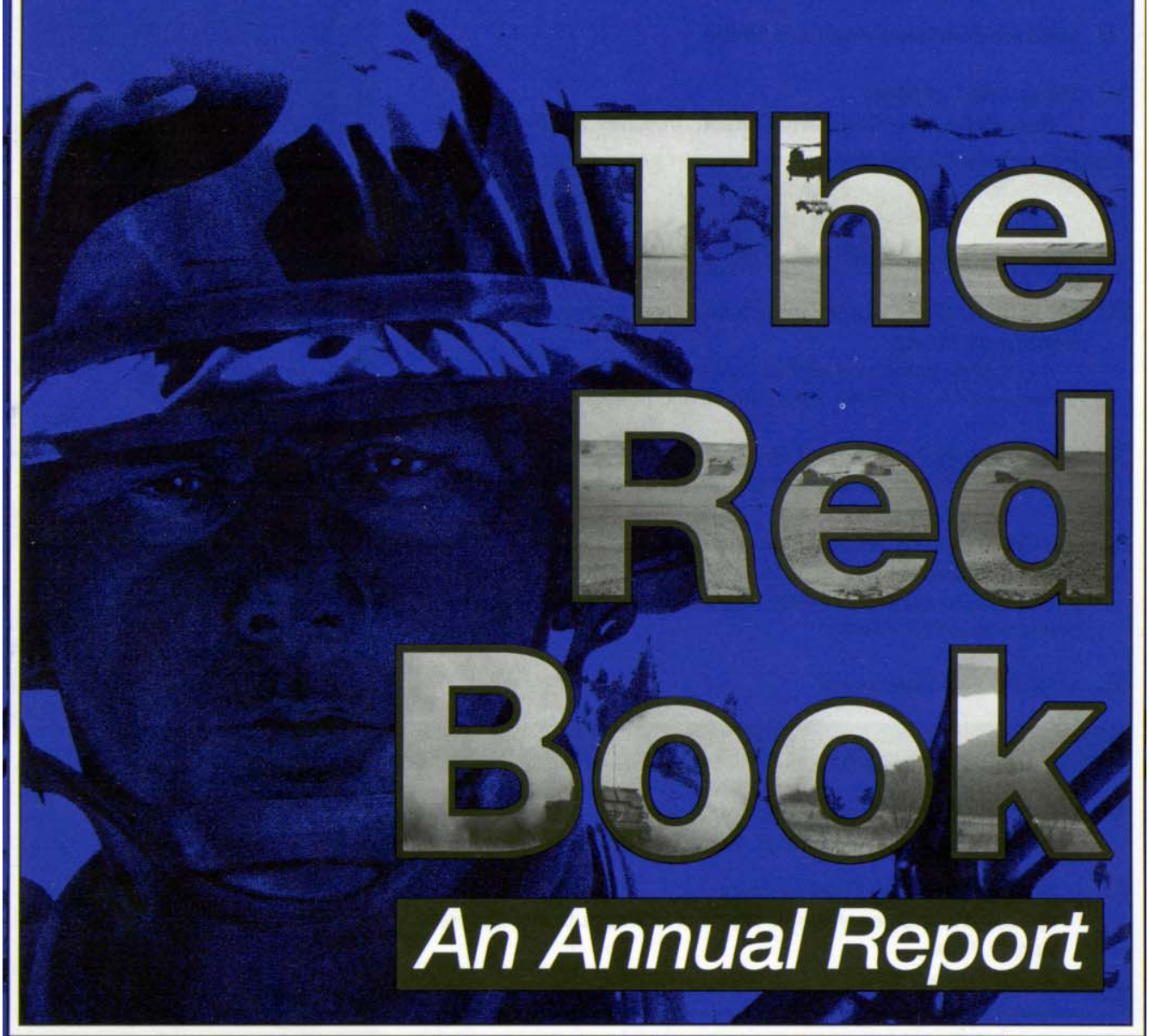
Field Artillery

A Professional Bulletin for Redlegs

December 1992



The Red Book

An Annual Report

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Field Artillery

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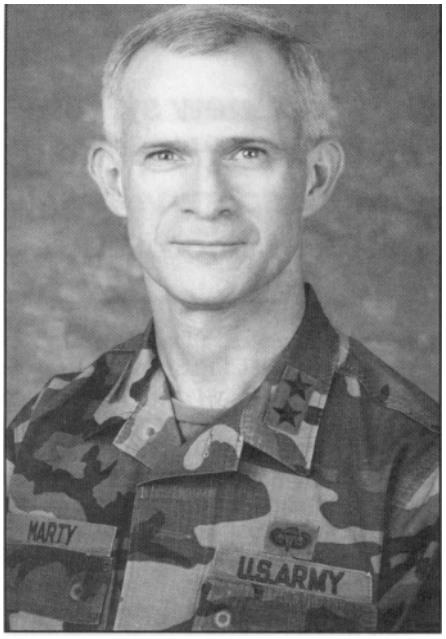


State-of-the-Branch *1992*

by Major General Fred F. Marty

"...the JTF commander's ability to fight with fires is the key to accomplishing the mission and protecting the force."

This was a dynamic year for Field Artillerymen everywhere. Redlegs worldwide faced the challenges of a changing force structure while maintaining a combat-ready posture. We, at Fort Sill, are currently pursuing initiatives to make us a more lethal, deployable and responsive force. These innovations will further enhance the ability of combined arms and joint commanders to fight with fires and win decisively anywhere, anytime.

Doctrine

Our nation's strategy has shifted from forward-deployed forces to one of power projection in contingency operations. Winning decisively demands projecting *force*, not just forces. Deployments have to occur as tailored, integrated packages—not as "eaches" from individual services. Irrespective of the level, the joint task force (JTF) commander's ability to fight with fires is the key to accomplishing the mission and protecting the force.

The next year provides a watershed opportunity for shaping joint and service doctrine for the future. All the overarching doctrinal publications face revision—*Joint Pub 3-0 Joint Operations, FM 100-5 Operations, FM 100-7 The Army in Theater Operations, FMFM [Fleet Marine Force Manual] 2 Marine Air-Ground Task Force: The Combined Arms Team* and *FMFM 2-1 Marine Air-Ground Task Force Operations*. We remain key players in these revisions. Our input centers on developing the concept of one extended battlefield where participants from all services provide devastating, coordinated fires in concert with one another. With this capability, the combined arms commander can control the tempo of battle by attacking the enemy to the depth of his weapon systems at the times and places of his choosing; his foe—any foe—will have no place to hide and no time to rest.

We must resolve several fundamental issues before we can maximize fully the commander's ability to fight with fires. Issues of airspace management, sensor access and battlefield areas of responsibility require resolution, particularly in the joint arena. *Synchronization* stands out as the overriding key to success. The JTF commander must have a dedicated fire support coordinator —a joint force fires coordinator (JFFC)—and fires coordination element (FCE) to plan, apportion and execute fires throughout the theater. The joint FCE must have the ability to transcend the aforementioned issues. This agency would provide the JTF the mechanism to focus and coordinate the established Decide, Detect and Deliver methodology. The commander then can apply fires as a synchronized system of systems throughout the battlefield.

Planning and executing these fires requires a bold and audacious approach. Joint Precision Strike (JPS) is one such approach. JPS equates to a "Super JAAT" (joint air attack team) where all services jointly provide acquisition, delivery and command and control means to attack specified targets. JPS affords the combined arms commander the use of complementary systems to ensure an all-weather, day-night ability to see, strike and kill simultaneously throughout the battlefield. Current technology and command and control organizations can execute this mission. We now must refine and enhance our execution—our next enemy won't grant us six months to train up to the task.

We established the Depth and Simultaneous Attack (D&SA) Battle Lab at Fort Sill to help refine and practice emerging Army, joint, and JPS doctrine. Participants in the D&SA Battle Lab include user representatives from the Training and Doctrine Command (TRADOC) centers for fire support, aviation, air defense, intelligence and electronic warfare and special forces, as well as materiel project managers, Army research labs, academia and industry. The lab uses simulations and demonstrations to identify potential answers to tough doctrinal and operational challenges. Our battle lab's current projects focus on improving the JPS downlink of sensor information and shortening shooter time lines. The lab also interfaces with other doctrine-oriented organizations, such as the Louisiana Maneuvers and Defense Advanced Research Projects Agency (DARPA).

Organization

As the Army's warfighting structure downsizes, the Field Artillery will reduce proportionally. While we may be smaller, the lethality available to corps and division commanders for fighting with fires actually increases. Future organizations will yield more firepower and flexibility. The 8-inch howitzer/multiple-launch rocket system (MLRS) conversion represents a good example. An MLRS battalion provides up to 40 percent more firepower with significantly less manning. The overall goal of our force design programs is to provide deploying forces the fire support assets and organizations necessary to quickly and decisively accomplish the mission and protect the force.

Lessons learned from Operations Desert Shield and Desert Storm highlighted the need for an MLRS battalion in our heavy divisions. The heavy division needs organic assets with adequate range and lethality to cover the entire division area. This requirement exceeds the capabilities of one battery. Coverage becomes significant for early deployers in contingency-based operations, particularly when entering an immature theater.

The divisional MLRS battalion design uniquely consists of two, nine-launcher firing batteries and a target acquisition battery. The battalion provides the division commander more immediately available *organic* firepower and flexibility for weighting fires. Division-level counterfire also becomes more responsive with eyes and shooters habitually tied together. The design, as currently proposed, gained Army Chief of Staff approval earlier this year. The Total Army Analysis process will identify resourcing alternatives next spring.

Recent combat operations also proved what we already knew—fire support elements (FSEs) from battalion to echelons above corps (EAC) need revamping. The demands of 24-hour and split command post operations require more robust FSEs at all levels.

Our force designers are attempting to fix this problem in heavy divisions by internally shifting slots opened by the nuclear drawdown. Lightunits, attack helicopter battalions and aviation brigades continue to experience a shortfall. They have the same mission as heavy units but possess considerably less manning. The Field Artillery School at Fort Sill has initiated action through the Force Design Update process to increase slots for the light and aviation units. An Army senior leadership decision on these proposals is expected during 1993.

The ground component commander (GCC) needs an FCE with multi-service representation. The organization must accomplish the critical planning, coordination and target analysis needed at higher levels. This FCE gives the GCC greater ability to affect the battle with all available fire support means. The Field Artillery School, TRADOC and Air Combat Command are working this issue jointly.

Materiel

Modernization and development of new technologies will ensure the commander can fight with devastating fires into the next century. Four main goals guide our new systems development: deployable lethality, meaningful reach, enhanced survivability and technology to leverage manpower. Several key Field Artillery systems being pursued offer the means to achieve these goals.

“Four main goals guide our new systems development: deployable lethality, meaningful reach, enhanced survivability and technology to leverage manpower.”

• The M109A6 Paladin successfully completed its final follow-on operational test and evaluation in November 1992. The first full fielding of a Paladin battalion—2d Battalion, 17th Field Artillery, III Corps Artillery, Fort Sill—occurs in June 1993.

• Development of our future cannon system, the advanced Field Artillery system (AFAS), continues with Army, Department of Defense and Congressional support and funding. The AFAS prototype liquid propellant 155-mm cannon has already achieved ranges exceeding 40 kilometers.

• Several new precision munitions are moving toward fielding, including the sense and destroy armor munition (SADARM) in both cannon and rocket applications and the brilliant anti-tank submunition (BAT) for the Army tactical missile system (Army TACMS) Block II variant. Development also proceeds for extended-range munitions in all weapon systems.

• We continue to identify a warfighting requirement for the high-mobility artillery rocket system (HIMARS). HIMARS affords commanders of early entry forces a highly lethal and C-130-deployable system for employing MLRS and Army TACMS missiles in contingency operations.

• The Bradley-variant fire support vehicle (BFSV) will replace the M981 in Force Package 1 unit fire support teams (FISTs) and combat observation lasing teams (COLTs). The BFSV will significantly enhance mobility, survivability and target acquisition of heavy force company-teams for close support fighting with fires.

• The Advanced Field Artillery tactical data system (AFATDS) is on schedule with a target fielding date of 1995. This system will replace all tactical fire direction system (TACFIRE) variants and the battery computer system (BCS) with one common set of hardware and software for all delivery systems. The interim fire support automation system (IFSAS) will fill the gap in advance of AFATDS fielding. IFSAS will begin fielding during 1993 with National Guard units followed quickly by active Army heavy units and, potentially, Marine artillery battalions. This fielding sequence accelerates offering a common system of tactical and technical fire control to the entire Field Artillery community.

Training

Training remains key to readiness and success on the battlefield. The Field Artillery has undertaken several initiatives to provide more effective and realistic training for the force as a whole.

Our "Fighting with Fires" initiatives were developed to enhance the warfighting ability of combined arms commanders and stimulate a greater appreciation for fires within the Army. Our study revealed clearly that combined arms and fire support leaders at all levels need better comprehension of the synchronization of combat power.

We must first start in our TRADOC schools. Learning objectives on fire support need standardization across all TRADOC schools. We must put the entire force on common ground regarding fire support doctrine. Also, institutional courses need greater emphasis on the synchronization of all battlefield operating systems (BOSs). We must embed this training at all levels of instruction.

The Field Artillery certainly isn't immune to this problem of understanding battlefield synchronization. All fire supporters need a better grasp of our combined arms comrades' doctrine, tactics, techniques and procedures. Accordingly, the Field Artillery School has begun revising its programs of instruction (POIs) for all courses from the 13F Fire Support Specialist Basic NCO Course (BNCOC) to

the Officer Advanced Course to incorporate more emphasis on maneuver tactics, techniques and procedures (TTP) and execution actions. Courses will have increased hours of hands-on exercises with simulations, such as the Janus computer system, to improve execution skills. 13F NCOs also will receive the same instruction as officers on planning and executing fires, thereby, adding robustness in maneuver FSEs to sustain 24-hour operations. These changes will better prepare Field Artillerymen at every echelon to support combined arms operations.

The Combat Training Centers (CTCs) offer the single best opportunity for training to fight with fires. We now must "tweak" the system to further enhance realism in our training.

Currently, the measure of merit for fire support effectiveness at the CTCs generally depends upon the number of missions fired and their effects. This myopic assessment discounts a key factor: achieving the commander's intent for fires. We advocate an evaluation standard that measures whether the fire support BOS attained the maneuver commander's concept and intent for fires.

Recently, maneuver commander attendance at the fire support after-action review (AAR) has become mandatory. During the AAR, discussions center on the commander's concept and intent for fires. Maneuver commander presence reinforces his responsibility for the synchronization and ownership of all operating systems. The lessons the commander and his staff learn during the AAR give them the tools to further refine the synchronization process.

The CTCs also must do more to function as a fully integrated combined arms battlefield. Their original design was to facilitate maneuver and direct fire engagements with other BOSs as training aids. Technology now allows more realistic replication of other BOS systems, including indirect fires. The more accurate portrayal of the devastating effects of all indirect fires has significantly increased the opportunity for not only more effective use of fire support, but also for the orchestration of other related BOSs.

