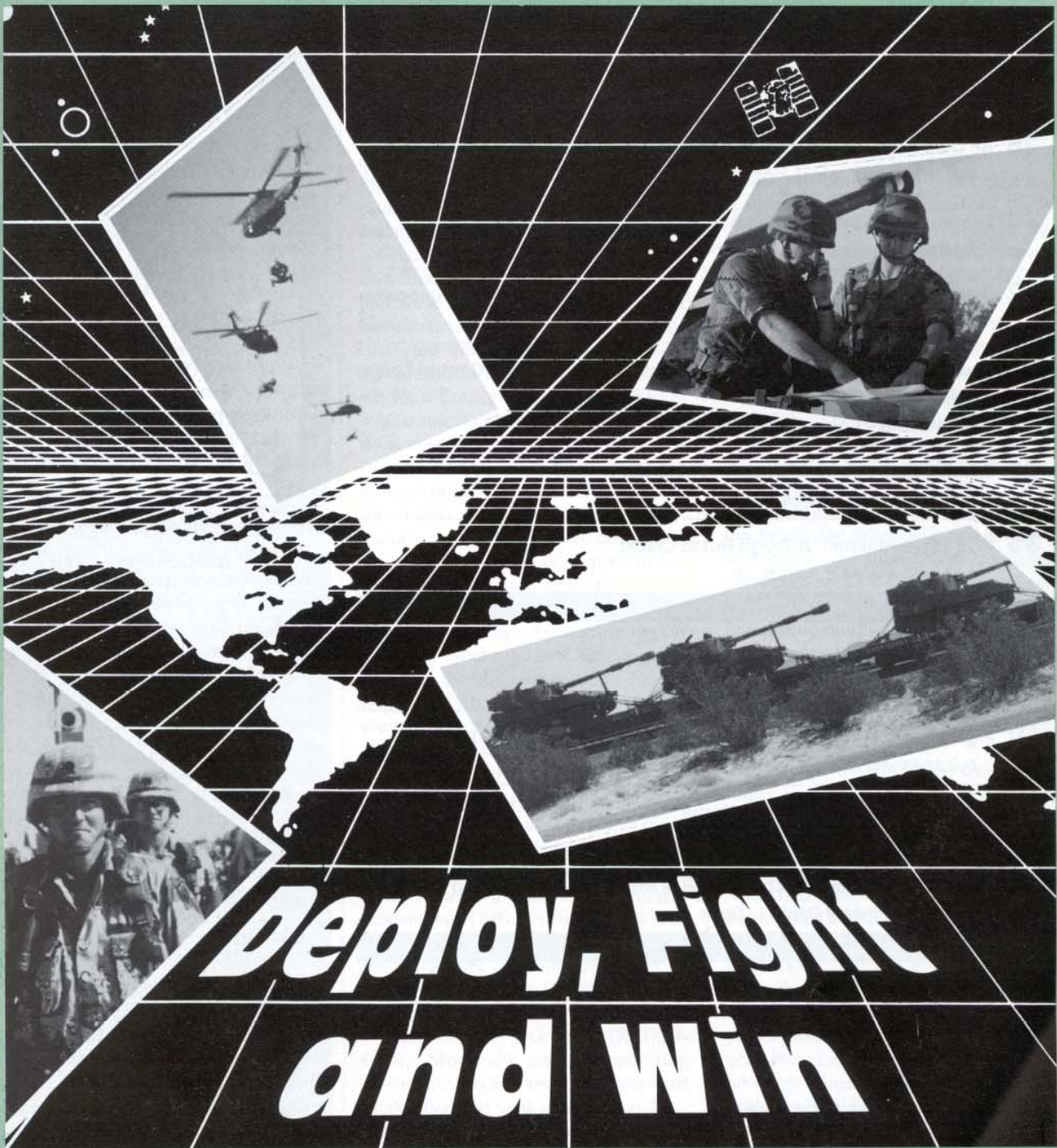




# Field Artillery

A Professional Bulletin for Redlegs

April 1992



***Deploy, Fight  
and Win***



*A Professional Bulletin for Redlegs*

April 1992

HQDA PB6-92-2

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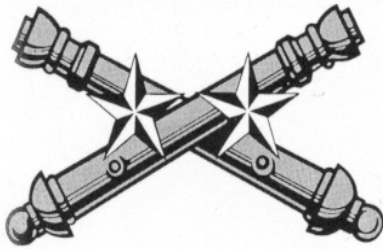
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*Field Artillery*



## Fire Support in Contingency Operations

The rapidly changing strategic setting and domestic realities of fewer resources compel us to a military strategy predicated, in large part, on a continental United States (CONUS)-based Army that is rapidly deployable, versatile, lethal and expandable. It will be an Army for which contingency operations will be the norm across the operational continuum.

Fire support will continue to play a critical role in the success of future operations. This will be true, regardless of the operational environment, the specific opponent or the mission of the force, especially given the proliferation of more sophisticated weaponry such as ballistic missiles and weapons of mass destruction. While the range of options available to the commander include light, heavy and special operations forces, they will be employed invariably in a joint context. We must be prepared to coordinate and provide fires accordingly.

Today's strategic injunction is to win decisively and quickly with minimum casualties. The task is not an easy one. By their nature, rapidly deployable light forces are very fragile in the initial stages of a contingency operation. Historically, light forces have lacked the lethality, survivability and sustainability associated with forces already forward-deployed or follow-on forces that deploy and then, when closed, are committed to combat. However, heavy forces take longer to deploy, given constrained air and sea lift. Thus, our challenge is to develop the capability to provide the force commander tailored, highly lethal packages of fire support for all phases of contingency operations, from initial deployment through decisive combat operations.

We must provide the commander the ability to fight and win with both maneuver *and* fires.

**Joint Operations.** Contingency operations are inherently joint. They involve the projection of CONUS-based forces into a specific area of responsibility, typically with little or no warning. To achieve a rapid, decisive response, the closure of joint forces into an objective area must be carefully managed.

Command and control of joint fires is complex. War planners and fire supporters at corps headquarters and echelons above corps (EAC) must understand the capabilities of joint acquisition and attack systems. Procedures for employing these systems must be established and practiced repetitiously during exercises.

Combat success depends upon close coordination and teamwork between the joint force fires coordinator and the joint force commander and his key staff. As illustrated during Operations Desert Shield and Storm, a real-world need exists for a fire support element (FSE) at EAC before hostilities start. In Southwest Asia, coordination, planning and execution problems arose because of the absence of such an EAC FSE during the initial phases of the operation. Subsequently, an austere FSE was created using a "pick-up team" of competent fire supporters from existing units.

Joint headquarters and their FSEs must take advantage of peacetime opportunities to synchronize the targeting process and, thereby, ensure timely fires to the force. Staff participation in joint exercises will promote a familiarity with counterparts and practice joint procedures essential to combat operations.

**Training Strategy.** One of the most critical phases of contingency operations is deployment. The need to plan and prepare for deployment in the compressed time frame of a crisis is particularly demanding. Therefore, units must seek every opportunity to incorporate deployment training in major exercises or movements, such as Combat Training Center (CTC) rotations, "Team Spirit" or return of forces to Germany (REFORGER). Movement standing operating procedures (SOPs) and load plans must be detailed and well-rehearsed and encompass all tasks associated with deployment

from initial notification to wheels-up on an aircraft or ramp-up on a ship.

Fire support teams (FISTs), especially those in early deploying units, must be proficient in controlling close air sorties and adjusting naval gunfire. We must reaffirm the need to send fire support leaders to the Air-Ground Operations School (AGOS) run by the Air Force at Herbut Field in Florida. AGOS is designed to assist fire supporters gain expertise in controlling and better understanding the employment of these joint force combat multipliers.

We also must rehearse joint planning, employment, target acquisition procedures, targeting and fire support coordinating measures at all echelons. Procedures must be established for these critical functions and executed during major exercises and at Joint Readiness Training Center (JRTC) rotations at Fort Chaffee, Arkansas, to master joint procedures. Training strategies must build on the military intelligence, fire support and maneuver linkage so fire support planning and targeting processes can be executed.

Recognizing the need for institutional training, the Field Artillery and the Military Intelligence Schools have co-developed a targeting course. Beginning this month, the course will train fire support, military intelligence and operations personnel in the intricacies of and requirements for employing joint reconnaissance, intelligence, surveillance, target acquisition (RISTA) and attack systems in the joint warfighting environment. (See the February "Forward Observer" Newsletter, Page 10, for more details on the course.)

Fire supporters must take every opportunity to become more tactically and technically proficient in warfighting skills—we owe it to the members of the joint force.

**Early Deploying Forces.** These early forces must be packaged to provide the greatest possible lethality. The extended range of the lightweight M119 howitzer increases the direct support battalion's contribution. The M119 gives the supported maneuver commander a 25 percent increase in range over the M102 howitzer. Already fielded in both the 7th Infantry Division (Light) and the 82d Airborne Division, the M119 is the first

close support howitzer for our light forces since the 1960s.

To increase further the effectiveness of early deploying contingency forces, our materiel acquisition program must focus on weapons and munitions with increased lethality and accuracy as well as greater survivability—the ability to employ "shoot-and-scoot" tactics. Programs under development, such as the high-mobility artillery rocket system (HIMARS), the global positioning system (GPS) and the gun laying and positioning system (GLPS), will enhance our capability to employ shoot-and-scoot tactics.

HIMARS offers a deep-strike capability early in the deployment flow and force buildup. HIMARS affords a quantum increase in strategic deployability over the M270 MLRS launcher and, once within the theater of operations, enjoys increased tactical mobility using C-130 aircraft. HIMARS will give the force access to the entire suite of multiple launch rocket system (MLRS) munitions to attack high-payoff targets throughout the *tactical depth* of the battlefield.

The Army tactical missile system (Army TACMS), deployed early to a contingency area astride a HIMARS launcher, provides a formidable fire support capability. Army TACMS gives the joint force an all-weather, 24-hour means to selectively attack a variety of target arrays at *operational depth* on the extended battlefield. During Desert Storm, Army TACMS proved convincingly it is a responsive attack capability the force

commander needs to capitalize on current and future target acquisition systems.

GPS is an excellent asset to provide FISTs a means to accurately locate their positions. With GPS and a ground/vehicular laser locator designator (G/VLLD) capability, FISTs can precisely locate targets and, in conjunction with the fire direction center, reduce target location errors (TLEs) substantially.

During Desert Storm, hipshoots became the norm for occupying firing positions. The GLPS, with a built-in GPS, allows firing elements to accurately locate and lay howitzers without survey. With GPS and GLPS, fire support delivery systems will be able to shoot from the move far more responsively than before.

Light forces also must be streamlined to lighten the deploying soldier's load. A typical FIST member supporting a light unit carries an average load of 125 pounds. The weight includes laser range finders soldiers must carry, digital message devices, radios, a variety of batteries, individual and crew-served weapons and ammunition as well as individual equipment. Reducing the weight of this load must be accelerated. The lighter the soldier's load, the more mobile, sustainable and survivable he is on the modern battlefield.

**Fighting with Fires.** Contingency operations demand that leaders possess both mental flexibility and agility. Leaders must seek every opportunity to train using realistic scenarios during

command post and field training exercises or CTC rotations.

Commanders and fire support coordinators must tailor the force to assure enough lethality is available throughout every phase of deployment. This approach to contingency planning helps ensure the right mix of combat power is on the ground during each phase to ultimately assure a decisive victory.

Force commanders realize the leverage fires can offer. Through increased education and training, fire support coordinators must help develop combined arms force commanders at subordinate echelons who can "fight with fires" and take advantage of battlefield opportunities. Fighting with fires stresses the importance of synchronizing and using all available fires throughout the depth of the battlefield to achieve the force commander's aim.

**Summary.** Contingency operations are rapidly becoming the norm. A trained and ready force capable of responding to this complex mission with confidence is essential. Proficiency in critical fire support and gunnery skills, rapid deployment and joint operations is vital. As the Army reduces its size, the fire support community must be prepared for any contingency—prepared to provide the force commander the leverage he needs to accomplish the mission.

*Field Artillery—On Time, on Target!*



## INCOMING

## LETTERS TO THE EDITOR

### Deployment Considerations for 8-Inch Howitzer Battalions

The 8-inch howitzer is being phased out and, by the year 2000, will no longer be a part of the active Army inventory. The wave of the future is a Field Artillery of 155-mm howitzers and multiple launch rocket systems (MLRS).

Because the 8-inch is being phased out, the remaining battalions face some

unique problems when called on to deploy. As the 8-inch inventory dwindles, the problems become magnified, having great impact on the weapons system in future deployments.

In this letter, I list some factors that, if taken into consideration, will better prepare an 8-inch battalion to deploy anywhere in the world at anytime. The information could be an addendum to existing emergency deployment readiness exercise (EDRE) plans and better prepare the unit to respond to the needs of the supported unit. The factors are in three categories: unit movement, authorized stockage list (ASL) and unit basic load (UBL).

**Unit Movement.** The first order of business is to create a deployment cell. To ensure the unit can deploy worldwide at a moment's notice, it's imperative the unit movement personnel are of the highest caliber and are well-trained. Each battery must have a school-trained officer and NCO to maintain unit movement files.

In addition, they must be able to conduct sea, land and air movement training on a quarterly basis. This includes updating automated unit equipment lists (AUELs) and preparing their equipment. Soldiers must be able to correctly upload their vehicles, meeting the loading standards. Vehicle load teams are identified by name and trained.



Correcting typical problems before the ready line—such as padding vehicles correctly and having all hazardous cargo labeled and separated, as required—easily can be accomplished. Checklists for each type of deployment could be made available so chalk or serial leaders are aware of their responsibilities.

Knowledge of the unit's basic load, ASL and unit prescribed load list (PLL) requirements ensures the unit movement personnel pre-position the required equipment or have it readily available within the first day after notification.

The deployment cell develops a regional contingency quick-reference guide on previous conflicts, based on weather and terrain considerations. Leaders then have a guide to help them understand the differences between fighting in North Africa in the summer and fighting in Leningrad in the winter.

This guide highlights the advantages and disadvantages of a heavy weapons system in different environments. It covers maneuvering, gunnery solution aids, medical, mechanical and morale pitfall topics. The guide helps a unit develop courses of action (COAs) that ensure all leaders will be able to accomplish the commander's intent in a particular arena.

**ASL.** As the 8-inch artillery system approaches the end of its life, fewer repair parts will be available. In addition, PLL during peacetime does not come close to reflecting usage during combat operations. Maintenance units supporting contingency corps will rarely have the parts or trained personnel to adequately support 8-inch units.

Each 8-inch battalion needs to have ASL established and maintained at its home station—packed and ready to go if the unit must deploy. These repair parts



Each 8-inch battalion should deploy with its UBL—different configurations for different contingency areas.

will go to the supporting maintenance unit. The ASL supplement must contain items peculiar to the fire control system, traversing turret and chassis of the M110A2 howitzer.

Units also must send, at a minimum, one artillery mechanic (junior NCO) skilled in 8-inch and fire control repair to the supporting maintenance unit. This helps expedite repairs and train supporting maintenance unit soldiers on repairing the system.

**UBL.** Units should deploy with their UBL— 8-inch ammunition availability is critical. If involved in heavy fighting shortly after arriving in theater, it may take a while before resupply is possible. If problems develop in the logistics chain, a unit's ability to provide fires and support the maneuver units is greatly degraded.

Units also may need to have different UBL configurations for different contingency areas. In one environment, high-explosive (HE) rounds might be more effective than dual-purpose improved conventional munitions (DPICM). It is necessary to take the mix that gives the greatest results economically.

In combat operations, we proved the 8-inch howitzer can be responsive and support maneuver units with Bradleys and M1 tanks. We must do all we can to continue to provide support as long as the 8-inch howitzer remains in the Army inventory.

CPT Alfred K. Grey, FA  
Cdr, HHB, 2-18 FA  
212th FA Bde, Fort Sill, OK

## Synchronizing Fire Support and Maneuver—Backward Planning from the Commander's Vision

I want to thank *Field Artillery* for its efforts in printing the article I wrote on the synchronization of fire support and maneuver—"Improving the Effectiveness of Artillery at the NTC," August 1991. Much has happened since that article was written—not only in the world, but also in my thinking about synchronization.

The following paragraphs are designed to put the article into a different perspective.

First, let me highlight the critical part of that article that could get lost to a reader. What makes the whole concept in that article work is the commander's vision of the desired end state—what the

situation will look like at the end of the battle. (The term "vision" should be considered as interchangeable with the term "intent.") In my recent work, I have linked this to conflict termination. What I argue is that if one can clearly envision the desired outcome, then he can backward plan to the present.

In this backward planning, the vision (the commander's intent) becomes the

ultimate objective, and a series of intermediate objectives are established that, when achieved, will result in the final objective being accomplished. One can apply this type of thinking to any endeavor.

In the military, we use the seven battlefield operating systems as the critical variables. In other types of endeavors, the variables change. Whatever the variables, it's still possible to interrelate them and,

thus, breakdown the requirements into phases ("bite-sized" pieces) and then synchronize them in a manner similar to that outlined in the article.

I am currently working on articles on strategic vision and conflict termination that argue that a thought process similar to the above is critical to any political-military endeavor. Hopefully, these pieces will be published in the coming months.

Finally, the August 1991 edition of *Infantry* magazine contains an article on the synchronization matrix concept—"The Synchronization of the Brigade Fight"—that I co-authored with Captain Steven S. Klement. I commend it to your readers.

COL Bruce B. G. Clarke, AR  
Dir, US National Security Studies  
Army War College,  
Carlisle Barracks, PA

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## Give FA Brigades Organic Support: Old News But Still Necessary

I read with great interest Lieutenant Colonel Peter W. Gibbons' "Logistical Support for the FA Brigade" in *Field Artillery* [October 1991] about the sterling lack of support to the FA brigades during Operation Desert Storm. Unfortunately he's correct. While I was working in the Security, Plans and Operations (SPO) shop of the 2d Corps Support Command (2d COSCOM) during Desert Storm, I was witness to the fact that area support does not work.

Everything Lieutenant Colonel Gibbons said was true. However, it's a systemic problem. Tremendous efforts were made to supply the FA brigades, but they had been forgotten by the "system." No one in the support structure knew how to supply, support or deal with a unit that wasn't an organic part of the larger organization. In short, the supply system is broken, and the FA learned, once again, that it must have its own support

slice controlled by its own soldiers.

In fact, as I sat in Saudi Arabia, I remembered reading a speech by the Chief of the Field Artillery in 1939, an extract I supply here:

*A recent decision of the Staff, however, is one to which I have recorded my vigorous and emphatic objection. This is the decision to abolish the Field Artillery Brigade Ammunition Train and turn over its ammunition supply functions to a Motor Transport Corps of the Quartermaster Department. This is contrary to the experience of war.*

*Major General Henry J. Hunt, Chief of the Artillery of the Army of the Potomac, proved to our conclusive satisfaction on the battlefields of the Civil War that artillery ammunition supply to frontline units is a command function, not a supply function. We should not be permitted to forget that at Gettysburg, Quartermaster trains carried artillery ammunition to the*

*rear (Westminster) when it was badly needed at the front.*

*This subject was raised during our reorganization following the World War and was settled in accordance with what was declared to be our war experience.*

*It is significantly noted that in the reorganized German Army, the Field Artillery battalion is equipped with the transportation necessary to handle its own rations and ammunition supply.*

*Experience gained in battle should, in my opinion, be cast aside only as a result of subsequent battle experience and not by reason of academic deduction.*

Evidently some basics never change! Time to give the FA its ammunition trains back?

LTC Kieran E. McMullen, FA  
Chief, FSE, 6th ID (L)  
Fort Wainwright, AK

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## Soldier Survivability

Much has been said and written about Operations Desert Shield and Storm's massed fires, ammunition and fuel resupply, maintenance, NBC [nuclear, biological and chemical] activities, communications, administration, medical evacuation, command and control and specific Field Artillery tactics, techniques and procedures. But one area that has been overlooked is individual soldier survivability, in particular, providing the soldier overhead cover.

Former Chief of Staff of the Army, now retired, General Carl Vuono wrote in his article "Change, Continuity and the Future Field Artillery" (*Field Artillery*,

June 1991): "Nobody understands lethality more than Field Artillerymen, who have inflicted more than 75 percent of the casualties on our nation's enemies in this century alone." All armies will learn the Gulf War lessons of the devastating effectiveness of dual-purpose improved conventional munitions (DPICM) fired by our cannon and rocket systems. And those armies will buy or develop comparable munitions. Consequently, future incoming enemy artillery fire will be massed, and with the technology of DPICM, our survivability will depend on how well we protect ourselves from overhead fire.

The new Bradley fighting vehicle and heavily armored Abrams tank provide

their crews good protection and mobility to move out from under incoming fire. Artillery units are not as protected; only the M109 howitzer provides limited protection, but it's filled with ammunition that could endanger the crew. What about the crew of the M548 ammunition carrier who are dismounted and exposed while preparing ammunition? What about the entire crew of the M110, M198 and M102 howitzers? Armored and mechanized infantry units as well as the artillery must be concerned with personnel survivability in all support sections—supply, mess, refuel, ammo, radar, maintenance, medical, etc.

At the National Training Center (NTC), Fort Irwin, California, they teach us to

prepare overhead protection using 18 inches of sandbags. This requires the unit carry enough material to provide the base support for the overhead sandbags. With the enormous loads that vehicles carried into Iraq, it was virtually impossible for every soldier to have overhead protection.

We need ideas and assistance in developing solutions that provide the required protection—solutions we could use in operations such as the fast-moving, mobile warfare of Desert Storm.

In Desert Shield during the static defense, we made overhead protection

from shoring material taken from the ships that brought our equipment to Saudi Arabia. But when we moved north for the ground attack, we couldn't take a lot of the shoring material needed to support the 18 inches of sandbags.

We need flexible, lightweight covering that all types of vehicles can carry and that protects soldiers from fragmentation ordnance. It must be flexible to ease carrying and emplacing it. It should be light enough for two soldiers to carry and emplace it rapidly over their foxhole. By digging in its ends, soldiers should be

able to construct a convex overhead protective cover, providing portholes to the front and rear. We need something like layered Kevlar that we can strap to a vehicle for transportation and use quickly to cover a two-man foxhole.

The research and development community, BattleKing and others should work on a solution to the overhead protection problem and ensure our soldiers' survivability on the modern battlefield.

LTC James H. Rowan, FA  
Cdr, 3-18 FA during Desert Storm  
Student, Naval War College, Newport, RI

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## Reference Letter for Redlegs Leaving Service

After a year in command, I've found that one of the more difficult missions I have is to bid farewell to outstanding young soldiers who opt for civilian employment. While I've written more than a few referral letters, the one I wrote for Lieutenant John Francis was my best effort. Giving John this letter made

saying goodbye easier.

As our Army's end strength is reduced, I'm certain we'll all be losing soldiers of his caliber. I provide my reference letter for Lieutenant Francis as an example—maybe other commanders can use it as a framework for their own thoughts.

SUBJECT: Letter of Referral for Mr. John Francis

TO: Interviewing Officer

Dear Friend,

John Francis has asked me to write a letter of introduction and recommendation for him, and this I gladly do. John has worked for me in my battalion for almost a year and a half, and I have observed his performance in a variety of positions throughout our unit. His abilities place him in the top 10 percent of all lieutenants I have known in my 20 years in the military. Here are some of the qualities that have impressed me about this young officer.

John is physically and mentally tough and is a wise counselor. As a fire support officer for a light infantry company, I've seen him endure extremely harsh conditions for extended periods. It was not unusual for him to be deprived of food, water and sleep. Under these conditions, he consistently showed the ability to inspire his young enlisted soldiers to "go that extra mile." He always maintained his sense of humor and perspective. More importantly, John knew his job well, and he always completed the mission in a quality manner.

He was the artillery advisor to an infantry company commander. In this capacity, he learned how to be a tactful giver of advice and options. John could speak his peace then loyally support the decision of his boss. I expect the job you're interviewing him for won't ask him to scale mountains and "bust gulches," but he'll definitely be there late at night when you need him to finish a project or presentation.

John is bright and understands the importance of attention to detail. He spent significant time as a fire direction officer in an artillery battery and was proficient in a number of methods for determining firing data for our guns.

This position taught him the meaning of double-checking information to ensure it is exactly correct. His cell had to compute firing data for artillery rounds that landed close to friendly forces. An error on John's part could have had serious consequences. He has experience in accomplishing jobs that have no margin for error.

John is well-versed in the Army's newest systems of training and training management. He understands techniques of efficient time management to allow maximization of training opportunities. These include collective versus individual training, leader training and multi-echelon training techniques.

He understands the importance of adequate training planning and guidance for his subordinates. Also, he knows how to listen to first-line supervisors and incorporate their training needs into the master training plan. Thus, they have time to train those tasks workers need to improve on. He's an ideal person to set up, supervise or evaluate training programs.

John has exceptional managerial skills. He served as my battalion motor officer. In this capacity, he managed the vehicle service program, assisted in monitoring the repair parts expenses and prepared readiness reports that related to me equipment availability. He also inspected the operator licensing programs.

Of special interest, my unit has never had a full-time motor officer, and John wrote his own job requirements by analyzing where we were weakest and then took charge of those areas. He's clearly a person with initiative, aggressiveness and sound analytical capabilities.

John has exceptional leadership skills. He held two key leadership positions for me. First, he was my support platoon leader. In this capacity, he worked with personnel from the dining facility and supply, medical and maintenance sections. He did sufficiently well in this job that I elevated him to a second-in-command position in a firing battery.

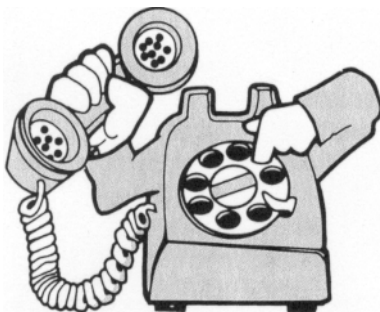
To be as successful in these jobs as was John demands extensive interpersonal relationship skills. He proved to be a charismatic do-as-I-do leader—a leader by example who was clearly technically and tactically proficient. He was admired by his men and respected by his contemporaries.

John is an unselfish team player. In February 1991, I was directed to provide two of my best lieutenants to enter in a replacement pool for Operation Desert Storm. John was one of the two I selected. He unhesitatingly accepted his "luck of the draw" and performed his duties well. Fortunately, he wasn't gone from us for too long. This experience and the professional manner in which Lieutenant Francis approached it, suggests he'll be the type of employee to whom you can give the tough jobs.

As I finish this letter, I'm scanning one of his old "report cards." I give him high marks in many other areas. These include loyalty, physical conditioning, personal appearance, responsibility, reliability and on and on.

John's an outstanding young man, and I obviously think a lot of him; I'd really rather he were still on our team. However, I fully support his decision to leave the Army. He served us honorably, as I'm certain he'll do you. He's worthy of your favorable consideration of his request for employment.

JOHN H. NORTHROP  
Lieutenant Colonel, U.S. Army  
Commanding Officer  
[3-7 FA, 25th ID (L), Schofield Barracks, HI]



## TRADOC Soldiers Hotline

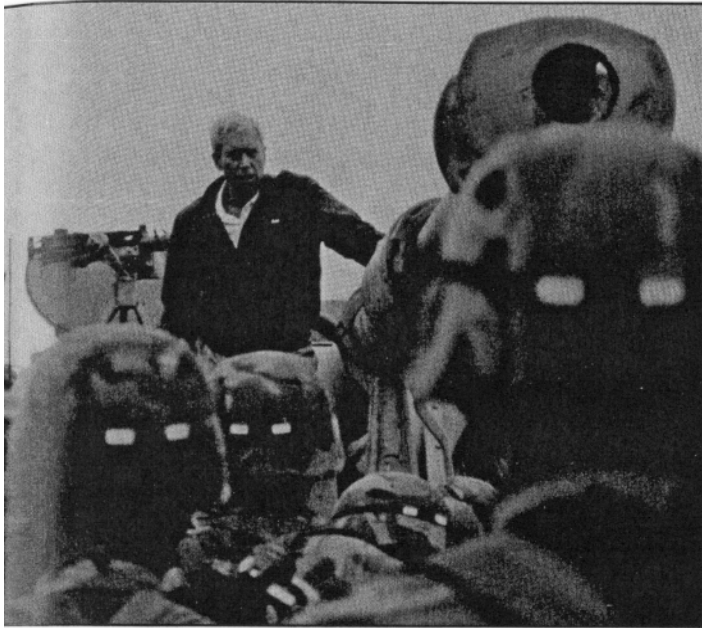
Because the Army relies heavily on field input in its efforts to modernize doctrine, equipment and support for the soldier, the Training and Doctrine Command (TRADOC) Systems Manager-Soldier, Fort Benning, Georgia, now has a 24-hour hotline. The hotline gives soldiers and commanders a voice in deciding what a soldier wears, carries or consumes in a tactical environment.

Recommendations to improve battlefield capabilities of lethality, command and control, survivability, sustainment and mobility are being sought as are recommendations on lightening the soldier's load.

To make recommendations, call the hotline at (404) 545-1245 or AUTOVON 835-1245. These numbers will be used until a toll-free line can be established.



# Reshaping the Force—



## Today's Challenge for Tomorrow's Trained and Ready Army

by The Honorable Michael P.W. Stone,  
Secretary of the Army

**T**he recent hostilities in the Persian Gulf, once again, have proven the tough-minded professionalism and battlefield excellence of the American Field Artillery. The performance of the branch's soldiers, civilians and family members during Operation Desert Storm was outstanding.

As a "system of systems," the Field Artillery gave the enemy no quarter. American target acquisition, multiple launch rocket systems (MLRS), Army tactical missile systems (Army TACMS) and howitzers wreaked havoc. Iraqi commanders reported their cannoniers were afraid to pull their lanyards, knowing that almost instantaneous retribution from counterfire would follow.

Despite the fact that our howitzers were outranged and outnumbered, American systems and innovation won the day. This is a tribute to the ingenuity, training and courage of artillerymen. Yes, Redlegs excelled, and in the future, we'll expect more of the same.

Today's Army is combating the toughest challenges it has faced in the last 50 years: reshaping and downsizing. Secretary of Defense Dick Cheney makes a valid observation about past reductions when he says, "We have yet to do it right."

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**“ Most [soldiers] want to know how the reductions will affect training dollars and training center rotations. My answer is—'They shouldn't.' ”**

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Army personnel are feeling mixed emotions at this time. They're rightfully proud of the work they've accomplished in Western Europe, Panama and Iraq. At the same time, they're concerned about the future, both the Army's and their own. I, too, am proud of our recent victories and, likewise, am very concerned about the future readiness of our Army and the welfare of its people. Therefore, I have established two broad objectives: first, to preserve a trained, balanced and ready force; and second, to take care of every member of our Army family.

