 7, we were approximately halfway between Hawaii and the Philippines. Needless to say, the anxiety levels rose appreciably when we heard that the United States had declared war with Japan. Two days later when Japan invaded the Philippines, the captain was forced to change course to Australia.

As we were heading south at best speed, the watch had spotted a periscope. The only logical assumption was that this was a Japanese submarine. Without any naval escort, we were completely defenseless. Or were we?

Many solutions to problems are born from desperate, seemingly no-win situations. My experiences in life have taught me repeatedly to never underestimate the ingenuity and audacity of the American fighting man. I don't know whose idea it was, but when I first heard what was being done,

I remember feeling very skeptical. Of course, what was there to lose?

The cargo holds were opened. Men were shouting and barking orders. The cranes were hoisting two of the 75-mm guns to the main deck. Chain and rope magically appeared. I still recall the burly gunnery sergeant striding from one gun to the other as they were lowered and then secured to the deck. One gun was located on the port side while the other was more to the stern of the ship.

By this time the submarine had moved to a parallel course of approximately 300 meters off the port side. As I witnessed the unfolding events transpire, a sense of awe washed over me. Even if this desperate action was unsuccessful, I now had a newfound respect for these artillerymen. There was no "quit" in them.

The ammunition was agonizingly slow in appearing on deck. The gunners, the crew and the bystanders all seemed to be moving and talking in slow motion. As the rounds were finally slammed into the breeches, I whispered a prayer that they would find their mark. With the rocking of the ship, it would take an act of God to save us.

Both guns fired almost simultaneously. Even though the target was only 300 meters away, I'd have given anything to have had a pair of binoculars right then. Although it was only seconds, it seemed an eternity before the rounds impacted. One round was just off line and short. However, when the spray cleared, the periscope was gone.

As the realization of what had just happened sank into us all, I experienced mixed emotions. Relief,

incredulity, joy...I didn't know how I should feel. As everyone else on deck acted foolishly jubilant, my attention was caught by the gunnery sergeant. He was staring where the periscope had been and nodding slightly with a faint grin on his face. I also detected a sadness in his expression. Was he looking ahead to the many battles yet to be fought?

The rest of the journey was uneventful, but the guns were not loaded back into the hold. On the contrary, two more guns were brought up and mounted on the starboard side and bow of the ship. We certainly got some strange looks when we made port.

Many times I have wondered how the captain of the submarine must have felt as he was forced to return to his port for repairs. Without a periscope his submarine was blind, and it would have been suicidal to try to attack while surfaced. It must have been very embarrassing to return with a full load of torpedoes and no periscope.

With the passage of time, it may be impossible to fully document the heroism of those artillerymen. But in my mind, there is no doubt that the US Army Field Artillery was the first to strike a blow against the mighty Japanese Navy.

Story by Sergeant First Class John C. Barry, Target Acquisition Officer in the Directorate of Combat Developments in the Field Artillery School, Fort Sill, Oklahoma, as told to him by Arvie H. Kirkpatrick, who was a Master Sergeant in the Army Air Corps during World War II and is now from Lawton, Oklahoma.