In our Fighting with Fires study recommendation, we advocate that the other CTCs follow the lead of the Combat Maneuver Training Center at Hohenfels, Germany, and agree to stop the battle, even before a direct fire engagement, if the commander has properly combined the effects of available combat multipliers to defeat the enemy. This reinforces our goal of getting the combined arms commander to fight with fires.

Leader Development and Soldier Issues

The Field Artillery is pursuing several personnel issues and concepts that will enhance our warfighting capabilities. These innovations in leader development and military occupational specialty (MOS) structure seek to use the skills of our leaders and soldiers better and improve their qualifications.

There's no substitute for competent leaders; if you have crossed cannons on your collar, you must be proficient in our stock and trade—*fire support*. The revision of *DA Pam 600-3 Commissioned Officer Professional Development and Utilization* establishes new requirements designed to produce more technically and tactically competent fire support leaders. A significant change requires company-grade officers to serve at least 12 months in a fire support position for branch qualification. These positions include serving as a company/battalion fire support officer (FSO) or in a division/corps FSE. The revision also requires company-grade officers to have a minimum of two troop unit tours in a division artillery, Field Artillery brigade, cavalry regiment or ranger regiment. These additions help guarantee officers gain the broad base of knowledge and experience required for future duties and responsibilities.

Field commanders also must seek to assign only highly qualified officers as FSOs—critical fire support positions. Feedback from units and the CTCs says that successful battery commanders and experienced firing battery lieutenants make the best choice for FSO positions. Assignment patterns need modification to allow our most qualified officers to represent the Field Artillery with our maneuver counterparts.

Staffing continues for a proposal leading to creation of a Field Artillery warrant officer targeting specialty. Career progression of these warrant officers would begin as a Firefinder radar technician and culminate with duties as a target analyst at the division or higher levels. The addition of targeting positions to this career management field affords both the individual and the Army greater opportunities to maximize targeting expertise.

With the fielding of AFATDS, all fire direction MOSs will use common hardware and software. Plans proceed to consolidate MOSs 13C TACFIRE Operations Specialist, 13E Cannon Fire Direction Specialist and 13P MLRS Fire Direction Specialist into one specialty—MOS 13D. This gives commanders greater flexibility and soldiers better opportunities in training and assignments. Implementation will occur upon full fielding of AFATDS.

The expanded duties of Paladin and AFAS crew members also may lead to the generation of a new "Delivery of Fires" MOS. An ongoing study has determined these soldiers perform unique tasks that go beyond the scope of current 13B duties. Creation of this MOS will ensure we have high-caliber personnel to meet the demands of autonomous operations.

Conclusion

Many challenges remain ahead. During our transition through a period of downsizing and declining resources, we must ensure fires continue to provide commanders the warfighting leverage required for decisive victory. We can accomplish this through developing sound doctrine; progressive force modernization; tough, realistic training; and top-quality leaders and soldiers. Together these will keep ***Field Artillery—On Time, On Target!***

Major General Fred F. Marty, Chief of Field Artillery, commands the US Army Field Artillery Center and Fort Sill, Oklahoma. He has served extensively in Field Artillery troop leadership assignments, including two tours in Vietnam and four in Germany. He commanded V Corps Artillery/Frankfurt Military Community and the 41st Field Artillery Brigade/Babenhausen Military Subcommunity, both in Germany; the 30th Field Artillery Regiment, Fort Sill; the 1st Battalion, 16th Field Artillery at Fort Hood, Texas; and two batteries in the 6th Battalion, 77th Field Artillery, one at Fort Irwin, California, and one in Vietnam. Among other assignments, Major General Marty was the Assistant Division Commander of the 1st Cavalry Division, Fort Hood; Chief of Staff of the US Army Combined Arms Center, Fort Leavenworth, Kansas; and Assistant Commandant of the Field Artillery School, Fort Sill.

General Gordon R. Sullivan, United States Army Chief of Staff

Tailoring America's Army for the 21st Century

Interview by Lieutenant Colonel Jerry C. Hill, Editor

What is your vision of the battlefield upon which America's Army is most likely to fight in the year 2000, and what are our major challenges?

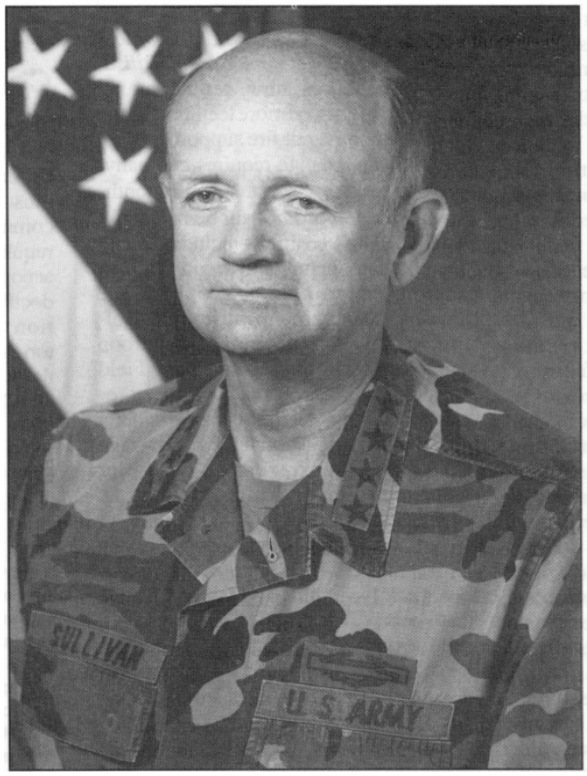
It's hard to predict which battlefields we'll fight on or what those battlefields will look like in their entirety. However, generally, we'll see a much more technological battlefield with weapons of mass destruction, both nuclear and chemical. There's a proliferation of high-tech weapons and command and control equipment in third-world countries—which presents a problem.

These weapons and equipment are highly sophisticated, virtually the most advanced available. Any country can buy them right "off the shelf." For example, anyone can buy night-vision devices, which gives a third-world nation some first-world military capabilities.

So, with a smaller Army, we have to be able to handle threats with sophisticated capabilities. It's a significant challenge to reduce our Army while maintaining a high level of effectiveness.

Then, of course, we face nontraditional "battlefields." At the lower end of the spectrum of conflict, the United States Army will support National Security Strategy as it's envisioned in our National Military Strategy. We must be able to accomplish the mission, be that warfighting, peacekeeping or some other mission.

Most of our much smaller Army will be based in the United States. We'll respond from the US with a force tailored for each crisis, a force that's deployable, versatile and lethal. This is because our focus has shifted from a European-based scenario to one of regional contingencies requiring flexible, responsive forces able to fight across the entire spectrum of warfare. In our National Military Strategy, conflict deterrence remains as the foremost objective, but we'll execute the strategy with new forward-presence, crisis response to regional conflict, as necessary, primarily from the continental United States [CONUS].



"Fire support provides us the capability to rapidly project combat power to hold enemy centers of gravity hostage and protect our forces."

The principle challenge to our Army is to ensure we're prepared on short notice to achieve quick, decisive victory on any battlefield and under virtually any conditions.

How do you see the role of fire support changing as we transition to a CONUS-based contingency Army?

Fire support always has been a major factor in our warfighting capability and will become even more so as we transition to a contingency-based Army. We saw the impact of fire support in Operation Desert Storm where the combined fires of naval and air- and ground-based systems virtually brought the enemy to his knees. Fire support provides us the capability to rapidly project combat power to hold enemy centers of gravity hostage and protect our forces. Fires give smaller and lighter ground forces the combat edge to establish the conditions for quick, decisive victory while minimizing risk to our own forces.

The roles of fire support—to protect our force from enemy indirect fire, defeat the enemy before he can close and support forces in contact—remain valid as we look to the future. The Army will use artillery fires to defeat the enemy in depth, reducing the length and intensity of close combat.

Field Artillery will remain the "King of Battle" and continue to provide committed forces the combat power to achieve a decisive overmatch.

The majority of our Field Artillery units are in the Reserve Component. The 142d and 196th Field Artillery Brigades (Arkansas and Tennessee Army National Guard, respectively) deployed in Desert Storm and

performed magnificently. What do you see as the optimum role and mission of our Reserve Component units in the future Army?

Let me just talk to the Field Artillery. Everyone who participated in the war is well aware that the 142d and the 196th Brigades both performed with distinction. They clearly demonstrated the warfighting capabilities of our Reserve Component, in this case, particularly the National Guard.

Trained and ready artillery National Guard units went to war. They did exactly what their country asked them to do. The flexibility these units offer in both command and control and fire support is something we must capitalize on. The Field Artillery requires the kind of skills and capabilities that the National Guard can maintain in a high state of readiness, and I'm encouraged about that. In the out years, you'll probably see a higher percentage of Field Artillery units in the National Guard—for example, MLRS [multiple-launch rocket system] units as we take the 8-inch howitzer out of the force structure.

The mix of regular and reserve forces is an important aspect of what we're trying to do in tailoring the Army. This is because the Reserve Component artillery units can be tailored with various numbers and types of battalions, can reinforce at the corps or division level, can be shifted quickly between the forces and their battalions can be employed independently. This flexibility allows us to quickly tailor a force with the requisite firepower to meet varying contingencies. Properly executing this flexibility will demand that our Reserve Component forces be trained and ready to operate under a wide variety of situations.

How has the Army restructured the Armored Systems Modernization Program, and what kind of capabilities will these improved armored vehicles give the Army?

In the past, the Armored Systems Modernization Program was fairly extensive and involved a number of vehicles. These vehicles included the Block III Tank, a new tank that would have been fielded in the latter part of this century. Because of the evolving threat, our national strategy and, to some extent, the availability of funding, we've had to scale back and still maintain balance in the program.

The program supports a smaller force and integrates all the vehicles to be more

> ***"Situational awareness and focused combat power synchronized with acquisition systems, such as Joint STARS [joint surveillance and target attack radar system] and Air Force systems, make us a very formidable force."***

General Gordon R. Sullivan, US Army Chief of Staff, receives a briefing from a soldier in training at the National Training Center, Fort Irwin, California.

capable of independent actions on the battlefield and be more lethal, shooting at extended ranges. The advanced Field Artillery system [AFAS] is an integral part of that program. Of course, the Paladin [M109A6 howitzer] is the precursor to the AFAS. With the semiautonomous tactical maneuvers of the Paladin, it's demonstrating what it is we're trying to do with the entire force.

The centerpiece of the maneuver battle is the tank and helicopter. In that regard, we're upgrading maneuver with the M1A2 digitized battle tank. When you link the digitized tank with the digitized AFAS, Apache and Comanche, you have a force that knows where it is and where the enemy is (and isn't), one that can apply fire support and maneuver combat power on the enemy in a very focused, precise way. That's what we're working toward—the AFAS, M1A2, Apache and Comanche all digitized and linked. Situational awareness and focused combat power synchronized with acquisition systems, such as Joint STARS [joint surveillance and target attack radar system] and Air Force systems, make us a very formidable force.

You expect to run your first iteration of the Louisiana Maneuvers process in 1993 with work already begun on identifying the issues and tools required. What is the purpose of the Louisiana Maneuvers project, how is it evolving and who will participate in it?

Intellectually, the discussion of the Armored Systems Modernization Program leads well into the Louisiana Maneuvers process. Can we take this very highly focused force and move it around effectively? The Louisiana Maneuvers will help answer that and other questions.

Louisiana Maneuvers helps us determine how we should evolve to be most effective in the 21st century. We're combining the work General George Joulwan [Commander-in-Chief of US Southern Command] is doing down in Panama

with microprocessors and exercises such as Europe's REFORGER [return of forces to Germany], Korea's Ulchie Focus Lens and others. Then we'll leverage off this work and determine how we should fight, sustain and train to win in the 21st century.

We'll look at issues such as what the force mixes should be, for example, with the AFAS, M1A2 and Comanche and Apache helicopters. What combinations for how large a formation do we need? Can we be as effective with a smaller organization? We'll look at new systems using microprocessors and software to answer these questions.

Exercises such as REFORGER 92 and Ulchie Focus Lens are truly examples of Louisiana Maneuvers. Much of what we did on these exercises was driven out of Fort Leavenworth [Kansas], which was linked by satellite to Korea or Germany for each exercise. So we're taking exercises and using microprocessors to experiment with and analyze the issues.

We'll ultimately network the work going on in the Army's Battle Lab Program into Louisiana Maneuvers—such as Fort Sill's Depth and Simultaneous Attack Battle Lab. We'll look at new concepts and equipment for the battlefield to see if we can facilitate our move into the 21st century.

However, there's no "timeout" from readiness. We don't have the luxury of waiting five years to experiment and then put our findings into practice. We have to evolve over time, all the while maintaining our readiness, and these exercises will enable us to do that.

After-action reports from Operation Desert Storm cited training at the Combat Training Centers (CTCs) as a major factor in preparing our forces for combat. What do you see as the future role of the CTCs, and what changes do you envision?

Training is the glue that holds the Army together, and the CTCs will continue to play a key role in keeping our Army trained and ready for the future—the capstone of our unit training.

We'll achieve milestone capability at our CTCs in FY 94. The Army will be able to train all forces across the spectrum of conflict—from the squad through corps staff levels. I intend to resource the program to sustain training through the end of the century.

We'll continue to maintain the three maneuver CTCs and the command and control CTC: the NTC [National Training Center, Fort Irwin, California], JRTC [Joint Readiness Training Center, to be relocated at Fort Polk, Louisiana], CMTC [Combat Maneuver Training Center, Hohenfels, Germany] and the command and control BCTP [Battle Command Training Program, Fort Leavenworth, Kansas]. The focus of the maneuver CTCs will be on the ground maneuver task force in the context of the brigade battle. BCTP will train Active and Reserve Component division and corps battle staffs.

The major focus of further development of the CTCs will be on improved training technology. Under current plans, there will be full instrumentation at the CMTC by April 1993 and upgraded instrumentation at the NTC and full instrumentation at the JRTC by FY 95.

One of the most important things the Army has done over the last two decades, simplistically, is implement after-action reviews at the CTCs. For a good after-action review, you must have tasks, conditions and standards related to our doctrine and concepts—*FM 100-5 Operations* and *FM 100-1 The Army*.

Our entire system leads up to the kind of after-action reviews we conduct at the CTCs; performance to standard and a willingness to measure ourselves against a known standard related to our doctrine and concepts are key. That's what the training centers are all about, and that's what we'll continue to do.

As warfare changes, so must the way we train and develop leaders. What skills and attributes do you consider critical for officers and NCOs to lead the Army of the 21st century?

Adaptability and flexibility of thought. We pride ourselves on teaching soldiers *how* to think—not *what* to think. And we have a progressive, sequential education and development system that teaches them how to think. Some aspects of the system may change over time, but, essentially, what you'll see in the out years is what we have now.