### **Trained and Ready Army**

My first priority is keeping our forces trained and ready to be able to accomplish Desert Storm five years from now. As I see it, a number of factors play

in this problem: quality of troops, training and equipment modernization, to name only three.

Despite the reductions we've already initiated, personnel quality hasn't gone down. In fact, four months into our recruiting year, we were at 84 percent of our mission goal, and 100 percent of those enlistees are high school graduates. Those are remarkable statistics. It means you'll see no reduction in the quality of the soldier in our units.

On training, I have been pleasantly surprised by the "corporate concern" of our soldiers. At a time when I thought many would be focusing on their own well being, our soldiers expressed their strongest concerns about the future readiness of the force. Most want to know how the reductions will affect training dollars and training center rotations. My

answer is—"They shouldn't." I'm committed to keeping operational tempo (OPTEMPO) and flying hours funded, and we may see an increase in training center rotations.

Modernization is a much tougher issue and one, I know, close to the hearts of artillerymen. In fact, Field Artillery is a good branch to examine if you're interested in what's happening to the Army's overall modernization program.

The artillery's "system of systems" is a complex configuration of vehicles, weapons, hardware and software that needs continuous monitoring. While our artillery performed superbly in Southwest Asia and confirmed our earlier investments, we also confirmed a number of shortcomings, particularly in range, firing speed, vehicle speed and mobility. These problems must be addressed.

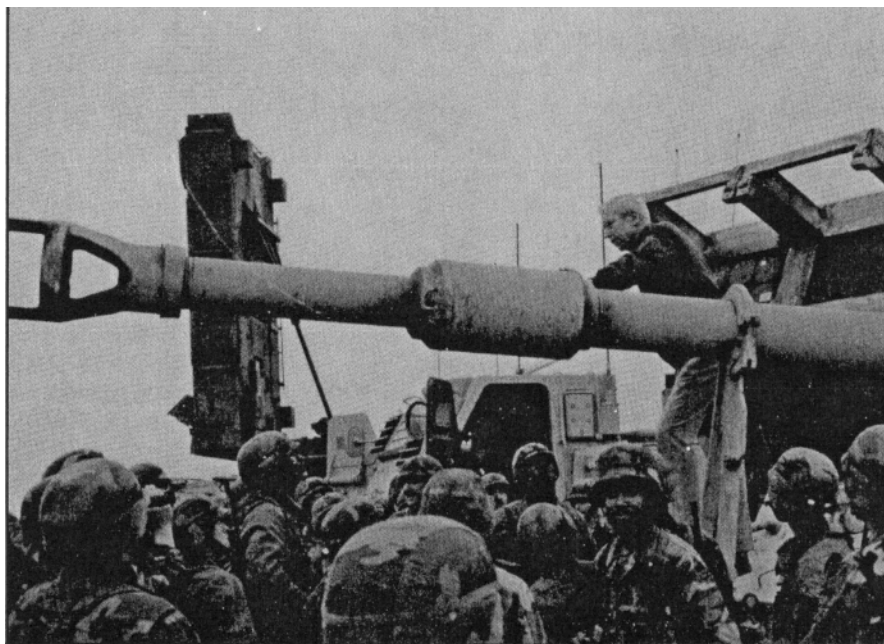
Because of Desert Storm, we have advanced the priority of the target attack systems. Our howitzers (not our performance) were greatly outclassed in Iraq. The mentioned shortcomings could have caused us problems had it not been for innovative and aggressive artillerymen.

**M109 Howitzer.** The backbone of our cannon fire support, the M109 howitzer, is the "Army's B-52." It has been in the inventory since 1962, continues to perform well and is being upgraded to take advantage of new technology.

The latest development to the M109 fleet is the M109A6 Paladin, which provides increased range, survivability and responsiveness. It has a new tube and breech; improved suspension; new digital automatic fire control system; on-board inertial position and navigation system; automatic gun laying; on-board diagnostics; microclimatic nuclear, biological and chemical (NBC) system; and a new electrical system. These improvements provide quantum leaps forward in capabilities compared to our current systems. The materiel improvements to the howitzer will permit the Artillery to adopt semi-autonomous operations—"shoot-and-scoot" tactics—that will improve survivability.

We'll begin seeing Paladin fielding in the 3d quarter of FY 93. With these improvements, the M109 will continue as an integral part of the howitzer family well into the 21st century.

**M110 Howitzer.** The other howitzer workhorse in our inventory, the 203-mm



Secretary Stone leans on an M109 howitzer gun tube talking to Redlegs of the 1st Armored Division Artillery in Saudi Arabia.

M110A2, is no longer affordable. With an 11-man crew, slower rates of fire and movement and lack of protection for the cannon crew, this system has become too expensive, given our smaller size and the need to maximize the effectiveness of each artilleryman. The M110 will be out of the active force within five years and will be completely retired by 2006. Those units equipped with the M110 will be converted to MLRS or inactivated.

**AFAS-C and FARV-A.** For the long term, we've elevated the priority of the advanced Field Artillery system-cannon (AFAS-C) and its future armored resupply vehicle-artillery (FARV-A) within the larger armored systems modernization (ASM) program. The ASM program will emphasize common components among our future fighting systems.

The AFAS-C, incorporating true leap-ahead technology, will significantly improve range and rate of fire while reducing section size. It'll capitalize on automation, advanced gun propulsion techniques and data system processing.

The FARV-A will automate ammunition loading and resupply to the AFAS-C. Specifically, it will allow crew members to reload completely without dismounting from the NBC-protected vehicle crew compartments.

We're currently looking at fielding the AFAS-C and FARV-A to the first units by 2003.

**Light Howitzers.** We're also revamping our light howitzers. The M119A1 is currently replacing the M102 and the World War II-vintage M101A1. The M119A1 provides significant growth potential and maintenance reliability over the older systems and will permit us to fire the new family of 105-mm munitions to deeper ranges.

The search continues for improvements to or a replacement for the M198 155-mm towed howitzer. A new lightweight 155-mm howitzer will allow us to adopt survivability tactics and fire all current and developmental 155-mm munitions at a reduced cannon weight for greater mobility and ease of air movement.

**MLRS.** Currently being fielded in Active and Reserve Component units, the MLRS is manpower efficient. It can deliver almost two tons of grenades per launcher in less than one minute—on target. The effectiveness of those grenades in Desert Storm caused Iraqi soldiers to call MLRS rocket fire "Steel Rain."

Under development for MLRS is a suite of munitions to increase its range, lethality and flexibility. The brilliant anti-armor submunition (BAT) and tri-service standoff attack missile (TSSAM), fired from an MLRS launcher, will give our corps commanders the capability to attack tanks at great ranges. MLRS sense

and destroy armor (SADARM), like the 155-mm SADARM, provides for smart munitions attack of stationary self-propelled artillery and lightly armored vehicles.

MLRS, combined with the Paladin and the AFAS-C, gives the Field Artillery the firepower necessary for future wars.

**Command and Control.** Another system we've targeted for modernization is command and control. The tactical fire direction system (TACFIRE), developed in the 1960s and fielded in the 1970s, got our "foot in the door" of the data processing field. The advanced Field Artillery tactical data system (AFATDS), which will totally automate all fire support functions from corps to the fire support team (FIST), will be fielded in FY 95. It's an integral part of the new Army tactical command and control system (ATCCS).

Light divisions will continue to use the recently fielded lightweight tactical fire control system—LTACFIRE—until AFATDS replaces it in FY 97. National Guard artillery units will receive an interim fire support automation system (IFSAS) starting in FY 93 to fill the gap in modernization until they transition to AFATDS beginning in 1998.

Similar improvements are planned or are already occurring in the branch's support, sustainment and target acquisition systems.

**“ We've reduced accessions of lieutenants and privates to a level suitable for an active force of somewhat over 500,000—we cannot prudently go below that level. ”**

All these improvements will pay dividends. Five or 10 years from now, our Field Artillery (Active, Reserve, National Guard and Marine) will be even better than it is today. The technological improvements we're making, tied with quality soldiers and continued funding for training, will make tomorrow's force more potent than today's. I'll continue to stress these in all our branches.

### People

The second objective, taking care of our soldiers, is critically important to me. Americans have mandated a smaller force, and we will accomplish this task. I'm well aware of the artillery's particular challenges where a combination of events, such as the elimination of Pershing, Lance and tactical nuclear weapons, has added to the reductions. The Army must carefully monitor procedures

so we decrease our ranks fairly and equitably, caring for both those who stay, as well as those who leave.

Some excellent soldiers will have to depart the Army involuntarily. But be assured that we will have done and will continue to do all we can to limit the involuntary separations and to make it as easy as possible on those who must leave. In fact, I'm mandated by law to reduce accessions and the retirement-eligible ranks to numbers that support our targeted end strength before reducing the non-retirement eligible ranks. So what have we done?

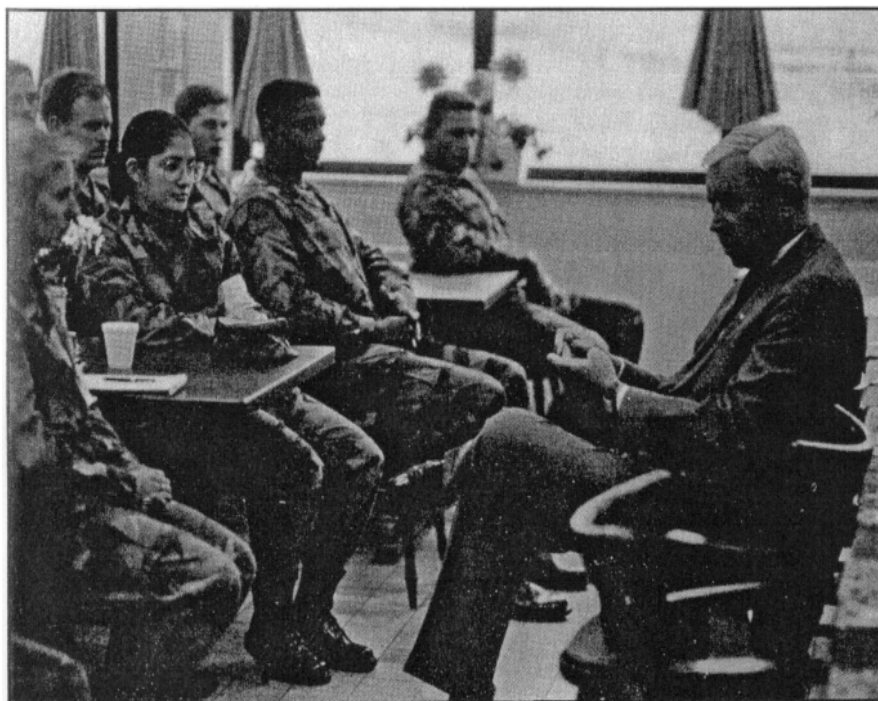
First, we've cut accessions as much as we possibly can. We've reduced accessions of lieutenants and privates to a level suitable for an active force of somewhat over 500,000—we cannot prudently go below that level.

Second, we're reviewing senior grades, both officer and enlisted, who will be eligible for



retirement. This fiscal year the Army has conducted selective early retirement boards (SERBs) for both retirement-eligible officers and sergeants major. In conjunction with this, we're also reviewing junior officer ranks. This fall we cut 703 lieutenants from Year Group 1988, and Year Group 1989 will undergo a similar process later this year.

Third, we're continuing voluntary separation programs. The Army has worked hard with the Office of the Secretary of Defense and the Congress to establish voluntary incentive packages to encourage both officers and enlisted soldiers to leave of their own choice.



Attentive faces—Secretary Stone gets "up close and personal" with soldiers of the 3d Armored Division in Germany.

In the officer ranks, we've targeted this program for those who would otherwise be subjected to a reduction-in-force (RIF) board. We will be able to reduce the numbers we RIF based on the response to the voluntary separation programs.

We've also established packages to help many people as they move from the Service to the civilian job market. In many cases, people may be eligible to stay in government quarters for additional time, have children attend Department of Defense schools, use the post exchange and commissary and enjoy other benefits while adjusting to civilian life.

The Army's senior leadership has worked hard during the last several months talking to business leaders and state governors who are looking for the kind of work force the Army can provide. I recently spoke to the Conference for Economic Development, addressing executives from a number of corporations, and many were interested in Army alumni. Our Army Career and Alumni Program (ACAP) offices have established contact with corporations such as these and others listed in their data bases.

The Army has gotten out in front by ensuring ACAP facilities are available to all soldiers, civilians and family members. ACAP will help those in transition by explaining benefits, giving resume information, translating government jobs into civilian terms and providing names of corporations interested in hiring our people. ACAP won't find jobs, but it will provide quite a lot of information and assistance.

We now have 62 ACAP facilities worldwide, ready to serve 200,000 people this year. At this writing, we have centers operating in Germany and Korea, as well as in the United States.

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**“... the future Army will be younger, and promotions and schools should come faster.”**

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**“ I challenge you to redouble your efforts to keep the Army of tomorrow a modern, quality force capable of succeeding anywhere in the world.”**

While the reduction isn't pleasant news for many people, we remember the RIFs of the early 1970s and are trying to make this experience as painless as possible. Also, I must state that, for the vast majority of the force, nothing bad is going to happen. In fact, promotion and schooling opportunities will begin to improve as a result of downsizing. For officers, we expect to return to Defense Officer Personnel Management Act (DOPMA) goals for promotion opportunity and promotion timing. For enlisted soldiers, as our retention policies level out overages in certain skills, promotion timing and opportunities across all skills should become more balanced.

In other words, the future Army will be younger, and promotions and schools should come faster. Most people who want to stay in, will stay in. For most soldiers, there remains a viable career in uniform.

For civilians, we're looking at reducing some 60,000 from now until 1997. Our strategy is similar to that for the military: reduce accessions, encourage early voluntary retirements and execute forced losses, either through release of non-critical temporary employees or, as a last resort, through RIF procedures.

The emphasis will be on retaining the best and, thereby, opening future promotion potential.

## Conclusion

In the short term, I know there are people with great concerns both about the force and their own welfare. The Army is tackling these challenges head on—we'll continue to stand by our soldiers, civilians and family members.

You, in the Field Artillery, have always been leaders in readiness and in taking care of soldiers. For that, I thank you. At the same time, I challenge you to redouble your efforts to keep the Army of tomorrow a modern, lethal, quality force capable of succeeding anywhere in the world.

In the long term, our force will be the same potent, ready force we've all known. Therefore, if someone asked me what the future holds for the Army, I'd say we'll have a solid, high-quality force—one that's trained and ready. For the vast majority of people, there will be no difference.



The Honorable Michael P. W. Stone became the 15th Secretary of the Army on 14 August 1989. Under his direction, the Army participated in the victories of Operations Just Cause and Desert Storm. During his tenure, the Cold War victory was finally achieved, and the Army began reshaping itself for the post-Cold War era. Mr. Stone entered government service in 1982 after a successful career in private business. He joined the Agency for International Development as Director of the US Mission in Cairo, Egypt. Later he came to the Army where he served as Assistant Secretary of the Army (Financial Management), Under Secretary of the Army and the Army Acquisition Executive. He performed the duties of the Under Secretary of Defense for Acquisition before assuming leadership of the Department of the Army.





# Building the New FM 100-5

## Process and Product

by Colonel James R. McDonough, IN

*National security requirements in our rapidly changing world demand a constant effort to shape our military capabilities to meet new challenges. Doctrine, according to the author, is the linchpin of this evolutionary effort. He offers his views on the vital importance of "process and product" as the Army once again revises its capstone doctrinal manual **Field Manual 100-5 Operations**.*

*This article is an updated version of the one by the same title and author that appeared in the October 1991 edition of **Military Review**.*

Only a very good army could do what we're about to do—maintain our fighting edge while moving through the dramatic changes of today into the future. The challenge to our senior leadership is two-sided. One side is intellectual: What is the future? What is the role of the Army in it? What changes are necessary, when do you make them and how do they take us to where we have to go? The other side is managerial: How do we preserve the institution—its ethos, traditions, values and competence—while we complete the transition? What are the levers of change? Who pulls them, how hard and how fast?

These are big questions indeed. Their essence is evolution and stability to meet the nation's needs in an era of uncertainty. Tension is inherent. Move too fast and

we risk the loss of our capabilities before we have in place the wherewithal to replace them. Move too slow and we meet the challenges of today a little while longer, then fall by the wayside, unprepared to keep up with the momentous change that has overtaken us. The stakes in handling that tension are nothing less than the security of the United States.

The solution lies in our doctrine. Doctrine offers the opportunity to focus the Army as we transition through these watershed years while providing the guide to achieve the objectives our nation sets before us. In it we have the opportunity to meet the intellectual and managerial challenge before us, both in terms of **process**—engendering discussion, offering debate, coordinating action, building consensus—and **product**—compiling

the body of principles by which we will endeavor to do our nation's bidding in peace, crisis and war. In the development and evolution of our doctrine, the process is as significant as the product.

This article is about that process and product. The US Army is about to change its central warfighting doctrine, *Field Manual (FM) 100-5 Operations*. Under the leadership of the Chief of Staff of the Army and the direction of the Commanding General of the Training and Doctrine Command (TRADOC), during the next 15 months or so, the Army's doctrine will evolve. All of us have a part to play in this effort. All of us—and our successors as well—will live with the outcome. What follows is one man's view of what course events might take.

**“ Doctrine can be the vehicle through which we manage the process of change, evolving in a disciplined manner that ensures a logical and well-reasoned approach compatible with the realities of environments of peace, crisis and war. ”**

## Why Change the Doctrine?

The pertinent question is why change our doctrine? After all, we have just come through three major victories—Panama, the Gulf and the Cold War. Doesn't that suggest our doctrine may not need adjusting? The answer is doctrine must respond to both external and internal changes, and enough has occurred in both areas to warrant some new directions.

The Warsaw Pact and the Soviet Union have disintegrated. The threat that prioritized our security arrangements for the last four decades has faded. Its stark menace has been replaced by a more ambiguous, less predictable specter that retains the potential to do great harm, even without the cohesiveness to coordinate and discipline its bite. No longer is this a bipolar world, conveniently—if inaccurately—divided into two contending halves: East and West. The strategic order that held the West together in the face of a hostile, aggressive communist bloc is irretrievably altered. In its place come fragmentation and a resurgence of ethnic animosities, national strife, contentious border disputes, aggressive religious fundamentalism and a growing number of regional instabilities.

At the same time, the structure of our military forces will change dramatically. New commands will form; old ones will be combined. Personnel strengths will shrink to pre-Korean War levels. The active Army alone will lose more than one-third of its manpower. As the geopolitical, economic and military environments change to this degree, doctrine must adapt so we're prepared to meet the objectives our nation sets before us.

An army's doctrine is the condensed expression of its fundamental approach

to fighting (campaigns, major operations, battles and engagements), influencing events and deterring war. It must be definitive enough to guide specific operations yet versatile enough to address diverse and varied situations worldwide. To be effective, doctrine must be dynamic. But we must not allow change to occur randomly; rather we must manage it to the Army and nation's advantage.

Doctrine can be the vehicle through which we manage the process of change, evolving in a disciplined manner that ensures a logical and well-reasoned approach compatible with the realities of environments of peace, crisis and war. But understanding that doctrine must adapt is only the first step. The real challenge is to do it in such a way that all can sign up and produce, in the end, a doctrine we can live with.

## Process

Doctrine is an authoritative statement on how we, as a professional organization, intend to operate. It comes with an official stamp of approval as the Army's guide to how we must meet the operational requirements of future commitments. Sir Michael Howard, the well-respected historian and noted commentator on military issues, has stated that the role of doctrine set in peacetime is not to be so wrong as to cause defeat when tested in battle ("Military Science in an Age of Peace," *Journal of the Royal United Services Institute*, No. 119; March 1974).

We would hope to do better than that, although we should never forget that military doctrine is, in many ways, merely a best guess. It combines theoretical principles with the experiences of recent wars, adds to that combination the impact of current developments in technology and organizational structure

and extrapolates, after intensive analyses, to the future.

Doctrine isn't pure theory. As it appears to the user, it's digested theories without the corresponding explanations. That is, as it should be, an intellectual distillation of generations of thought mixed with the practical observation of recent developments. Although tested through historical reflection, simulations, war games, exercises, systems analyses and rigorous debate, it remains an imperfect science. Put another way, it's risky business. As such, there should always be an element of doubt as to the correctness of our doctrine.

Taken in measured doses, a little uncertainty should motivate us to continually check our doctrine against reality. The armies of history that have denied themselves the healthy introspection of questioning their doctrinal solutions have paid a heavy price indeed for their obstinacy. The Russians in 1914 at Tannenberg, the French in 1940 at Sedan and even the Americans in 1943 at the Kasserine Pass are but a few who had to admit defeat and drop back to reconsider their plans of action. For some, by the first battle it's already too late.

There's a tendency for conservative institutions, such as the military, to resist the need to change with the times. In his brilliant book, *The Structure of Scientific Revolution* (University of Chicago Press, 1974), Thomas S. Kuhn wrote of the propensity for science (including military science) to wrap itself around its existing paradigm—its model of the truth—and deny the onslaught of evidence that indicates the time has come to replace it. Kuhn holds that all too often the guardians of the past are those vested with the leadership of the institution—those who have come of age believing in the old ways of doing things and feel any endeavor to change threatens not only their status, but also the institution itself.

But doctrine that spurns new information to preserve the old order for its own sake isn't doctrine; it's dogma. It no longer allows honest questioning. Debate is stifled; heretics are excommunicated. In such ways, the seeds of disaster are sown.

Fortunately, today's Army knows better. It is not prepared to rest on its laurels. As Stephen P. Rosen has pointed out in his insightful article "New Ways of War: Understanding Military Innovation," it's a myth that armies only learn from

defeat. Good armies learn from victory as well (*International Security*, Summer 1988).

In August of 1991, after an intensive review that included feedback from the field, especially from those involved in Operations Just Cause and Desert Shield and Storm and operations in other parts of the world, TRADOC published "Pamphlet 525-5 AirLand Operations: A Concept for the Evolution of AirLand Battle for the Strategic Army of the 1990s and Beyond." This initiated a process that will develop into an updated version of FM 100-5.

TRADOC Pamphlet 525-5, as its title implies, is an operational concept. It flows from strategy but isn't doctrine. The process that leads to FM 100-5 will convert the operational concept into doctrine. That process should seek to reach a consensus built of the greatest wisdom of the collective Army.

Articles will be written and workshops held. Seminars, symposiums, briefings, papers, communications, tests, analyses, discussions and debate are all part of the process of reaching for that great wisdom. But exchanges shouldn't be confined to within the Army. We need to reach out to others, to explain ourselves, coordinate our efforts and garner support. Sound doctrine can't be developed in a void. The doctrine of our sister services must be considered. We must integrate our efforts with joint and combined doctrine. The views of other nations matter, as do other government agencies. Influential groups—the Congress, the media, academia, industry—are stakeholders in the process. We must explain ourselves to all of them, draw upon their ideas and forge alliances that support our common goal of a stronger, more secure nation.

But most of all, we must use the process as a rudder to steer the course our Army will take as it moves into the future. All the business of the Army—force

structure, unit design, modernization, materiel, leader development, training and so on—derives from doctrine. The process itself, therefore, has a valuable effect in controlling change in the Army.

## Product

What, then, should the outcome be? Again, the answers are hard to formulate. At this early juncture, I can only propose. It will take many minds to provide the best solutions.

The conceptual ideas, tenets, imperatives and battlefield framework found in current AirLand Battle doctrine apply to AirLand Operations as well. AirLand Operations doesn't radically change AirLand Battle; rather it expands and refocuses the concepts inherent in AirLand Battle for the Army in a changing strategic environment. It builds on the foundation of our current doctrine for the employment of Army forces across the operational continuum of peace, crisis and war.

In this, the Army won't be alone. It's difficult to conceive of any operational missions the US Army might undertake unilaterally in support of national objectives. Joint, interagency and combined or coalition operations will be the norm. The *National Security Strategy of the United States* (The White House, August 1991) asserts that while we aren't the world's policeman, we must be prepared to meet our responsibilities as the world's foremost democratic power. In that regard, deterrence remains the central component of our new national strategy. This strategy aims to deter war through international cooperation, confidence building, influence and interdependence, as well as the ability to project combat power.

We must be prepared, therefore, to introduce effective force anywhere in the world on short notice and to stay until all



national objectives are met. National and international forces are best able to do this in concert with one another. No uniformed service can do it alone. The more we integrate our doctrine, the better we're able to support one another and put limited resources to maximum use.

Our nation will seek to achieve strategic objectives through the exertion of influence, persuasion and, if need be, coercion. However, we'll seek to counter threats to the security of the United States, its citizens and its interests by means short of armed conflict, if at all possible. The Army can serve as one means of accomplishing national objectives in these ways. The value provided by our forward-presence forces, in concert with our demonstrated ability to rapidly project them as well as contingency forces into areas of vital interest, makes this capability credible and may influence whether our nation remains at peace or goes to war.

The battlefield environment should be reassessed to account for a transition from a forward-deployed to a forward-presence and power-projection posture. Things look a lot different if you don't assume you're already on the battlefield but have to get there. Demands on command, control, communications and intelligence will dramatically increase. We'll need compatible, effective systems employable anywhere in the world. Quick and correct decisions will be needed for the commitment of resources. Force multipliers must be sequenced for introduction into contentious regions with the proper effect at the appropriate time.

The impact of technology will become even more significant as force levels are lowered, funding is constrained and the strategic environment becomes more complex. Even in Third World contingency operations, it will be common for our forces to face high-technology

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**“It's difficult to conceive of any operational missions the US Army might undertake unilaterally. . . . Joint, interagency and combined or coalition operations will be the norm.”**

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systems in the hands of an enemy. Even though we might have an initial edge, the interim between fielding new technology and countering it is rapidly diminishing. We'll consistently need to seek the optimal integration of tactics and technology. Our doctrine must account more fully for the impact of technology as a major variable in deterrence and the conduct of operations.

We can expect public support to become more important to the successful prosecution of military operations than it already is. Our doctrine must accommodate that reality. The American people prefer that operations conducted by our Armed Forces be decisive and of short duration and minimal cost in terms of casualties and the national treasury. Force capability and campaign design should strive to achieve this. But if these conditions can't be met, we'll need to take steps to prepare public expectations and sustain public will.

Future doctrine should be expanded to incorporate our evolving missions in areas such as stability operations, nation building and contraband flow. The Army may well participate in each of these as our nation seeks to assist emerging nations, instill democratic values and establish legitimate political and economic institutions in the process.

Preparation for conflict necessitates a comprehensive integration of several factors. The ability to deploy rapidly and efficiently is a complex task that extends beyond mere deployment. An expandable Army requires a dynamic and robust industrial base, a balanced force mix and organizational flexibility that facilitates integrating the Total Force—Active and Reserve Component units, sister services, governmental and intergovernmental agencies and multinational units.

Forces must be ready to fight when they get to where they're going. The Army

must be prepared to conduct forcible entry operations and protect initial lodgments that allow for subsequent buildup. We must introduce the right forces in the proper sequence. Early deploying forces would most likely include combat units; reconnaissance, intelligence, surveillance and target acquisition elements; command and control structures; and security and sustainment elements. They would be mutually supported by the joint efforts of our air and sea forces.

A power-projection force will, no doubt, place greater demands on materiel. Lightweight, compact weapons and support systems are necessary for rapid deployment against a determined, well-armed enemy. Extended logistics and fully integrated, real-time intelligence capabilities are equally essential. Support for and interface with joint systems will be critical. We'll need vision to get from where we are now to where we need to be. Doctrine does best when it drives materiel acquisition, rather than merely adapting to it.

Our doctrine also will have to deal with the complex relationships across the levels of war, from the tactical to the strategic. Virtually all Army operations above the tactical level will be joint—often combined. We can expect them to be conducted in an integrated, joint operational environment and guided by commander-in-chief (CINC)-directed campaign plans designed to support national and theater strategic objectives. Theater campaign plans should provide the necessary CINC guidance for developing the respective land, air and naval component plans to support joint and combined operations. These seek to establish and retain the initiative at every opportunity to destroy the enemy's capability to wage war. Air, land and sea operations in theater should address the

links between strategy, operational art and tactics to ensure these are well understood. Time, space and distance relationships; the destructive power of modern weapons; and the prevalence of public communications narrow the lines between the different levels of war.

The 1986 version of FM 100-5 introduced several concepts germane to the practice of operational art. These could be expanded and integrated into a doctrinal discussion of theater operations. Notions such as the center of gravity, lines of operation and culminating points might be augmented by other relevant concepts, such as decisive points, pivots of maneuver, phasing and branches and sequels from a theater-level perspective.

A solid understanding of the interrelationships among key concepts is critical to the conduct of successful battles and major operations. Though discussed in the 1986 version of FM 100-5, these might be more clearly defined. Emphasis ought to be placed on describing the balance between maneuver and firepower, linearity and nonlinearity and offense and defense.

Maneuver warfare, while an important component of operational art, won't succeed without firepower. We maneuver to bring fires on the enemy. We bring fires on the enemy to maneuver. As retired General Donn A. Starry noted in his forward to Richard E. Simpkin's book, *Race to the Swift: Thoughts on Twenty-First Century Warfare* (Brassey's Defence Publisher, 1989):

"By far the majority of winners in battle . . . were those who somehow seized the initiative from the enemy and held it to the battle's end. Most often the initiative was successfully held by maneuver. This seems to be true whether defending or attacking, outnumbered or outnumbering."

The idea is that maneuver is important but only insofar as it seizes the initiative and maintains freedom of action. Maneuver isn't an end in itself; nonlinearity isn't either. While nonlinear operations may open up opportunities in a theater of operations allowing integrated and mutually supporting activities in space and time, linear operations still will be needed.

Field Marshal Sir (Viscount) William J. Slim, the reconqueror of Burma in 1944 and as fine a practitioner of operational art as any produced in World War

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II, found it imperative to pull the bulk of his 14th Army back to the Imphal-Kohima Plain. He pulled back to consolidate his lines, establish a continuous front and draw the Japanese into a disadvantageous battle before resuming a bold, nonlinear offensive that eventually drove his enemy to precipitous defeat. His genius for the operational art was reflected in his wise selection of linear and nonlinear operations combined in such a manner as to gain and maintain the initiative and, eventually, produce victory.

In like manner, we should discuss the balance between offense and defense. There's no offense without a defense. Each contains within it elements of the other. At different levels of war, various combinations of offense and defense might apply. A preordained, dogmatic adherence to either offense or defense—as history has shown—could result in culmination and ultimate defeat.

Successful warfare is a mixture of ever-reforming combinations: attack and defense, maneuver and firepower, linearity and nonlinearity, mass and economy of force and so on. Operational art demands we achieve the right balance between each of these as we design campaign plans to achieve strategic objectives.