The Army has expended a lot of energy to develop leaders who can handle very complex situations for which there are no "cookie cutter" approaches. What we need

"...there's no "time out" from readiness. We don't have the luxury of waiting five years to experiment and then put our findings into practice. We have to evolve over time, all the while maintaining our readiness..."

General Sullivan talks to soldiers after reviewing training.

are people like General John Shalikashvili [Supreme Allied Commander Europe and Commander-in-Chief of the US European Command] who started out as a Field Artilleryman and became one of the great leaders of this Army—indeed, the world. He demonstrated his ability to handle very complex situations in southern Turkey and northern Iraq, situations for which no one had directed he "do this, then this and this." He went in and accommodated the situation he faced because he developed first as a Field Artilleryman, a US Army officer trained and educated in our system. He exemplifies the type of leader we're trying to create: adaptable, innovative officers, NCOs and soldiers who understand the essence of this Army. Those leaders serve their country selflessly and are competent in their profession—technically as well as intellectually.

In the revision of FM 100-5, what changes do you anticipate having the most impact on our warfighting doctrine?

First, FM 100-5 isn't finished evolving yet. It's in an important phase where the Army participates in dialogue and debate—and I encourage your readers to participate. I need to know how people feel about the doctrine as a reflection of how we'll fight.

The essence of our warfighting doctrine and the basic tenets remain the same. But there's a shift in FM 100-5 from focusing on the large European threat to the variety of threats we could face today—which is much different.

We're also looking at the entire spectrum of war: from low- to high-intensity conflict, from nuclear contaminated battlefields to peacekeeping operations and so forth. In addressing the full spectrum, we recognize we're a different Army, focusing on crisis response, force projection and strategic mobility. We've written new doctrine that supports that change in focus. *FM 100-17 Mobilization, Deployment, Redeployment, Demobilization* addresses doctrine we've never had before.

Fire supporters must ask themselves, "Are we deployable—capable of moving small organizations tailored for the situation and linked to make them most effective—and can we fight battles with versatility and the right amount of lethality required for that situation?" To do all those things, we have to downsize the organization and lighten the equipment, both without losing effectiveness. I know the Field Artillery School [Fort Sill, Oklahoma] is working on those now.

Today's Army faces different types of possible missions including disaster aid, constructing roads and nation building, aiding international refugees and counterdrug operations. What are the Army's greatest challenges to prepare for those missions while still maintaining its training and readiness to fight a large sophisticated force?

The greatest challenge is to sort through the intellectual and organizational demands we'll face in performing those other missions. The fact is, we can accommodate virtually anything we're asked to do with soldiers who are trained and ready for their wartime tasks; that's the most difficult mission—that's what we're here for. Then soldiers can handle other crises and ambiguities in very chaotic situations.

We're thinking our way through some of the intellectual demands of the situations in which the Army could find itself. Then we're preparing ourselves to accomplish these missions. For instance, we know as a result of the activities in the 1992 Los Angeles riots that some characteristics of civil disturbances in the 1990s are different than those of the 1960s. We learned some lessons there and used those lessons to train as we put more troops into the Los Angeles area.

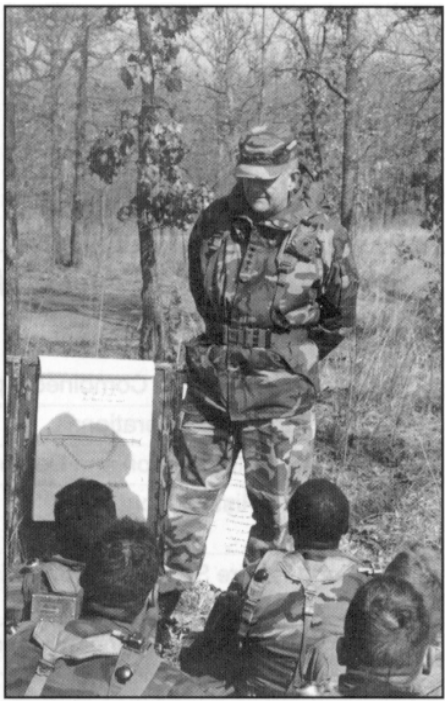
There are a lot of issues to work through. For example, how do you handle rules of engagement? What other situations might occur?

We've taken those lessons and are using them in our classrooms. When you know the right techniques and tactics, you can establish the right mission-essential tasks, conditions and standards upon which to base training your troops. Then they can transition from warfighting to different missions with relative ease.

What message would you like to send to Redlegs worldwide?

I appreciate the magnitude of the changes you're undergoing. You're leading the way in many of the changes taking place in our Army—especially in precision fire support. You're working to ensure we can shift and mass fires quickly or apply precision fires to the battlefield to take any enemy apart. Simultaneously, you're helping the Army ensure we can "take the enemy down" while we maneuver against him.

When you say the word *warfighting*, you think of the two parts of combat power: fire and maneuver. When you think of fires, you think of the United States Army Field Artillery—**the best in the world.**



General Sullivan discusses training with a unit at the Joint Readiness Training Center, Fort Chaffee, Arkansas.

★★★★

General Gordon R. Sullivan became the 32d Chief of Staff of the United States Army on 23 June 1991. Also on the Army Staff in Washington, DC, he served as Vice Chief of Staff of the Army and Deputy Chief of Staff for Operations and Plans. General Sullivan commanded the 1st Infantry Division (Mechanized), Fort Riley, Kansas, and the 1st Brigade and 4th Battalion, 73d Armor, both in the 3d Armored Division in Germany. He also served as VII Corps G3 and on the NATO staff as the Deputy Chief of Staff for Support of the Central Army Group, in Germany, and as Deputy Commandant of the Command and General Staff College, Fort Leavenworth, Kansas. General Sullivan holds a Master of Arts in Political Science from the University of New Hampshire.

1993 *Field Artillery* Author's Guide

Readership. A bimonthly magazine, ***Field Artillery*** is the professional journal for US Army and Marine Corps Redlegs worldwide. Approximately 40 percent of our readership is battery-grade, both officer and enlisted, with the remaining 60 percent more senior Army and Marine personnel, Department of Defense (DoD) civilians, retirees, members of other branches and services, allies, corporate executives and our political leaders.

Subjects. We accept articles on subjects related to the tactical, operational and the strategic levels of war as long as the contents relate to the application of fire support or are of special interest to our readers. But the majority of our articles address issues at the tactical level.

If an author is writing about the past, he should analyze the events and show how they apply to Field Artillerymen today—not just record history. If he's identifying current problems, he must propose solutions. In addressing the future, he should clearly explain his points and their implications.

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

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

Style. Write clearly and concisely and put your thesis statement (bottom line) up front with the body of your article systematically contributing to your thesis. One way to check your organization is to add sub-heads throughout your article and see if the sequence of your points is logical and contributes to your thesis. Be specific about your points, giving an example when possible.

When writing, always keep in mind your readers, many of whom are not in the Army or Marines—even the military. When using an acronym, spell it out the first time you use it. When mentioning a new or rare concept, system or technique, briefly explain it, even if it isn't your main point.

Submissions. Include—

• A clean, double-spaced, typed, *unpublished* manuscript of no more than 3,000 words with footnotes and bibliography, as appropriate. If possible, send a Macintosh disk (3 1/2-inch preferred) or IBM disk in ASCII text format with the hard copy of the manuscript. Except in the case of Army-wide "news" items, please *do not submit a manuscript to* ***Field Artillery*** *while it's being considered elsewhere*.

• A comprehensive biography, highlighting experience and training that credentials you as an author on your subject. Include your full name, current job, address and telephone number. If there is any change in your position or address before the article is published, notify the ***Field Artillery*** staff as soon as possible.

• Graphics with captions to illustrate and clarify your article. These can include black and white or color photographs of any size (no Polaroids, please), drawings, slides, maps, charts, graphs, unit crests or symbols, etc.

By the dates listed in the figure, send your manuscript, biography and graphics to—

Field Artillery
P.O. Box 33311
Fort Sill, Oklahoma 73503-0311

The ***Field Artillery*** staff will edit all manuscripts and put them in the magazine's style and format. In addition, we'll staff selected articles to subject matter experts to check them for accuracy, safety and classified information. Authors will receive a "check copy" of the edited version before publication. If you have questions, feel free to call the Editor or Managing Editor at DCTN 639-5121 or 6806 or commercial (405) 351-5121 or 6806.

1993 *Field Artillery* Themes

Month	Theme	Copy Deadline
February	Joint and Combined Operations	5 October 1992
April	Deep Operations	7 December
June	Mobilization and Deployment	8 February 1993
August	History Contest*	3 February (Contest) 5 April (Other)
October	Fire Support for Combined Arms Operations	7 June
December	Red Book: Annual Report	9 August

** 1993 US Field Artillery Association History Writing Contest rules are on Page 25 of the 1992 August edition.*

A Redleg's
Twelve Days of Christmas

by Lieutenant Colonel Colin K. Dunn and
Captains Ron Francis and Mark Ebersbach

On the first day of Christmas Saint Barbara gave to me A BC
sleeping in a HUMM-VEE.

On the second day of Christmas Saint Barbara gave to me
Two aiming circles
and a BC sleeping in a HUMM-VEE.

On the third day of Christmas Saint Barbara gave to me
Three breech blocks,
Two aiming circles
and a BC sleeping in a HUMM-VEE.

On the fourth day of Christmas Saint Barbara gave to me
A four-gun platoon,
Three breech blocks,
Two aiming circles
and a BC sleeping in a HUMM-VEE.

On the fifth day of Christmas Saint Barbara gave to me
Five T-O-Ts (Tee-Oh-Tees)
A four-gun platoon,
Three breech blocks,
Two aiming circles
and a BC sleeping in a HUMM-VEE.

On the sixth day of Christmas Saint Barbara gave to me
Six chiefs a-checking,
Five T-O-Ts,
A four-gun platoon,
Three breech blocks,
Two aiming circles
and a BC sleeping in a HUMM-VEE.

On the seventh day of Christmas Saint Barbara gave to me
Seven G/VLLDs a-lasing (Glids a-lay-zing),
Six chiefs a-checking,
Five T-O-Ts,
A four-gun platoon,
Three breech blocks,
Two aiming circles
and a BC sleeping in a HUMM-VEE.

On the eighth day of Christmas Saint Barbara gave to me
Eight guns a-booming,
Seven G/VLLDs a-lasing,
Six chiefs a-checking,
Five T-O-Ts,
A four-gun platoon,
Three breech blocks,
Two aiming circles
and a BC sleeping in a HUMM-VEE.

On the ninth day of Christmas Saint Barbara gave to me
Nine different load plans,
Eight guns a-booming,
Seven G/VLLDs a-lasing,
Six chiefs a-checking,
Five T-O-Ts,
A four-gun platoon,
Three breech blocks,
Two aiming circles
and a BC sleeping in a HUMM-VEE.

On the tenth day of Christmas Saint Barbara gave to me
Ten moving targets,
Nine different load plans,
Eight guns a-booming,
Seven G/VLLDs a-lasing,
Six chiefs a-checking,
Five T-O-Ts,
A four-gun platoon,
Three breech blocks,
Two aiming circles
and a BC sleeping in a HUMM-VEE.

On the eleventh day of Christmas Saint Barbara gave to me
Eleven lost lieutenants,
Ten moving targets,
Nine different load plans,
Eight guns a-booming,
Seven G/VLLDs a-lasing,
Six chiefs a-checking,
Five T-O-Ts,
A four-gun platoon,
Three breech blocks,
Two aiming circles
and a BC sleeping in a HUMM-VEE.

On the twelfth day of Christmas Saint Barbara gave to me
Twelve gunners gunning,
Eleven lost lieutenants,
Ten moving targets,
Nine different load plans,
Eight guns a-booming,
Seven G/VLLDs a-lasing,
Six chiefs a-checking,
Five T-O-Ts,
A four-gun platoon,
Three breech blocks,
Two aiming circles
and a BC sleeping in a HUMM-VEE.

I Corps Artillery

I Corps Arty, from its headquarters in Salt Lake City, Utah, started this exciting year by hosting its tenth annual fire support conference. The I Corps Commander, Lieutenant General Carmen J. Cavezza, issued a challenge to the senior artilleryman from our six FA brigades and seventeen FA battalions to train as they fight and do everything in their power to meet growing national commitments for worldwide contingency operations.

America's Corps Arty forged ahead to provide expert fire support planning and execution with I Corps to develop contingency operations procedures. In January, I Corps Arty deployed to Japan for this year's first joint exercise, "Yama Sakura." In July the Corps Arty flew to Fort Lewis for "Cascade Pine," where the corps established its joint command post (CP) at Lister Hill and deployed its Army forces (ARFOR) CP to Camp Gruber, Oklahoma. From this location, it inserted the 75th Ranger Battalion into Fort Chaffee to secure a lodgement area for the 25th Infantry Division, kicking off the 25th ID JRTC rotation. This exercise allowed I Corps to hone its contingency operations skills and exploit its deep operations concepts.

In December, the artillerymen from the corps met at Fort Lewis for "Cascade Peak," the corps' BCTP Warfighter. This training enabled the corps' FA brigades to command and control their subordinate battalions.

Our FA brigades and battalions also had an exciting year as they prepared for this year's Warfighter. They went to work early to implement their METL. The 45th FA Brigade deployed its two battalions to Fort Sill for AT, where they honed their fighting skills. With their Desert Storm experience, 1-158 FA assisted greatly in the MLRS conversion of 1-171 FA.

Meanwhile, the 57th FA Brigade deployed to Camp Ripley and went to work putting the final touch on its artillery skills. The Rocky Mountains provided an excellent background for the 115th "Cowboy" FA Brigade's AT of its Wyoming battalions and the 1-140th FA. This setting allowed an extraordinary exchange of artillery tactics and techniques.

Under a new command, the 147th FA Brigade with its subordinate battalions also conducted rigorous training in Wyoming. Dugway provided a desert scenario for the Arizona artilleryman of the 153d FA Brigade to conduct training for its Arizona battalions and 2-222 FA. During this AT period, the Light Fighters of 7th Div Arty provided excellent training support.

The 210th FA Brigade, the only active duty brigade in I Corps Arty, moved from Germany to Fort Lewis, Washington, in January 1992. The brigade quickly reorganized and adapted to the differences between light tactics and mechanized operations.

The brigade deployed to Yakima Firing Center in May where 3-11 FA completed an arduous standard external evaluation (SEE). The SEE tested the battalion's ability to execute mission-essential tasks that ranged the full spectrum of battlefield operating systems. It took the challenge head-on and proved to be trained, highly motivated and manned with high caliber soldiers and leaders.

July saw the brigade at Camp Guernsey, Wyoming, in support of 2-146 FA (Washington ARNG) as part of FORSCOM's Bold Shift program. During the two-week exercise, 3-11 FA set up and ran the situational training exercise lane training. The brigade also augmented I Corps Arty in support of I Corps' Cascade Pine exercise. In December, the brigade participated in Cascade Peak—the corps' BCTP Warfighter exercise.