Theater-level logistics should be reexamined and addressed in greater depth in our evolving doctrine. Approaches that may solve theater-level issues may be unacceptable at the tactical level. It's clear, however, we should emphasize flexible, continuous, fully integrated logistics. Our doctrine should address this from the initial deployment phases through the conclusion of the campaign and from the theater to the lowest tactical level.

Tactical operations, as discussed in the current version of FM 100-5, are sound but may not go far enough in describing

the dynamics of the modern battlefield. The intelligence preparation of the battlefield (IPB) has proved its worth (although at the operational level, a doctrine for intelligence preparation of the theater might be more appropriate). Additional discussion might be appropriate in regard to tailoring forces and multinational concerns.

Disciplined operations become increasingly important. The rapid pace of modern warfare, combined with the enormous lethality of technology, has led to special concerns in limiting risks to friendly forces, dealing with large numbers of disoriented and often destitute prisoners of war and coping with the rapid breakdown of civil order in the area of operations.

A major expansion of current doctrine should occur in the areas of conflict resolution and post-conflict activities. In both Operations Just Cause and Desert Storm, commanders faced the requirement to conduct operations after the cessation of hostilities. Without adequate doctrine to serve as a guide, many had to develop ad hoc solutions to deal with refugees, prisoners of war and civil-military operations. How we deal with them in doctrine has implications for the success of campaign plans in meeting strategic objectives. Additionally, recent international and bilateral agreements have accentuated arms control and verification as a mission for US military forces. In each of these areas, a doctrinal shortfall exists that we should address in an expansion of FM 100-5.

Our current warfighting doctrine, as expressed in the 1986 version of FM 100-5, is largely confined to considerations of conventional, mid- to high-intensity warfare. Yet we find ourselves engaged around the world in a variety of missions that fall outside this scope. Doctrine should address nonconventional operations in hostilities short of war and

in conditions of war and its aftermath. It should also stress operations in nuclear, chemical and biological environments as a result of the proliferation of weapons of mass destruction.

The recently assigned missions of curtailing contraband flow—whether it's, narcotics, arms or illegal immigration—should be more clearly defined. Other missions include security assistance, nation building, humanitarian assistance and disaster relief. All these missions may warrant doctrinal elaboration.

These are my thoughts on expanding our doctrine. While I can't say, with any degree of certainty, just how it will all come out, I'm convinced the journey we take in getting there is of paramount importance. The process causes us to look beyond these times of turmoil to the needs of the future. That alone is "value added" to our Army.

All of us need to remain open-minded and make a concerted effort to reach within ourselves and out to others as we strive to help our doctrine evolve. It isn't change for the sake of change—rather it's change for the sake of security and progress. "Good enough" is not a risk we can afford to take. The stakes are high; the consequences sobering. Our Army and our nation demand our full attention.

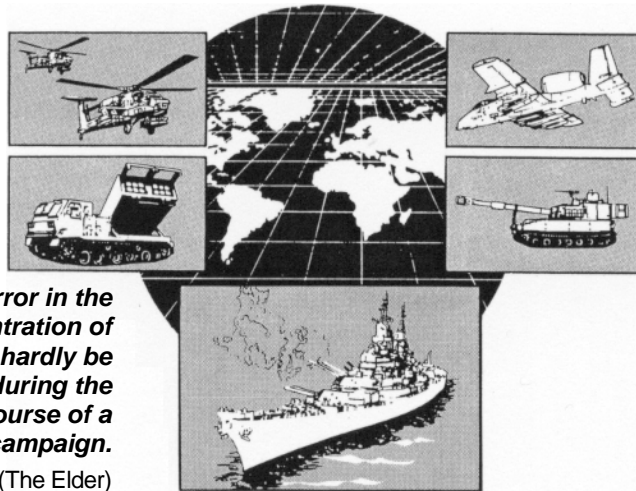


**Colonel James R. McDonough, Infantry, is Director of the School of Advanced Military Studies at the Command and General Staff College, Fort Leavenworth, Kansas. In addition, he's responsible for writing the Army's new *Field Manual 100-5 Operations*. Colonel McDonough served in Vietnam, Korea and Europe, the latter including on the staffs of the US Army Europe (USAREUR) in Germany and Supreme Headquarters Allied Powers Europe (SHAPE) as Military Assistant to the Supreme Allied Commander in Belgium. He commanded 2d Battalion, 41st Infantry and an infantry company. An author of several articles on the profession of arms, Colonel McDonough also published three military books: *Platoon Leader*, an account of his experiences as an airborne Infantry platoon leader in Vietnam; *The Defense of Hill 781*, an allegory of modern mechanized combat; and *The Limits of Glory*, a historical novel of the Waterloo Campaign of 1815.**

## An Overview

# Fire Support Considerations in Contingency Operations

by Lieutenant Colonel John D. Biggs



**An error in the original concentration of armies can hardly be corrected during the whole course of a campaign.**

Helmuth von Moltke (The Elder)

Moltke's observation reflects his understanding of the impact of changes on military operations during his life—in particular changes in mobility. His observation remains valid today as technology has improved the global mobility of armies. Consideration must be given, as it was in Moltke's era, to the selection and positioning of forces to achieve strategic goals.

The regional threats our Army may operate in are not as well-defined; we could face several threats in a wide range of operational environments. More certain is that many of those threats are sophisticated. We can count on their having access to one or more advanced technologies: reconnaissance, intelligence, surveillance and target acquisition; precision and (or) mass destruction weapons; long-range missiles; air defense; or armored fighting vehicles and tanks.

Today's Army must be prepared to accomplish missions that span the operational continuum. And we must accomplish those missions quickly, effectively and with minimum loss of life or decrement to our national treasury. These are the expectations of the American people. With the proliferation of instantaneous worldwide communications,

the American public will watch our forces execute contingency operations as they occur. Today's Army must be prepared to operate in an international "fishbowl."

Operations will be truly joint as we evolve from fighting two integrated battles (ground and air) to one extended battle with an increasing role for precision fires and joint synchronization. Long-range fires, global connectivity, long-range acquisition and precision munitions have changed the way we fight from multi-service operations in a joint environment to true "joint operations that support our national military strategy."

Our evolving national military strategy is still one of deterrence but with emphasis on projecting combat power from the continental United States (CONUS) instead of on large forward deployments. Our smaller, more versatile active force will be even more dependent on trained and ready Reserve Components. Together, the Total Army must be prepared to assemble forces tailored to accomplish a mission in any of a variety of operational environments. In addition, forces outside of CONUS (OCONUS) must now, more than ever, prepare for out-of-theater deployments to any region in the world.

## Credible Combat Power

The Army bases its ability to project power on the battlefield dynamics of maneuver, firepower, protection and leadership. Together these dynamics must provide a credible global deterrent.

A key word is *credible*. To be a deterrent, we must have a proven capability to insert trained and ready forces rapidly and effectively. Additionally, the forces we project must have a proven long-range, lethal, precision capability. Therefore, deploying forces must have enough airlift and sea-lift assets to respond convincingly to regional threats. Simultaneously we must be able to project precise, lethal firepower for operations across the continuum to protect our forces by countering the enemy's firepower and maneuver capabilities. The final dynamic, leadership, must be competent and confident to make the other dynamics effective. Our leaders provide purpose and direction and motivate our forces in combat.

Should deterrence fail and a contingency arise, we must project the right amount of force for the situation. The joint commander must maximize his maneuver, firepower and protection and balance them to bring them most effectively to bear against the enemy. He must consider the right mix of Active and Reserve Component forces to deploy. He also must tailor them based on their readiness status and ability to project enough force to accomplish a wide range of missions, often with restrictive rules of engagement (ROE).

The increasing requirement to protect ports of debarkation and lines of communication (as well as forces) from the threat of mass destruction weapons or long-range rocket and missile fires makes initial force projection decisions critical. We must be able to apply joint firepower: tactical air (TACAIR), electronic warfare, naval gunfire and missile fires as well as Army attack air, Field Artillery and mortar fires. We must be able to put the enemy's center of gravity at risk and, simultaneously, protect our initial or debarking forces.

In building the force-packages, we need continuous firepower or force protection capabilities, day or night, and in all weather—something not all services' assets can provide. Those capabilities must be precise, lethal and employable at close or long ranges in all environmental

conditions to fit various ROE. And we must deploy them early.

## Contingency Employment Options

Fire support for contingency operations may take many forms from initial deployment through decisive combat and subsequent redeployment operations. The "long legs" of TACAIR can provide global, responsive fires to the joint force commander. In addition, carrier-based air power or Marine forces may be available to support a deploying Army force.

Fire support considerations vary, depending on the contingency. For example, the situation may call for forced entry, requiring us to maximize predominantly joint firepower (Air Force and Navy) to seize a lodgement, followed early by artillery systems to provide lethal, long-range fires for protection and subsequent tactical operations.

Deploying to an area and then fighting while simultaneously continuing deployment to mass combat power is another very possible option. In this case, early deployment of firepower to protect the force and condition the battlefield for initial combat may be required.

Finally, the situation may allow enough time in the deployment phase to mass combat power. Early deployment of firepower provides the force protection necessary to allow continuous airfield and port operations while threatening enemy vulnerabilities.

## Field Artillery in Contingency Ops

The fire support coordinator's ability to integrate, coordinate and synchronize joint fire support assets clearly supports

deploying fire support personnel in the early phases of contingency operations. For each contingency option, we need a fire support element (FSE) on the ground early in the operation. As we mass overwhelming combat power, the FSE must be able to function at the echelon-above-corps and joint levels. Currently, this is a major deficiency—we have no such structure at these levels.

Tailored for the ROE and the threat, the commander requires a 24-hour, all-weather precision fires capability to employ to the depth of the battlefield in each deployment option discussed. Sometimes that may be early deployment of M198 155-mm howitzers with Copperhead munitions. The high-mobility artillery rocket system (HIMARS)—a developmental, lighter weight, wheeled version of the multiple launch rocket system—is another excellent asset for maximum firepower early on.

HIMARS will provide long-range rocket and missile fires and counter tactical missile threats. Transportable by C-130 aircraft, the commander could deploy HIMARS into areas with short or unimproved airfields early in a contingency operation. This would provide him highly lethal, long-range, all-weather fires that could be critical to early operations and help prepare the battlefield for maneuver operations that culminate with firepower.

Fire support personnel with laser designators may be deployed to designate targets for TACAIR to attack at night—lasing targets those assets might not otherwise have been able to attack. Cannon and rocket artillery systems may be the only attack assets that are immediately available to the joint or task force commander. This is particularly true when he faces a high air threat environment that

restricts the flexibility of air operations or adverse weather conditions that severely restrict airborne fire support platforms.

All these operational considerations drive the decision to apply force early as well as determine the force-package mixes.

Field Artillery's precision attack systems with 24-hour, all-weather, long-range capabilities give the contingency force both protection and firepower. Rapidly deploying such a responsive capability as a form of operational maneuver allows the commander to gain positional advantage before the battle and exploit tactical successes as the battle progresses.

The Field Artillery gives the joint commander all these capabilities. It plays an essential role in power and force projection supporting contingency operations. With joint fire support assets, it provides the firepower and force protection means critical for successful maneuver.



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# REDLEG NEWS

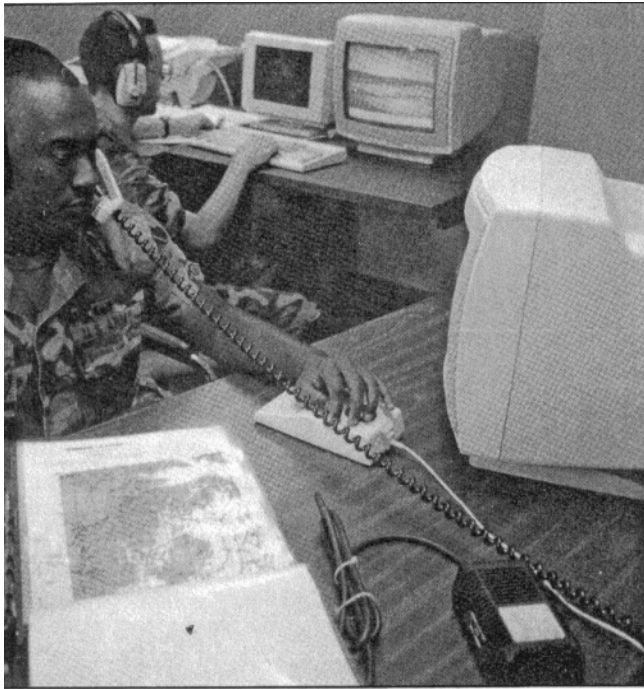
## ITEMS OF GENERAL INTEREST

### GUARD FIST II

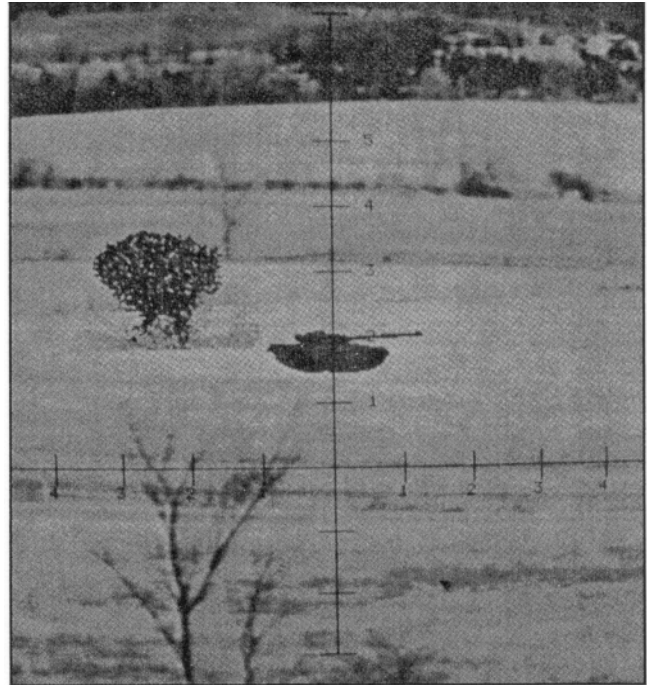
The Guard Unit Armory Device, Full-Crew Interactive Simulation Trainer II (GUARD FIST II) is an observed-fire trainer coming on line for the Total Field Artillery. (The version I device is the Armor's tank-gunnery trainer.) GUARD FIST II is a transportable, table-top trainer for Field Artillery forward observers to be fielded first to Reserve and then Active Component battalions and training installations, starting in FY94.

The device superimposes computer-generated targets and munitions effects onto photo-quality background scenes stored on videodisc to accurately simulate tactical scenes. It generates a variety of targets, munitions and battle sound effects.

The trainer has two stations: an instructor/operator station and forward observer station. The instructor/operator station has the central processing unit, videodisc player, stereo headset, color monitor for background scenes and munitions



The transportable, table-top GUARD FIST II trains FOs using two stations: an instructor/operator station and a FO station.



The device superimposes computer-generated targets and munitions effects onto photo-quality backgrounds simulating tactical scenes.

effects and text monitor for scenario control. The forward observer station has a color monitor for background scenes and munitions effects; a digital message device (DMD) simulator, which replicates the AN/PSG2 DMD; and a simulated M19 binocular and M2 compass.

The system has 20 full-color background scenes representing a variety of European or Middle or Far Eastern terrain. You can display all scenes in day, night or illumination conditions. Each background scene has a digital terrain model; if a target is in a tree line or behind a hill, you can see only that part of the target and munitions effects not blocked by trees or hill. Moving targets disappear when going behind buildings, tree lines or hills.

GUARD FIST II is task-oriented. It supports 18 Skill Level 1 and 2 tasks, to include request and adjust area fire, coordinated illumination and impact and time registrations. All scenarios have both automated and manual scoring that's based on the performance objectives in the Soldier's Manual for MOS 13F Fire Support Specialist.

When the instructor finishes an exercise, the system provides menus that tell exactly where the targets were, the spotting of each round fired and the correction the student gave to adjust the round. The system saves these menus to allow the instructor to review them later and build future training exercises around the strengths and weaknesses of his soldiers. The instructor also can print any of the menus to discuss in an after-action review or debriefing after a training session.

GUARD FIST II is versatile, supporting both automated and manual Field Artillery units. It allows digital communications

through the AN/PSG2 DMD simulator or verbal calls for fire to be manually inputted into the computer.

The trainer has a variety of target and munitions images. It supports improved conventional munitions (ICM), high-explosive/quick fuse (HE/quick), HE/variable time, HE/time, HC smoke and illumination rounds. The system accurately replicates time-of-flight, flash-to-bang and percentage-chance-of-kills.

GUARD FIST II provides digitized images of a wide variety of targets. It gives images of T72 tanks, BMPs (Soviet-made infantry fighting vehicles), ZSUs (Soviet-made self-propelled anti-aircraft guns), trucks, bunkers, HIND-Ds (Soviet-made helicopters) and many other targets.

Prototypes of the trainer are at the New Jersey High-Tech Training Center at Fort Dix and at the Field Artillery School, Fort Sill, Oklahoma. If you have questions about GUARD FIST II, write the Commandant, US Army Field Artillery School, ATTN: ATSF-DVT, Fort Sill, Oklahoma 73503-5600 or call the Training Devices Branch at AUTOVON 639-5077/3026 or commercial (804) 351-5077/3026.

With the Army's continuous budget reductions, the Field Artillery will have to depend more and more on such training devices and simulators. GUARD FIST II provides the tasks, targets and the terrain scenes to best train forward observers—a critical part of our team.

SSG David H. Ginsburg, FA  
Fire Support Sergeant, 2-110 FA  
29th IN(L) Div  
Maryland Army National Guard

# System Improvement Kit for M198 Howitzers

The US Army Armament Munitions and Chemical Command (AMCCOM), Rock Island, Illinois, has begun applying system improvement (SI) kits to 155-mm M198 howitzers in active, Reserve and National Guard units. The purpose of the SI Kit is to improve the M198's reliability and maintainability and to ease its operation. These improvements allow the weapon to better accomplish its mission and function well into the next century.

The SI Program was developed from a fielded system review and continuous user feedback, based on operational experiences, including Operations Desert Shield and Storm. The M198 SI Kit modifications are the first materiel changes since the weapon was produced initially in July 1978.

## Howitzer Improvements

The SI Kit encompasses 18 modifications to the M198 carriage and trails. The primary areas of improvement addressed by the SI Kit are the following:

**Brake System.** Air and hydraulic gauges are being added to the right trail of the howitzer to monitor and maintain required levels for proper function of the brake system. The gauges reduce brake failures that result from towing the howitzer with inadequate air and (or) fluid in the power booster assembly reservoir. In addition, the breather system has been modified to prevent the power booster assembly from taking in water during fording operations.

**Traverse Locking Assembly.** A self-sustained, semiautomatic assembly is replacing the old configuration that relied on a manually emplaced retaining pin to fasten the top and bottom carriages in a locked position during towing. The improved locking assembly reduces troop involvement by automatically securing the locking pin, thus assuring top and bottom carriage engagement. Adoption of this modification prevents damage to brake lines and the traverse ring gear assembly.

**Travel Lock Gussets.** Gusset plates are being added to the struts of the cradle assembly to strengthen the high-stress area of the cradle. This modification reduces cracks in the cradle struts that result from towing in rugged terrain.

**Equilibrator Adjusting Screw Assembly.** Improved adjustment screw components are reducing operator efforts to adjust the equilibrators. New elements of the modified screw assembly include a solid lubricant coating, upper bearings and dimensional modifications.

**Shields and Covers.** Various covers and shields are being added to the carriage and trails to protect brake lines, gauges and other sensitive items. These covers and shields prevent damage to hardware when the howitzer is dropped during helicopter exercises and when trails are opened and closed during rapid deployment.

## Complementary Components

As part of an effort complementing the application of the SI Kit, six additional M198 components have been developed during the engineering program to be implemented as the existing stock of replacement items is depleted from the supply system. These items have been incorporated into the new supporting manuals published in May 1991.

The primary items complementing the SI Kit modifications are the following:

**Selector Valve of Manifold Assembly.** A stainless steel shaft and bronze bushing are new features of the improved selector valve. This valve is more reliable than the old version because the shaft and supporting hardware aren't as susceptible to condensation contamination.

**Hydraulic Hand Pump.** A steel body pump is replacing the old aluminum pump to provide durability and reduce structural failures of this item.

**Equilibrator/Recuperator Valve.** A high-quality valve with the ability to meet pressure requirements far longer than the old valve improves reliability in both the equilibrator and recuperator of the recoil mechanism assembly.

## Kit Application Schedule

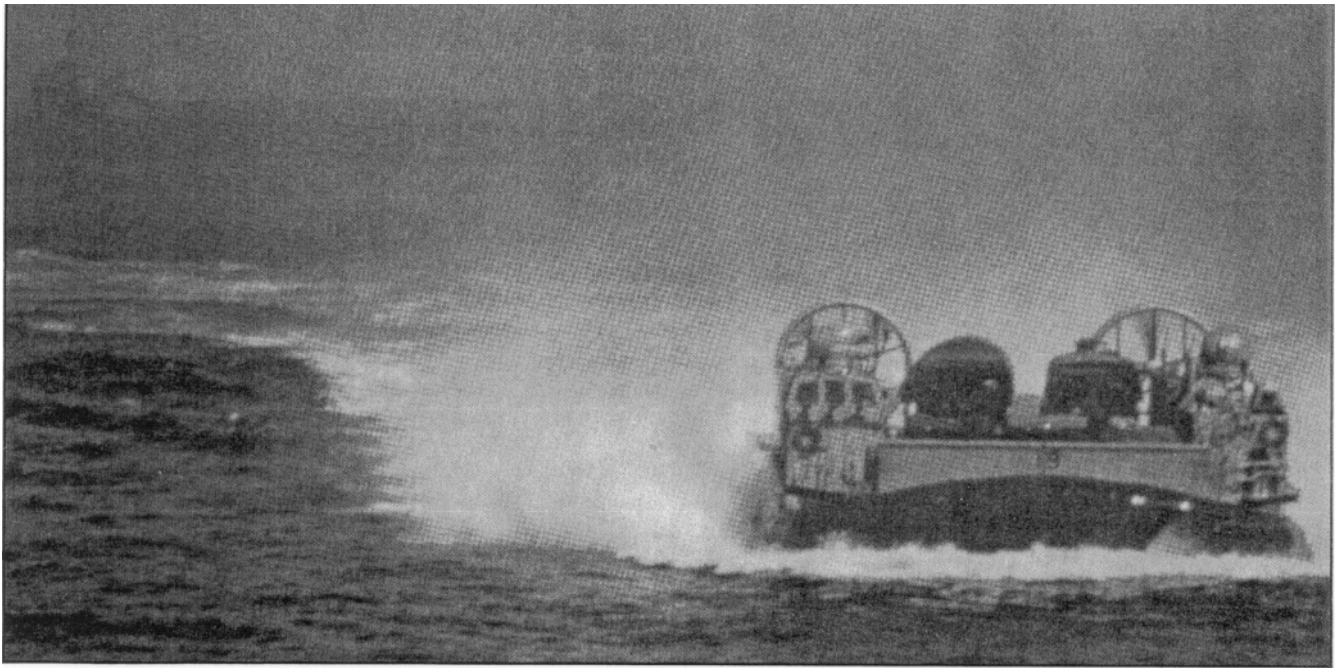
Teams from Letterkenny Army Depot, Pennsylvania, are applying the SI Kit in the Total Army (see the figure). The teams can modify 20 howitzers per month. Current plans call for all Army M198 howitzers to be modified by the end of FY 94. The US Marine Corps is currently planning to start applying the kits to its fleet of M198 howitzers, beginning in FY 93.

If units have questions about the SI Kit or its application schedule, call Mr. Marlin Newman at AMCCOM at (309) 782-8050.

Completed	Fort Sill, Oklahoma; Fort Bragg, North Carolina; and Fort Ord, California
2d Qtr FY 92	Fort Lewis, Washington; and Fort Schafter, Hawaii
3d Qtr FY 92	Korea; Fort McClellan, Alabama; and Alabama
4th Qtr FY 92	Maine and New Hampshire
1st Qtr FY 93	Fort Drum, New York; Rhode Island; and Pennsylvania
2d Qtr FY 93	Fort Sheridan, Illinois; Massachusetts; and Tennessee
3d Qtr FY 93	Fort Snelling, Minnesota; and Fort McCoy, Michigan
4th Qtr FY 93	Wyoming and Vermont
1st Qtr FY 94	Virginia, Missouri, and Puerto Rico
2d Qtr FY 94	Mississippi; and Miesau and Kaiserslautern, Germany (POMCUS)

M198 SI Kit Application Schedule. Plans call for the kits to be applied in all Total Army units by the end of FY 94. Kit applications in Marine units are scheduled to begin in FY 93.





# Soldiers of the Sea

## **USMC:** A Naval Expeditionary Force

by Headquarters Staff, US Marine Corps

*This article was written as a consolidated effort of several divisions of the Headquarters, US Marine Corps (USMC), Washington, D.C. It explains the role traditionally played by Marines in our nation's defense and applies that role to joint operations in our power-projection armed forces.*

One of the stories that came out of Operation Desert Storm went like this. Two senior officials were sitting in an office watching news clips of Marine artillery that had launched lightning raids into Kuwait, against targets identified earlier by remotely piloted vehicles (RPVs). One officer turned to the other and said, "I thought the Army had all the artillery? Why are the Marines doing all this stuff?" The more senior official turned and said, "Because we're not serious yet. The Army only plays when we get serious."

This little vignette summarizes a very

important point. The Marine Corps' role was set in law so the nation would always have a force to use in "less serious interventions." There's a different political message the nation sends when it introduces the Army. And the different roles delineated for the services reflect this idea.

The Marine Corps has focused and will continue to focus on its role as the nation's "Naval Expeditionary Force in Readiness." Events of the past year demonstrate the wisdom of the Congress in establishing such a force to intervene in less serious conflicts.

### An Eventful Year

During the past year, the Marine Corps has demonstrated its capabilities and flexibility in contingency operations. In Operations Desert Shield and Storm, we deployed ashore a powerful Marine expeditionary force (MEF) of two divisions (reinforced with an Army armored brigade), a reinforced aircraft wing and combat service support forces. At sea, 18,000 Marines aboard amphibious ships tied down six Iraqi Divisions and stood poised to assault into Kuwait if the situation warranted. Eighty-five percent of our operating forces were deployed during Desert Shield and Storm.

However, while Americans fixed their attention on these dramatic events, Marines continued to conduct the expeditionary operations that have been our hallmark for 216 years. These operations included a non-combatant evacuation

(NEO) in Liberia where Marines and sailors operated both ashore and from sea bases for more than 200 days. Naval forces later conducted a NEO in Somalia using forces temporarily dispatched from the Persian Gulf. Upon redeploying from Desert Storm, a Marine force aboard amphibious ships commanded and participated in a joint and combined operation called "Sea Angel," the disaster relief effort for the typhoon victims in Bangladesh.

## Marines and Contingency

The lesson to be drawn from these recent examples is the entire United States Marine Corps is a contingency force. We don't differentiate between contingency forces and other forces we may deploy and employ—they're all the same.

But this statement doesn't paint the entire picture. The Corps, from its inception, has been—and will continue to be—a naval expeditionary force with contingency capabilities. While the distinction may appear slight, it's important.

With the words "naval expeditionary," the Marines are the sea-based, forward-deployed force on-call. Three Marine expeditionary units (MEUs) are afloat at all times in three different oceans worldwide, ready for the call to respond to a contingency or "hold the fort," enabling the introduction of heavier follow-on forces.

As a contingency force, in Army parlance, we fill the light to medium spectrum of forces. More important, however, is the forcible entry capability that naval expeditionary forces provide the joint commander as he plans to sequence his ground and air forces into a theater.

The Marine Corps is a unique instrument for protecting national interests and preserving national security. No other nation has a force like the US Marines as no other nation has the maritime requirements our nation has. The Congress set the requirement in law to have a force with the capabilities of land, sea and air, "an expeditionary force, able to react to minor international disturbances."

As Marines, we're Soldiers of the Sea, specializing in conducting operations or responding to crises and contingencies from the sea. The amphibious assault, which may be the best known of our operations, is only a small part of our capabilities. We can conduct many other

operations from our sea bases: humanitarian assistance, NEOs, direct-action missions, combined exercises, etc. Marine task forces are trained to deploy by air or surface. But our forte is to come from the sea—that's what makes us unique.

Marines have ships as sea bases to assemble, prepare, equip and supply Marines conducting operations. Sea bases are floating helicopter platforms, vertical short takeoff and landing bases, logistical support sites, assembly areas, attack positions and reserve staging areas. Our operations off sea bases allow the naval and joint commander to extend the maritime battle into a land campaign without relying on existing land bases.

## Moving Ahead

The principal utility of naval expeditionary forces in the future, as it has been in the past, is likely to be peacetime presence and forward-deployed missions. We're the forces that contain crises—stop the "little fights," if you will, before they become "big fights." If conflict does grow, we'll be the *enabling force* that holds the line to facilitate our joint contingency forces deploying to fight the major regional contingencies.

Marine forces complement Army contingency forces, and our complementary capabilities are a force multiplier for the joint commander. It's impossible for any service to have all the required capabilities and still be proficient in what it's best at. The services must continue to do what they do best in accordance with their delineated roles and functions.

The fact is, joint and combined operations are the way US forces must approach conflict in the future. A commander-in-chief's (CINC's) interests are in providing the necessary capabilities to accomplish the mission. So he'll use his joint-force capabilities to their best advantage.

For example, a joint commander initially could deploy Army airborne or Marine amphibious forces to secure an entry point. These forces would be followed by a Marine Expeditionary Brigade of 16,000 Marines using the maritime prepositioning ships (MPS). They then could be followed by heavier forces from the Army's contingency corps.

Although the forces in the example have similar capabilities, the decision to flow the forces in this scenario may be based not only on a time requirement,

but also on a need to establish a capable force to fill a certain amount of space. This concept allows the Marine Corps to fulfill its delineated expeditionary role while the Army complements with its contingency role.

For a service to remain relevant in a world of regional contingencies, there are two absolutes: our force must be oriented toward functioning in a joint and (or) combined arena, and it must be versatile with utility across the spectrum of operations. The capabilities (Figure 1) and the flexible force package combinations (Figure 2) of the Marine Corps highlight these two areas.

In conclusion, the Marine Corps does not merely have contingency capabilities. Rather, the *entire Corps* is the nation's naval expeditionary force. This capability is both complementary with and includes contingency capabilities. We're America's Soldiers of the Sea.

- Conduct forcible entry from sea operations.
- Conduct maritime special operations.
- Provide sea-based units, small to large.
- Provide a joint command and control headquarters.
- Serve as a bridge to project power from sea to shore.