As the Army continues its restructuring, I Corps Arty remains committed to continuing our proud traditions and maintaining combat readiness in support of I Corps' contingency operations mission as it blazes into the 21st century. ***Corps Artillery of the Future!***

2-222 FA successfully completes its standard external evaluation during AT at Dugway, Utah.

1-140 FA trains in air assault operations during AT at Camp Guernsey, Wyoming.

A 2-222 FA howitzer section on the move during AT at Dugway, Utah.

III Corps Artillery

III Corps Artillery, Fort Sill, Oklahoma, entered Fall 1991 redeploying from SWA. It was indeed a year full of change and excitement for the Corps Artillery as a whole.

Major changes in the organization include the 299th Engineer Battalion's transfer to Fort Carson, Colorado; the addition of the 17th FA Brigade and other organizations from Germany; the 1-12 FA's conversion from Lance to MLRS; and the III Corps Artillery change of command to Brigadier General Howard J. von Kaenel in June 1992. These changes and many others have contributed to the massive change in the structure of III Corps Artillery.

Additionally, the corps artillery has in-processed over 2,500 soldiers and family members into the organization in the last year. These soldiers have settled in and become great assets to the Corps Artillery, forming the 5-3 FA, 3-17 FA, 5-17 FA, 19th Maintenance Battalion and the 588th Maintenance Company.

17th FA Brigade

The past year was filled with outstanding accomplishments for the 17th Field Artillery "Thunderbolt" Brigade. The brigade's HHB conducted a unit move from the Bavarian city of Augsburg, Germany, to Fort Sill on 15 January 1992 as a part of the Enhanced CONUS Contingency Capability (EC3) program.

Battery B, 1-17 FA maintains communications during its rotation at the NTC.

The brigade received its first two battalions—the 1-12 FA and 3-18 FA—on 1 June 1992. The 1-12 FA fired the last Lance missiles in the US Army at White Sands Missile Range, New Mexico, on 11 June 1992, closing a chapter in artillery history that the battalion opened more than 20 years ago.

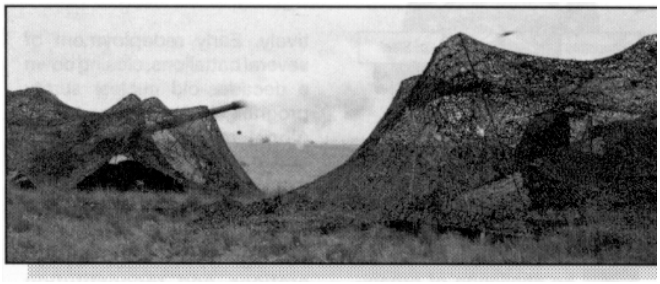
The 5-3 FA arrived from Giessen, Germany, on 19 June 1992 to round out the brigade. On 7 February 1992, 5-3 FA fired the last US 8-inch round in Germany at Grafenwoehr Training Area. The 1-12 FA began its conversion to MLRS on 10 August 1992, and 3-18 FA supported a 3d Armored Cavalry Regiment rotation to the NTC in October. The Thunderbolt Brigade has returned to the home of the Field Artillery—and stands ready for any challenge.

75th FA Brigade

Since returning from Desert Storm, the 75th FA "Diamond" Brigade has continued to sustain its training and combat capabilities. In early January, the 1-17 FA deployed to the NTC. The battalion, configured as a GS unit, was assigned and carried out all four standard Field Artillery missions during one rotation—an NTC first. In late April, the brigade conducted its annual FTX, "Taut Lanyards."

Now configured as a three-battalion "Power Brigade," consisting of 155-mm, 203-mm and MLRS battalions, the Diamond Brigade is ready for any deployment worldwide. In late June-July, 6-27 FA deployed to White Sands Missile Range. Their unprecedented live-fire exercise goes down in history as the largest MLRS firing, culminating in a highly successful tactical evaluation.

The brigade rounded out August with an external evaluation of the 5-18 FA. September and October ended the training year with a brigade-level deployment to Germany for REFORGER 92.



5-18 FA trains for its external evaluation at Fort Sill.

6-27 FA launchers move forward for deep interdiction strikes during exercises at Fort Bliss, Texas.

212th FA Brigade

Training to standard on METL tasks to deploy, fight and sustain has remained the brigade's steady focus throughout 1992. The headquarters has administered two demanding annual external evaluations (AEEs), participated in a division BCTP and provided command and control for the Paladin howitzer test. Participation in two CALFEXs, two brigade CPXs and FTXs honed our collective warfighter skills.

January 1992 was filled with intensive field training exercises for the 2-17 FA that culminated with the AEE. This intensive training period set the foundation for the initiation of Paladin training that began on 10 April 1992. The highlight of this year's training for the 2-18 FA has been preparation for an NTC rotation in support of the 3d Armored Cavalry Regiment during October. The 6-32 FA completed its fielding of MLRS equipment on 31 January 1992. The battalion conducted its collective training and completed its certification ARTEP in May.

214th FA Brigade

FY 92 has been the most dramatic year of change in the history of the 214th FA Brigade. While two units were still in SWA (471st Transportation Company and 225th Maintenance Company), the brigade was assigned the mission of re-stationing 2,500 soldiers and families from Germany to Fort Sill. Concurrent with these EC3 arrivals was the loss of the 299th Engineer Battalion as they moved to Fort Carson.

The face of the 214th FA Brigade was forever changed this year. The brigade now consists of the 3-17 FA, 5-17 FA, 3-9 FA, 47th Combat Support Battalion, 230th Finance Support Unit and the 19th Maintenance Battalion. The 214th, one of the largest brigades in the Army, is as proud of its history of combat service support for III Corps Artillery and Fort Sill as it is of its FA delivery capability. In the latter capacity, the brigade contributed significantly to the FA community, testing both the fire direction data manager (FDDM) and the lightweight computer unit (LCU). These C^2 devices, the first of the Army tactical command and control system (ATCCS) suite, will enhance our ability to provide timely and responsive fire support to the maneuver commander.

We remain—first, last and always— ***The Phantom Corps Artillery*****.**

V Corps Artillery

The challenge of organizational change continued through the year for V Corps Artillery, headquartered in Frankfurt, Germany. In September 1992, the Corps Arty reached its organizational end state consisting of the 41st FA Brigade, which includes the 1-27 FA, 4-27 FA and 2-32 FA Battalions and A/25 TAB. Two additional units, the 6-29 FA and the 2-14 FA Battalions, are attached to the 1st Armored and 3d Infantry Divisions, respectively.

Early redeployment of several battalions, closing down a decades-old nuclear surety program, and preparing for regional missions were tasks added to the Corps Arty's demanding NATO support mission. With these changes came new training opportunities, including contingency planning, deep operations and reconstitution exercises. Support to operations in SWA continued, with the Corps Arty providing FSE personnel to the Joint Special Operations Task Force, Operation Provide Comfort II.

Farewells

Wheelhorse, Spearhead Steel, Proud Americans, Thunderbolts, Deep Strike, First Round, Death Dealers, Iron Rockets....the roll call of departing organizations goes on. Some have cased their colors, awaiting a future chance to add to the proud Redleg heritage. Others have returned home, re-establishing themselves at Fort Lewis, Fort Sill, Fort Polk and Fort Knox. No matter the organization's eventual disposition, all met the challenges of preparing equipment for shipment or storage, moving thousands of soldiers and family members and, in some cases, preparing installations for transfer to the host nation. Stringent individual training programs ensured that wherever Corps Arty soldiers eventually headed, their gaining unit received fully qualified artillerists.

The Army drawdown in Europe--Cannoneers of 2-20 FA load M110A2 howitzers for Storage. *(Photo by SPC Holly)*

MLRS crewmembers for A Battery, 2-32 FA prepare for live fire at Grafenwoehr Training Area. *(Photo by SPC Nicholas)*

Changing Roles

The President's announcement of the withdrawal of tactical nuclear weapons from Europe ended the era of "atomic artillery" for V Corps. Within months of the announcement, all personnel reliability programs were closed and special tools and handling equipment returned to ordnance. Demilitarization of Lance systems began, leading to the eventual loss of these battalions.

A search for a replacement for this demanding mission was not needed. As soon as the nuclear mission closeout was accomplished, an announcement was made of regional responsibilities for the Corps Arty. The resulting assignment of contingency missions to our forward deployed organizations has caused a major change of focus. Gone are the General Defense Plan (GDP) battle books familiar to the Cold War artillerist. Now the Corps Arty has emergency deployment readiness exercise (EDRE) books similar to those of our CONUS brethren. The preparation for overseas movement (POM) processing and maintenance of other deployment data, so familiar to US-based units, has now become part of our routine as well. And training for these regional missions has begun in earnest, including Corps Arty support outside of Central Europe in Exercise Dragon Hammer 92.

Training to the Standard

The Railgunners—41st FA Brigade—set the standard for NATO mission training in the corps. ARTEPs included requirements for units to demonstrate the ability to conduct 200-kilometer approach marches, river crossing operations and prove they have the ability to reconstitute during and after combat operations. Support of two divisions and one armored cavalry regiment during their Warfighter and CMTC rotations was balanced with reorganization and redeployment actions as the brigade transitioned to being the only active FA brigade remaining in Europe.

The focus of training in the coming year will be on deep operations. Given the responsibility for coordinating the corps deep attack, the Corps Arty has a detailed training program involving both corps aviation brigades, corps air defense assets, targeting and intelligence resources and corps and Air Force electronic warfare assets. Simulation training during major exercises and deep attack FTXs, sending attack helicopters to target ranges for live-fire, has become the backbone of mission preparedness. The next year will see the addition of training the deep-attack team at Grafenwoehr Training Area in first-time-ever Corps Arty training densities. Ensuring deep operations can be executed, from shutting down Stinger teams along flight paths through executing lethal and non-lethal SEAD to assessing battle damage, is the goal.

V Corps Arty continues to move forward, conducting quality training and providing motivated soldiers to support national objectives. Ready to defend freedom in Europe and throughout the world, V Corps Artillery remains **Steadfast and Strong!**

XVIII Airborne Corps Artillery

The XVIII Airborne Corps Arty, stationed at Fort Bragg, North Carolina, had another challenging and productive year in support of the corps.

Mission

Our mission remains unchanged by doing our part in supporting the XVIII Airborne Corps as the strategic crisis response force manned and trained to deploy rapidly by air, sea and land anywhere in the world, and prepared to fight upon arrival and win.

Training

Maintaining the warfighting edge demonstrated in Desert Storm is required to meet our current mission, and training is the key to maintaining the edge. The Corps Arty began the year hosting "Dragonfire III," the largest artillery live-fire exercise since Operation Desert Storm. This exercise included five Field Artillery brigades, five division artilleries and one Marine artillery regiment, as well as numerous corps combat support (CS) and combat service support (CSS) assets. Elements of the Corps Arty participated in four divisional BCTP exercises, starting with the 101st Airborne Division (Air Assault), followed by the 10th Mountain (Light) Division and 29th Infantry (Light) Division, and ending with the 82d Airborne Division.

The Corps Arty continued to support the XVIII Airborne Corps by participating in numerous joint and emergency deployment readiness exercises to include "Ahaus Tara 92" in Honduras, "Ocean Venture 92" at Camp Lejeune, "Sand Eagle 92" at Fort Stewart and Fort Polk and "Gordion Victory" at Fort Stewart.

Force Development

The Army's Crisis Response Corps Arty remains in the forefront of the Army's new equipment fielding, emerging doctrine and latest technology. We have enhanced our firepower by conversion of our MLRS to the Army TACMS capability. The Corps Arty improved its command, control, communications and intelligence capabilities by employment of MSE, single-channel ground and airborne radio system (SINCGARS) and FAISS. Additionally, the fielding of the M40 chemical protective mask increases the force protection posture.

The Corps Arty is leading both the Army and joint services in development of common doctrine and tactics, techniques and procedures (TTP) for all fire support operations. A notable part of this work is the technology-base development with Army Materiel Command (AMC) to ensure joint surveillance target attack radar system (Joint-STARS) compatibility with Army fire support and communication systems. We have also tested a high-frequency radio that provides for span of communications and information control over extended distances.

5-8 FA conducts FARRP operations during their ARTEP.

Reorganization and Future Challenges

The 18th FA Brigade assumed command and control of the MLRS battalion from Corps Arty. The 42d FA Brigade, stationed at Fort Polk, Louisiana, will come under our headquarters giving us our second active-duty brigade. The three reserve brigades, 209th "Hoof Beats to Howitzers," 151st "Gamecocks" and the 113th "Does It Right," continued their enhanced training relationship by participating in many Corps Arty exercises.

With the reorganizing and the rearming of the MLRS battalion and the addition of a "heavy" Field Artillery brigade, the structure of artillery firepower in the XVIII Airborne Corps is dramatically changing. Still, the only airborne Corps Arty remains ready, willing and able to go anywhere, anytime as the ***Crisis Response Corps Artillery!***

18th Field Artillery Brigade (Airborne)

The end of last year brought two new additions to the brigade, 3-27 FA and the 1st FA Detachment. Upon return from Southwest Asia, the brigade focused much of its efforts on training.

3-27 FA (MLRS) performed a live-fire exercise in February. Also in February, 5-8 FA completed an ARTEP that included a simulated rail deployment. In April, 1-39 FA (Abn) participated in an ARTEP that included an air insertion as part of the scenario. HHB deployed to Fort Stewart, Georgia, to provide ARTEP support for the 151st FA Brigade (South Carolina Army National Guard). Concurrent with that operation, 1-39 FA (Abn) was involved in an emergency deployment readiness exercise (EDRE) to Fort Stewart.

During July, 3-8 FA and 1-39 FA (Abn) were involved in Operation Sand Eagle. 3-27 FA (MLRS) completed an ARTEP in September that involved a rail deployment and a live-fire exercise. 5-8 FA and 1-39 FA participated in NTC rotations involving the intelligence and operation sections from each battalion. The brigade also participated in BCTP exercises with the 101st Airborne Division, 10th Mountain Division and the 82d Airborne Division. Additionally, the brigade supported numerous CALFEXs and JAATs.

Elements of 18th FA Brigade conduct air insertion operations.

This year also brought many equipment upgrades to the brigade. The brigade's communications capability was enhanced with the replacement of the 12-series radios with SINCGARS and MSE. NBC survivability improved with the fielding of the M40 and M42 protective masks. Most significant was the upgrade of 3-27 FA to Army-TACMS.

As we learn to utilize these new systems, our focus will remain on training and integration of the new equipment. The 18th FA is prepared to meet any contingency requirement.

42d Field Artillery Brigade

The 42d FA Brigade, "Wheel Horse Steel," completed redeployment from Hanau, Germany, to Fort Polk, Louisiana, on 15 September 1992. The brigade redeployed with its HHB and the 4-82 FA.

The officers and soldiers of the brigade are proud of their unit history and of their accomplishments overseas. They continue to serve with the same espirit and dedication as their predecessors, making ***Wheel Horse Steel*** synonymous with excellence.

US Army Field Artillery School

In a time of change within the military, the mission of the Field Artillery School, Fort Sill, Oklahoma, remains on course, "to train Army, Marine and Allied Redlegs to provide timely, accurate fires for maneuver forces."

Work at Fort Sill has produced great progress in doctrine, training, force design, equipment and leader development. Key efforts included work in the areas of AirLand operations, joint precision interdiction/joint precision strike, Fighting with Fires initiatives, development of a joint targeting course and fire support element course and continued development of advanced fire support systems. The re-stationing of Army units from Europe has been a top priority for Fort Sill.

Redlegs everywhere must continue to forge the future of our branch by being highly trained and able to deploy anywhere at any time and accomplish any mission.

School Reorganization

1992 has been a year of realignment and the Field Artillery School was no exception. The most significant development was the dual role assumed by the Assistant Commandant (AC) when the Artillery Training Center (ATC) was aligned with the School and the AC became the Deputy Commanding General-Training. Other changes within the School were:

- Elimination of the Target Acquisition Department (TAD) as a separate teaching department. The Meteorological, Survey and Radar Divisions were transferred to the Fire Support and Combined Arms Operations Department.
- Creation of the "Office of the Chief of Field Artillery," consisting of the Initiatives Group, the Field Artillery Proponency Office (FAPO), the ***Field Artillery*** Bulletin and the Fire Support Research Center.
- The role of nuclear weapons in the Field Artillery, observations from the Army's Combat Training Centers (CTCs) and Operation Desert Storm led the Field Artillery School's Fire Support and Combined Arms Operations Department (FSCAOD) to expand its existing Warfighter Branch into a new Warfighter Division. The cornerstones of the new division are four branches: a Joint and Combined Arms Branch, a Special Munitions Employment Branch, a Targeting Branch and a Combat Training Centers Branch.

Instruction and Training

A School task force was established in late 1991 to examine ways to improve the Field Artillery Officer Advanced Course (OAC). Task force findings resulted in the following changes being recommended to the OAC curriculum:

- Involving small group leaders in every aspect of training.
- Tripling the amount of time spent in the field.
- Developing and employing a common scenario throughout the course.
- Increasing instruction on MLRS operations to provide adequate knowledge of the doctrine, organization, equipment and capabilities of the system.
- Establishing diagnostic testing for OAC students to allow them to be placed in the appropriate skill level in computer literacy and communicative skills.

Force Development

Fort Sill continues to be an Army leader in combat and force developments by continued field research and studies to fix the field's problems of today and design the force of tomorrow. The status of key systems for the Field Artillery community are:

- The M109A6 (Paladin) makes possible the adoption of "shoot and scoot" tactics that provide a 60 percent increase in howitzer survivability and a quantum leap in responsiveness. First unit equipped (FUE) is 4th Quarter, FY93.
- The Bradley fire support vehicle will replace the M981 for company FISTs in selected units. FUE is 4th Quarter, FY96.
- The NAVSTAR global positioning system (GPS) precise lightweight GPS receiver (PLGR) is a space-based radio position/navigation (POS/NAV) system that will provide real-time, three-dimensional position and navigation data worldwide, 24 hours a day, regardless of weather. FUE is 4th Quarter, FY93.
- Firefinder Block II is a two-phased program that will downsize the Q-36 configuration. Improvements will increase survivability and maneuverability of the radar section, making it deployable worldwide to support any contingency. Three prototype systems were fielded to the 7th Infantry Division in October 1992. Reports from the field are all positive. The next unit to be equipped is the 82d Airborne Division during 3d Quarter, FY93.

Field Feedback

Our best source of information is you—"The Redleg in the field." We encourage you to give us your ideas and feedback. You're where the doctrine, materiel and training are put to the test. ***The Field Artillery School is here to support you.***

The FA School continues to provide critical MLRS training as the Army converts Lance and 8-inch units to the system.

TF 2-2 FA supports the live-fire training requirements of the FA School. *(Photo by SGT E. R. Sjostrom)*

1st Armored Division Artillery

The Redlegs of the 1st Armored Division, Germany, take great pride in synchronizing and coordinating fires for America's Tank Division. The 1992 training year has been challenging and tough yet very rewarding and successful.

The year started on a quick pace with the division's redesignation from 8th Infantry (Mechanized) to the 1st Armored Division in early January. Just a few short days later, the newly named "Iron Steel" found itself in the midst of an intense division BCTP Warfighter exercise. Early employment of the artillery combat team—a 1st AD initiative consisting of a MLRS battalion, a DS cannon battalion, a Bradley security company, Stinger teams, Firefinder radars and the Div Arty assault command post—brought success to Old Ironsides and set the tone for the remainder of the year.

Div Arty's training program continues to forge forward on three pillars—artillery maneuver, gunnery and the integration of fires. Artillery maneuver encompasses all facets of the gunnery team, to include radar, survey and meteorological maneuver in maneuver rights areas (MRAs), huge tracts of German countryside that remain available to Iron Steel, not withstanding the changing political climate. All battalions maneuver in MRAs on a quarterly basis, while Div Arty is targeting March 1993 for a massive MRA exercise on a scale unmatched since the Cold War days of REFORGER.

The gunnery training program is centered on Grafenwoehr Training Area with semiannual live-fire densities, while smaller densities are done at Baumholder. Div Arty massed its fires three times during 1992 in "Powerstrike" exercises, the last in October at Grafenwoehr. This exercise was conducted in conjunction with a JAAT exercise with the division's combat aviation brigade.

The CMTC at Hohenfels provides the vehicle for training the integration of fires with maneuver. The Iron Steel gunners have started using Hoffman devices on howitzers to simulate realism, have integrated MLRS and radars into the rotations and have supplemented maneuver task forces with HMMWV COLTs—another 1st AD initiative—to provide "eyes" throughout the depth of the battlefield.

2-3 FA from Kirch-Goens, 2-29 FA from Baumholder and 6-29 FA (MLRS) from Idar-Oberstein completed successful standard external evaluations in 1992. These three battalions, in addition to 4-29 FA from Baumholder, also rotated through CMTC in 1992.

In retrospect, 1992 was an outstanding and valuable year for the 1st Armored Division Artillery. The focus for 1993 is continued training on the three pillars, while enhancing our ability to meet the demands of Europe's new non-NATO contingency operations. As the active force's only armored division artillery, Iron Steel stands ready to provide devastating, accurate and timely fires for America's Tank Division.

Iron Steel!

An M109A2 gun chief gives a briefing to German officers from the Bundeswehr Artillery School.

1st Cavalry Division Artillery

1992 provided the Red Team ample challenges and opportunities. As we recovered from Desert Storm, the Dragons of 1-82 FA, the Red Dragons of 3-82 FA and the First Gunners of 1-3 FA began an intensive train-up for standard external evaluations conducted in October. Our nuclear mission was withdrawn shortly afterward, but these exercises certified collective skills at crew through battalion levels.

November and December brought the BCTP. During this reprise of our desert experience, the Red Team set new standards for counterfire excellence, refining the skills honed during long desert training sessions.

In February, both battalions of the 82d FA deployed on the 2d (Blackjack) Brigade's Desert Victory rotation to the NTC. Simultaneously, the First Gunners geared up for the single-channel ground and airborne radio system (SINCGARS) follow-on operational test and evaluation (FOT&E) with the 3d (Greywolf) Brigade.

Summer brought an increased emphasis on section-level excellence as our howitzer, MLRS, FIST, FDC, radar and chemical sections competed in the first annual Red Team Stakes, a portion of the division Cav Cup competition. These challenging events saw our best sections display MOS and common skills, as well as teamwork and leadership, to claim the title of Best in the Red Team. Meanwhile, the Dragons of 1-82 FA explored new ground as they played a key role in the division's Bold Shift training support of our roundup brigade, the 155th Armored Brigade (Mississippi ARNG).

As we close out the year, we travel full circle and return to the deserts of our past. C/1-82 FA has deployed to Kuwait on Operation Intrinsic Action, validating our ability to deploy as part of a contingency force wherever needed. At the same time, 1-3 FA and 3-82 FA deployed together for back-to-back rotations to the NTC in September and November.

The troopers of the Red Team, including the Steel Rain of A/21 FA (MLRS) and the Electric Dragons of A/333 FA (TA), remain ready to support America's First Team when called, wherever needed. ***First Team—Red Team!***

Answering the call, howitzers of 1-82 FA fire in support of 1-32 Armor, 2d Brigade, during the live fire defense phase of the February 1992 NTC rotation.

1st Infantry Division (Mechanized) Artillery

Drumfire Artillery has been training harder than ever to fulfill our motto—*No Mission Too Difficult, No Sacrifice Too Great, Duty First!* The highlights of the year included two successful rotations at the NTC for 1-5 FA, 4-5 FA and D/25 FA (TAB). The well-orchestrated combination of fire support and maneuver verified the Div Arty's training plan was a success.

Training focus was on individual- and section-level tasks, culminating in extremely successful Div Arty section evaluations during January and July of 1992. 1-5 FA, 4-5 FA and B/6 FA (MLRS) conducted rigorous platoon evaluations. The cannon battalions conducted external evaluations with mass fire exercises, verifying their ability to put "Steel on Target." B/6 FA shot a record 84 rockets on 26 July, firing a schedule of fires at a sustained rate and successfully accomplishing platoon mass fire missions.

The Div Arty participated in "Operation Bold Shift" providing individual crew and section training for cannon crews, mortar crews and FISTs of the 1-178 FA, South Carolina National Guard.

The DS battalions sharpened fire support synchronization skills and relationships with their maneuver brigades through five brigade-level "Gauntlet" exercises. Numerous BBS exercises focusing on command and control, counterfire operations and tactical fire direction proved successful in providing TACFIRE sustainment and fire support synchronization as well as professional development for our junior leaders. Most recently, the Div Arty participated in "Central Fortress" and deployed on REFORGER 92.

The 1st Infantry Div Arty, through realistic and demanding training, is ready to deploy worldwide, fight and win.

Focus on Success!

B/6 FA (MLRS) conducts live firing at Fort Riley.

A FIST from 4-5 FA practices lasing operations during a FTX at Fort Riley.

2d Infantry Division Artillery

Still "Second to None," the Div Arty Warriors had a year of changes in the "Land of the Morning Calm." Through inactivations and major organizational changes, the Div Arty's battle-focused training remained oriented on support of the Warrior Division and our Korean allies.

The Div Arty HQs supported division CPXs and BCTP, conducted interoperability training with the Korean Army Corps and completed its first external evaluation (EXEVAL) conducted by the Combined Field Army FSE.

Inactivated during the year were B/6-32 FA (Lance) and 1-4 FA. "Strike Deep" inactivated in February following a challenging, successful firing of ten training warhead missiles from Chulmae Range into the West Sea. In April, 1-4 FA fired its final battalion mission in a last round ceremony. The "Guns of the DMZ" inactivated in October, ending 35 years of US FA presence in the Western Corridor.

The 8-8 FA "Steel" and 1-15 FA "First to Fire" battalions supported major brigade training densities, completed successful EXEVALs and conducted interoperability training and junior officer exchanges with Korean FA units. 6-37 FA "On the Minute" completed its version six launcher upgrades resulting in all batteries being Army TACMS capable, conducted three successful live-fires and a successful EXEVAL. Support from F/26 FA (TA) included participation in a "Joint Over-the-Horizon" training exercise, EXEVALs, MLRS live-fires and BCTP. In 1993 the Div Arty will activate A/38 FA (MLRS) as the division's GS MLRS battery with fielding and training being conducted in-country.

8-8 FA "Steel" rolls past a Korean farmer during field exercises at the Saint Barbara Training Area.

1-4 FA "Guns of the DMZ" at its Final Round Ceremony in April 1992.

Div Arty's FSEs sustained their maneuver support readiness and conducted joint and combined arms training that included a 12-round Copperhead shoot and laser training with AH-64s, OH-58Ds and USAF/USMC TACAIR. With the division's two maneuver brigades each organized with a mechanized, armor and light infantry battalion, heavy-light fire support is a major training challenge for the brigade FSEs.

Forward deployed, trained for coalition warfare, and battle ready—Div Arty's soldiers are proud professionals ready to provide ***"Warrior Thunder."***

3d Infantry Division (Mechanized) Artillery

"Marne Thunder" means devastating, effective fire support for the "Rock of the Marne" division in the "Victory Corps" in US Army Europe. The 3d Infantry Div Arty was true to its motto during one of the most dynamic years in memory as it trained hard while undergoing very significant change and transition.

In January 1992, 2-14 FA (MLRS) was formed from the Bamberg-based HHS of the inactivating 2-14 FA (8") and three separate divisional MLRS batteries. The battalion was originally assigned to Corps Artillery and then attached to the 3d Infantry Division in March. In April, A/25 FA, the Div Arty's target acquisition battery, was reassigned to the 41st FA Brigade of V Corps Artillery and moved from Wertheim to Babenhausen. B/25 FA (TAB) was reassigned to the Div Arty from the 42d FA Brigade of V Corps Artillery but remained at Grafenwoehr. The 3-35 FA was inactivated on 15 April.

The Div Arty started the year with a January/February gunnery density at Grafenwoehr that included "Operation FireStarter," a recently developed, innovative fire support exercise. FireStarter trains the "fighting with fires" teams at task force and company/team levels and is now evolving into a very meaningful training "gate" for all task forces going to the CMTC. The DS battalions provided effective fires to their maneuver brigades during the highly successful April-May CMTC rotation at Hohenfels. This rotation included the deployment of the Div Arty TOC, one radar section and a MLRS platoon to fight the counterfire battle. After the demanding computer-driven V Corps CPX "Central Fortress," the Div Arty again completed successful rotations at Grafenwoehr in July and August and the CMTC in August and September. The fall V Corps BCTP/REFORGER "Certain Caravan" was an exacting command and control exercise that further cemented the new Div Arty team in its preparation for Marne BCTP Warfighter.

A company FSO maneuvers his FIST track while providing his company with lethal fire support during Operation FireStarter at Grafenwoehr Training Area.

The Marne Div Arty closes the year with pride in knowing our soldiers achieved the high standards we set for them while providing lethal fires in support of the 3d ID. ***Marne Thunder!***

4th Infantry Division (Mechanized) Artillery

C/10 FA fires in support of the Div Arty Massfire Exercise. *(Photos by Fort Carson **Mountaineer**)*

In the last year, the Ironhorse Artillerymen of Fort Carson, Colorado, focused on providing realistic, METL-driven, battle-focused training at every level. As a result, the Div Arty began developing and executing battle-task lane training packets designed to facilitate the collective training of artillery mission training plan (MTP) tasks from the Div Arty headquarters down to the howitzer section.