Figure 1. Marine Corps Operational Capabilities. The Marine Corps naval expeditionary force operational capabilities make it a versatile force for the joint commander

- Marines can provide—
- Task-organized forces for deployment and employment, each sized and configured to meet a specific mission.
  - A complete package of sustainment, tactical mobility, aviation, firepower and command and control capabilities.
  - Forward-deployed and sea-based naval forces to be the "tip of the spear."
  - Naval expeditionary forces to seize the points of entry for the introduction of other armed forces in a team effort.

Figure 2. Marine Force Packaging Capabilities. The Marine Corps force packages give the joint commander flexibility and unique sea-based capabilities.

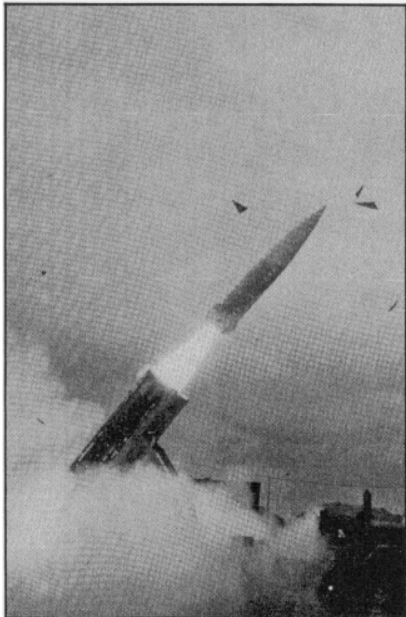


# HIMARS

## for Contingency Operations

### To Get There Fast with Firepower

by Captain James J. Waldeck



**Regional instability, the increasing technological sophistication of armies outside Europe and our inability to maintain forces in every potential global trouble spot place a greater premium on our capability to project combat power rapidly in response to crises.**

Lieutenant General J. H. Binford Peay III  
Deputy Chief of Staff, Operations and Plans  
"Gearing the Force for Crises Response"  
Army 1991 Green Book

The high-mobility artillery rocket system (HIMARS) will add firepower "muscle" to our contingency forces. A lighter weight, wheeled version of the multiple launch rocket system (MLRS), HIMARS can fire deadly munitions more than 100 kilometers. The system, air deployable by C-130 aircraft, can be on the ground in the early stages of a contingency, significantly enhancing our ability to "project combat power rapidly in response to crises."

On 16 August 1991, the Training and Doctrine Command (TRADOC) Commander forwarded the HIMARS operational requirements document (ORD) to the Department of the Army (DA) for approval. The ORD, currently being reviewed by DA, represents our commitment to developing a more strategically deployable and operationally mobile rocket and missile system for the Army's contingency forces. If the system is funded in FY 94, units could start receiving HIMARS in FY 98.

### Tactical and Operational Requirements for Contingencies

After their early arrival in a major regional contingency, light forces may have to fight immediately and hold lodgement areas to allow for the buildup of heavier forces. These light forces must be able to deliver continuous, responsive and long-range fires against a determined and capable enemy.

Many of the targets these forces must attack will be operational in depth. Figure 1 illustrates this idea further. In a notional contingency theater, light forces, deployed in force packages, include each of the battlefield operating

systems (BOS). Their utility comes with both the immediacy by which they can respond and be in theater and with the combined arms nature of their force packaging.

As the figure shows, the contribution of our heavy forces rapidly increases with the closure of sea-lift at ports in theater. Before sea-lift closure, the heavy forces' contribution is relatively small because of the number of airlift assets they require to get them on the ground. The problem is that few potential adversaries would choose to engage us in heavy combined arms combat once sea lift closes.

Light and heavy forces together bring combat power to the theater. Their power is tactical when it translates into victorious battles and engagements. Tactical forces, together with operational fires—those employed to establish the conditions for decisive maneuver—constitute the combat power available to the joint task force commander.

Figure 1 shows that, until sea-lift closure, the preponderance of combat power available is from operational fires, most of which come from self-deployed Air Force or Naval assets. Simultaneously, the bulk of our tactical combat power before sea-lift closure comes from the light forces.

After our heavy forces arrive, the initial light forces must be capable of rapid employment elsewhere in theater—one means of achieving operational leverage. But because our C-5 and C-141 aircraft will still be used for strategic airlift and intra-theater movement will probably be limited to small, austere airfields (SAAFs), these movements require other means. Our C-130s are designed for this role, and we have several hundred in our Air Force.

Currently, our light contingency forces are vulnerable—they have no lethal,

organic (to the corps or division), long-range indirect fire system that's as rapidly projectable as they are. The theater commander will have more flexibility if his lighter forces can relocate in theater with a fire support asset that can fire to operational distances as well as perform the tactical counterfire role. And HIMARS will give him that flexibility.

## HIMARS to Fill the Gap

Like the M270 MLRS launcher, the HIMARS crew will consist of no more than three soldiers. It will have on-board positioning and navigational systems and be able to fire the entire MLRS family of munitions (MFOM). These include the basic M26 rocket, MLRS sense and destroy armor (SADARM), MLRS terminal guidance warhead (TGW), extended-range rocket, Army tactical missile system (Army TACMS) Block I and brilliant anti-armor submunition (BAT). The effectiveness of the munitions fired by HIMARS and the time required to fire them will be the same as for the M270. In addition, HIMARS will have an on-board reloading capability.

The development of HIMARS will include efforts to maximize component commonality with the M270 launcher to minimize the number of unique supply part requirements. HIMARS will be a wheeled launcher to take advantage of lower operational, maintenance and support costs.

To keep within the C-130 transportability constraints, each HIMARS launcher will probably carry one launch pod container (LPC) of six rockets or one missile launch pod assembly. Because it will carry fewer rockets than an M270 or a single missile, one might question whether HIMARS will be lethal enough to counter a viable armored threat.

If we had to face the massive, echeloned forces of our former adversary, the Warsaw Pact, in the European scenario, that would be a good question. But the system is designed to fill a specific gap—to counter multiple regional threats, that have smaller forces but high-tech systems and long-range weapons.

In computer simulations of mid-intensity crises at Fort Sill, Oklahoma, the Field Artillery School's Legal Mix VII team tested the effectiveness of HIMARS in several scenarios against anticipated

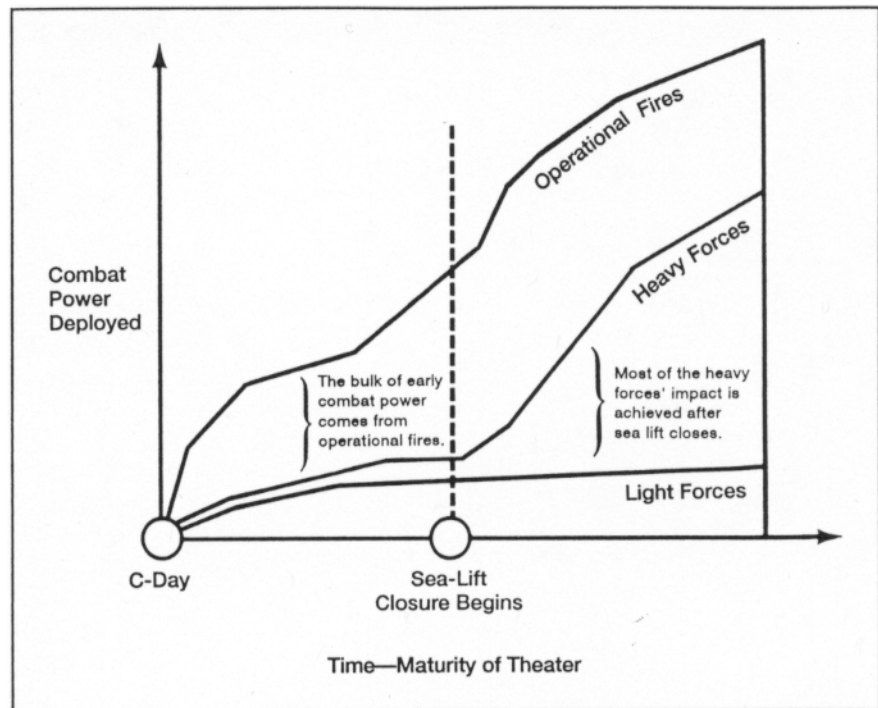


Figure 1. A Notional Contingency Theater. As shown, light forces can be deployed rapidly, providing the bulk of our tactical combat power. But before our heavy forces close in the theater, the preponderance of combat power available is from operational fires (primarily self-deployed Air Force and Navy assets). The maximum combat power, both tactical and operational, we can provide our forces early in a contingency enhances their survivability and effectiveness.

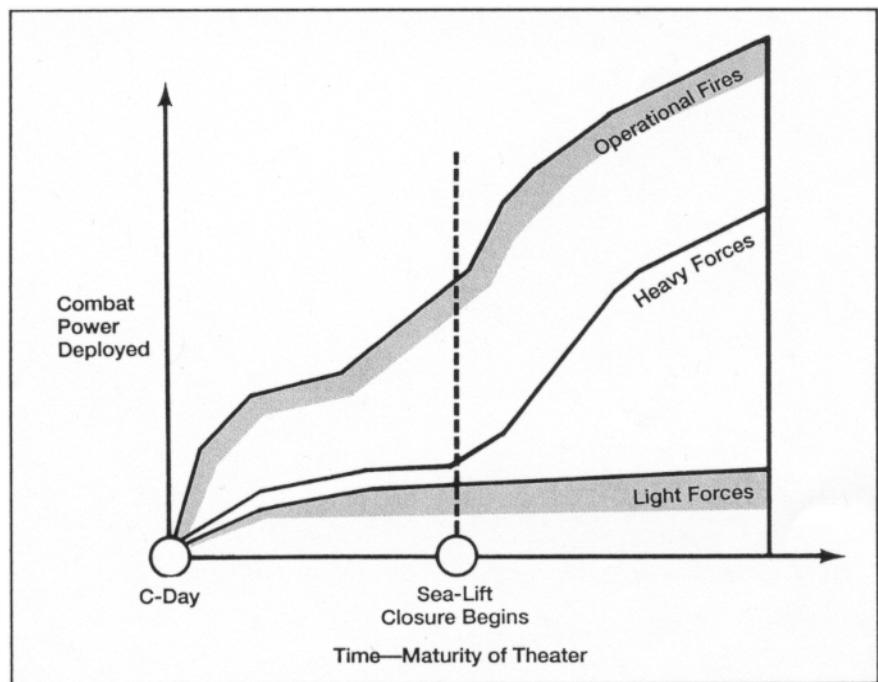


Figure 2. The Contributions of HIMARS to Combat Power. Using the same notional contingency theater in Figure 1, the green shows the net effect of HIMARS on contingency force combat power; it significantly increases our tactical and operational fires capabilities. After sea-lift closure begins, HIMARS continues to provide fires for the heavy forces and is mobile enough to be rapidly re-employed in theater.

threats. The introduction of HIMARS units significantly increased the survivability of our contingency forces in these scenarios.

The shoot-and-scoot tactics HIMARS units will employ greatly enhance their survivability. In fact, HIMARS units not only survived as well as M270 units in the scenarios, but also inflicted nearly as much damage to threat forces in the same amount of time as the M270 units did. (In those scenarios, the target presentation rate reflected what could be expected during mid-intensity conflict.) The ability to fire the MFOM proved invaluable to the survivability of friendly maneuver forces in the earliest phases of theater development.

Given the capabilities of HIMARS and simulations of crises we know we could have to respond to, the system was very effective against future threats.

Figure 2 illustrates the force-multiplying effects of HIMARS before and after sea-lift closure in the notional contingency theater in Figure 1. Because the MFOM contributes significantly to the lethality and survivability of light forces in a tactical fight, the lower curve (light forces) combat power increases with the introduction of a launcher as mobile as the force it supports—HIMARS.

The same launchers can heavily influence the operational fires arena. Therefore, the top curve (operational fires) increases in capabilities as well. As sea-lift closure introduces heavy forces in theater, Figure 2 shows that total combat capabilities significantly increase.

Because of its rapid intra-theater mobility via C-130 or its own wheels, HIMARS continues to improve the lethality of light forces as they're re-employed at other locations in theater, often as deep operational maneuver. At the same time, HIMARS adds to the theater's overall combat power with its operational fires.

## Fielding

HIMARS will be fielded in battalion sets with tables of organization and equipment (TOEs) similar in function to those of M270 battalions. A HIMARS (like an M270) battalion will require command and control, resupply and refueling capabilities in each of its line batteries. But the equipment to support those functions may be different. For example,

M270 units have M577 command post carriers and heavy expanded-mobility tactical trucks (HEMTTs) to accomplish these functions, while HIMARS units may employ high-mobility multipurpose wheeled vehicles (HMMWVs) and (or) the next generation of tactical wheeled vehicles, now known as the family of medium tactical vehicles (FMTV), to fulfill these roles.

The current requirements call for two HIMARS battalions, most likely assigned to the XVIII airborne Corps. The launchers will be in lieu of M198 155-mm howitzers or M270 launchers fielded in these supporting brigades. The brigades will have a mix of towed 155-mm cannon and HIMARS battalions.

The organization for combat may call for these battalions to provide general support (GS), general support reinforcing (GSR) or reinforcing (R) fires to the supported light division. Additional HIMARS battalions could provide general supporting operational fires exclusively for the corps commander.

Requiring about the same number of personnel per battalion as M270 battalions, HIMARS units will carry force structure savings into the Army as they replace older cannon units. The system promises a more efficient method of delivering fires.

## Mobility

A major advantage of the wheeled platform will be a significantly greater capability to travel the considerable distances required for future battles. With tactical forces sparsely arranged over nonlinear fronts but required to mass rapidly for decisive operations, HIMARS will be able to use roads or trail networks and travel reliably at high speeds over extremely long, operational distances to deliver its fires. A tracked fleet of vehicles simply doesn't have this operational mobility without a similarly sized fleet of heavy equipment transporters (HETs).

But the greatest movement advantage of HIMARS is it can be transported, combat-loaded, by a C-130. HIMARS' ability to be as deployable as the units it will support adds to the protection of those units as they are introduced into and during buildup in the theater.

This capability is vitally important under several possible scenarios, three of which arise from operations that occurred

in Desert Storm. A fourth scenario applies to many of our current contingency plans.

When the 82d Airborne Division arrived in Saudi Arabia on 8 August 1990, it was expecting to have to fight right away. If the Iraqis had continued across the Kuwaiti border to attack the 82d (a very real concern at the time), there would have been nothing to stop the Iraqi armored forces, except a limited number of tactical air assets (TACAIR), until they got in range of the division's tube-launched, optically tracked, wire-guided (TOW) missiles. All the attack helicopters and M270s were either still in the strategic aircraft flow or being reassembled at the port in Dhahran.

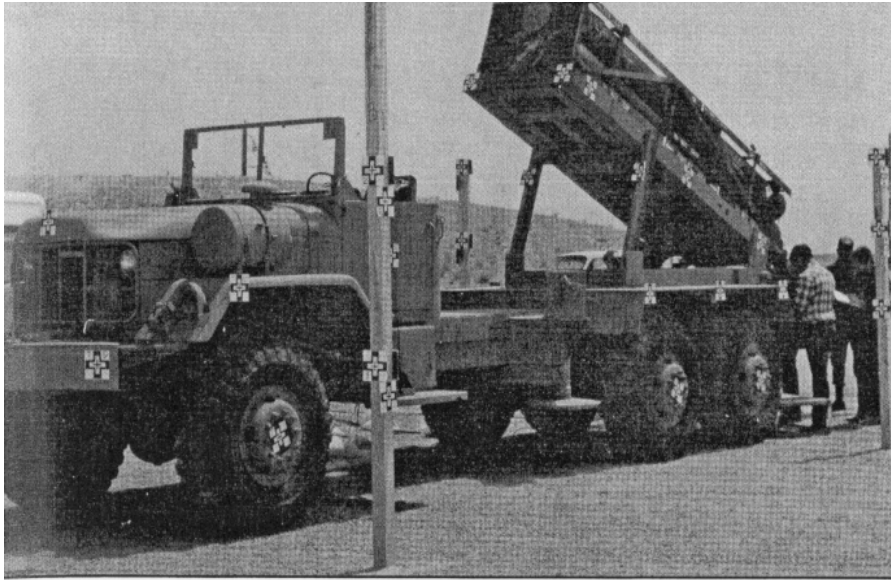
The advantage of C-130 transportability for HIMARS in this instance would have translated to a 25 percent savings in strategic airlift. This means that not only could HIMARS units have been brought over much earlier than M270 units were, but also HIMARS units could have been transported in C-141s as well. (The M270 is normally capable of being transported in the C-141, but during Desert Shield, the Air Force had to constrain each maximum cabin load to lighter than the weight of the M270.)

Having HIMARS units in the force would have meant operational (Army TACMS) and tactical (MLRS rockets) fires on the ground the same day the maneuver forces arrived in Saudi Arabia.

The second instance was the movement of a brigade-plus of the 82d Division by C-130s to the western flank of the XVIII Airborne Corps to augment the French 6th Light Armored Division before the "end run." The ability to load HIMARS units on these same C-130s would have enabled the brigade to bring in long-range rocket and missile forces at the same time the maneuver forces closed on that portion of Tapline Road the brigade was using as an airstrip.

The third instance is a scenario where an opportunity against an enemy weakness could have presented itself, but we may not have had the ability to exploit it swiftly and appropriately. It occurred with the movement of the 101st Airborne Division (Air Assault) to its Forward Operating Base (FOB) Cobra.

With a small amount of engineer assets to clear and maintain a flight landing strip (FLS) in FOB Cobra, the division could have used C-130s to bring



The US Missile Command fashioned this HIMARS Army TACMS launcher from an old Honest John launcher and tested the concept by firing the missile in July 1991 at White Sands Missile Range.

HIMARS units north from Tactical Assembly Area (TAA) Campbell to the FOB. Even without moving from the FLS in Cobra, HIMARS could have ranged the division area of operations to provide suppression of enemy air defenses or to strike Iraqi armored formations before they became a threat to the division.

Fourth, many Army contingency plans call for establishing an intermediate staging base (ISB) to introduce our contingency forces into a theater as a demonstration of national resolve against a potential belligerent. On these occasions, the Air Force will use strategic airlift (C-141s and C-5s) to establish the ISB. If show-of-force fails and we commit our forces against the enemy, C-130s will likely move these forces from the ISB to the area of operations.

The C-130 is the most appropriate means to do this because it's more useful for forced-entry operations, there are hundreds available and it can land almost anywhere—short stretches of roadways, dirt strips or airfields damaged to the degree that strategic aircraft can't land on them.

While the C-17 is under development and also will have the ability to land on SAAFs, its primary role will be strategic. Because we'll have so few C-17s when procured, it probably will help the C-141s and C-5s maintain the strategic airlift bridge from the continental US to the theater.

During Operation Desert Shield, the force artillery commander made the decision early in crisis planning to send M270 units to Saudi Arabia with C-5 aircraft. This was undoubtedly a correct decision; however, it was a costly one in terms of aircraft sorties because the deploying forces have a fixed number of airframes allocated for movement.

Compared to the number of C-5 aircraft it took to deliver M270 units to the theater of operations early, transporting HIMARS units would save 25 percent of that strategic lift. This means the maneuver and force artillery commanders could have the capability to fire the MFOM on the ground as well as a more robust combined arms task force.

## HIMARS Progress Report

The HIMARS capability is quite a bit closer to happening than one might expect. The ability to fire MLRS rockets and Army TACMS missiles from a wheeled platform was successfully demonstrated in April and September 1991 at White Sands Missile Range (WSMR), New Mexico. There, the US Army Missile Command fashioned a launcher from an old Honest John launcher. Engineers stripped the truck down to the cab and frame and mounted a launch platform to accommodate either an LPC or a missile container.

In April 1991, test personnel at WSMR fired a six-rocket ripple from the truck.

The truck rocked only slightly with each launch, stabilized after 2.5 seconds and displaced a total of three inches to the rear. There was no cage mounted around the LPC and nothing to keep the truck in place except the truck's brakes.

In July 1991, the same engineers modified the platform to accommodate the higher launch angle required to fire an Army TACMS missile. In September, they successfully fired the Army TACMS missile.

These experiments proved that a wheeled platform can not only fire Army TACMS munitions, but also withstand the much greater thrust of the MLRS rockets.

## Conclusion

The multi-polar nature of the world today requires we tailor our forces to respond with short notice to contingencies in any number of regions. The rapid deployment of US combat forces into a crisis area can forestall or upset the plans and preparations of an enemy.

HIMARS will fill a combat power gap that exists in these forces by adding significantly to our close support, counterfire and interdiction capabilities at both the tactical and operational realms of combat. Highly lethal, deployable and mobile—HIMARS not only will give us critical capabilities, but it also will add power to the word *deterrence*.



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by Lieutenant Colonel John H. Northrop

*During many months, the 25th Infantry Division (Light) refined noncombatant evacuation operation (NEO) procedures, developed a NEO Mission Training Plan (MTP), tested it in several exercises and sent personnel to observe operations in an actual NEO mission. The division's 3d Battalion, 7th Field Artillery (3-7 FA) took the lead in setting up the Evacuation Control Center (ECC), the subject of this article.*

*Neither Army doctrine nor other standing operating procedures have the details of "How To" outlined in this article. This information is important for all branches of the Army, including Field Artillery, as our Army defines its missions in the face of the variety of contingency operations possible to counter regional threats. Units, heavy or light, well could be called upon to conduct NEO.*

NEO has become one of the mission-essential tasks for the 25th Infantry Division (Light), Schofield Barracks, Hawaii. It applies to a variety of contingencies, ranging from disaster relief to escalation of conflict resulting in a declaration of war. Regardless of the political environment, the determining factor for declaring a NEO is always the same: the security and welfare of US citizens are in harm's way, and to ensure their safety, we must evacuate them.

Major General Fred A. Gorden, Commander of the 25th Division, designated his 3d Brigade as the Center for Excellence for NEO. For this reason, Colonel Robert M. Hensler, the Bronco Brigade Commander, began to include a NEO phase routinely as a portion of his brigade's field exercises. From these experiences,

the Bronco Brigade then developed an outstanding MTP for NEO (authored by Major—now Lieutenant Colonel—Michael Smith, brigade S3 at the time).

The division's exercise planning cell then orchestrated two brigade-sized deployments where the focus was on conducting NEO. Junior ROTC cadets or soldiers role-played the parts of former hostages, wounded persons, persons of dubious identities, pregnant women, small children, older people, even entire families, and others.

After refining our MTP last spring, the brigade participated in "Operation Pacific Rescue," one of the brigade-sized emergency deployment readiness exercises in which we evacuated almost 250 people. From the exercises and our sending observers to an actual NEO in the

Philippine disaster relief, we refined the MTP further, including the tasks for setting up and operating an ECC.

## NEO and the FA

In NEO, there are five phases to the operation. These include the alert, movement to the threat area, evacuation site operations, safe-haven operations and redeployment of US forces. Critical to evacuation site operations is the ECC. The ECC is the command and control center for in-processing and handling evacuees once they've been returned to US control.

The Bronco Brigade's direct support (DS) artillery, 3-7 FA, seemed to be ideally suited for the ECC. This allowed the brigade's headquarters to concentrate on rescue, marshalling and security

# Evacuation Control Center Operations

operations and a myriad of other missions given to its subordinate infantry battalions.

We were in favor of running the ECC for a number of reasons. First, it got us involved in the operation. Next, it postured us for our secondary mission as alternate brigade tactical operations center (TOC). Finally, it gave us "a leg up" in the FA planning business should events militarily escalate and the brigade need fire supporters or, more importantly, need to bring in its big guns.

Our experience suggests that a NEO would be initiated under the following circumstances. A serious event occurs in a foreign country where US citizens reside. This event could be caused by a number of factors, including political unrest or natural disaster.

The National Command Authority, in conjunction with the State Department, notifies the Joint Chiefs of Staff (JCS) that a NEO is in order. JCS, because the event is on our side of the world, notifies the Commander-in-Chief, Pacific (CINCPAC), who then turns to the Tropic Lightning Division. The mission brigade is alerted, and the planning sequence begins.

This article discusses the key issues for ECC operations. Specifically, I discuss the protocols for handling evacuees and concerns about ECC site selection and operations.

## Protocols for Evacuees

Problems handling evacuees is one of the most difficult aspects of NEO missions. The 25th Division's NEO handbook describes the following people needing evacuation:

- Those we can order to leave (DoD civilians, military and their dependents).
- Those we may assist (civilian employees of the government residing abroad, private US citizens and their dependents).
- Those personnel specifically authorized by the State Department.
- Others as directed by the chain of command.

Our problem is that for many of the people the ECC handles, we have no

means of verifying their identities. However, we do have agencies trained to help us: the State Department, the local government and the advice of our division's Staff Judge Advocate (SJA).

The business of handling evacuees can easily become extremely complicated. This is exacerbated by the seemingly contradictory objectives of maintaining tight security while striving for rapid in-processing.

We established five general rules for handling evacuees (see Figure 1). The rules' bottom line: most of the evacuees are US citizens caught in a situation that calls for our help. These rules form the basis for how we expect soldiers in the ECC to conduct themselves and how we expect them to treat their guests.

## Categories of Evacuees

The State Department guidance listed in the MTP identifies three categories of personnel we may encounter in NEO missions: white-, grey- and black-list personnel. To that we've added a fourth—special handle.

By placing an evacuee or detainee in one of these categories, we established the protocol for how they should be handled upon arrival at the entry control point for the brigade support area (BSA) and ECC.

**Special-Handle List—Exceptionally Important or Infamous Persons.** These include all VIPs, dignitaries and high-ranking government officials, such as US ambassadors. This category also includes the leaders of "the bad guys." The State Department and local government officials identify them. These special evacuees should be handled with an armed escort—either as a protective or restrictive measure. The State Department gives complete disposition instructions.

**White List—Good Guys.** These people are already on a State Department list that identifies them as good guys. They, therefore, should be evacuated rapidly to safety.

Generally, the "warden" can identify the good guys. A warden is a known, loyal evacuee who can be trusted to identify

1. Protect the Army image. We want the "Grenada rescue image" on the 6:00 p.m. news, for example, the released female student hugging the first US Army Ranger she could grab and saying, "Thank God for the Rangers."
2. Treat each individual with common courtesy and maintain a respect for human dignity and right to some privacy.
3. Protecting evacuees doesn't mean restricting individual freedoms, except when an evacuee's actions are detrimental to or risk harming others.
4. Be sensitive to what you see and hear. You may inadvertently learn intelligence we need.
5. The rule of thumb—welcome them home; treat evacuees like you'd like to be treated.

Figure 1. The Five Rules of Protocol for Handling Evacuees. These rules set the standard for soldiers' actions in dealing with evacuees.

other friendlies in a significant cohort. If the warden identifies an evacuee as a white lister, he's "good to go."

The warden acts like a patrol leader during a night passage-of-lines. He can stand at the entry gate and vouch for the other friendlies he knows to expedite their processing during evacuation.

**Grey List—Unknown Guys.** Another group of evacuees is the grey listers. While they're more than likely good guys, we need to take a little extra time to evaluate them because we're uncertain of either their identities or their eligibility for evacuation. They should be handled under light escort.

This list includes unidentified US personnel (e.g., tourists) and non-US persons potentially eligible for evacuation (e.g., persons requesting political asylum). Each is kept in the holding and interrogation area until the proper authority orders his evacuation.

**Black List—Bad Guys.** We handle these evacuees with armed escorts and hold them in the confinement area. All in-processing is done in restricted areas where their actions can be carefully monitored. They should be segregated immediately from white- and grey-list folks. In this category, we include enemy detainees (by another name, enemy prisoners of war, or EPWs) and State Department black-list persons.

As a final point, it isn't the job of US forces to change or modify the categorization of evacuees as determined by the State Department. While we may use the

person's conduct as justification for restraint, the final decision as to whom to evacuate rests with the SJA, the State Department or the lawful order of the chain of command.

## Evacuee Movement

Figure 2 outlines the stages in an individual's movement through the BSA and ECC in a routine NEO, giving handling guidance by phase of operation. In all of these stages, the responsible forces must balance speedy action, protection of the force, safety of the evacuees (including urgent medical care), timeliness of intelligence, the need for a courteous image of the force or US and the utility of segregating groups. As you look across Figure 2, let's examine some of the salient points for each category.

**Special-Handle Evacuees.** These personnel are immediately taken to one of two places. If one is a white-list VIP or otherwise known dignitary, he's immediately escorted to the VIP tent. Body guards are assigned to an important evacuee, as necessary—if we fear he could be a target for a terrorist attack. We notify the military chain of command and the State Department liaison personnel of the VIP's status. We may even take him to wherever he needs to go (e.g., the brigade headquarters). We help the VIP in any way we can.

If the special-handle person is on a

black list, we detain him in the detention facility until we can hand him over to the proper authorities.

**White-List Evacuees.** The key at the entry control area is to get the white-list personnel identified and moved to the ECC as fast as possible. We use wardens to identify as many as possible and conduct the minimum amount of in-processing. We quickly identify them and do a cursory search of their belongings, the latter only if we suspect a problem. They only need escorts to show them where to go, help them with their bags and provide personal security for their evacuation.

Once at the entry control point, they receive a quick briefing. In this briefing, they're told that neither they nor their belongings will be searched but that it's illegal to have drugs or other contraband items. They must know that if US forces discover illegal items, for whatever reason, we'll turn the evidence over to US civilian law enforcement authorities. Also, the briefing should remind them their belongings will be subject to search by US customs officials at the point they enter the United States.

They're then given an opportunity to use the amnesty box. There's no heavy drug-dog scene, frisk search, etc. at the amnesty box. The evacuees carry their baggage with them. After their interview by counterintelligence (CI) personnel

during in-processing, they're offered a medical checkout and then taken to the comfort area.

**Grey-List Evacuees.** The next group is more difficult to process. The grey-list people are generally placed in this category, not because they are bad people, but because the authorities can't clear them for evacuation. The sooner we can confirm their identities, the better.

At the holding and interrogation area, they're subject to frisk and metal-detector wand search. Marshalling forces already should have conducted a cursory check of their belongings. They move in a group and have minimum armed escort. They also are treated with respect and dignity.

If possible, they should be evacuated separately from both white- or black-list persons. However, if there's a shortage of transportation assets, we combine them with the white listers.

The hand-over process between the marshalling force and the escorts at the entry control point to the BSA should be a detailed event. In particular, we account for the chain of custody for contraband or other items taken from evacuees we think may be of interest to our CI personnel or interrogators. They're given the same amnesty opportunity as the white-list persons.

Then, they're taken to a detention area and thoroughly searched by military

	Evacuation Assembly Area	Movement Release Point to	Hand-Over to Escort Personnel	Entry Point Control	Evacuation Control Center (ECC)	BSA Confinement Area
<b>Special</b>	Evacuate ASAP Notify Bde/Div State Dept. Guidance	Segregate, if Possible Separate Destination?	Body Guards for VIPs Guards for Bad Guys Escorts for Others	N/A	VIP Quarters, if Possible Special Handling or Interview	Turn Over Host-Nation Bad Guys to Authorities Hold US Bad Guys until Extradition
<b>White</b>	Wardens ID/P of Lines Evacuate ASAP Min. In-process/Inspect Courteous Treatment Courtesy Escort	Min. Escort (Protection) Next in Priority, After VIPs	Escorts at Hand-Over Point Rapidly Taken to ECC	Quick Interview at Entry Point No Searches, Drug Dogs	CI Interview During In-Processing Offer Medical Checkout To Comfort Area ASAP Amnesty Briefing	N/A
<b>Grey</b>	Wand Search Cursory Bag Check Armed Escort for Group Image vs. Protection	Evac Separately, if Possible or Else... Combine with White Min. Armed Escort	Detailed Hand-Over Process Hand-Over Chain of Custody and Contraband	Thorough CI Interview Thorough Searches Amnesty Briefing	Not Allowed in Unless Upgraded by State Dept.	Detain in Holding & Interrogation Area
<b>Black</b>	Five Ss Combat Search Armed Escort EPW Procedures	Max. Armed Escort Minimize Contact with White or Grey Evac to BSA Confinement Facility, not ECC	<b>No Hand-Over</b>	N/A	N/A	Process in Confinement Facility Segregate by Rank Heavy Interrogation State Dept. Involved

Figure 2. NEO Handling of Personnel. This chart outlines the stages in an evacuee's movement to the BSA and ECC in a routine NEO. Based on the category of each evacuee, the chart shows the general handling guidance at each phase of the operation.

police. Their bags are searched, using dogs. Next, they receive a thorough interrogation from our intelligence soldiers. They're cleared for evacuation only by authorized personnel.

**Black-List Detainees.** The final category are the black-list evacuees or detainees. They are treated like EPWs. That is, marshalling forces employ the "Five Ss"—search, segregate, silence, speed to the rear and safeguard. We combat search and blindfold them and bind their hands or handcuff them. They're assigned an armed escort and transported cautiously—preferably separate from the white and grey listers. Their belongings are searched, and they're evacuated directly to the confinement facility in the BSA.

Once inside the confinement facility, they become the responsibility of the marshalling force. The black listers in-process inside and are separated by rank. They're heavily interrogated and their belongings are more thoroughly searched. The State Department helps determine if they're to be turned over to host-nation authorities or US officials.

## ECC and BSA Setup and Flow

One of the important missions of the ECC advance party is to select an evacuation site. This may involve a tradeoff between a site that's more defensible (perhaps one more remote and more secure) and a site that has better facilities. A site requiring less security forces may need more extensive horizontal and vertical engineering support while the site with good facilities may require more security forces. Figure 3 outlines several of the more desirable characteristics of a ECC site.

Perhaps the most significant revelation of Operation Pacific Rescue was our realization that the ECC should be close to the BSA. The need for close proximity was driven by three factors. First, we didn't have enough medical people to go around. Second, we were having trouble keeping the intelligence flow linked. And third, we had trouble deconflicting the personnel flow. From these concerns, we developed a blueprint that shows the layout of the BSA and ECC (see Figure 4).

The layout we designed supports the rapid inprocessing of evacuees. We had

### The ECC site must—

- Be close to an airstrip.
- Be near the main supply route.
- Have good utilities sources (electricity/generators, heat/fuel and water/water trailers).
- Have good communications with the airfield, be within radio range of the embassy and have telephone trunks.
- Have facilities that include, at a minimum, shelter, showers and a detention area.
- Be in an area capable of also supporting the BSA.

Figure 3. ECC Site Selection Criteria. One of the important missions of the ECC advance party is to select an ECC site. The party may have tradeoffs to make by selecting a site that's more defensible but with lesser facilities or a site that has good facilities but needs more security forces.

to take a hard look at how many personnel we needed to man it. Our total commitment was 100-plus people. Moving

through the layout in Figure 4 by the circled numbers indicating stations, each station has a specific function.

**Station #1** is the Entry Control Point (ECP), the initial screening point for the BSA-ECC complex. Marshalling forces bring all evacuees or detainees to this location. Its mission is to aid in the speedy processing of personnel. Through the use of wardens, State Department personnel and host-nation officials, we can more easily screen out the white-list personnel and more rapidly get them to the ECC for in-processing.

At the ECP, the image is one of a "Gate to Freedom." We don't want military police dogs snarling and security force personnel pointing machineguns at people being strip searched. Those personnel not cleared for the ECC are expeditiously removed to either the

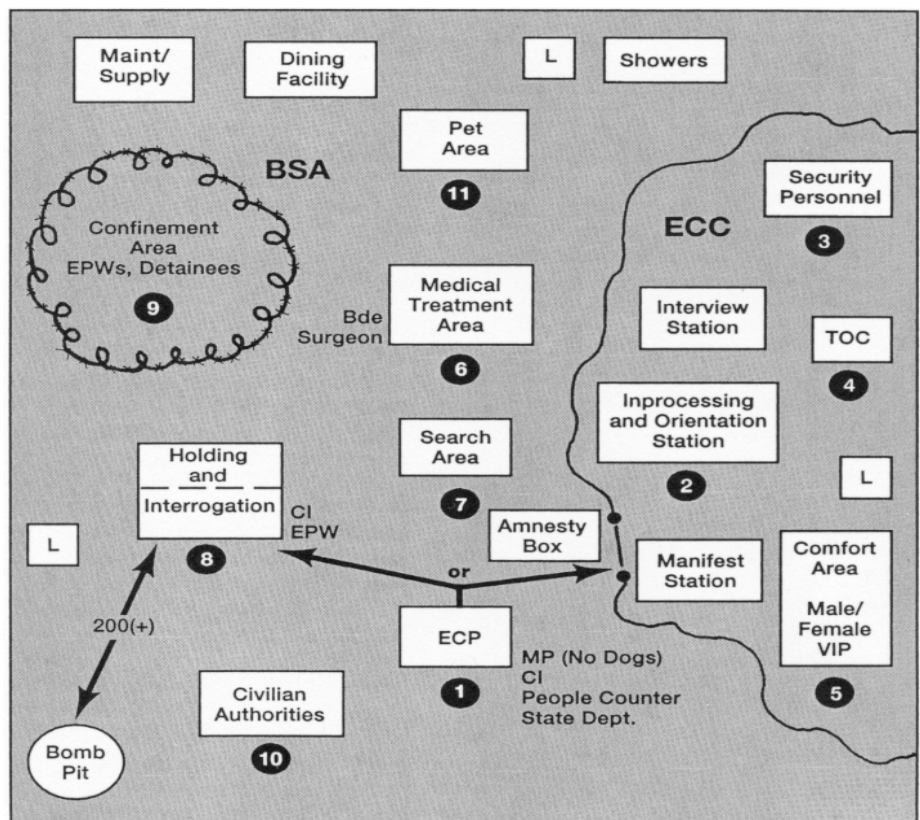


Figure 4. ECC and BSA Lashup. The figure shows a blueprint for laying out the BSA and ECC for NEO. The circled numbers are the stations through which evacuees are processed, depending on if they're special-handle, white, grey or black listers. For example, all white listers go from Station #1 to #2, while black listers go from Station #1 to #9.

Holding and Interrogation Area (#8) or the Confinement Area (#9). It's important to establish an accurate head count of who have been in-processed at the ECC. Medical triage is performed, as necessary. We man this location with sharp soldiers, including a few CI personnel.

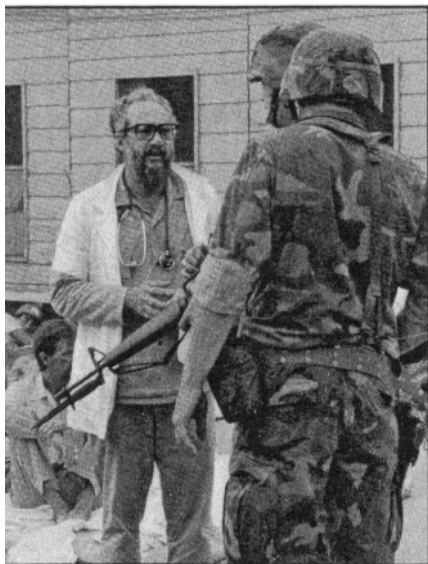
During the Philippine evacuation, a significant number of evacuees drove privately owned vehicles (POVs) to the ECC area. ECC personnel must have a plan to have them removed.

**Station #2**, the ECC In-processing and Interview Station, is inside the entrance to the ECC. Here evacuees receive an initial orientation and briefing on what's about to happen to them. They receive their amnesty box briefing. We man this station with sharp soldiers and CI personnel.

Our intent is to manifest the evacuees and assign them an escort to take them inside. We used lap-top computers to enter, process and manifest evacuees while they in-process.

**Station #3** is the Security Personnel Area where security personnel park their gear. Here's where the reaction force is assembled. These men are "shift" workers, so dark rooms for sleeping is a good idea.

**Station #4** is the FA battalion TOC, the command and control node for the ECC and the focal point of intelligence information for the infantry task force. The



With detainees in the background, a doctor discusses their medical conditions with soldiers guarding the detainees in the evacuation control center.

TOC personnel orchestrate the flow of personnel in the ECC, It's manned by the personnel normally found in an FA TOC (minus a few fire direction center soldiers) with the addition of administration and logistics personnel. Also, the division augmented our TOC with Military Intelligence (MI) assets.

**Station #5** is the Comfort Area. Here's where the evacuees wait for their plane trip home. We try to partition off evacuees into approximately four groups: families, single females, single males and VIPs. There are showers, toilets, cots, blankets, sundry packs, food, water and other items to add to their comfort. Our experience has shown it's important to have an authority figure to act as a chaperon for the area. Additionally, a chaplain and physician's assistant work well here.

**Station #6** is the Medical Treatment Area for screening and treatment. Here's where the brigade surgeon is located. The station treats a significant number of people not authorized in the ECC, so it's located outside the boundary of but near the entrance to the ECC.

**Station #7** is the Search Area. At this station, military police with wands and sniffer dogs check out gray- and black-list personnel. Everything is thoroughly inspected. Approximately 200 feet away from the search area, the military police identify a bomb pit area.

**Station #8** is the Holding and Interrogation Area where black- and grey-list persons, plus other detainees, are interrogated by CI personnel. This area should be enclosed and guarded. Each grey-list person is detained here until his identity can be established.

**Station #9** is the Confinement Facility. Here we hold black-list persons until competent authorities come for them (either US or host nation). Additionally, other detainees or EPWs are kept here. This area has security fencing, armed guards and equipment and barriers designed to prevent escape. Additional lighting and communications for the guards may be necessary.

**Station #10** is for Civilian Authorities (local). Here they provide interpreters, wardens and other agents who help with the NEO. If possible, units need to coordinate to have Immigration and Naturalization Service support.

And last, **Station #11**, is the Pet Holding Area. Our experience during the Philippine disaster assistance mission,

shows the evacuation of pets is a significant issue.

## Conclusion

This article has discussed one of the MTP tasks for conducting NEO missions: setting up and operating an ECC. Our FA battalion is ideally suited for this task.

I've focused on battalion-level missions, but there are many battery missions too. For example, an FA battery could easily help—

- Build the ECC, using some light carpentry skills.
- Provide soldiers for the escort, comfort station, in-processing and TOC missions.
- Perform security force duties.
- Conduct advance party operations.
- Provide marshalling forces ground transport.
- Run the landing zone (LZ).

NEO is an exciting and challenging mission now part of our mission-essential task list (METL). I encourage you to write the 3d Brigade and get a copy of their outstanding effort—the "NEO Mission Training Plan." Write: Commander, 3d Brigade, 25th Infantry Division (Light), Schofield Barracks, Hawaii 96857-6302. In that MTP, you'll see how ECC operations play a small part in a large operation—one we should all be prepared to conduct.



**Lieutenant Colonel John H. Northrop commands 3d Battalion, 7th Field Artillery, the direct support artillery of the 3d Brigade, 25th Infantry Division (Light), Schofield Barracks, Hawaii. His battalion is responsible for setting up and operating the NEO evacuation control center for the brigade. Lieutenant Colonel Northrop's past assignments have included serving as the S3 and Executive Officer for the 3d Battalion, 319th Field Artillery, 82d Airborne Division, Fort Bragg, North Carolina, and as Aide de Camp to General Maxwell R. Thurman, Commanding General of the Training and Doctrine Command, Fort Monroe, Virginia. He is scheduled to attend the US Army War College, Carlisle Barracks, Pennsylvania, this summer.**

**The author gratefully acknowledges Colonel James E. Shane, 25th Division Artillery Commander; Brigadier General George A. Fisher, Jr., the former Assistant Division Commander for Operations; and his S3, Major Joseph P. Nizolak, Jr., for their help in this effort.**

# Think Joint



by Major James V. Scott

Employing a contingency force in a variety of missions to demonstrate US resolve or stop regional aggression is our national military strategy. Whether a unit is heavy or light, it may very well find itself deploying as part of a joint task force (JTF) in a contingency operation.

Rapid global power projection across the operational continuum is a basic principle of contingency operations. As the Army becomes smaller, emphasis is shifting to fewer forward-deployed units and more US-based units designated as contingency forces or reinforcing or follow-on forces. This means *all* units must plan for contingency operations.

Today's Field Artillery challenge is to master joint fire support doctrine; organize, train and equip our Redlegs to be deadly effective in a joint environment; and develop our leaders to "Think Joint."

## Doctrine

The emerging AirLand Operations concept discussed in the recently published "Training and Doctrine Command (TRADOC) Pamphlet 525-5 AirLand Operations: A Concept for the Evolution of AirLand Battle for the Strategic Army of the 1990s and Beyond" and the proposed revision of *Field Manual (FM) 100-5 Operations* clearly support the new strategy. The tenets of AirLand Operations are the same as AirLand Battle doctrine. The emphasis, however, is on projecting a joint or combined force into an immature theater and remaining until US objectives are met.

**Joint Publications.** Fire support requirements go well beyond the current fire support doctrine found in our "6 series" FMs. Fire support coordinators (FSCOORDs) must know joint and combined fire support doctrine. Recent joint publications (JP), such as the final drafts of *JP 3-00.1 Joint Doctrine for Contingency Operations* and *JP 3-09 Joint Fire Support*, are essential references. These help the FSCOORD integrate the wide range of fire support capabilities potentially available during contingency operations.

For example, attack assets for the initial stages of contingency operations are normally provided by special operations forces (SOF), naval gunfire, naval air, Air Force assets and attack helicopters. FSCOORDS must thoroughly understand the employment considerations for these and nonlethal systems to provide adequate fire support. Other considerations for FSCOORDs are control procedures, targeting and command, control and communications (C<sup>3</sup>).

**Joint Fire Support Coordinating Measures (FSCMs).** A critical requirement for FSCOORDs is to synchronize lethal and nonlethal fire support assets to produce the most effective fires. Coordination is the primary means to synchronize fire support and provides a way to deconflict targets, facilitate the shaping of the battlefield and avoid fratricide.

Coordination procedures must be responsive, flexible and support the commander's intent. The Army and Marine Corps have already developed common FSCMs and agreements on command and control in combatant commands down to the JTF level. The Army needs similar agreements with the Air Force and Navy.



**Targeting.** The targeting process must be closely coordinated with other services and command elements. Selecting target priorities requires close interaction between intelligence, plans, operations cells and subordinate commands, each with separate priorities. FSCOORDs must become the "honest broker" in the target selection process.

Integrating a myriad of joint target acquisition assets into the battlefield and deciding how to attack a target also present significant challenges. For example, consider the complications of acquiring a target with Marine assets but attacking it with Air Force assets.

The FSCOORD should continually evaluate target damage assessment (TDA) and re-engage the target or terminate any subsequent missions as necessary. This is difficult because real-time intelligence and damage assessment aren't always reported by the other services. We need to jointly develop a positive control, closed-loop TDA architecture.

**SOF.** Fire support coordination for SOF in contingency operations requires detailed planning. These forces operate deep within enemy territory and use extended-range communications that aren't compatible with our organic fire support communications systems. Restrictive FSCM must also support SOF missions.

**C<sup>3</sup>.** Positive C<sup>3</sup> is essential to execute a synchronized support plan. Interoperable and redundant communication systems are essential for rapid dissemination of information, intelligence and command guidance. These systems facilitate control of all aspects of joint fire support for a contingency operation.

## Organization

Contingency forces must be fully prepared to rapidly deploy overwhelming combat power within the constraints of airlift and sea-lift assets. Planners and commanders from the Joint Chiefs of Staff (JCS) down must tailor forces to provide the right mix of lethal and nonlethal combat power. A balance of these assets may require partial, rather than complete, unit deployments.

**Packaging.** Field Artillery leaders must think in terms of packages, not just

units. Packages can range from two-gun or reinforced MLRS platoons to a corps artillery with three or more Active and Reserve Component Field Artillery brigades (see the figure). Each package must have the appropriate slice of command and control, fire direction, target acquisition, liaison teams and sustainment assets. Naval gunfire liaisons and air liaison officers should be fully integrated at all levels. Follow-on packages must quickly expand the force or continue to sustain it.

**Flexibility.** The need for flexibility and responsiveness in C<sup>3</sup> cannot be overstated. The organization of the force artillery headquarters should be consistent

with the commander's objectives and intent. In addition, the headquarters should be able to rapidly reorganize and absorb additional fire support assets as necessary.

The FSCOORD must be flexible enough to expand his role to work in a JTF fire support element (FSE), or JTF-FSE, as required in Operation Just Cause, or establish a joint targeting board to synchronize operational fires.

## Training

Training remains the key to success for contingency as well as conventional operations. But the methods and procedures used to organize, execute and

### M198 Two-Gun Package

2 M198 Howitzers  
3 M925 5-Ton Trucks  
2 M998 HMMWVs  
1 M101A1 Trailer  
1 M332 Trailer  
8 Ammo Platforms \*

### MLRS Platoon-Sized Element

3 M270 Launchers  
1 M577 Command Post Carrier w/Trailer  
8 M998 HMMWVs  
1 M978 HEMTT Tanker  
1 M884 HEMTT Wrecker  
6 M985 10-Ton HEMTTs  
30 M27 Launch Pod Containers \*\*

\* Ammunition platforms are based on 463L pallets.

\*\* Pods are onboard launchers and ammunition vehicles.

### Legend

HMMWV = High-Mobility Multipurpose Wheeled Vehicle

HEMTT = Heavy Expanded-Mobility Tactical Truck

Tailored Packages. Field Artillery leaders must think in terms of packages, not just units, for contingency operations. This figure shows two examples of packages: a two-gun M198 (155-mm, towed howitzers) package and a multiple launch rocket system (MLRS) platoon-sized element. The packages must be tailored to the type and number of aircraft available for transport.



SOF use extended-range communications that aren't compatible with our fire support communications systems.

evaluate training for contingency operations differ in scope from conventional operations. In addition to the basic fire support skills. FSCOORDs train to control joint assets, use precision-guided weapons and integrate SOF.

Contingency operations demand a joint perspective for all aspects of the mission. Our traditional heavy forces rely primarily on direct support (DS) and general support (GS) Field Artillery to satisfy their fire support requirements. But strategic mobility requirements and limited airframes and ships cause contingency forces' Field Artillery to be predominantly light in configuration. Range and lethality limitations of light Field Artillery result in its FSCOORDs coordinating joint fire support assets.

**Joint Systems.** Contingency operation fire support training encompasses individual as well as collective tasks from the JTF-FSE to the platoon forward observer (FO). FSCOORDs at all levels must train and remain proficient in using sister service's air and sea weapons delivery and target acquisition systems. The knowledge gained through joint training exercises is impossible to duplicate in the classroom.

With our focus on Europe and Korea, we have traditionally concentrated on cannon-launched fire support training. Too often, we pay lip service to training on the fire support assets of our sister services and the special operations community. As artillerymen, we must be equally skilled in all facets of joint fire support for contingency operations.

**Precision Munitions.** The accuracy and reliability of precision-guided weapons ensure the highest probability of target destruction while minimizing the incidents of collateral damage and fratricide. Traditionally, FSCOORDs have concentrated their precision-guided weapons training too heavily on the Copperhead system, ignoring laser-guided bombs, Hellfire, laser Maverick, Skipper II, Tomahawk land attack missiles (TLM) and other air-, sea- or ground-launched cruise missiles. Contingency FSCOORDs must be experts in using the precision-guided systems found throughout the services.

**SOF.** Contingency operations are often preceded by a special operations phase. Integrating conventional forces with special operations forces is essential



FSCOORDs must be able to employ SOF aviation assets, such as this AC130-series gunship.

to accomplish contingency missions. As a result, FSCOORDs must train on the tactics, techniques and procedures for employment and terminal control of SOF aviation assets, such as the AC-130 series gunships. They also should be prepared to hand-off fire support operations to other FSCOORDs—between the SOF and conventional forces.

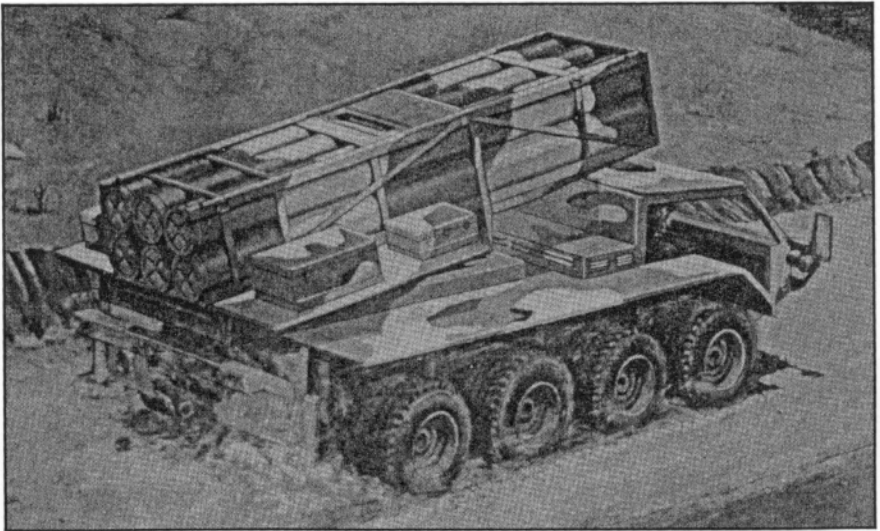
## Materiel

Many countries import quality weapons systems such as the Brazilian Astros and the South African 155-mm howitzers. Contingency forces may find these and other quality systems deadly

threats when confronting regional aggression. US fire support systems can ill afford to be outgunned.

The Field Artillery community must continue to develop those systems that allow us to maintain our technological edge against the enemy. We must concentrate on systems that enhance lethality and increase the range, mobility and deployability of our organic fire support systems.

**HIMARS.** The developmental high-mobility artillery rocket system (HIMARS) will give our forces the deep, lethal firepower they need early in contingency operations. The ability to rapidly deploy HIMARS in support of contingency



One artist's rendition of HIMARS. An old Honest John launcher was modified in 1991 to test the concept of firing MLRS and Army TACMS from a wheeled vehicle; the tests were both successful.

forces will relieve the FSCOORD from having to depend on tactical air or naval gunfire protection beyond the range of his organic tube systems. HIMARS will be versatile, providing all-weather, tactical and operational firepower, giving the theater commander more flexibility.

#### **Extended-Range Munitions.**

Research on extending the range and increasing the lethality of munitions must continue for all fire support systems. For example, fielding of the light howitzer (M119) extended the range of the light division artilleries without a loss in mobility or deployability. The M119's increased range, versatile mobility, ease of sustainment, improved ammunition and high rate of sustained fire make it a weapon of choice for the initial forces of most contingency operations.

#### **Global Positioning System (GPS).**

Contingency operations forces often deploy to regions with outdated or no geometric survey data available and don't always have time to establish survey networks. FSCOORDs must have accurate unit locations to employ deep attack systems and prevent fratricide.

The GPS is an indispensable aid for conducting contingency operations. Its value for accurate position area survey, target and unit location, clearance of fires and navigation cannot be overemphasized.

#### **Unmanned Aerial Vehicles (UAVs).**

Today's fire support systems need a reliable, proactive target acquisition capability that goes well beyond those of the fire support team (FIST) and is less vulnerable than the OH-58D observation helicopter. Operation Desert Storm demonstrated the UAV meets those requirements.

The UAV provides real-time targeting, intelligence and battlefield damage assessment information immediately responsive to the operational commander. Each corps artillery should control a UAV battery to supplement its other targeting assets.

**Long-Range Communications.** The fire support system requires reliable and secure long-range communications. The new family of FM radios—single-channel, ground and airborne radio system (SINCGARS)—is a great improvement over the old VRC-12 series radios. However, SINCGARS can't command and control forces at ranges of 35

to 75 kilometers or communicate with some of our joint force counterparts. A reliable, secure radio capable of voice and digital traffic, one that's compatible with SOF, is a must for contingency forces.

Our AM radios communicate over extended distances for command and control and SOF targeting. Tactical satellites available to division artilleries and Field Artillery brigades is also necessary for command and control because elements, rather than units, may deploy during contingency operations.

But units involved in contingency operations must have a stand-alone communications means that functions efficiently with or without the large structure and support package usually associated with that unit. Secure long-range communications will greatly increase command, control and integration of all fire support assets.

Joint interoperability demands the FSE have reliable UHF communications to maintain maximum flexibility and command and control, as well as terminal control of joint air assets. UHF communications will help the FSE integrate joint assets and expedite clearance of fires while helping to reduce fratricide incidents.

## **Leader Development**

The Field Artillery's primary leader development challenge for contingency operations is to improve the competence and confidence of its leaders in all aspects of joint fire support. As discussed, contingency operations present unique demands on the professional abilities of a FSCOORD.

Current leadership development methods and procedures are sound, but a parochial US Army focus doesn't provide all the knowledge necessary to meet these demands. The dynamic nature of contingency operations is part and parcel of the unique nature of joint operations.

The transformation of the FSCOORD to joint begins with a change in attitude from an "Army-centric" perspective to that of a joint viewpoint. This "contingency culture" mind-set is perpetuated through daily operations as well as planning for future operations.

The thought process must be reinforced by attending other service or joint schools, such as the Air Force's Air-Ground Operations School, the Joint

Firepower Control Course and the Naval Gunfire Spotter's Course, to name a few. Attending sister service's schools is one way of gaining firsthand knowledge of joint doctrine.

Another technique to broaden the baseline knowledge of FSCOORDs is to maximize their participation in joint exercises. This allows us to compare and use Army doctrine in the joint arena. Though fiscal restraints won't always allow such involvement, the opportunity for leader development through an aggressive professional development program remains available. In addition, our standing operating procedures (SOPs) should incorporate joint doctrine to create an institutional base for joint interoperability.

We must incorporate this joint mind-set into our leader development programs now, so FSCOORDs can provide timely joint fire support to the commander.

## **Conclusion**

In his "On the Move" column in this edition—"Fire Support for Contingency Operations"—the Chief of Field Artillery, Major General Fred F. Marty, states, "While the range of options available to the commander include light, heavy and special operations forces, they will be employed invariably in a joint context. We must be prepared to coordinate and provide fires accordingly."

To meet the challenges of contingency operations, Field Artillery must *Think Joint*—in all we develop and all we do.



**Major James V. Scott is an Assistant Fire Support Coordinator for the XVIII Airborne Corps Artillery, Fort Bragg, North Carolina. Before his current assignment, he served as the XVIII Corps Artillery G3 Plans Officer for Operations Desert Shield and Storm. He has served in various special operations forces and joint staff positions while assigned to the 1st Special Operations Command; commanded A Battery, 3d Battalion, 8th Field Artillery Regiment (FAR); and was a battalion Fire Support Officer while assigned to 1st Battalion, 320th FAR (Airborne), in the 82d Airborne Division Artillery, all at Fort Bragg. Major Scott also was a battery fire direction officer and executive office in the 2d Battalion, 6th Field Artillery, 3d Armored Division Artillery, Germany.**

# ROE Dissemination: A Tough Nut to Crack!

by Major Joseph P. Nizolak, Jr.



Appropriately applying rules of engagement (ROE) presents a tremendous challenge, both to fire supporters and maneuver forces in low- to mid-intensity conflicts (LIC to MIC). Normally formulated at the joint task force (JTF) or higher levels, the object of ROE is to preclude unnecessary harm to the local populous and their possessions or to areas that have religious or historical significance.

As combat intensity increases and ROE restrictions are relaxed, fire support assets are allowed more flexibility. ROE changes impact on fire supporters because the changes vary the potential target engagement means available.

The ROE normally is included as an annex to the JTF or division operations order (OPORD) and consists of several pages of detailed instructions. Leaders must read and either commit these

several pages to memory or carry them for reference during combat operations. Also, leaders must interpret the instructions and communicate the ROE to subordinates in such a manner as to preclude violations. A significant challenge for leaders at all levels is to quickly disseminate the original ROE, as well as future changes, to soldiers in a format they can understand and apply without further interpretation.

## Cracking the Nut

These challenges confronted the 25th Infantry Division (Light) fire support element (FSE), Schofield Barracks, Hawaii, during a division "Tropic Lightning" command post exercise in July 1990. The LIC portion of the exercise included a narrative ROE that was too lengthy for the combat commander to carry in his "hip pocket." Predictably, the ROE changed as the level of combat intensity increased. To quickly disseminate understandable ROE to our subordinate FSEs, the 25th Division FSE devised a matrix (see Figure 1).

( UNCLASSIFIED )

Note: Nothing in the ROE negates a commander's obligation to take all necessary and appropriate action in unit self-defense.

Issuing HQ: 25th ID (L)  
EFF DTG: 05 1100 Mar 91

Rules of Engagement for OPORD/OPPLAN # 91-1  
As of: 05 1100 Mar 91

Approving Commander	Small Arms	Mines	Demo	Mortars		Aviation		Artillery		Air Defense	CAS	Guided Munitions	FASCAM	NGF	RCA			
				PA	UA	PA	UA	PA	UA									
JCS																		7
CINCPAC																		6
JTF														X	X			5
Corps												2	X					4
Div				X		X	X	1			X	3						3
Bde					X				1									2
Bn			X							X								1
Co		X																0

PA: Populated Area      UA: Unpopulated Area

For more detailed discussion, refer to Annex W, OPORD 25th ID (L) 91-1

Notes: 1: Less FASCAM and Copperhead  
2: For Copperhead and Greater than 500 # ( UNCLASSIFIED )  
3: For 500 # Bombs

Legend:	JCS = Joint Chiefs of Staff	CAS = Close Air Support
	CINCPAC = Commander-in-Chief Pacific Command	NGF = Naval Gunfire
		RCA = Riot Control Agent (Tear Gas)

Figure 1. An ROE Dissemination Format Developed by the 25th Division FSE. This format, filled out for the original ROE, gives commanders and their soldiers a clear, concise reference for the ROE.