Beginning in September, the Div Arty headquarters deployed to Germany and played a key role in the success of the Ivy Division in REFORGER. All elements of the Div Arty planned and executed section, battery, and battalion-level section certifications and gunnery evaluations that culminated in the success of the Div Arty "Massfire" exercise in February. As a result of Desert Storm, the Div Arty, spearheaded by the 3-29 FA Pacesetters, developed and executed a Bold Shift training plan that dramatically improved the level of training and preparedness of our round-out battalion, 1-148 FA.

Both the 3-29 FA Pacesetters and the 5-29 FA Eagles excelled in two demanding CALFEXs designed to prepare the Ivy Division's brigade combat teams for the NTC. As a result, the 5-29 FA Eagles and 3-29 FA Pacesetters successfully executed their combined arms missions at the NTC.

C-10 FA (MLRS) successfully completed its standardized external evaluation (SEE) in September and served as the 4th Infantry Division salute battery. A-26 FA (TAB) supported numerous Reserve Component training requirements in Idaho and California while providing outstanding support to the battalions and Div Arty headquarters at Fort Carson and the NTC. ***Have Guns, Will Travel!***

A howitzer section of 1-148 FA completes a gunnery lane as part of Bold Shift 92 at Fort Carson.

5th Infantry Division (Mechanized) Artillery

For the artillerymen of the 5th Division, Fort Polk, Louisiana, the focus of the 1992 training year was the synchronization of fire support with the other battlefield operating systems at the brigade and division levels. Red Devil Redlegs deployed to Fort Hood, Texas, to participate in the III Corps BCTP Warfighter. This exercise set the azimuth for the very successful division BCTP Warfighter.

The "Steel Balls" battalion (5-1 FA) made their presence known at the NTC with two very successful rotations. FIST battle drills, battery lane training and fire support "SLoCTOP" (security, location, communication, targeting head, observation and position improvement, June 1992 *Field Artillery*) procedures were standard fare for the gunners of 5-1 FA.

The "Pace Setters" of 4-1 FA also deployed to the NTC, conducted FIST battle drills, received a standardized external evaluation (SEE) and are now preparing to conduct a unit move to Fort Hood.

Realism was the key to the Div Arty's fire support training with the "Deep Strike" battalion (9-1 FA) conducting MLRS live-fire exercises on the multipurpose range complex. 9-1 FA is also preparing to conduct a unit move to Fort Hood with the Div Arty HQ.

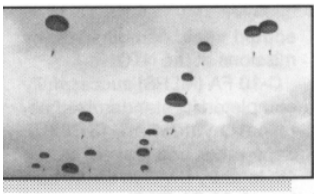
The 5th Div Arty helped train Total Army Redlegs in 1992. Summer saw us spread out from Colorado to Kansas as we conducted lane training evaluations and sent out MTTs to our associated Army National Guard unit, the 35th Infantry (Mechanized) Div Arty. The 1-141 FA, our round-out battalion, conducted its AT at Fort Polk using the lane training concept.

In December, we will re-flag our headquarters and become the proud gunners of the 2d Armored Division Artillery. The entire Div Arty will be moved to Fort Hood by the summer of 1993. The soldiers of the Red Devil Division look back with pride and an excellent reputation. We'll miss the 5th Mech, but we stand ready to become the "Hell's Fires" gunners of the 2d Armored Division.

Red Devils!

A 5-1 FA ammunition crew unloads powder for the guns. *(Photo by CSM Cross)*

6th Infantry Division (Light) Artillery



B/4-11 FA . . .Airborne!

The echoes of Arctic Thunder have been sounding continuously throughout the mountains and valleys of Alaska, and we have completed a demanding year in a very successful and noteworthy manner. The 6th Div Arty, stationed at Forts Richardson and Wainwright, has met all challenges of the Arctic environment and set new standards for the FA community. We continue to perform in an exemplary manner in spite of temperature variants from minus 40 to 90 degrees Fahrenheit and deploy worldwide for training and in support of US interests.

During the past year, the 6th Div Arty was noted for going through the most successful BCTP Warfighter exercise in the history of the program, a corps-level Warfighter at Fort Hood, Texas. The fire support and counterbattery plans developed and executed by the 6th Div Arty are now emulated across the Army and are widely recognized as the standard for employing artillery in modem-day warfighting.

A new facet was added to the division's deployment capabilities when 4-11 FA (Fort Richardson) fielded an airborne battery (B/4-11) in September 1991. Force modernization in the Div Arty continued with the fielding of the LTACFIRE in October 1991.

The 6th Div Arty participated in several exercises worldwide, to include deployments to the JRTC, NTC, Minnesota, Wisconsin, Japan, Korea and Thailand. But much of our focus continues to be on Alaska's harsh, mountainous environment. Primary training areas include Alaska's Yukon Training Area, Tanana Flats, the Aleutian Islands and Fort Greely.

The Redlegs of the 6th Infantry Division (Light) Artillery stand ready to deploy worldwide and provide highly reliable and expeditious fire support—***Arctic Thunder!***

5-11 FA conducts battery air-assault operations at Fort Wainwright, Alaska.

7th Infantry Division (Light) Artillery

Once again, the ability of the "Bayonet Artillery" to rapidly respond to any contingency was validated as LightFighters from 6-8 FA, 7-15 FA and HHB Div Arty deployed as part of JTF-LA in the wake of the Los Angeles riots. As in Panama during Operation Just Cause, Bayonet Artillerymen demonstrated their unique discipline and flexibility as they expertly performed a myriad of non-standard missions in the streets of downtown Los Angeles.

"Fire Mission" with the Lightfighters of the Bayonet Artillery. *(Photo by 1LT Brett Niles)*

Sustaining the capability to rapidly deploy worldwide has remained of paramount importance to the Div Arty. Participation in no-notice deployment exercises by B/15 FA and HHB during exercise "Cold Comfort" in December, HHB during exercise "Cargo Cult" in April and 6-8 FA during exercise "Sand Eagle" in July all demonstrated the Div Arty's ability to deploy ready to fight and win.

The Aviation Brigade FSE led the development of the division's air assault SEAD live-fire exercise program that incorporates live SEAD, AC-130, CAS and close support fires at night in company-sized raids and movements-to-contact. FSOs evaluate the effectiveness of their fire plans as they initiate H-hour sequences at night while navigating from UH-60s and then observe their fires pound SEAD targets along flight corridors through the impact area.

The Div Arty gleaned invaluable fire support expertise as 2-8 FA participated in the first light-heavy rotation at the JRTC. 2-8 FA supported TF 1-7 as the 9th Regiment LightFighters established the lodgement and were joined by elements of the 24th Infantry Division during the January rotation.

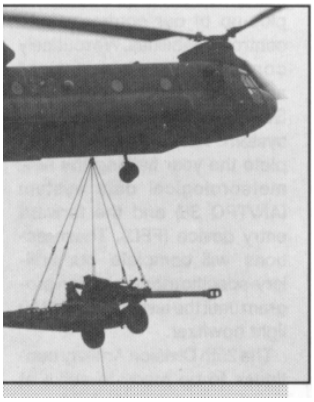
7th Div Arty remains on the leading edge of the implementation of new technology as we fielded the Q36 Radar Block II modification. In addition to the self-locating modular azimuth positioning system (MAPs) capability, the components that comprise the Block II can fit on one C-130, providing a heretofore unrealized inter-theater tactical transport capability. The fielding of the forward entry device and the meteorological measuring set (AN/TMQ-38), along with several LTACFIRE capability upgrades, lends added lethality to our light artillery.

Even as we move to our new home at Fort Lewis in 1993, we will remain ever ready to deploy at a moment's notice to provide the legendary fire support of the ***Bayonet Artillery*.**

10th Mountain Division (Light Infantry) Artillery

The 10th Mountain Division Artillery, Fort Drum, New York, has enjoyed a very productive year. Battle-focused training at Fort Drum, the Combat Training Centers and other off-post training honed fire support skills to high levels in support of the division's mission for rapid worldwide deployment.

Throughout the winter, Div Arty's DS battalions, 1-7 FA "Danger Close" and 2-7 FA "Guns of Glory," conducted tough training that emphasized combat sustainment during extended cold-weather operations.



Redlegs from E/7 FA air assault into position during Exercise "Mountain Peak."

Artillerymen participated in a series of increasingly complex division-level staff and command post exercises that culminated in the BCTP War-fighter in April, integrating and synchronizing fire support to fulfill the division commander's intent for "Fighting with Fires."

To foster interoperability, the Div Arty's ongoing exchange program brought a battery of the Royal Canadian Horse Artillery to train at Fort Drum while B/1-7 FA trained with Canadian forces at Petawawa, Ontario.

The standardized external evaluation (SEE) of 1-156 FA (New York ARNG), the Div Arty's round-out battalion, kicked off the Div Arty's support to Bold Shift. Other Bold Shift contributions were the Div Arty's Target Acquisition Detachment's participation in "Yankee Excellence 92" while firing batteries deployed via US Air Force assets to training sites throughout the world.

In September, the 10th Div Arty deployed Redlegs to assist with Hurricane Andrew relief efforts, providing our soldiers challenging and rewarding experience.

Fort Drum's modern facilities for soldiers and their families, combined with excellent training opportunities, creates an atmosphere that lends itself to a future of continued fire support training excellence. The Redlegs of the 10th Mountain Div Arty look forward to seeing you as we travel throughout the world—training hard and meeting the challenge to ***Climb to Glory!***

10th Div Arty Redlegs provide fire support during a training exercise.

24th Infantry Division (Mechanized) Artillery

The 24th Infantry Division (Mechanized) Artillery, Fort Stewart, Georgia, stands ready to provide fire support to the heavy division of the rapid-deploying XVIII Airborne Corps. To enhance its ability to deploy and fight, the division has developed a division ready force (DRF). Elements of this force are designed to be air and sea transportable. The DRF consists of an initial ready company prepared for air deployment within 18 hours, rapidly followed by the remainder of the division. The 24th Div Arty provides a FA battery for the DRF. Other force packages available for the task force include an MLRS battery, Firefinder radar, a meteorological section and the remainder of the FA battalion. Our most recent opportunity to demonstrate this rapid deployment capability was during the joint exercise, Ocean Venture 92, conducted at Camp Lejeune, North Carolina.

Each of the 24th Div Arty's direct support battalions (1-41, 3-41 and 4-41 FA) participated in a NTC rotation this year where they honed tactical operational skills in a desert environment. Preparation for these NTC rotations included training with the maneuver brigades during a "Victory Focus" exercise. Although oriented toward battery and smaller unit collective tasks, a battalion external evaluation culminated this intense three-week exercise.

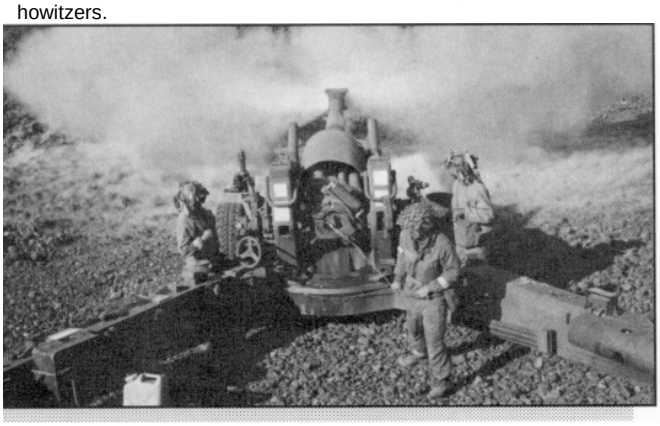
The Div Arty MLRS battery (A/13 FA) conducted several live-fire exercises, a deep JAAT with the division's aviation brigade and a highly successful external evaluation. G/333 FA (TAB) had a challenging training year supporting numerous active and Reserve Component exercises at this and other installations. In addition, the Div Arty maintained a close relationship with 1-118th FA, the artillery battalion of the 48th Brigade, Georgia Army National Guard.

As always, the 24th Div Arty stands ready to be the first to fire for the ***Victory Division, the First to Fight!***

A howitzer platoon moves during training at Fort Stewart, Georgia.

25th Infantry Division (Light) Artillery

B Battery, 7-8 FA trains on the direct fire range with its M102 howitzers.



F/7 FA conducting M198 direct fire training.

As the Tropic Thunder Artillery of the 25th Infantry Division completes another busy year, we continue to be ready to deploy worldwide in 18 hours. Our METL, ranging from conducting non-combatant evacuation operations (NEO) to providing fire support in high-intensity operations, reflects the versatility and flexibility of this highly trained, ready-to-strike division.

We have had a great year! In addition to deploying in support of numerous exercises in the Pacific, the Div Arty provided fires in support of a superb JRTC rotation over the summer. We continue our routine deployments of battalions and separate batteries to the Pohakuloa Training Area (PTA) on the "Big Island" of Hawaii. This year we conducted highly stressful and demanding external evaluations (EXEVALs) for all of our units, to include the first EXEVAL for the 25th Field Artillery Detachment during our summer rotation to PTA.

Tropic Thunder Redlegs significantly upgraded our counterpart training program in support of the Reserve Component. Commanders and trainers from the entire Div Arty were involved throughout the year with the 115th FA Brigade (Wyoming ARNG) and the 1-487 FA "Hiki No" Battalion (Hawaii ARNG). As always, we learned as much as we taught.

We have also had a big year integrating new combat systems. We started the year fielding the MSE system. This has turned out to be a dynamite plus-up of our command and control capabilities. We routinely communicate line-of-sight across the ocean from PTA to Schofield Barracks using this system. The Div Arty will complete the year fielding the new meteorological data system (AN/TPQ 38) and the forward entry device (FED). These actions will complete our artillery-specific modernization program until the arrival of the M119 light howitzer.

The 25th Division Artillery continues to be ready-to-strike at any time and any place all over the world for any mission. ***Hoooaaahh—Tropic Thunder!***

26th Infantry Division Artillery

The 26th "Yankee" Infantry Division Artillery, with elements in Massachusetts, Connecticut and Vermont, continues to pursue excellence in Training Year 92. This led to extremely successful AT periods at Fort Drum, New York for all Div Arty elements.

The 26th Div Arty consists of the 1-101 FA (Massachusetts ARNG), 2-192 FA (Connecticut ARNG), 1-86 FA (Vermont ARNG), 1-211 FA (Massachusetts ARNG) and E/211 FA (TA) (Massachusetts ARNG).

During the past year, the Div Arty concentrated on learning and reinforcing battery-level skills for all firing elements and conducted two simultaneous external evaluations for the 1-101 FA and 1-86 FA. These evaluations also tested two sections of the Firefinder TAB, E/211 FA. Additionally, we conducted four MOS qualification schools (13F, 13B, 13E, 93F) and intensive battle-staff training during the AT period. As a result, the Div Arty had an excellent training year, testing the skills of our Redlegs and reinforcing the basics. 101 FA fired over 300 rounds during salute activities, including visits from the Chief of Staff of the Army.