( UNCLASSIFIED )

Note: Nothing in the ROE negates a commander's obligation to take all necessary and appropriate action in unit self-defense.

Issuing HQ: 25th ID (L)

EFF DTG: 05 1100 Mar 91

Rules of Engagement for OPORD/OPLAN # 91-1  
As of: 06 1330 Mar 91

Approving Commander	Small Arms	Mines	Demo	Mortars		Aviation		Artillery		Air Defense	CAS	Guided Munitions	FASCAM	NGF	RCA				
				PA	UA	PA	UA	PA	UA										
JCS																			
CINCPAC																			
JTF														X	X				
Corps												2	X						
Div						X	X				X	3							
Bde				⊗	X			①	1										
Bn			X							X									
Co	X	X																	
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q		

PA: Populated Area      UA: Unpopulated Area

7  
6  
5  
4  
3  
2  
1  
0

For more detailed discussion, refer to Annex W, OPORD 25th ID (L) 91-1

Notes: 1: Less FASCAM and Copperhead

2: For Copperhead and Greater than 500 #

3: For 500 # Bombs

( UNCLASSIFIED )

Figure 2. Updated ROE Format. Higher headquarters can easily update the original ROE (Figure 1) and transmit the changes to their subordinate headquarters.

The matrix presents ROE information in a format that's easy to understand, transmit and modify. The concept is a simple one: weapons systems are in the columns of the matrix; approving or controlling authorities make up the rows. Check marks or "Xs" designate the level of employment authority for each system or attack means with notations when the ROE requires further detail or exceptions. An alphanumeric system reading right and up focuses on specific matrix boxes and allows higher headquarters to easily transmit changes to their subordinate headquarters.

While several pages of narrative on the ROE in the OPORD are necessary for legal purposes, this medium is impractical for clarity, timely dissemination and application by combat leaders or soldiers in foxholes. The ROE matrix in Figure 1 offers a medium that's easily understood and that leaders can carry in their hip pockets for ready reference.

While we must always provide the full ROE as an annex to the OPORD, the bottom line is combat commanders and first-line leaders need a simple, accurate format for ready reference. The ROE matrix is not intended to supplant the ROE instructions in the OPORD—only

graphically portray them in a concise, understandable format.

Figure 1 is completed for the original ROE. Note the corps commander has withheld the authority to employ family of scatterable mines (FASCAM) and Copperhead rounds. The division commander, in turn, has withheld authority to engage targets with other Field Artillery fires in populated areas. The notes in the margin explain these ROE restrictions.

### Revising the ROE

After hostilities have escalated, the division headquarters sends the following transmission: "Change to ROE: Delete entries — Box D3, Box H3. Authority to engage targets with mortar fires and Field Artillery fires (less Copperhead and FASCAM) in populated areas delegated to maneuver brigade commanders, effective 061330 MAR 91. New entries '-X' in Box D2, Note 1 in Box H2."

Figure 2 shows the updated matrix that results from this transmission with the appropriate entries in D2 and H2. Units authenticate changes to the ROE when transmitted over non-secure means.

In March 1991, after consultation with the staff judge advocate (SJA), the 25th Division began testing the matrix as an appendix to the ROE annex in all OPORDS. We offer our ROE matrix for your comments with the objective of producing a format for ROE most useful to the combat commander. Please address any comments to Commander, 25th Infantry Division (Light) Artillery, ATTN: APVG-VZO-FS (Dep FSCoord), Schofield Barracks, Hawaii 96857-6045.



**Major Joseph P. Nizolak, Jr., is the S3 for the 3d Battalion, 7th Field Artillery, the direct support battalion for 3d Brigade, 25th Infantry Division (Light), Schofield Barracks, Hawaii. His previous job was as Assistant Fire Support Coordinator (AFSCOORD) in the 25th Division Fire Support Element. Major Nizolak holds master's degrees in computer science from the Naval Postgraduate School, Monterey, California, and in military art and science from the Command and General Staff College, Fort Leavenworth, Kansas. He commanded A Battery, 1st Battalion, 10th Field Artillery, and A Battery (Target Acquisition), 25th Field Artillery, and served as the S3 of the 1st Battalion, 76th Field Artillery, all in the 3d Infantry Division (Mechanized), Germany.**

# Field HMMWV-Based COLTs Now!

by Lieutenant Colonel Henry T. Stratman

The Field Artillery (FA) community has coveted the Bradley fighting vehicle as a replacement for the M113-based fire support team vehicle (FIST-V) and combat observation laser team (COLT) vehicle since the Field Artillery School, Fort Sill, Oklahoma, first experimented with a prototype in 1984. The primary advantages of this tracked fire support platform were increased mobility and survivability during offensive operations with M1 tank- and M2 or M3 Bradley-equipped heavy divisions.

The FIST-V's predictably poor performance during Operation Desert Storm has recently given the Bradley-based FIST-V initiative new life. Fire supporters worldwide have launched a major marketing effort, claiming that the Bradley will solve all their fire support execution deficiencies.

Most Field Artillerymen agree the company fire support section needs a more capable vehicle from which to orchestrate fire support operations. There's no question the Bradley as a FIST-V will be a major improvement over the current vehicle. But the Bradley FIST-V can solve only half the execution deficiencies.

My experience at the Combat Maneuver Training Center (CMTC), Hohenfels, Germany, tells me we need many "mobile eyes" on the battlefield—not just a few highly capable systems (i.e., Bradley FIST-V). The execution of fire plans requires multiple forward observer (FO) parties at many key vantage points to trigger brigade-, task force- and company-level fires.

The rest of the solution is at hand without incurring any additional force structure bills or major materiel development costs. We should convert the mechanized infantry divisions' much under-utilized FO parties to high-mobility multipurpose wheeled vehicle (HMMWV)-based COLTs. A standard mechanized infantry battalion's FO parties can field 12, two-man COLTs—

enough personnel to outfit a three-task force heavy brigade with three COLTs per task force and three COLTs retained under the brigade fire support section's control. See Figure 1 for a proposed brigade fire support organization.

## Fire Support Execution Deficiencies

Unfortunately, the current fire support organization only provides one vehicle, the FIST-V, organic to the company fire support element, severely limiting the fire support officer's (FSO's) operational flexibility. In a mechanized division, FO parties must hitch rides with scouts or other combatants in the bowels of M1A1 tanks or Bradleys just to get to the fight.

Doctrine calls for FOs to accompany HMMWV-equipped scouts on reconnaissance missions to prosecute the indirect

fire fight early on. All too often, the scout's reconnaissance mission requirements to find the enemy, his barriers and the best route to the objective take priority over the FO's indirect fire requirements. Consequently, FOs aren't best positioned to perform their targeting and adjustment-of-fire missions; they don't have adequate long-range communication or target-locating equipment, such as the ground/vehicular laser locator designator (G/VLLD) or thermal sights. These capabilities are only resident in the FIST-V vehicle that, too often, is tied to the company commander—malpositioned or already killed by the opposing force's indirect fires.

These disadvantages aren't *revelations*. The Fire Support Mission Areas Analysis recognized the need for more highly capable and survivable eyes on the battlefield and documented the need for COLTs to

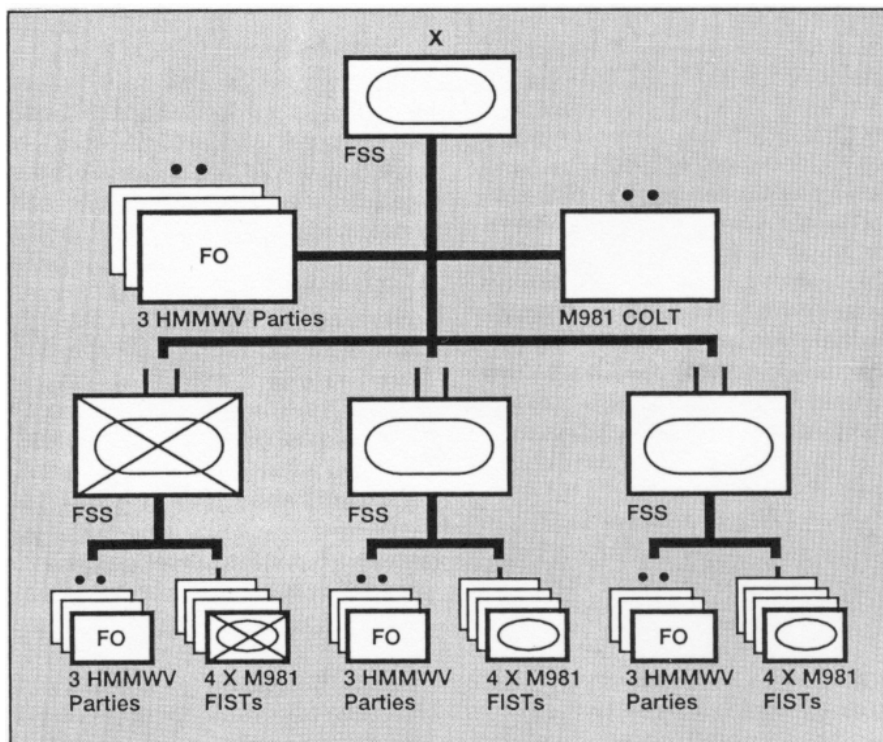


Figure 1. Proposed Brigade Fire Support Organization. There's enough manpower in a standard mechanized infantry battalion's FO parties to field 12, two-man HMMWV-based COLTs—three in each of the three task forces and three under the control of the brigade FSE.



**Field HMMWV-Based COLTs Now!**

be equipped with M113 FIST-Vs. However, the force structure and materiel costs have been too high, or the priority too low, for the FA community to field this much-needed capability.

Therefore, we've spent our money on lethal and long-range artillery systems and munitions and have done very little to solve the task force's fire support execution deficiencies. The time has come to address this need.

**HMMWV COLT Employment**

The task force or brigade combat team commander would task organize his COLTs, based on mission, enemy, terrain, troops and time available (METT-T), and position them to best support his scheme of maneuver. For example, the reserve COLTs could be chopped to the committed task forces to augment the fire support plans of the main effort.

By redistributing the mechanized infantry FIST FO parties across the maneuver brigade, all infantry and armor company FISTs would have four-man FIST-V-equipped sections. Each battalion fire support element (FSE) would control three HMMWV COLTs in addition to its fire support system (FSS). See Figure 2 for the HMMWV-based COLT manning proposal.

Implementing this HMMWV-based COLT solution until the Army can afford to field all COLT parties with Bradleys would significantly increase our number of eyes on the battlefield immediately. This interim COLT proposal provides the task force and brigade FSOs the capability to not only provide top-down fire planning, but also to weight major efforts by shifting COLT assets and more directly control the execution of critical fires.

Adequate night-vision and land-navigation equipment for the COLTs' HMMWVs is a must. COLT FO parties need an M1025 series (hard-top) HMMWV equipped with two VRC-46 radios, a G/VLLD and thermal night sights. The global positioning system (GPS) also is a must to negate the effects of observer target location and altitude errors. Additional equipment must be obtained to outfit the COLTs because taking it from the FIST-V section is not a

Current	Organization	Proposed
1	LT, FIST Chief	1
1	SSG, NCOIC	1
1	Fire Spt Spc	1
1	Driver	1
6	2 FO Parties (3 ea)	0
<b>10 Soldiers</b>		<b>4 Soldiers</b>

Figure 2. HMMWV-Based FO Party Manning Proposal. By redistributing the mechanized infantry FO parties across the maneuver brigade, all infantry and armor company FISTs would each have a four-man FIST-V-equipped section. The 3d Brigade formed three, two-man HMMWV COLT parties from the remaining six soldiers per FIST (six soldiers x four companies = 12 COLT parties).

viable solution. See Figure 3 for a list of the equipment required to outfit a HMMWV-based COLT and Figure 4 for the HMMWV COLT load plan.

- M1025 Series HMMWV w/MG
- Radios (Communications with Scouts and FSE)
  - 2 VRC-46 Radios
  - OE 254 Antenna
- Night Vision/Navigation Capability
  - Night Vision Goggles (PVS-7)
  - Scout Thermal Night Sight
  - G/VLLD with Thermal Sight
  - GPS

Figure 3. COLT Vehicle and Fire Support Equipment. It takes 39 sets of equipment to equip the 1st Armored Division. The proposal retains the existing FIST-V for company fire support operations.

Yes, a low-cost solution calling for no new force structure exists to field more COLTs now. All that's required is maneuver and artillery commanders'

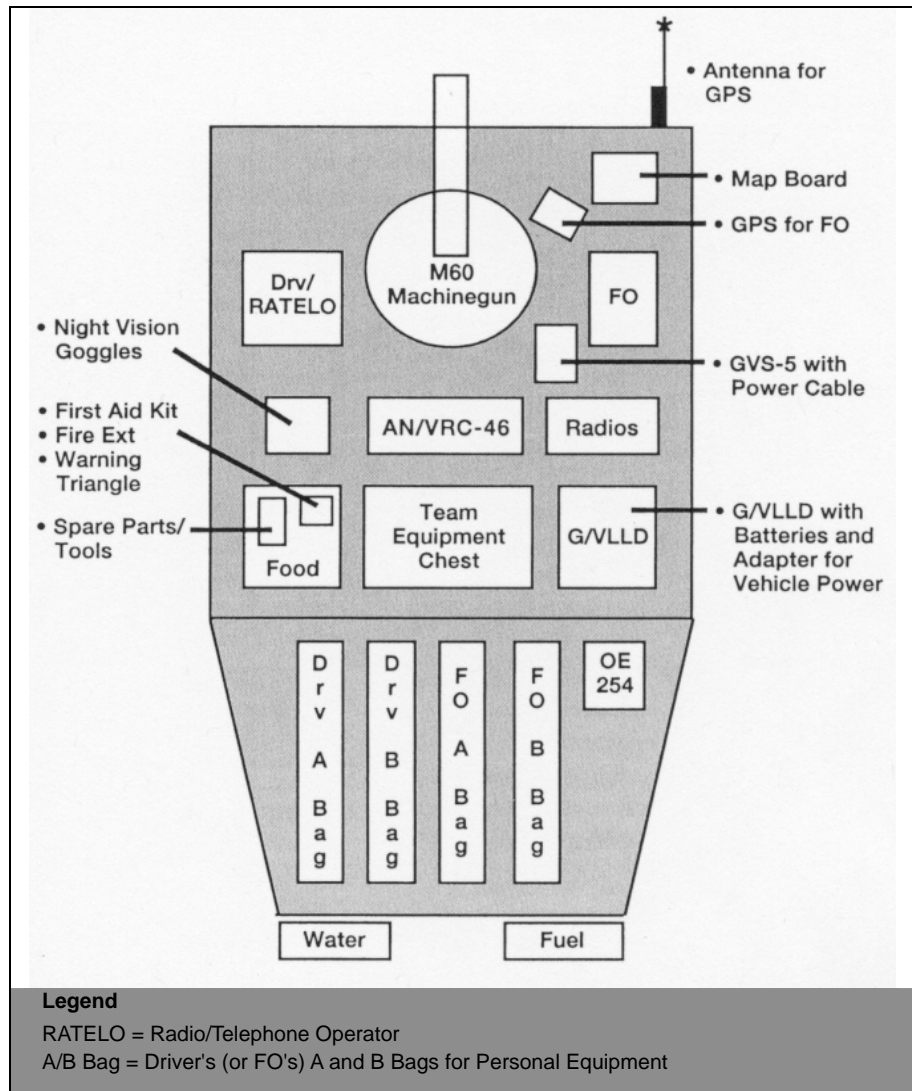


Figure 4. M1025 HMMWV COLT Vehicle Load Plan. The HMMWV-based COLTs currently being tested in the 3d Brigade, 1st Armored Division, Germany, load their vehicles as shown.

consensus on the redistribution of infantry division FO parties and a modification table of organization and equipment (MTOE) change authorizing the equipment. With the Army's drawdown from 16 to 12 active divisions in full swing, equipment is readily available, especially in the US Army Europe (USAREUR), to immediately equip COLTs with HMMWVs and fire support equipment.

The M1025 series (hard top) HMMWV is, perhaps, the hardest of the HMMWVs to obtain. Any HMMWV will work, although the M1025 series is the vehicle of choice because it provides a mount for a machinegun and G/VLLD and it's identical to the scout vehicles.

Colonel Paul Lenze, Commander of the 3d Brigade, 1st Armored Division—until recently the 8th Infantry Division (Mechanized)—Germany, recognized the advantages of the HMMWV-equipped COLT proposal. He implemented

the proposal across the brigade in a proof-of-principle test for the division, increasing his operational flexibility and fire support execution capability. The 3d Brigade's 4th Battalion, 8th Infantry was the "bill payer" for implementing the new structure.

Our training on doctrinal employment techniques for offensive and defensive operations is ongoing. We have great expectations for fire support execution during our upcoming CMTC rotations and, if required, combat operations.

This low-cost, high-payoff COLT proposal, in conjunction with the proposed Bradley-based FIST, and sound training can solve our fire support execution deficiencies and help us maintain our **King of Battle** stature.



**Lieutenant Colonel Henry T. (Hank) Stratman has commanded the 2d Battalion, 29th Field Artillery, a direct support battalion to the 3d Brigade, 1st Armored Division, Germany, since July 1990. He deployed the battalion to Operations Desert Shield and Storm. His previous position was as the Division Artillery S3 for the 8th Infantry Division (Mechanized). Lieutenant Colonel Stratman's previous commands were A Battery, 3d Battalion, 79th Field Artillery, Germany; Headquarters and Headquarters Battery, 212th Field Artillery Brigade, Fort Sill, Oklahoma; and A Battery, 1st Battalion, 38th Field Artillery, 2d Infantry Division, South Korea. Among other assignments, he served as Chief of the Modern Battlefield Techniques Committee, Field Artillery School, Fort Sill, and Chief of the Field Artillery Division, Firepower Directorate, Headquarters Training and Doctrine Command, Fort Monroe, Virginia.**

The author wishes to thank the Fire Supporters of the 3d Brigade, 1st Armored Division for their invaluable help in this effort.

## VIEW FROM THE BLOCKHOUSE

## FROM THE SCHOOL

# Extended Range for MLRS Rockets in the Works

Work is underway at the Multiple Launch Rocket System (MLRS) Project Office, Redstone Arsenal, Alabama, and LTV, Dallas, Texas, to extend the range of the basic MLRS M26 dual-purpose improved conventional munition (DPICM) rocket to at least 45 kilometers. Using their internal research and development funds and government facilities at White Sands Missile Range in New Mexico, LTV has already launched three rockets to an equivalent sea-level range of 46 kilometers. The current MLRS rocket has a range of 32 kilometers.

The requirement for an extended-range rocket arose in February 1991 over concerns during Operations Desert Shield and Storm that many Iraqi artillery assets outranged those of coalition forces deployed in Saudi Arabia. The Field Artillery School, Fort Sill, Oklahoma, at that time expressed the need to the MLRS Project Office for improving the rocket's range by 50 percent. In addition to the increased range, the School stated the need to lower the dud

rate of the M77 submunitions to improve safety for soldiers passing through impact areas.

The concept behind the extended-range rocket (ERR) involves stretching the motor of the existing rocket and decreasing the number of submunitions by about 20 percent. The rocket needs to be more accurate at the extended ranges to be as effective as the current rocket.

One technique to improve the ERR's accuracy is to correct for low-level winds in the vicinity of the launcher. The MLRS Project Manager is considering adding to each launcher a device to measure low-level winds to make the corrections.

Testing planned for April 1992 will include a six-rocket launch, using procedures similar to those used to fire MLRS rockets during Operation Desert Storm with such devastating effectiveness. Additionally, one rocket may be modified to carry four sense and destroy armor (SADARM) submunitions, thus demonstrating the capability to deliver this munition out to ranges in excess of 50

kilometers. The range of SADARM in the basic rocket is approximately 30 kilometers.

The Congress has recognized the substantial contributions of MLRS during the war in neutralizing Iraqi artillery assets and other high-value targets in support of maneuver forces. It also recognizes that MLRS was outranged by many Iraqi artillery weapons. Accordingly, it has appropriated funds to develop the ERR, beginning in the FY 92 defense budget. With continued funding for development, production could begin in FY 95.

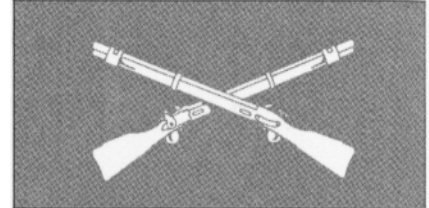
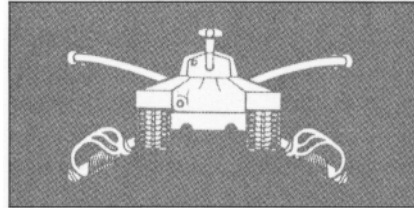
This extended-range capability would add significantly to the value and effectiveness of the MLRS, a battle-tested Field Artillery system. If units have questions about ERR, call the Training and Doctrine Command (TRADOC) System Manager-Rocket and Missile Systems (TSM-RAMS) at the Field Artillery School, AUTOVON 639-5205/6701 or commercial (405) 351-5205/6701.





# Fighting with Fires Initiative

## The Goal— Synchronized Combat Power



**Fires and maneuver**—dynamic equals in the muscle of the combat power equation. As visibly demonstrated in Operation Desert Storm, the two are inexorably intertwined for successful combat operations. The combined arms commander must orchestrate the integration of both or potentially piecemeal his combat power.

To get maximum synchronized combat power, the combined arms commander must "think operating systems"—direct maneuver and fires with a total force perspective foremost in his mind. Fire support must be "fought" by combined arms commanders—it won't run on *automatic*.

These fundamental truths underscore an initiative called "Fighting with Fires." The Field Artillery School, Fort Sill, Oklahoma—under the sponsorship of

General Frederick M. Franks, Jr., Commanding General of the Training and Doctrine Command (TRADOC)—has launched the initiative.

At the core of the initiative is the concept that we must develop throughout the force a greater appreciation for the dynamic potential of fire support in combat. Massed fires and counterfire were decisive in Desert Storm. We must continue to build the fire support potential into the Army's mind-set, training, leader development and doctrine to ensure we're prepared to defeat future adversaries—ones who have the will and skill to make the most of their combat power.

A vital part of appreciating the potential of fire support in combat is developing combined arms commanders who can maximize its use in concert with maneuver. They must understand this potential and have the skill to focus it at the right time and place and in the right combination. Only then can we achieve synchronized combat power—an age-old challenge, not only for fire support, but also for the entire combined arms community.

### Fighting with Fires Analogy

The problem is like a rifle range that doesn't have an officer-in-charge (OIC) in the range tower to control and direct the shooters (operating systems). See the figure for an illustration of the analogy. Each shooter "knocks down" its own doctrine, training, leader development, organization, materiel and soldiers targets. The shooters never get beyond

the barber poles where integration must focus on the larger and often moving target of synchronized combat power.

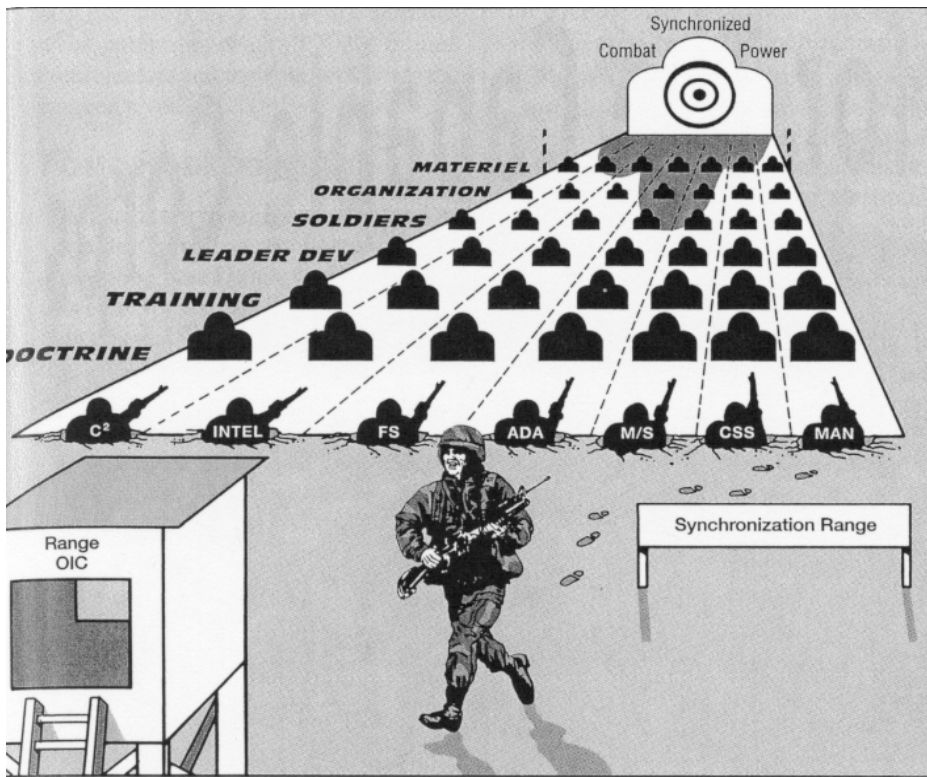
What's lacking is the single leader to direct all shooters to simultaneously hit the larger but more difficult bull's-eye. This leader, most often a maneuver commander (Armor or Infantry), must "climb out" of his firing position (fighting tanks or Bradleys) and get into the rifle range tower. From this vantage point, he can direct the synchronization of combined arms operations, using all his operating systems.

Note the substitution of the term "combined arms commander" for the most often used "maneuver commander." At the task force and higher levels, the commander must become a combined arms commander who can take responsibility for all operating systems. It's an important distinction; the combined arms commander has much broader and greater responsibilities.

This requires an expanded perspective for many and a change in thinking for some. Developing combined arms commanders who understand and accept this idea presents significant training and leader development challenges. Fire supporters have a major role to play in meeting these challenges.

### Training as We'll Fight

Fire support, as any of the operating systems, must be skillfully and vigorously fought by combined arms commanders. While the concept of commander responsibility is accepted as fundamental in our doctrine, observations from the



Fighting with Fires Analogy. The age-old challenge of synchronizing operating systems to create maximum combat effectiveness is illustrated by this picture of a rifle range. The "shooters" must aim at the bull's-eye, not just the targets in their lanes, and the commander must synchronize their efforts by climbing out of his firing position and into the range tower, becoming the combined arms commander.

Combat Training Centers (CTCs) suggest that we're not "all we can be."

A dichotomy exists between the dynamic achievements in Desert Storm and the performance norms at the CTCs. Although there are several unique aspects of Desert Storm's mission, enemy, terrain, troops and time available (METT-T) that can't be correlated with performance on the CTC "battlefields," we must replicate the combat readiness characteristics of Desert Storm with a greater degree of consistency. Current and future technologies in fire support systems, including our Field Artillery "system of systems," present the force the potential to consistently achieve decisive results characteristic of Desert Storm. However, the complexity of planning and executing the synchronization of these same systems demands we train at the CTCs the way we'll fight in combat.

## Developing Leaders

To consistently achieve positive results in our leaner Army, we'll have to change

the mind-set of some. That requires we change the way we educate and train leaders to get beyond the theoretical. It's the difference between notional and real responsibility. We must institutionally develop commanders who have a larger, combined arms perspective.

At this point, many of you may be skeptically saying, "I've heard this before." We all have, but we now *must* bring about a change. We don't have the force structure, dollars or time to have maximum effectiveness in theory and something less in practice.

Fire supporters must dedicate themselves to educating combined arms commanders in our business. The more they know about fire support, the more likely they'll apply its full potential. Only then can they take responsibility for and truly synchronize all elements of firepower on the battlefield. At the same time, we must remain experts in all aspects of fire support coordination to most effectively advise and assist the combined arms commander in planning and executing his fire support.

## Getting There from Here

The Fighting with Fires Initiative is no small task; it will be a long-term process. As we analyzed the initiative, we developed three major components of our mission to implement it. We must—

- Enhance the ability of combined arms commanders to fight with indirect fires.
- Ensure that doctrine, organization, training, materiel, leader development and soldiers support the commander's responsibility for fire support.
- Develop a greater appreciation of fire support across the force.

One of our mid-term targets is to report to the TRADOC Commander the major issues requiring work to improve fire support effectiveness. We're taking a hard look internally at the issues related to fires and the fire support operating systems, and we've asked Field Artillery commanders for their input to define these issues. We're also analyzing fire support at the CTCs in detail, soliciting the views of the senior combined arms commanders and evaluating the Desert Storm experience. (If you'd like to contribute issues or make comments, you can forward them to your commander or write to the Initiatives Group, ATTN: ATSF-AI, US Army Field Artillery School, Fort Sill, Oklahoma 73503-5600.)

To refine the issues, we'll hold a series of a combined arms reviews. Our goal is to eliminate a parochial view as well as build consensus in the combined arms community. We must be sure we capture the most important issues that must be addressed.

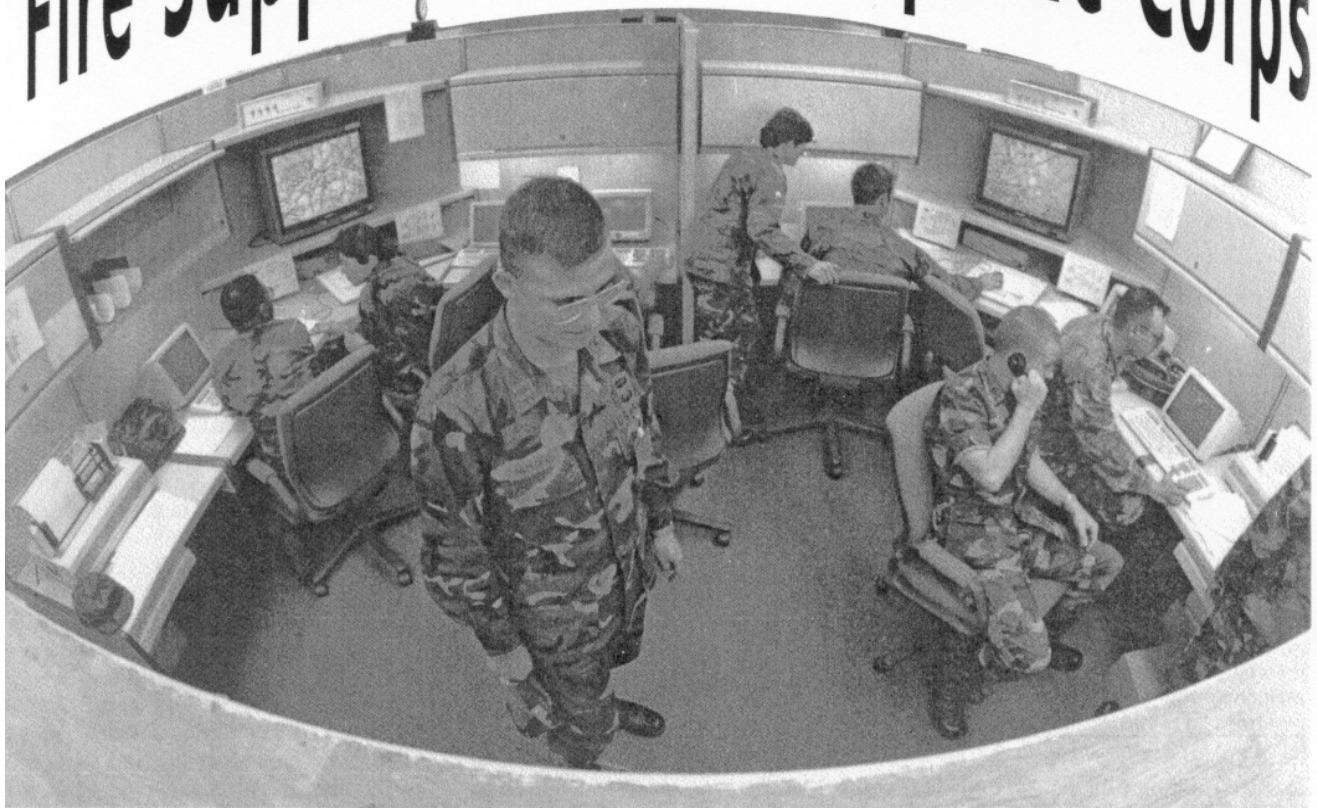
We plan to share our findings and observations through several means, one of which is this magazine. Look for updates and doctrinal pieces that support the initiative in future editions. We'll also brief our findings at various conferences at Fort Sill and throughout the force.