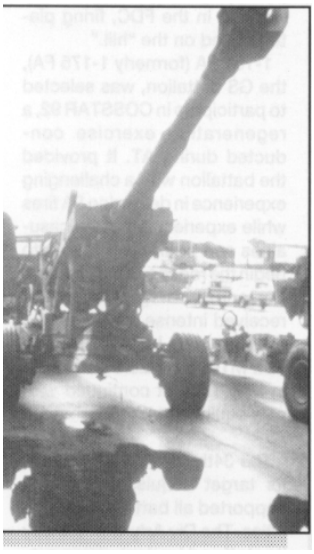
The Yankee Artillery is well prepared for the challenges that lie ahead. During Training Year 93 we'll concentrate on the Combined Arms Training Strategy, prepare for a HHB Div Arty ARTEP, plan for BCTP training for TY-94 and continue integrating fire support with maneuver.

As citizen soldiers and active members of our local community, we continue to participate in and support our neighbors in their activities and react to emergency activations. Testing and reinforcing skills at the battalion level will further prepare us for future challenges. We continue to lead the 26th Infantry Division through emphasis on soldier and crew skills at every level as the ***Yankee Artillery!***

Redlegs of C Battery, 2-11 FA prepare to fire charge 7, white bag during AT 92.

28th Infantry Division Artillery

The artillery of "America's Oldest Division" took on a new look in 1992. 1-107 FA (Pittsburgh), formerly a 105-mm battalion, has been upgraded to M198 howitzers. 1-108 FA (Carlisle), formerly a 105-mm direct support (DS) battalion, will now shoot M110A2 howitzers and assume the general support (GS) role. 1-109 FA (Wilkes-Barre), a former GS composite battalion, will now handle a DS mission with M109 howitzers, and the 1-229 FA (New Castle) has been upgraded from 105-mm to M109 howitzers.



1-107 FA (Pittsburgh) begins training on its new M198 howitzers.

Although the MTOE for this conversion was effective 1 September 1992, the Keystone Div Arty was proactive in acquiring weapon systems and modifying training plans so that all battalions trained on these new systems during AT 92. This conversion from pre-World War II-vintage towed 105-mm weapons to modern tracked, self-propelled 155-mm and 203-mm systems provided numerous training opportunities. The Redlegs of the 28th had to sustain their ability to shoot and develop their ability to maintain these new systems. With outstanding support by the 24th Div Arty, this aggressive program enabled the 28th Div Arty to organize under the new MTOE with fully qualified crews and no loss of readiness.

In 1993 these challenges will be faced by a new Div Arty commander and new commanders in three of our four battalions. No matter how you phrase it—more bang for the buck, a bigger payload, more lethality—one point is clear: when the 28th Div Arty orchestrates a Div Arty One on target, more than 7,500 pounds of fire and steel will assure the successful accomplishment of the maneuver commander's fire support plan.

1-108 FA now provides GS fires with a battalion of 8-inch M110A2 howitzers.

29th Infantry Division (Light) Artillery

Exciting changes were presented to the 29th Div Arty (Virginia ARNG) during the training year. Equipment fielding required both new equipment and, subsequently, sustainment training. To accomplish this necessitated a balance between ongoing mission-essential and combined arms training and other support requirements.

With limited training time, this juggling was more difficult than it appears. Additional active duty training and inactive duty training assemblies were scheduled. Besides modifying our training plans, we revisited operating procedures, battle books and mobilization plans—the latter in response to the new equipment and changes in unit MTOEs.

New equipment included the LTACFIRE, the forward entry device (FED), the fire support DMD and MSE. Receipt of the AN/TPS-25 moving target locating radar and the second Q-37 radar fully complemented our attached corps target acquisition detachment. Equally important was the return of equipment loaned to units that deployed to SWA.

The addition of LTACFIRE enhanced our command and control capabilities and has been incorporated into all training activities to sustain proficiency. This included the division's BCTP exercise at the XVIII Airborne Corps Battle Simulation Center with all FA units participating. Reportedly, this was the first integration of LTACFIRE at the Simulation Center. When the division reported to Fort Leavenworth, Kansas, for its BCTP Warfighter Exercise, all LTACFIRE terminals accompanied it, allowing additional multi-echelon training in a taxing environment.

Regularly scheduled LTACFIRE training exercises have become a mainstay.

As new doctrine, equipment and lessons learned are incorporated into how we fight, the 29th Div Arty is committed to excellence. ***We Stand Ready*** to provide the synchronization of fires required by the only Reserve Component light infantry division.

B Battery, 1-246 FA conducts airmobile operations at Fort Pickett, Virginia, during an IDT assembly. *(Photo by Cadet Mark Osbourne)*

34th Infantry Division Artillery

This year the 34th Div Arty (Minnesota ARNG) completed major reorganization and realignment. With the elimination of a non-divisional artillery battalion within the state, the Div Arty realigned and re-stationed the GS and DS artillery battalions to meet state geographical requirements.

The 1-125 FA experienced major changes this year. Because of the state reorganization, the 1-125 FA became a DS battalion and changed weapons systems. The battalion also converted two infantry units to artillery. The training focus for the year was battery-level and staff training. The major focus for next year will be MOS qualification and training as a DS unit.

The 1-194 FA (Iowa) attended AT at Camp Guernsey, Wyoming in August 1992. The battalion conducted tactical exercises without troops (TEWTs), cannon section tests, direct fire, close air support (CAS) and suppression of enemy air defense (SEAD) missions, FA raids, firing battery graphic resection and junior leader training. It provided fire support to the 2d Brigade at three different training sites, including the NTC. The battalion received many awards, including three superior unit awards and the Milton A. Reckord Trophy as the outstanding battalion in the Fourth US Army area for TY 92.

During AT 1992, the "Ready and Willing" artillerymen of the 2-123 FA deployed three battery-sized rotations to the Republic of Honduras. Dubbed "Operation Thunder of Cannons 92," it included movement of equipment and personnel by land, sea and air. Training was intense and directed at the battery level. Honduran "Redlegs" participated in fire missions by working in the FDC, firing platoons and on the "hill."

1-151 FA (formerly 1-175 FA), the GS battalion, was selected to participate in COSSTAR 92, a regeneration exercise conducted during AT. It provided the battalion with a challenging experience in delivering FA fires while experiencing mass casualties and equipment losses to begin the regeneration process. Personnel and logistics sections received intense training in the exercise. The battalion fielded new M198 howitzers and PADS in May 1992. It continued with new equipment training through AT.

The 34th Div Arty and E/151, its target acquisition battery, supported all battalion AT densities. The Div Arty will intensify its staff and leader training program as it prepares for the BCTP Warfighter in 1994. ***Storm Artillery—Leading the Way!***

Redlegs of 1-125 FA participate in annual training at Camp Ripley, Minnesota in June 1992.

35th Infantry Division (Mechanized) Artillery

The 35th Infantry Div Arty (Kansas, Nebraska and Kentucky ARNG) focused on development and execution of training plans to qualify, certify and validate (QCV) individuals, sections and batteries as combat-ready units. Units trained using lane-training techniques at the individual, section and battery levels based on the concepts of *FM 25-100 Training the Force* and *FM 25-101 Battle Focused Training*.

During AT at Fort Riley, Kansas, the 35th Div Arty strived to execute the QCV program with extremely positive results in a field environment. While these events were ongoing, elements of the Div Arty headquarters, the FSE and the 138th FA Brigade worked with the 35th Division headquarters on orders drills. The Div Arty continued to enhance its relationship with the 138th FA Brigade, working as a reinforcing brigade, in a tactical environment. The interaction significantly improved the Div Arty's ability to employ an FA brigade. HHB, E/161 FA (TA), 1-127 FA and the 1-161 FA strived to ensure their soldiers were properly trained at the individual, section and battery levels. *Training to standard* was the key to our success.

2-138 FA (Kentucky ARNG) was administered a standardized external evaluation (SEE), with evaluators from the 35th Div Arty and the 138th FA Brigade, during AT at Fort Stewart, Georgia. The SEE was written, administered and controlled by the 35th Div Arty. It proved to be an extremely successful evaluation tool to attain and maintain a high state of combat readiness.

1-168 FA (Nebraska ARNG) conducted its AT period at Fort Carson, Colorado, and 2-130 FA (Kansas ARNG) had a chance to perform training with headquarters, 428th FA Brigade at Fort McCoy, Wisconsin. Both battalions focused on the QCV concept and multi-echelon training and had excellent AT periods.

In the coming year, the 35th Div Arty will continue to develop and execute training plans that will utilize lane training techniques at the individual, section and battery levels. Training will be multi-echeloned and will focus on the 35th Division QCV programs. The 35th Div Arty will prepare to participate with the 35th Division in a BCTP Warfighter exercise at Fort Leavenworth, Kansas. The Field Artillery continues to lead the way for all the soldiers of the historic ***35th—The Santa Fe Division!***

Cannoneers of Battery C, 1-161 FA check the final drive as part of a PMCS training lane during AT.

38th Infantry Division Artillery

The "Year of Transition" was the theme of the 38th Div Arty (Indiana ARNG) for 1992. The Div Arty started and continues to make the transition to new weapons systems.

1-119 FA (Michigan ARNG) conducted AT at Camp Grayling, Michigan. They were administered a standardized external evaluation (SEE) by the Div Arty with evaluators from the Div Arty staff, 1-163 FA and 2-150 FA.

3-139 FA (Indiana ARNG) conducted AT at Camp Atterbury in June with emphasis on converting to M110 howitzers. The battalion spent 10 days with the assistance of Readiness Group Headquarters and the 101st (Air Assault) Div Arty training the battalion on M110 howitzers borrowed from the Ohio Army National Guard. Additionally, the battalion fired its MTOE assigned M101A1s to maintain proficiency.

2-150 FA (Indiana ARNG) conducted AT at Camp Atterbury later in July and August with emphasis on converting to M198 howitzers. The battalion spent the entire training period with the assistance of Readiness Group Headquarters and 101st Div Arty training the battalion to standard on the M198 howitzers received in April.

1-163 FA (Indiana ARNG) conducted AT at Camp Atterbury in July with emphasis on combined arms training. The battalion is equipped with M101A1 howitzers. They worked very closely with the 76th Brigade to improve fire support skills at the brigade, battalion and company levels.

The Div Arty headquarters, with HHB and E/139 FA (TA), conducted AT at Camp Atterbury in late July and August. The 38th Infantry Division participated and practiced BCTP Warfighter skills in preparation for its BCTP exercise.

E/139 FA (TA) supported each AT period with a Firefinder radar system and crew, and HHB supported each of the AT sites with a meteorological section. With four different training sites, this was quite a demanding summer for each support battery.

The 101st Div Arty supported each of the AT periods with trainer and evaluator cells. This relationship continues to grow and prosper and is extremely beneficial to both the National Guard of Indiana and the 101st Div Arty.

Cyclone's Thunder!

Redlegs of Battery B, 3-139 FA conduct live fire training during AT at Camp Atterbury.

40th Infantry Division (Mechanized) Artillery

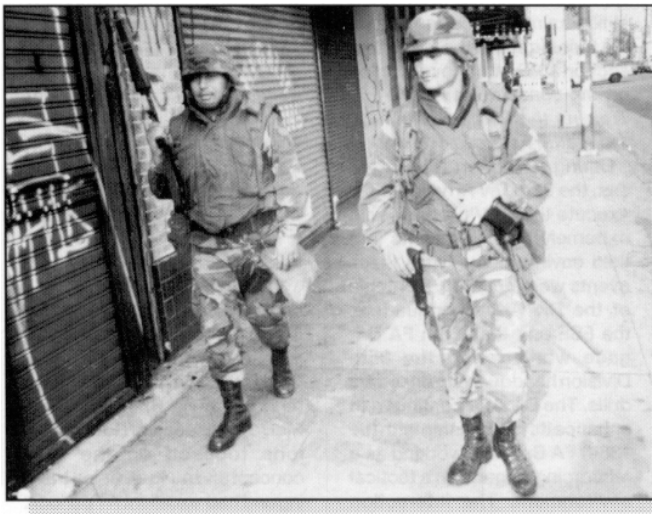
1992 provided many challenges for the Redlegs of the "Fighting Fortieth" Div Arty (California ARNG). The year began with Div Arty joining in the I Corps Warfighter exercise in November 1991 at Fort Lewis, Washington. Flexibility became our motto as ambitious training plans were put on hold when the Div Arty was activated for the Los Angeles riot on 29 April. Over 1,500 Redlegs set a record deployment—less than 12 hours—as they hit the streets of Los Angeles in support of civilian police agencies after conducting refresher training in civil disturbance operations.

Despite a stream of constant threats, taunts and numerous instances of incoming small-arms fire from hostile gang members, Div Arty soldiers performed their military operations on urbanized terrain (MOUT) mission with admirable discipline and restraint. After 18 grueling days of long hours and high stress, our Redlegs returned home with honors and praise by police and civilian officials for their professionalism and conduct.

As the Div Arty resumed its METL training focus, one of our DS battalions, the 3-144 FA, successfully completed its triennial standardized external evaluation (SEE). This SEE was administered by the 40th Div Arty and, for the first time, evaluated by the 91st Maneuver Training Command.

In addition to this first, the 40th Div Arty undertook the first Div Arty brigade automated simulation exercise-remote (BASE-R) via telephone-computer link from a tactical field site to the Battle Simulation Center at Fort Lewis. The BASE-R was evaluated by the 4th Infantry Div Arty and was a great learning experience.

With even more ambitious plans for the next training year, including concurrent SEEs for one of our DS 155-mm battalions and our GS 203-mm battalion, look for the Redlegs of the ***Fighting Fortieth*** Div Arty to again set the standard.



Redlegs of the Fighting Fortieth Div Arty patrol the streets of Los Angeles.

42d Infantry Division Artillery

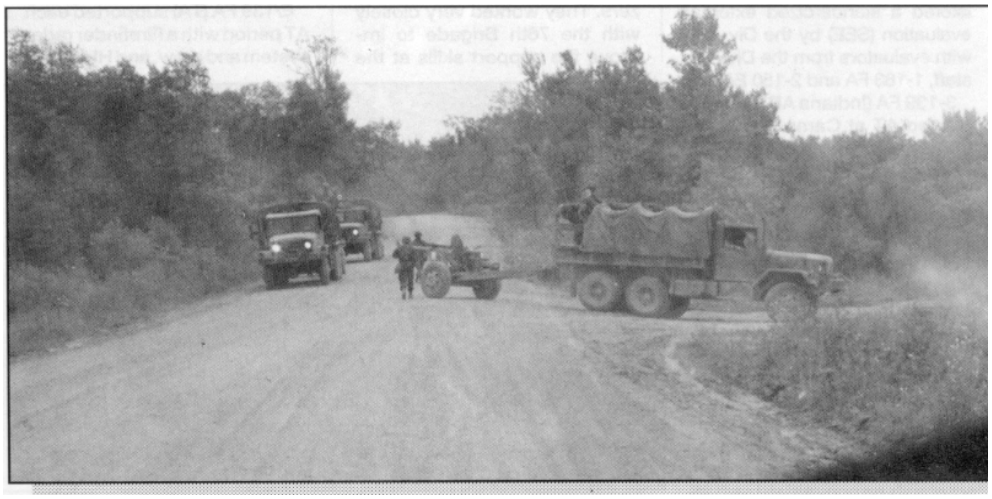
In Training Year 1992, the 42d Div Arty (New York ARNG) focused on the inactivation of the 2-104 FA and the reorganization of 1-258 FA. Two batteries of 2-104 FA and Detachment 1 became part of the reorganized 1-258 FA. Battery C and Service Battery of 1-258 FA merged with the rest of the battalion. The 2-104 "Always Ready" FA battalion was officially inactivated 1 September 1992.