Fighting with Fires is a concept that's long overdue. It must be embedded in doctrine and institutionalized in training. It must focus our fire support azimuth for future combat operations. The Field Artillery, our Army and our nation deserve no less.

LTC Sammy L. Coffman, FA  
Chief, Plans, Initiatives Group  
Field Artillery School, Fort Sill, OK



# Fire Support for The Capable Corps



by Lieutenant Colonel James T. Palmer

**F**or the past two years, soldiers in United States Army Europe (USAREUR) have experienced unprecedented change. The end of the Cold War, the unification of Germany, a downsizing of the force and an out-of-sector deployment to Southwest Asia (SWA) all contributed to USAREUR's adopting a new warfighting strategy that continues to evolve as the threat evolves.

In NATO's Central Region, warfighters still recognize the constants basic to military success—the effects of terrain on planning, the requirement to conduct realistic training and the need for high-technology equipment and quality soldiers. But these warfighters are more closely attuned to the changing conditions that affect the way they must train to sustain a credible forward presence in Europe.

The threat can no longer advance on multiple avenues of approach; instead,

his advance would probably be limited to a few operational axes. Similarly, a large allied defense layered from the Baltic to the Alps is no longer possible. Multinational corps in Europe must now train to conduct operational moves over extended distances to strike the enemy at the precise time and place to counter his concentration of forces.

At the heart of the new warfighting strategy is V (US) Corps, headquartered in Frankfurt, Germany. Known for years as the "Victory Corps," V Corps may now be called "The Capable Corps," a term coined by the commander-in-chief USAREUR (CINCUSAREUR). The Capable Corps is highly mobile, fully modernized and able to rapidly synchronize its battlefield operating systems (BOS) quicker than the enemy. Above all, The Capable Corps can command and control multinational forces over a wide range of contingencies, from humanitarian

assistance to high-intensity combat, both in and out of sector.

The artillery with the corps accompanies its maneuver counterparts at the cutting edge of evolving doctrine. Redlegs in the Field Artillery (FA) brigades, division artilleries (Div Artys) and armored cavalry regiments (ACRs) train to fight under new conditions, and the lessons they're learning will shape the fire support doctrine of the future.

In this article, I briefly review how The Capable Corps fights. Then, I examine emerging trends that V Corps Redlegs are facing as they train, both in the field and in simulations. Finally, I discuss some training implications for the future. The perspective of this article is from the corps artillery (Corps Arty) level.

Redlegs at the corps and division levels observed many of the fire support trends presented in this article during V Corps Exercise Caravan Guard 91, a command

post exercise (CPX). Caravan Guard was a computer-supported CPX that trained commanders and their staffs down to the brigade level.

## Four-Phased Fight

A recent warfighting scenario for The Capable Corps was conducted in four phases. In Phase I, units were alerted and moved to local dispersal areas (LDAs). Units moved from LDAs to a corps staging area (CSA) in Phase II. Next, in Phase III, units moved from the CSA through tactical assembly areas (TAAs), either to counterattack the enemy or defend against him. In the last phase, Phase IV, units were to re-disperse to the corps,

division or brigade forward assembly areas to prepare for a second operation.

**Phase I.** The first phase is much the same as it has been for many years in Europe (see Figure 1). After a buildup of enemy activity, the corps transitions to war by initiating a standard alert and deploying from individual kasernes and garrisons to LDAs. Here, units fully upload for war and prepare to move over extended distances by rail, road or barge to a CSA.

In the LDA, units confirm routes, and the lowest major subordinate command (MSC) possible (usually the brigade level) issues march tables. The transition to war takes place in a decentralized fashion; precombat checks and ammunition

upload are key actions commanders must coordinate in this phase.

**Phase II.** Units move from LDAs and occupy their CSA in this phase. MSCs move by the most expeditious means to a CSA designated by the army group. The standard organization of the CSA is controlled by the corps (see Figure 2).

Upon entering the CSA, MSCs occupy position areas and await the corps order. Once they receive the mission to attack or defend from the army group, the corps staff issues a brief order via the maneuver control system (MCS), and units task organize in the CSA.

Battlefield circulation control in the CSA is of paramount importance as divisions organize for combat. The corps movement control center (MCC) publishes march tables in preparation for movement from the CSA forward.

**Phase III.** This phase is known as the approach march (Figure 3). The approach march is tailored to fit the tactical mission but usually includes a security force (such as an ACR), an advanced support echelon (ASE), a main body consisting of two or more divisions and the corps support command (COSCOM). These four elements usually move over six to eight parallel routes to TAAs short of the line of departure or line of contact.

The ASE—composed of combat and combat support elements, such as signal nodes, long-range artillery, air defense artillery (ADA), engineer (EN) and refuel elements—moves forward into positions between the CSA and the TAA to lay down the support base necessary to "slingshot" the divisions through it. The divisions pass through the TAAs, receive refuel-on-the-move from corps tankers and pick up some "slice" elements prepositioned to propel them forward. The security element normally precedes the divisions and may form a corps-controlled covering force. The short pause in the TAAs also may be used to adjust the timing of the strike against the enemy if the corps' mission is to counterattack.

Proper command and control of the approach march is critical to the success of the corps. The timing of the move is based on the location, speed and routes of the enemy. To move too early might result in the enemy's outflanking the corps; to move too late might result in a neighboring allied corps' defeat.

Such is the nature of the "counter-concentration concept": one corps must

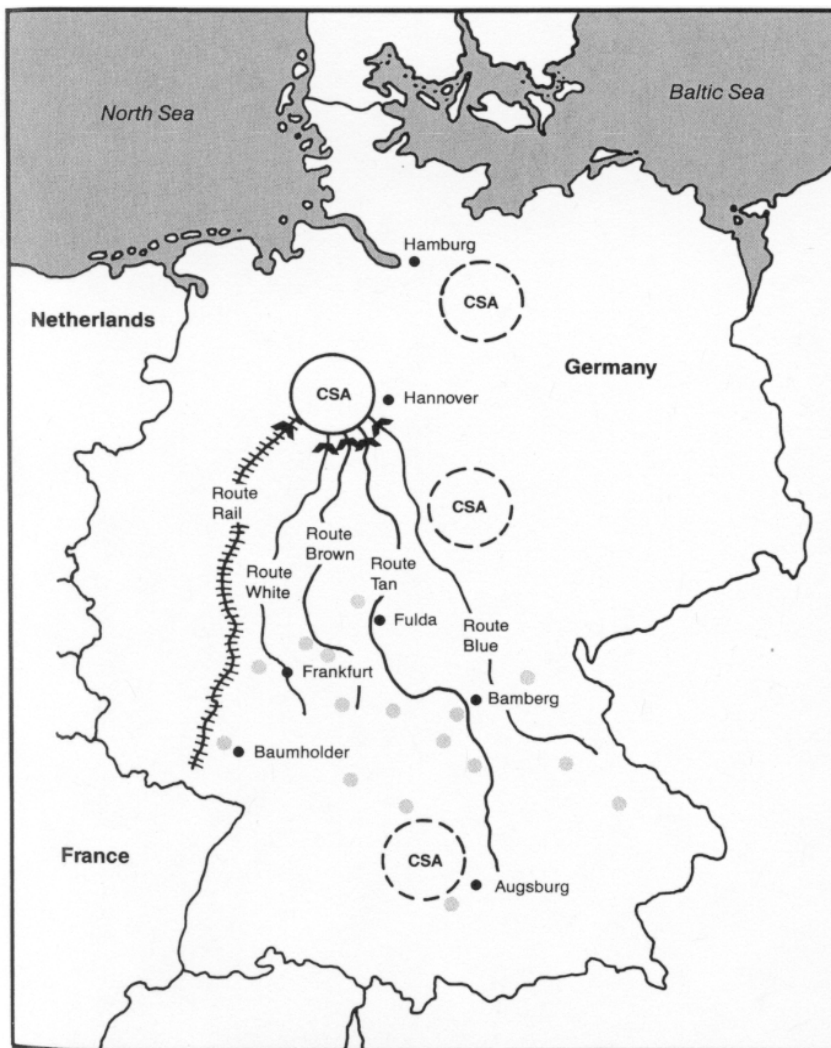


Figure 1. Phase I of a Typical V Corps Warfighter Scenario. In this phase, units are alerted and move into local dispersal areas to upload for war. Phase I is much the same as it has been for many years in Europe. Note: the colored circles relative to the various cities and CSAs are the LDAs.



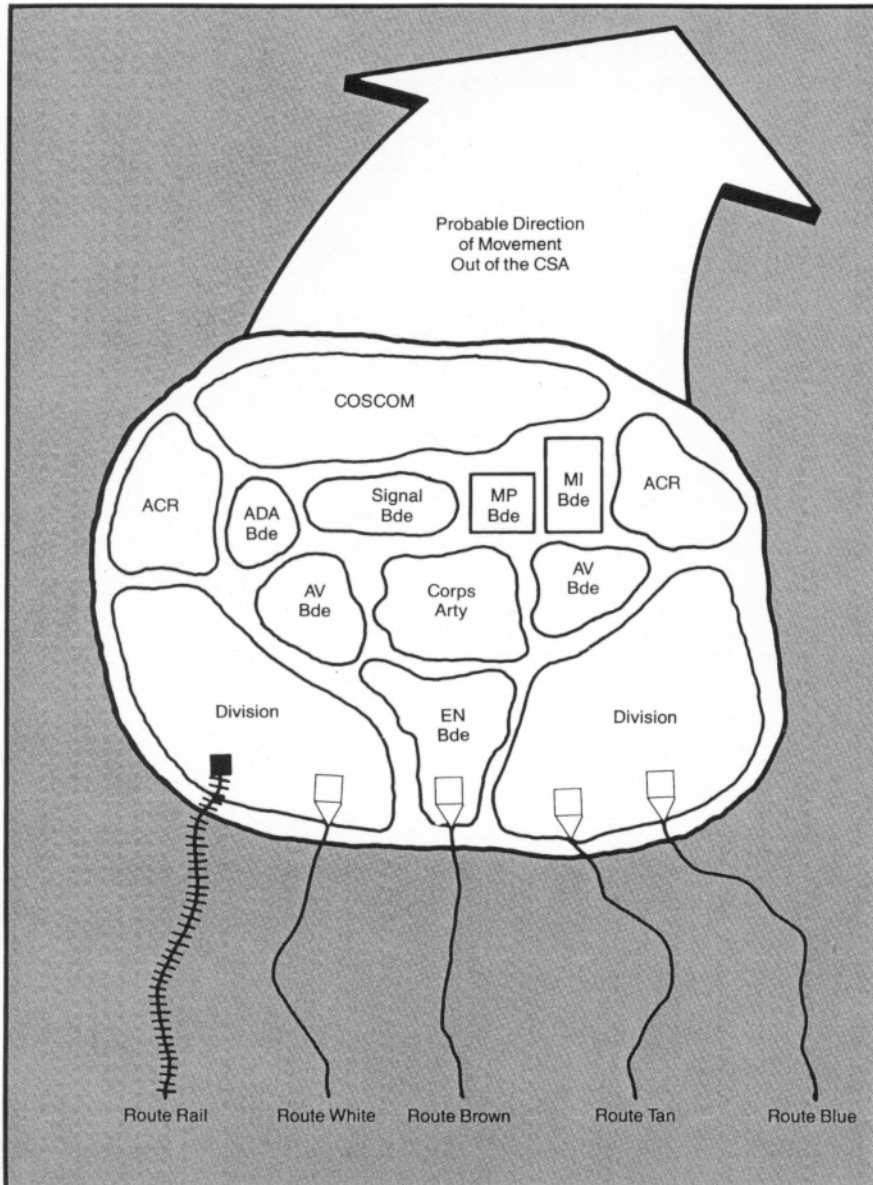


Figure 2. Phase II—A Typical CSA. In the CSA, the corps task organizes for the mission assigned by the army group. The corps controls the movement in and out of the CSA—battlefield circulation control is of prime importance. Notice that elements of the COSCOM are positioned forward to facilitate the departure of the ASE, which leaves first in the approach march.

be an "anvil" (defense), and one corps must be a "hammer" (counterattack). Since both enemy and friendly forces are often moving to contact, a meeting engagement under unfavorable conditions (always possible) must be avoided.

The combat operations that follow the approach march may be offensive or defensive. If a sister corps is in danger of defeat, the army group commander might order the corps to defend behind (backstop) the ally. If the sister corps has successfully blocked the advance of a combined arms army, the corps commander

may be told to counterattack against the enemy's trail divisions to defeat the combined arms army in detail.

One thing is certain: the decision-making process has been considerably shortened. Once the army group determines "the read" of the enemy, The Capable Corps must move to strike (or defend) with no hesitation. The anvil corps must fight second- or third-echelon combined arms armies with deep operations simultaneously while defending against the enemy's first-echelon forces. These simultaneous operations are critical

to interrupting the enemy's momentum and setting the conditions for the hammer corps that positions itself to strike 48 to 72 hours later.

**Phase IV.** The final phase is a standard drill to re-disperse into forward assembly areas and regenerate combat power. The COSCOM is told which MSC has priority for regeneration, and logisticians surge their efforts to bring this unit up to fighting strength again. Battalion, brigade and division commanders regenerate their combat power by merging units, pooling remnants and cross-leveling equipment and personnel. Meanwhile, the corps staff receives new guidance, and The Capable Corps gets ready to "do it all over again."

On Caravan Guard 91, V Corps, participating with five other (computer-simulated) multinational corps and defeated three combined arms armies in a nine-day period. One company-grade officer in the exercise simulation center remarked, "The tactics on Caravan Guard reminded me of a giant pinball machine, except the flippers [counterattacking corps] didn't stay in one place—we moved them up and down the game board so we could strike the ball [enemy] early."

## Fire Support Trends

As The Capable Corps becomes more mobile and lethal, some fire support trends are emerging. I've grouped them into five categories: movement, force composition, organization for combat, fire support coordination and deep operations.

**Movement.** The most apparent change seen by the batteries and FA battalions in the corps is in the area of movement. Simply put, long road marches are in *vogue*. Similar to mechanized units that deployed recently to SWA, V Corps battalions are training to strike the enemy 250 to 300 kilometers from their home stations. The second and third battles could easily add another 300 kilometers, depending on the enemy's force disposition.

Captains and lieutenants now must deal with movement planning like no other time in USAREUR's history. A possible mix of road, rail and barge transportation causes each unit commander to compute load data before the alert comes, so he can quickly organize serials and march units for the march to

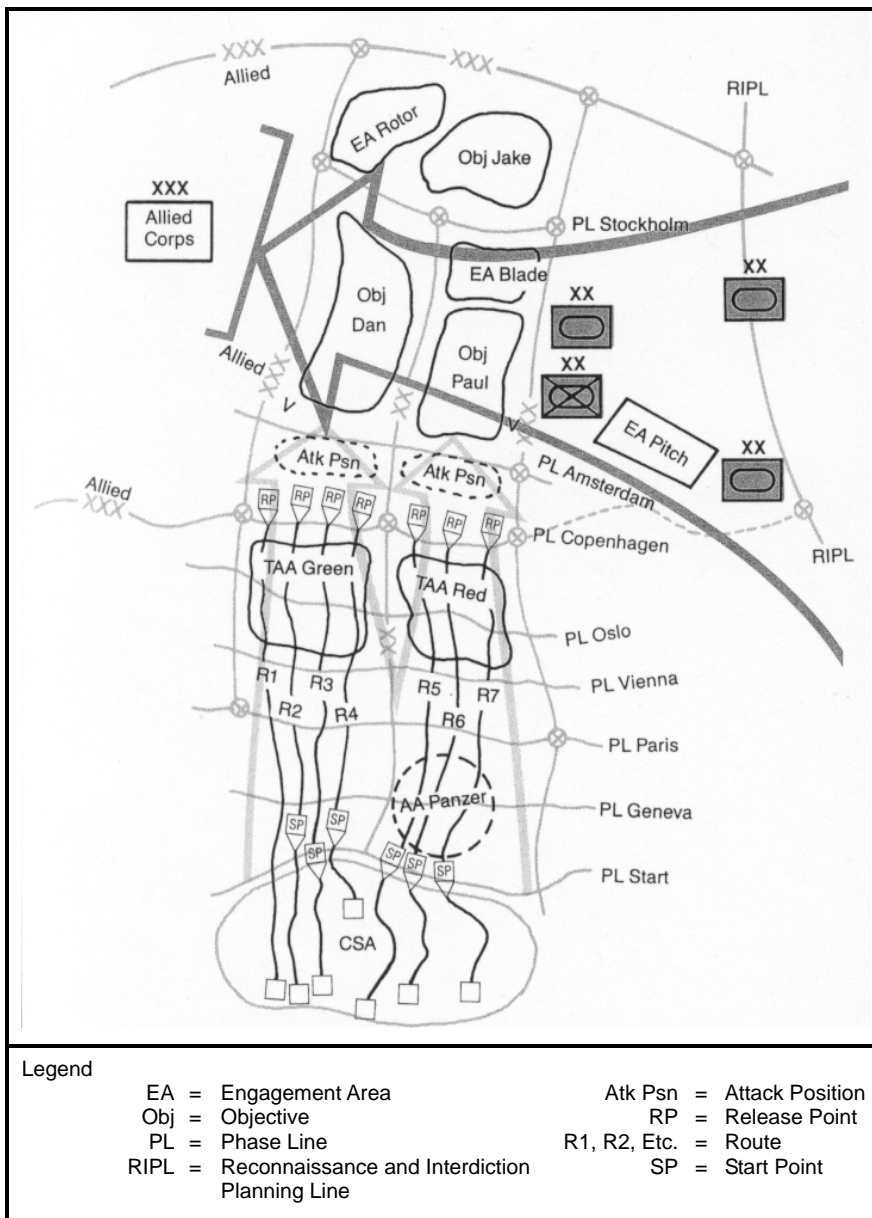


Figure 3. Phase III—Approach March for a Corps Counterattack. In this phase, at least four different elements move along six to eight designated routes: ASE, security force, divisions and the remainder of the COSCOM. The ASE moves forward in positions between the CSA and TAAs and serves as a slingshot for the divisions. After pausing in the TAA, each division focuses on a force-oriented objective and moves to contact. A combination of deep and close operations executed in sequence destroys the enemy's combined arms army. Once remnants are contained, The Capable Corps re-disperses, regenerates and "sets" for the next operational echelon.

the CSA. And recent V Corps' out-of-sector missions to SWA have caused commanders and staff officers at all levels to train for air movement like their contingency corps counterparts. Not surprisingly, vehicle fleet readiness remains a top priority as commanders anticipate long moves in future conflicts.

**Force Composition.** The composition of the force is changing—the artillery

with the corps has a new look. Each Div Arty retains the 24-gun M109A2/3 battalions that support the maneuver brigades, but the organic multiple launch rocket system (MLRS) battery disappears. The Capable Corps Arty would likely be composed of a mixture of 155-mm and MLRS battalions per the Army of Excellence Objective Force Design for FA Operations. That is, for

each committed division, a reinforcing FA brigade would likely consist of one 155-mm battalion and two MLRS battalions. Additionally, an FA brigade consisting of three MLRS battalions would be assigned general support (GS) to the corps.

As the 203-mm battalions either convert to MLRS or are redeployed, the number of cannon battalions that can be assigned a mission of reinforcing (R) decreases. This trend sometimes causes concern with maneuver commanders who are accustomed to having six to eight cannon battalions in their sector in the former European general defense plan (GDP). They appreciate the firepower of the MLRS, but some don't think the MLRS can provide the same quality of close supporting fires they enjoyed with the cannon brigades in the past.

The absence of cannon artillery may have caused some maneuver commanders to call on AH-64 helicopters for close support along the forward line of own troops (FLOT) more often than in the past. There is a hesitancy, of course, to use MLRS in close proximity to friendly troops.

However, on a positive note, the overall firepower has increased in The Capable Corps Arty. Simulations show MLRS is killing more armored vehicles at greater ranges, thus causing fewer danger-close missions to be fired.

At the Corps Arty level, each FA brigade, composed of MLRS, has the tactical mission of reinforcing its respective Div Arty. The Corps Arty usually retains no strings on the battalions in these brigades, allowing division commanders to employ MLRS as they see fit. The Corps Arty generally will retain a minimum of one Army tactical missile system (Army TACMS) battalion for GS fires at targets beyond the fire support coordination line (FSCL).

**Organization for Combat.** The Corps Arty now organizes FA battalions for combat based on the ratio of enemy tubes to friendly tubes. To weight the main attack, assistant fire support coordinators (AFSCOORDS) at the Corps Arty compute the friendly-to-enemy tube ratios based on the number of threat weapons that can range a decisive event, such as a counterattack, passage of lines, river crossing, etc. The corps planners—using the *Command and General Staff college (CGSC) Student Text 100-9 The*

*Command Estimate*—evaluate relative combat power (by battalion count) to adequately ensure the corps' success against the threat in a specific operation. The artillery planners (AFSCOORDs) recommend an organization for combat based on the anticipated artillery array by sector as well as considering the five fundamentals of organization for combat.

Another trend is due to the organization of the approach march. With limited routes for movement and the expected congestion, it's very important the Corps Arty be organized to meet the threat when it leaves the CSA. It's extremely difficult to either call additional artillery forward or laterally reposition/reorganize once the corps movement begins.

Artillery battalions receive their tactical missions in the CSA and move with their respective divisions along six to eight routes to their release points (RPs). The corps rigidly controls the approach march both in time and interval. Hence, MLRS battalions on routes must stay on those routes until they arrive at the RPs. While hipshoots during the approach march are certainly possible, MLRS battalions that pull off the road to shoot will have a difficult time getting back into the march columns.

Unless the corps passes through another allied corps, the maneuver divisions are somewhat vulnerable until the artillery completes the approach march and deploys tactically to support by fire. In the CSA, the Corps Arty must make no error in organizing the FA for combat.

Once the FA battalion leaves the CSA, it must be prepared to "come out shooting." Although it may pause for fuel in the TAA, it probably can't be ordered to reposition in support of another maneuver force. This problem is shared by all BOS and is the "risky business" inherent in approach marches.

**Fire Support Coordination.** Fourth, the procedures for coordinating fire support between two multinational corps (one blocking and one counterattacking) are still evolving. Within NATO, standing operating procedures (SOPs) exist that govern the counterattack by one corps through or in conjunction with another. Yet each operation is uniquely difficult.

Approximately three to four days before the counterattack, the army group hosts a coordination meeting with both corps battle staffs. Fire supporters at this meeting must work out the details to support

their respective corps commanders. Locations of liaison officers (LNOs), positioning of weapons systems, fire support coordinating measures, communications and procedures to clear fires must be mutually agreed upon in a short time.

There are a lot of important issues to resolve in the coordination meeting. The allocation and control of battlefield air interdiction (BAI) may be one of the most difficult issues to reconcile because the counterattacking corps usually will want to have an L-shaped deep operations area to protect its flank exposed to the enemy. Similarly, the defending corps commander may not fight a deep battle commensurate with the way the counterattacking corps commander would like. The resulting battlefield may not look like the counterattacking commander would like it to as he crosses the line of contact. Allies often have differing views (e.g., how deep is deep?). The meeting, however, is absolutely critical to success.

Once the army group approves the recommendations of the allied BOS syndicates, the corps staffs return to their operating locations and prepare for the counterattack to begin. The spirit of cooperation between AFSCOORDs from the two multinational corps, referred to as "Fire Support 401," is the only way to ensure continuous fire support for the counterattack. The trend observed at recent inter-corps coordination meetings is one of cooperation and professionalism in spite of language barriers.

**Deep Operations.** Last, and perhaps the most significant change in the way Redlegs train for war, is the Corps Arty's role in The Capable Corps' deep operations. In V Corps, the Corps Arty commander plans and executes the deep fight for the corps commander. Using the fire support cell, a portion of the corps main CP, as the nucleus, a multi-functional targeting team convenes to plan and execute all fire and maneuver within the corps commander's deep operations area of interest, usually beyond the FSCL.

In addition to the Corps Arty staff, representatives from the aviation brigades, the Army airspace command and control (A<sup>2</sup>C<sup>2</sup>) element, the G2's intelligence cell, the air defense element, the air support operations center (USAF), the GS artillery battalions, the electronic warfare section and the corps

engineer section meet in the fire support cell. They discuss the upcoming deep operation with representatives from G3 Operations and G3 Plans. Then, cross-FLOT AH-64 attacks, long-range surveillance unit (LRSU) insertions, BAI sorties and deep indirect firestrikes are planned as synchronized packages to meet the corps commander's intent.

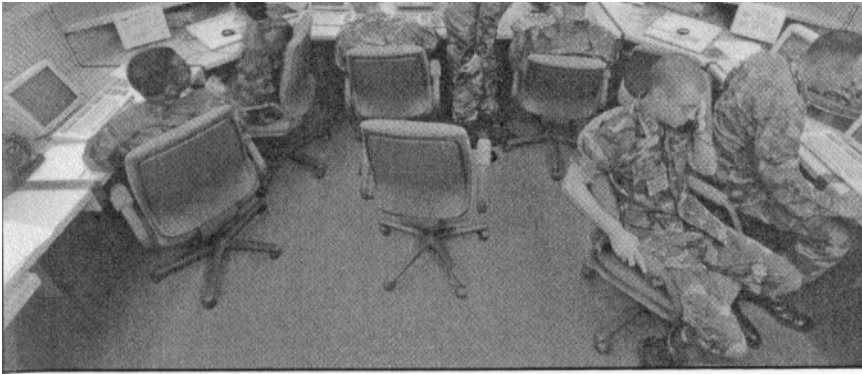
Under the leadership of the Corps Arty commander, a complete package is briefed to the combined arms commander—usually the commander of one of the corps aviation brigades. When the combined arms commander accepts the plan, time lines are verified. At H minus four hours, the control of the cross-FLOT operation transfers to the aviation brigade commander with the deep operations team supporting him over communications networks from the corps fire support cell. BAI, ingress suppression of enemy air defenses (SEAD), on-call deep suppression, electronic warfare and egress SEAD are all controlled from a modified expansible van in the deep operations element of the fire support cell.

While the current *FM 100-15 Corps Operations* tasks the fire support cell to "coordinate aviation employment with fire support operations," the role of the Corps Arty commander as the planner and executor of the corps' deep fight is a trend that continues to grow in importance. In The Capable Corps Arty, Redlegs aren't just Redlegs anymore; they're combined arms specialists.

## Training Implications— The Challenge

Finally, V Corps must have tough, realistic training to meet the demands of the changing times. While The Capable Corps' mission-essential task list (METL) has changed very little, the conditions under which the corps must train have changed substantially.

Still forward deployed, V Corps prepares for the worst-case scenario: high-intensity combat against a credible threat. Because this scenario will probably take place in an out-of-sector location, Redlegs everywhere can improve the fire support they provide to the combined arms force by focusing on the following training tips.



Typical Brigade Response Cell for CBS. The cell OIC is responsible for replicating on the computer the combat operations of the brigade's subordinate battalions. The computer then gives the controller immediate feedback that's reported to the player unit staff.

- Train small unit leaders in the art and science of tactical movement. Don't depend on the G4 transportation section or movement control center to compute march tables for your unit. Assemble load planning data *now* in preparation for a no-notice deployment.

- Conduct movement exercises that show combat leaders how a division or corps looks as it moves to contact. "Sticker drills," using wooden markers and string on a large 1:50,000 map, are useful exercises to explain routes, convoy speed, serial length, march time and pass time to junior leaders.

- Using ST-100-9 as a guide, learn how to compute artillery force ratios. Find out what force ratios your brigade or division commander is comfortable with and ensure all fire support officers (FSOs) calculate the effects of friendly artillery against threat artillery. Conduct officer professional development (OPD) and NCOPD sessions accordingly.

When requesting changes to the FA organization for combat, explain to the next higher fire support element (FSE)—using empirical data—why your commander needs more firepower. "Give me two more MLRS battalions" doesn't cut it anymore. The real question the FSO must address is "What firepower effect is my commander trying to achieve?"

- Select the most experienced, qualified field-grade officers to serve as AFSCOORDs in division and corps FSEs. For years we've been told to send the most qualified lieutenants and captains to be FSOs in maneuver companies, battalions and brigades. Similarly, field-grade Redlegs at the division and corps levels should be former battalion S3s and executive officers, all at Military Education Level-4 (MEL-4). Further, the chief

of FSE at the division or corps level should be a former battalion commander, whenever possible.

- Learn the Army's deep operations doctrine. The corps deep operations tactics, techniques and procedures (TTP), published by the Combined Arms Combat Development Activity (CACDA), Fort Leavenworth, Kansas, in April 1990 is a great start. *FM 100-15 Corps Operations* and *FM 100-15-1 Corps Operations TTP* should be mandatory reading for all FSOs and Redlegs assigned to MLRS or Army TACMS units.

- Improve the targeting process at all levels. Redlegs at the corps and division levels can "make money" by teaching the battle staff about the targeting process described in *FM 6-20-10 TTP for the Targeting Process*. Remember, all-source intelligence is worthless to us unless somebody can develop a high-payoff target list.

As the experience in SWA showed us, trained FA intelligence officers (FAIOs) are priceless assets; place them strategically in the bowels of the all-source intelligence center (ASIC) or the all-source production branch (ASPB) to help search for high-payoff targets.

- Teach Redlegs to use the new family of automated equipment currently being fielded in the divisions and corps. Mastery of mobile subscriber equipment (MSE), the maneuver control system (MCS) and independent processing and analysis work station (IPAWS) is the secret to rapid targeting and quick fire support coordination. None of these systems is perfect, but Redlegs should lead the way in automating their support.

Some FSOs are shying away from these systems until the advanced Field Artillery tactical data system (AFATDS) arrives. Meanwhile, we could send fire

support coordinating measures and other simple formats through the MCS now.

- Last, make the most of simulations; they're here to *stay*. When large simulation exercises such as the battle command training program's (BCTP's) Warfighter occur, send a "pure" battalion staff under the control of its commander or executive officer to man the simulation center. Large simulations, such as the corps battle simulation (CBS) or distributive wargame system (DWS), require shooters, personnel specialists, logisticians, intelligence analysts and counterfire experts to work as a team in replicating combat. The entire staff will receive an ancillary training benefit as long as the chain of command is intact. Commanders who piecemeal the taskings for simulation controllers waste a valuable training opportunity.

In conclusion, Redlegs in Europe's V Corps continue to adapt to the changing situation. The tactical missions of the corps all remain: attack, defend, hasty defense, exploitation and pursuit. But the conditions under which the corps might have to fight have fundamentally changed due to the restructuring of the corps and downsizing of USAREUR and the experience gained from the units that deployed out-of-sector to SWA. Fire support trends continue to emerge while supporting the largest, forward-deployed corps in the free world.

If another regional conflict should erupt in Europe or elsewhere, V Corps will be called upon to demonstrate its lethality and mobility. In that case, artillerymen in the regiments, divisions, FA brigades and the Corps Arty will unite to accomplish the most important of all tasks—to provide devastating fire support for The Capable Corps.

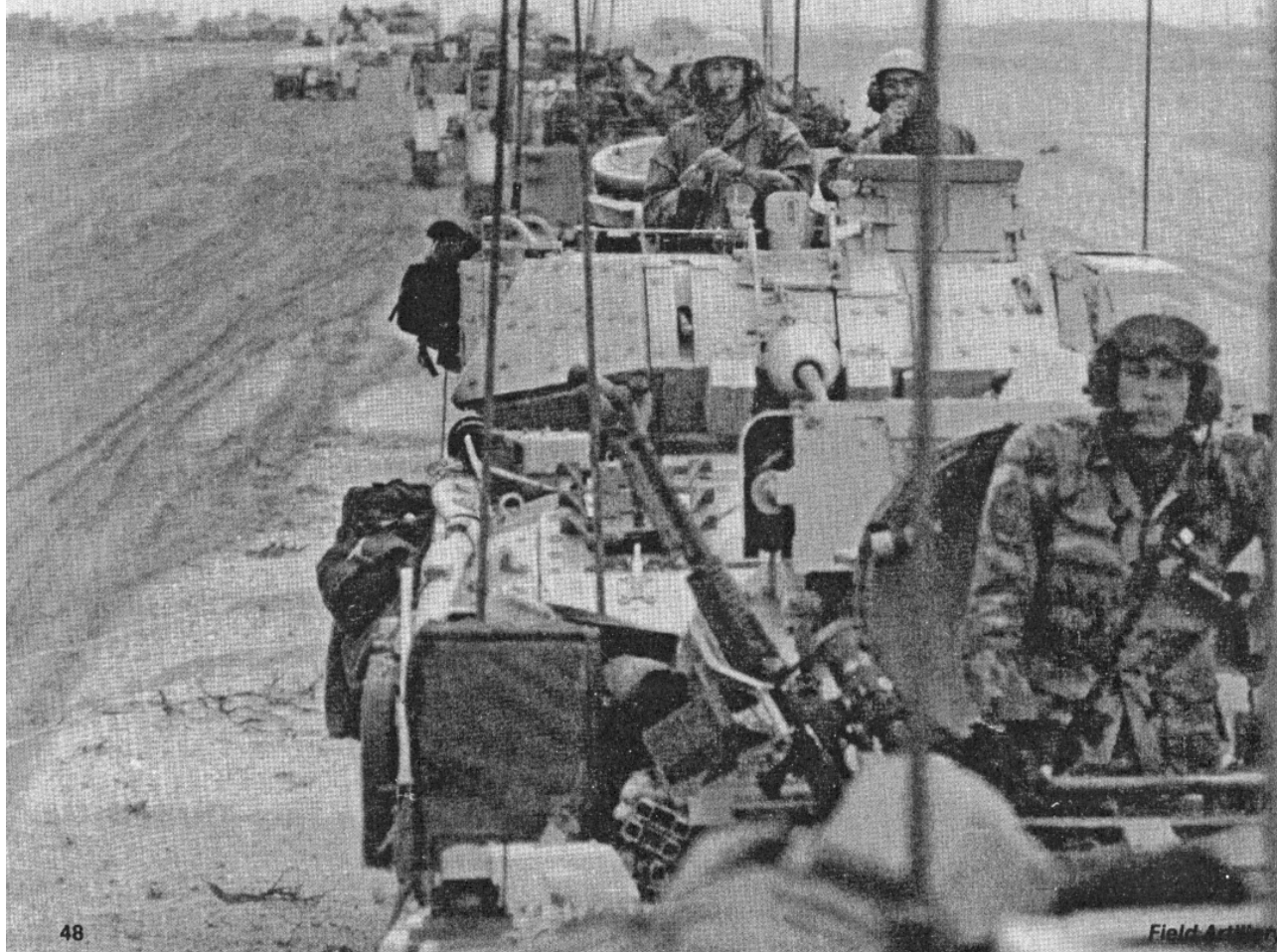


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Artillerymen in Action—

# The 2d ACR at the Battle of 73 Easting

By First Lieutenant Daniel L. Davis





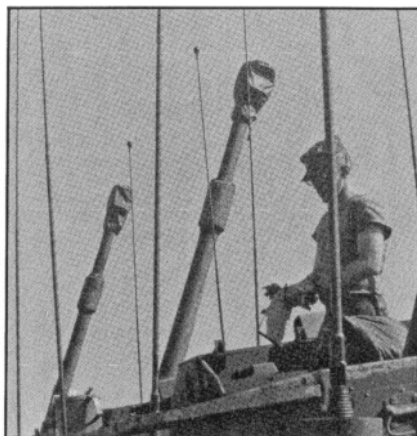
Possibly the most important tenet of AirLand Battle doctrine is the concept of combined arms operation. According to this doctrine, ". . . we must throw the enemy off balance with a powerful blow from an unexpected direction, follow up rapidly to prevent his recovery and continue operations aggressively to achieve the higher commander's goals. . . ." From the enemy's point of view, these operations must be rapid, unpredictable, violent and disorienting. The pace must be fast enough to prevent him from taking effective countermeasures" (*FM 100-5 Operations*). At the small-unit level, the men of the 2d Squadron, 2d Armored Cavalry Regiment (2-2 ACR) translated those actions from the FM into dramatic success on the battlefield in Operation Desert Storm.

In the Persian Gulf, the 2d ACR was task organized with the most modern equipment in the Army: M1A1 main battle tanks, M3 Bradley fighting vehicles, OH-58D helicopters, Apache attack helicopters, M109 howitzers and the multiple launch rocket system (MLRS). It's generally thought that tankers, scouts, and pilots stay forward "where the action is" and artillerymen stay in the rear area with their howitzers. However, in the truest sense of combined arms operations, the 2d ACR maximizes its total arsenal. Artillerymen play key roles at every level of command and are present at all points on the battlefield—from the lead Bradleys on back.

This article discusses the 2d ACR's combined arms operations at the Battle of 73 Easting, concentrating on the activities of the 2d Squadron's Eagle Troop.

## Before the Battle

On the early afternoon of 26 February 1991, the 2d ACR was leading VII (US) Corps' eastward drive toward the heart of



1LT John Stephenson, 2-2 ACR, performs precombat checks in a Saudi Arabian base.



An Eagle Troop FIST-V gets new camouflage—from woodland to desert tan.



A 2-2 ACR soldier contemplates his future as he waits for his bus in Germany to take him to the Nuremberg airport for deployment.

the Iraqi Army—the Republican Guards. Just before contact, the regiment changed its formation to three squadrons abreast: 1st Squadron in the south, 3d Squadron in the middle and 2d Squadron in the north.

The 2d Squadron was in a box formation moving east. G Troop (Ghost) was to the north with F Troop (Fox) behind it, and E Troop (Eagle) was in the south with H Company (Hawk tank company) behind Eagle. The 2d Howitzer Battery was under the operational control of (OPCON) the 2d Squadron's direct support (DS) 6th Battalion, 41st Field Artillery (6-41 FA) and moved just behind the squadron's trail maneuver units.

About 1530 hours on 26 February, Eagle Troop was leading some 800 to 1,000 meters forward (east) of Ghost Troop and 2,000 to 3,000 meters in front of Iron Troop (I Troop of 3d Squadron) on Eagle Troop's right. To make the most of their fire support teams (FISTs), both Eagle and Ghost maneuvered their FISTs well forward. Ghost, which also had the squadron's combat observation lasing team (COLT), positioned its FIST with its right-most scout platoon and the COLT team with its left-most scout platoon. Eagle placed its FIST with the lead Bradley section on the troop's left front, which put its FIST nearest the center of the squadron zone in the attack. As subsequent events showed, having the FISTs well forward in combat is an absolute requirement.

As had been the case since mid-morning, a driving dust storm limited our visibility to no more than 1,000 meters. The wind and dust had also grounded the regiment's OH-58Ds, depriving it of the usual five to 10 kilometers of advanced warning that had become the norm.

## Beginning the Battle

At 1600, Eagle 1st Platoon (Bradley-mounted scouts), using 13X thermal sights, located what appeared to be about 10 revetted positions some 3,500 meters away. Almost simultaneously, Eagle 3d Platoon (scouts) began taking fire from a bunker and building complex on the troop's right front at about 67 Easting.

With the immediate threat, Eagle Troop commander, Captain H. R. McMaster, directed 2d and 4th Platoons



(tanks) to come on-line beside his tank and prepare to place a troop one-round high-explosive anti-tank (HEAT) volley into the complex. To provide cover as the tanks were moving on line, 3d Platoon's Bradleys pumped 25-mm high-explosive incendiary tracer (HE-IT) rounds and tube-launched optically tracked, wire-guided (TOW) missile fire into the complex. This kept the attention of the Iraqi BMP-1s (Soviet-made tracked infantry combat vehicles) and machinegun nests that were returning fire.

Meanwhile, on the troop's left front with 1st Platoon, the Eagle FIST chief realized he didn't have time during the movement-to-contact to stop, align the targeting system and erect the head of his M981 fire support vehicle (FIST-V). So he jumped into the turret of the nearest Bradley, located the enemy using the Bradley's thermals, obtained a direction with his M2 compass and used the Bradley's sight to determine a range. He returned to the FIST-V and, using data from the global positioning system (GPS), input the direction, distance and observer's known location into the FIST digital message device (DMD) and obtained an enemy grid for a fire mission.

At 1611, Eagle FIST contacted the 2d Squadron's fire support officer (FSO)—call sign Cougar 13—and gave a warning order that a mission was being sent and the type of targets to the squadron's front. However, less than 60 seconds later, Captain McMaster, after having destroyed enemy opposition in the complex, ordered the attack to continue forward to 70 Easting, and the fire mission was canceled.

With 1st Platoon leading Eagle Troop east (forward), the Bradley section on the troop's left positively identified an enemy tank in one of the revetments; it stopped and fired a TOW missile. The missile scored a direct hit, creating a tremendous explosion as the warhead apparently hit one of the enemy tank's ammunition ready racks, sending flames and debris soaring through the air.

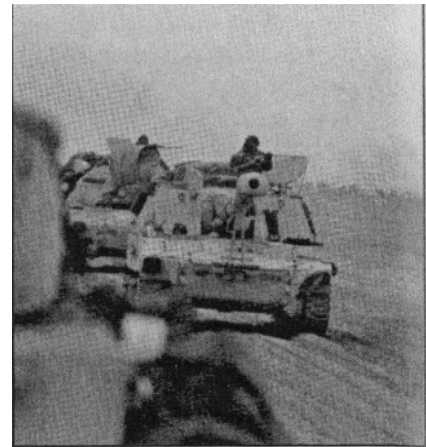
The months of desert train-up and the years of training in Germany proved their worth. The questions and apprehensions of our soldiers gave way—not to fear, but to *release*. The soldiers finally knew the main enemy force lay just ahead, and the crewmen eagerly manned their weapons. The men of the 2d ACR had a near-rabid thirst for battle.

Since contact with enemy armored vehicles had been confirmed, Captain McMaster (Eagle 6) changed his troop formation to have the tanks lead. The 2d and 4th Platoons formed a wedge with the troop commander's tank at the point. Eagle FIST left the Bradleys and continued forward, taking up a position at the end of the left arm of the tank wedge, still keeping forward enough to see the battlefield. The 3d Platoon provided flank security to the troop's right, and 1st Platoon let the tanks pass through and took up positions behind the wedge to protect the troop's rear as the wedge passed over the enemy positions.

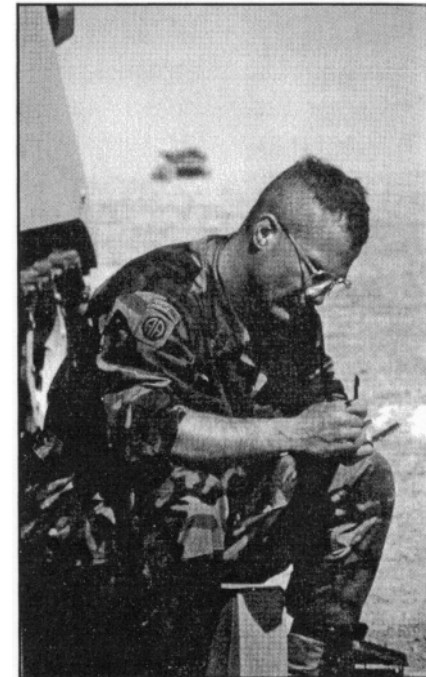
At exactly 1619 hours, Eagle 6's tank crested a nearly imperceptible rise in the terrain at 70 Easting and stared down the gun tubes of eight enemy T-72 tanks, the closest one 450 meters away. In only seven seconds, Eagle 6's tank destroyed the first three enemy tanks. Simultaneously, 2d and 4th Platoons engaged enemy tanks, using fire distribution techniques to near textbook perfection, and within 10 seconds, all eight enemy tanks were burning.

Eagle continued to press the attack into the supporting positions, driving through and sometimes over minefields. Within a span of only seven minutes, the first of two Iraqi armored battalions was laid to waste.

Eagle FIST quickly reported the action to Cougar 13. As all squadron FISTs eavesdrop on the fire support (FS) net, Ghost, Fox and Hawk FISTs along with the 2d Howitzer Battery knew of the contact with the enemy and where. Each troop FSO then quickly alerted his commander, and the necessary actions began taking place all over the squadron. News traveled faster over the FS net than the squadron command net.



Howitzers of 6-41 FA roll toward Iraq.



SSG Steven J. Schulz, Eagle Troop FSNCO, cleans his weapon in Kuwait.



Howitzer Battery, 2-2 ACR in action at the Battle of 73 Easting.



Eagle Troop tanks prepare for further action.

Less than a minute later, Cougar 13, Captain Jack Millar, came back over the net to Eagle 13 and reminded him he could use artillery if he needed it. Eagle FSO (Eagle 13) then got on the troop net and reminded Captain McMaster he could call for the *entire* artillery battalion. As McMaster's focus had been on the direct fire fight, indirect fire was not in the forefront of his mind. By the FSOs' remaining active on the radio, they reminded him of the value of the artillery.

"Roger," McMaster said, "Let's isolate these guys and drop some ICM [improved conventional munitions] deep. Fire at 7303."

Eagle 13 then called on the FS net and, by voice, tried to call for fire from the 6-41 FA battalion fire direction officer (FDO)—Steel 22. but he couldn't reach Steel 22 because Eagle Troop had gone so far forward so fast. As usual, Cougar 13 was eavesdropping on the net and instantly jumped into relay the call for fire. Once again, Eagle Troop advanced too fast, and the fire mission had to be cancelled.

Eagle Troop assaulted through what was intended to be an enemy counterattack with 17 T-72s and many BMP-1s. At the same time, Ghost Troop, to the north and on-line with Eagle, encountered enemy tanks from the northern edge of the counterattack force and from a dug-in motorized company composed of BMPs supported by tanks in front.

Lieutenant General Frederick M. Franks, Jr., VII Corps Commander, had given the 2d ACR the mission of finding and fixing the enemy while not becoming decisively engaged. The squadron was to be prepared to help the 1st Infantry Division (Mechanized)—the "Big Red One"—in a forward passage-of-lines. Therefore, once Eagle and Ghost had made contact with the leading elements

of what was the Iraqi Tawakalna Division, it was the regimental commander Colonel L. D. Holder's intent to fix the enemy force and prepare to pass the 1st Infantry Division through.

But in the confusion of combat, staying within the parameters of the commander's intent isn't as easy as drawing a line on a map. When the troop Executive Officer Lieutenant John Gifford called McMaster on the radio to remind him the limit of advance was 70 Easting, McMaster responded, "We're already past 70 and in contact. Tell them I'm sorry!"

### "73 Easting"

After McMaster had consolidated his unit near 73 Easting, he formed a 360-degree defensive parameter oriented east. He stopped with his nine M1A1 tanks on line facing forward with his 12 Bradleys providing left and right flank security, connecting in the troop's rear to form a full circle. Eagle 13 positioned himself forward, some 50 meters behind the tanks. All combat trains elements consolidated inside the "egg."

Ghost Troop to the north also halted near 73 Easting. Ghost 13 located himself to the right side of the troop front with the lead scout platoon. The COLT was with the left flank scout platoon on the troop's extreme left.

As soon as it became apparent the Dragoon Battle Group (2d ACR) was stopping at 73 Easting, 6-41 FA commander Lieutenant Colonel Lawrence R. Adair called Cougar 13. He instructed Cougar 13 to pick a good spot, coordinate with the battalion S3 and prepare the unit to fire. At 1648, the battalion began emplacing.

At 1654, with the situation to the Eagle's front somewhat stabilized, Eagle 6 instructed the FIST to emplace the

troop's 4.2-inch mortars with two-thirds range forward, using the GPS. At 1705, the FIST-V returned to the front, and the mortars were ready to fire.

Moments later, a hail of machinegun fire began to pepper the troop along a wide front. As visibility began to improve from the lessening of the winds, nightfall took it away. Because of a mechanical failure, the targeting station on the M981 wouldn't erect, making it impossible for the FIST chief to use his thermal sight. Using the thermal eyes of the 4th Platoon leader's tank, he dropped mortar rounds on the trenchline forward of the troop. The area was washed with traversing fire from the two 4.2-inch mortars, using HE rounds with a mixture of point detonating (PD) and variable time (VT) fuses.

The tank platoon leader, White 1, described the action over the troop command net.

"Black 1 (Eagle FIST), this is White 1. I see several Iraqis running around now. It looks like they're trying to get to the . . . Ooops. Never mind. I saw two VT flashes just above their heads, and now no one's moving. End of mission."

This type of activity went on for about an hour and a half. Finally, there was no more small-arms fire. Interviews from enemy prisoners of war (EPWs) taken the next day revealed the mortar rounds had had rather devastating effects.

Just after 1700, things were relatively quiet in Ghost's sector. The low-volume fire coming in on the troop's front was annoying, at worst. As the last rays of the sun were setting around 1745, a mobile armored counterattack force began maneuvering on Ghost, attempting to hit the left flank. To Ghost's left was a Bradley platoon and the COLT M981—and nothing else.

"Immediate Suppression!" screamed Ghost 13 over the FS net. The net was instantly silent, and all stations cleared the air for Ghost 13 and Steel 22. Less than 60 seconds after receiving the call-for-fire, rounds impacted on the lead seven BMPs attempting to assault the troop. Dual-purpose improved conventional munitions (DPICM) halted them in their tracks.

We don't know if the DPICM disabled the vehicles or if the Iraqis became lost and afraid and abandoned the vehicles. For as soon as they stopped, the Bradleys got a bead on the vehicles and fired 25-mm rounds and TOW missiles; one of

the tank platoons hurried over to plug the gap, resulting in the direct-fire annihilation of all Iraqi lead vehicles.

Down on the gun line, the action was just as ferocious. The 6-41 FA with the 2d ACR's How Battery had been ready to fire for nearly an hour before the first fire mission. Once the first mission came in, there was no rest for the next five hours. The calls-for-fire came in one after the other.

The Howitzer Battery 2d Platoon's fire direction center (FDC) quickly began to feel the strain. It was clear from the very beginning that this was no Army training and evaluation program (ARTEP).

"It was unbelievable," said battery computer system (BCS) operator Specialist David Battleson. "With all those radios going, the BCS running, the hatches shut because of light discipline and five men closed up in a M-577—we all stripped down to our boots and underwear, drenched with sweat."

A similar picture was being played out in the howitzer sections. As the night and torrent of missions continued, resupply began to loom as a problem.

Specialist Adeolu Soluade, number one man on gun one in Howitzer Battery 2d Platoon, said he would never forget that night.

"No one could do the same job all night—they just couldn't. I think I did almost every job on the gun that night.

"What I remember most," he continued, "was when we ran out of ammunition on our gun. But the missions never stopped. We had to run to the other guns in the platoon for rounds. Then, just as we all ran out of ammunition, out of the dark came a HEMTT [heavy, expanded-mobility tactical truck]. It dropped its sides, and the guys in the back started kicking rounds out. We picked them up and ran to the guns. We never even missed a hitch!"

The leader of the HEMTT ammunition convoy, Sergeant First Class Joe Daniel, had been somewhat delayed because of difficulties with navigating at night.

"I passed by this one officer," Daniels said, "and he gave me directions. We followed his directions, but he neglected to tell me that the route he gave me would have carried us through the front line. I figured that out when I looked up and saw two Bradleys fire 25-mm and a TOW."

Once Daniels made a slight detour, he arrived just in time for resupply and to see a rather spectacular sight:

"It was incredible. The guns had been firing so long without a break that carbon was building up in the tubes. When one of them fired—no kidding—it was like watching a World War II film clip of a 16-inch gun firing off a battleship. There were flames 20 feet long shooting out of those howitzers," Daniels said.

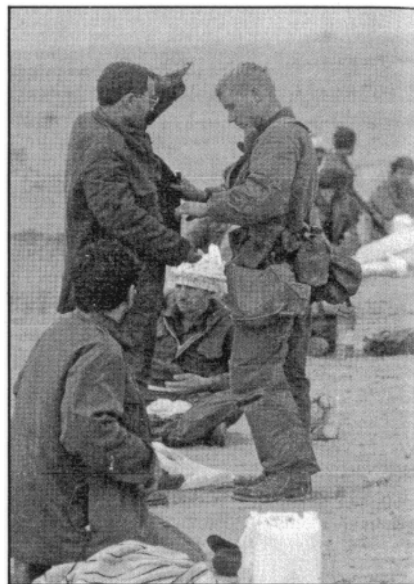
As darkness descended, the enemy continued to attempt spirited, albeit uncoordinated and piecemeal, counterattacks. With the emplacement of the Ghost FIST team on one side of the troop's front and the COLT on the other, just as in Eagle's sector, the maneuver commander and platoon leaders could focus on their primary roles—direct fire. Fire supporters were then able to focus on their primary function—indirect fire.

As was the case earlier in the day in Eagle's sector, the COLT NCO had equipment problems. The thermal sight of the M981 had ceased to function, and there wasn't enough light to use the ground/vehicular laser locator designator (G/VLLD). Amid small-arms fire, he occasionally had to run back and forth between the nearest Bradley and his FIST-V to get targeting information for fire missions.

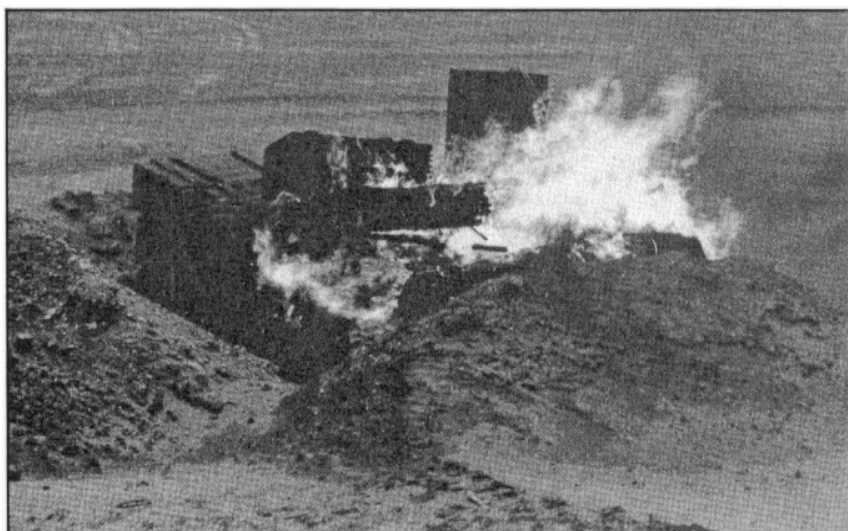
As the night wore on and the battle began to wane, Eagle 13 noticed an area on the back side of a slight rise, just out of reach of the direct-fire weapons. He had seen several enemy vehicles come from that direction during the previous three hours of combat. They had quickly



Eagle Troop took so many prisoners, it had to move them to the rear piled up on Bradley fighting vehicles.



Eagle Trooper SPC John Brown searches an Iraqi prisoner after the Battle of 73 Easting.



One of the 2-2 ACR's M1A1 high-explosive anti-tank rounds destroyed its target.



Black smoke from burning oil wells covers the horizon as Eagle Troop Commander Captain H.R. McMaster (left) poses with the author after the battle.

been destroyed by TOW missiles or tank HEAT rounds—depending on who could get the round off first. However, as no one could see that far and the squadron wasn't allowed to carry the attack any farther, only indirect fire could reach beyond the rise.

At 2204 hours after a lull in firing, Eagle sent a mission in with the deep grid. The first fire-for-effect resulted in numerous secondary explosions. A repeat was called for—more secondary explosions. A third call with augmenting fires resulted in still more secondary explosions. It was clear that something was over the rise, and whatever it was, it was big.

The time for passage of the 1st Infantry Division was at hand, so the final repeat had to be coordinated through corps. In the mean time, as the direct-fire fight was now over, tankers and scouts ventured outside their vehicles for the first time since the previous afternoon. As permission for the final mission was granted, cavalymen all along the squadron front sat atop their vehicles and watched the show.

At exactly, 2240, 6-41 FA, Howitzer Battery and C/4-27 FA (multiple launch rocket system, or MLRS), fired on an area more than three kilometers wide and one kilometer deep. They fired a total of 228 DPICM rounds, 92 HE/PD rounds, and 12 MLRS rockets. It was a spectacular sight—the booms and flashes of the guns to the rear, the rush and streaks of light from the rockets and, finally, the peppering impact on ground of the ICM bomblets finding their marks. The nearly non-stop thunder created by the explosions could be felt as clearly as they were heard.

One would have thought it was the grand finale to a 4th of July fireworks show; the cavalymen's "ooohs" and "ahhhs" were followed closely by rousing applause.

As ground reconnaissance later revealed, the battalion mass destroyed 27 ammunition bunkers, three tanks, four BMP-1s, two SA-9s (Soviet-made anti-aircraft missiles), 35 trucks (of various sizes) and five fuelers. Additionally, the 6-41 FA Battle Group destroyed 11 tanks, damaged four more and destroyed three BTRs (Soviet-made amphibious armored personnel carriers) and caused numerous enemy personnel casualties during the Battle of 73 Easting. By firing hundreds of other rounds all over the battlefield, the artillery clearly aided the direct-fire assets in destroying many other targets.

As the tanks and armored personnel carriers (APCs) of the 1st Infantry Division began rumbling through the 2d ACR's front, soldiers all over the Dragoon battle area had a chance to finally contemplate what they had just been through. The friendly casualties had been astronomically low—one soldier from the entire squadron killed in action. The losses to the enemy force were equally astronomical—more than 100 armored vehicles destroyed, countless soft-skinned vehicles destroyed and hundreds of enemy soldiers dead. In all directions, the amber-yellow glow of burning vehicles gave the night an eerie aura.

## Battle Lessons Confirmed

Artillerymen of the 2-2 ACR learned several important lessons from the Battle of 73 Easting—or rather confirmed lessons of the past. First, like all combat leaders, the FSO must lead from the front, especially in the desert. With the field of view sometimes as far as 10 kilometers, there's enough warning time to react to contact. In a European-type environment, the FSO may have to choose the most likely area of contact and position there, but even then, he must be forward where he can react to changing situations.

Another sometimes critical function the FSO can perform is observing and reporting the friendly battlefield. In the case of main enemy contact, the first detailed news the squadron had of Eagle Troop's attack was over the FS net. The primary function of the maneuver element is the direct-fire fight. When Eagle 6 crested the hill and found his troop in close tank-to-tank combat, his first responsibility was to engage the enemy force and deploy his unit. The FSO, not immediately calling indirect fires, instantly reported on the squadron FS net the details of what was happening and where. These quick details allowed the squadron commander more flexibility in deciding how best to use the remainder of his resources.

Being aggressive on the radio proved to be another valuable asset. During the heat of battle, the squadron FSO reminded the Eagle Troop FSO that plenty of artillery fires were available. The troop FSO then prompted the troop commander, which sparked him to call for Field Artillery fires in depth to isolate the direct-fire battle from enemy positions farther to the east.

Cross talk between FISTS helped prevent fratricide. Eagle and Ghost's FSO's talked continuously over the FS net, updating one another on flank-unit locations; the locations were then relayed over troop command nets. While eavesdropping, the squadron FSO could easily track unit positions to ensure that artillery fires weren't called in on friendly formations. When enemy and friendly vehicles are interspersed, continual updates on flank-unit locations decreases the possibility of mistakes.

An artilleryman who's positioned forward, who's aggressive and constantly seeks to help his maneuver unit is an asset of tremendous value to the commander.



**First Lieutenant Daniel L. Davis was the Fire Support Officer for Eagle Troop, 2d Squadron, 2d Armored Cavalry Regiment during Operations Desert Shield and Storm. After the war, he was the 2d Squadron's Fire Support Officer and served as a squadron Battery Fire Direction Officer in Germany. Currently, he's assigned to III Corps Artillery, Fort Sill, Oklahoma. He's a graduate of Texas Tech University.**