During Inactive Duty Training 1992, the 42d Div Arty participated in a challenging and rewarding CPX with the 42d Infantry Division at division headquarters in Troy, New York. The Div Arty staff, along with selected staff members of 2-104 FA and 1-258 FA, spent a week at Fort Sill attending the FA staff refresher course. The program of instruction brought us up-to-date on current FA doctrine.

During AT 92, 1-258 FA conducted live-fire exercises at section and battery levels. All training was driven by a pre-planned Korean scenario. In addition, each firing battery was tested and evaluated by the Div Arty staff using a modified version of Appendix G, *FM 6-50 The Field Artillery Cannon Battery*. The Empire State Military Academy conducted a Phase-1 BNCOC at Fort Drum that resulted in 19 NCOs being qualified. The Div Arty staff finalized operations for our upcoming participation in the 42d Infantry Division's CPX in November 1992.

The 42d Div Arty participated in numerous Memorial Day celebrations in honor of our fallen heroes. The 2-104 FA participated in a Celebration to America that culminated in several firing sections supporting the "1812 Overture."

During 1992, the 42d Div Arty successfully completed many varied missions. The reorganized 1-258 FA has some of the most technically competent and highly motivated artillerymen in the entire country. We'll continue on the path of excellence by training these highly competent individuals for service to the nation and community in both peace and war. We are the ***New York Artillerymen!***

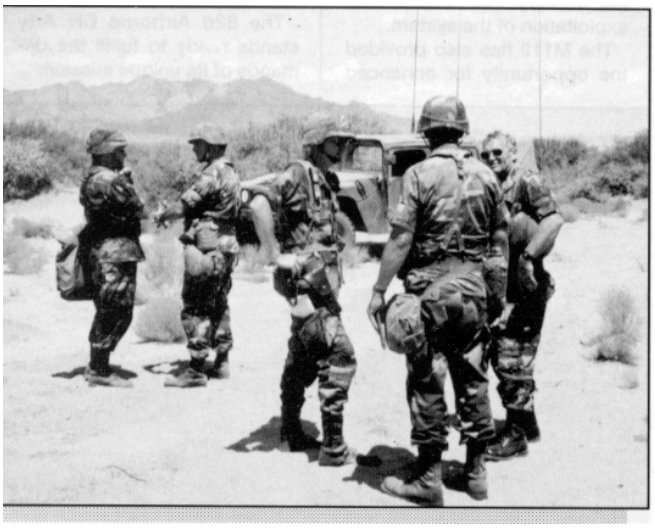


Members of 1-258 FA occupy a firing position during annual training at Fort Drum, New York.

49th Armored Division Artillery

The Texas Artillery is prepared to deliver steel—on time, on target—to support the 49th "Lone Star" Armored Division (Texas ARNG).

During Training Year 1992, the 49th Div Arty completed a major reorganization with units being inactivated, moved from one home station to another, being reassigned from out-of-state and created from "scratch." We sadly bid farewell to 2-131 FA but welcomed back the 1-133 FA from the 36th Brigade, 50th Armored Division. 3-132 FA completed retraining and was reorganized into an 8-inch battalion. December 1991 saw the formation of the first Texas ARNG MLRS battery, C/1-171 FA, currently undergoing MOS and new equipment training.



Div Arty and 4-133 FA commanders and staff members discuss training during AT at Fort Bliss, Texas.

Texas Artillery conducted very successful AT operations in 1992. Div Arty staff personnel and members of the GS and DS battalions of the division participated in train-up activities for the August BCTP exercise at Fort Leavenworth. 1-133 FA trained at Fort Hood with the 49th Div Arty for the first time since 1988, and 3-132 FA conducted 8-inch MOS qualification transition training. The 3d and 4th Battalions of the 133d FA, along with radars from the divisional target acquisition battery, E/133 FA, deployed to Fort Bliss in July 1992 for AT.

Employer support of the Guard and Reserve in Texas continued to receive emphasis in 1992. Twenty-five civilian employers from the central Texas area traveled to Fort Hood by helicopter to observe training activities. They were treated to gun-drill demonstrations by Battery A, 1-133 FA, equipment displays by the Div Arty headquarters, HHB and TAB and a tour of captured Iraqi war equipment by the curator of the III Corps Military Museum. The visitors were very impressed with the professionalism and expertise exhibited by Texas cannoneers.

Training Year 1993 will continue to build on individual and crew skills by using SQT and CTT activities to exercise soldier skills. TOC exercises and CPXs will refine headquarters activities and build on the lessons learned at the Fort Leaven-worth BCTP.

As always, the ***Texas Artillerymen*** stand ready to provide the 49th Armored Division "Lone Star" lethal firepower, on time and on target, to ensure victory.

50th Armored Division Artillery

Training Year 1992 offered a wide variety of exciting and unique training opportunities for the Redlegs of the 50th Armored Division (New Jersey ARNG). As usual, these highly qualified and enthusiastic soldiers met and successfully overcame all challenges.

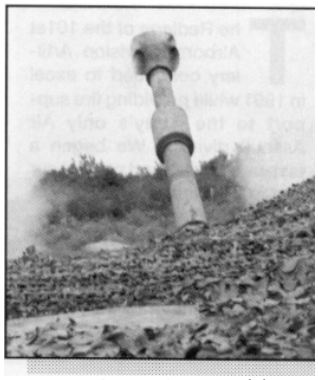
1992 was the year of evaluations for the 50th Div Arty. The year kicked off with the Div Arty completing two ARTBASS exercises within three weeks of one another at Fort Dix. Both of the New Jersey-based cannon battalions (1-112 FA and 3-112 FA) completed ARTEP evaluations during their AT periods at Fort Drum. 1-112 FA completed an internal ARTEP, while 3-112 FA conducted an external evaluation administered by the 78th Maneuver Training Command. Both battalions rose to the occasion and completed their ARTEPs in an outstanding manner.

Redlegs of Battery A, 1-112 FA prepare to fire during AT at Fort Drum, New York.

During this period, the Div Arty headquarters trained with the division headquarters, culminating with a BCTP exercise conducted at Fort Leavenworth in August. This exercise provided the staff and command sections of the 50th Div Arty with realistic and demanding training, resulting in increased combat readiness for the Div Arty as a whole.

In preparation for the division's BCTP, the Div Arty conducted an annual fire support conference in March. Maximum participation occurred, and the division staff received timely and accurate artillery training.

In January 1992, the 50th Div Arty bid a fond farewell to its Texas battalion, 1-133 FA. 1-133 was reassigned to the 49th Armored Division (Texas ARNG). The battalion will be sorely missed, and we wish them continued success.



Battery C, 1-112 FA participates in an ARTEP at Fort Drum, New York.

The Div Arty participated in the annual First Army Howitzer Section Competition conducted this year at Fort Indiantown Gap, Pennsylvania. The competing section performed well and was able to share in knowledge and training with their counterparts from First Army.

In January 1992, members of the 50th Div Arty participated in the Field Artillery staff refresher course at Fort Sill.

Make It Happen!

82d Airborne Division Artillery

The 82d Airborne Div Arty stands ready to deploy anywhere in the world within 18 hours to fight and win. This capability is maintained through a training strategy that focuses on the special requirements of early deploying forces. The training strategy highlights individual excellence, routinized drills and rigorous combined arms training exercises. In addition, new equipment fieldings and significant improvements in strategic deployability have sharpened the Div Arty's war-fighting edge.

Individual excellence programs aim at developing the body, mind and spirit of the remarkable airborne Field Artilleryman. Routinized drills prescribe essential tasks and the frequency with which they will be practiced in order to maintain readiness within an acceptable band of excellence given the early-deployment mission. Rigorous combined arms training exercises include frequent rotations to the NTC and JRTC and participation in BCTP. Each battalion's 10-day EXEVAL was administered in conjunction with maneuver task force EXEVALs in a combined arms format. The CALFEX, however, is the real engine of this portion of the strategy. These exercises are conducted in danger-close support of maneuvering infantry and emphasize the realities of combined arms operations to fire supporters and maneuver alike. This year, each maneuver commander will conduct a CALFEX.

New equipment fieldings included the M119 howitzer, LTACFIRE, single-channel ground and airborne radio system (SINCGARS), MSE, forward entry device (FED) and meteorological measuring system (MMS). The Div Arty's capabilities are radically improved. The M119 with its increased range and lethality is an extremely suitable replacement for the venerable M102. A small-unit exchange program with the British artillery has accelerated exploitation of the system.

The M119 has also provided the opportunity for enhanced air-delivery procedures to increase the lethality of early-deploying forces. The number of air-delivered howitzers per aircraft have doubled and accompanying ammunition has increased by one-third as a result of these procedures.

The 82d Airborne Div Arty stands ready to fulfill the demands of its unique mission.

Cannoneers emplace their howitzer during airborne training as the second pass descends to the drop zone.

101st Airborne Division (Air Assault) Artillery

The Redlegs of the 101st Airborne Division Artillery continued to excel in 1991 while providing fire support to the Army's only Air Assault division. We began a fast-paced year and proved our mettle in October 1991 during a highly successful division deployment to the JRTC, Fort Chaffee, Arkansas.

One of the year's most challenging events was the BCTP Warfighter conducted in February that included all Div Arty elements. Our detailed focus on the commander's intent and efficient use of fire support assets convincingly demonstrated the power of the artillery as all enemy indirect fire support systems—over 650 cannons—were destroyed.

We participated in numerous joint exercises deploying away from Fort Campbell, including Operations Kopec Trade, Ocean Venture and Sand Eagle. Kopec Trade exercised fire support in a special operations scenario at Fort Chaffee. Ocean Venture was a United States Atlantic Command (LANTCOM) exercise at Camp Lejeune, North Carolina, that confirmed our ability to deploy and execute NEO and conduct combat operations. Sand Eagle was an emergency deployment readiness exercise (EDRE) to support joint operations in executing a forced-entry mission.

The Div Arty developed and executed Eagle Fires IV—a uniquely demanding 10-day exercise that evaluates a battalion's readiness to plan and execute combined arms fire support for the Air Assault brigade task force. It featured home-station, high-resolution, force-on-force maneuver training integrated with gunnery and fire support in a mid-intensity scenario. Eagle Fires proved invaluable as an evaluation means for our battalions and the combined arms team.

The Div Arty modernized in several significant ways. Upgrades in LTACFIRE, forward entry device fielding and the Kevlar hardening of the Q-37 radar will make our fire support more responsive and survivable. One of the most significant changes began late in the year with M119 howitzer fielding. This weapon's increased range will help strengthen our proven ability to provide devastating fire support to the division's maneuver forces. The 101st Airborne Division (Air Assault) Artillery looks forward to the challenges that lie ahead. ***Guns of Glory!***

Battery C, 2-320 FA conduct air assault training in preparation for their JRTC rotation. *(Photo by SGT. Groll)*

US Army Field Artillery Training Center

"Listen closely, Private. Never, ever, close the breech without announcing 'CLOSING' in a loud, clear voice." This scene and many similar ones are recreated every day by the highly professional NCOs assigned to the Field Artillery Training Center (FATC). This year, the drill sergeants of the 1-19 FA, 1-31 FA, 1-33 FA, 2-80 FA, 3-321 FA, 95 AG and the enlisted instructors of the 1-78 FA provided initial entry training (IET) to over 20,000 trainees, the end product being highly trained and motivated soldiers capable of winning and surviving on the modern battlefield.

The drill sergeant, the heart of the Field Artillery Training Center, takes personal responsibility for every young person developed into a soldier.

Every future Redleg first encounters the Army at the 95th AG (Reception) Battalion. This organization, a mix of dedicated soldiers and civilians, begins the enormous task of transitioning young men into clean-shaven trainees in a smooth, efficient and well-choreographed manner. They prepare the trainees for the rigorous program of instruction awaiting them.

The 1-78 FA provides the technical instructors on-site to support the drill sergeants. The largest battalion in the FATC, the 1-78 FA cadre operate a multitude of ranges and operate over 100 howitzers and an assortment of training support vehicles. They fired 49,500 rounds of artillery and 8.1 million rounds of small arms ammunition in FY92, while providing tough, realistic training for our new soldiers.

The 2-80 FA conducts advanced individual training (AIT) for 13 MOSs and 11 additional skill identifiers (ASIs). Drill sergeants and US Army Field Artillery School instructors train in the traditional classroom environment and reinforce classroom training with FTXs that build comprehensive, hands-on expertise. The FTXs show the privates the interdependence and importance of all facets of their training.

The heart of the FATC remains the drill sergeant. These dedicated NCOs take personal responsibility for every young person they develop into a soldier. Their reward for unending patience and long hours is the happiness and pride of the mothers and fathers who see "their soldier" stand tall and proud at graduation and the satisfaction of knowing another trained soldier is ready to join the Total Army Force.

These skilled professionals are guided daily by the FATC motto ***"Mission First...People Always."***

US Marine Corps Artillery

1992 was a year of change for Marine Corps artillery. Faced with the mandated Department of Defense drawdown, the Leathernecks initiated a reorganization plan and aggressively pursued its implementation. Efforts continued to address operational and training deficiencies while maintaining the demanding deployment schedules of our Marine Air-Ground Task Forces (MAGTFs) around the world.

Reorganization

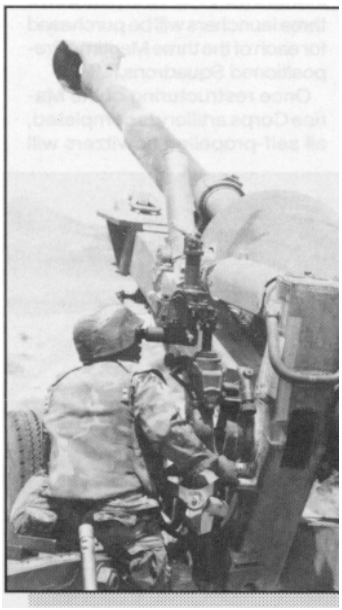
During the latter part of 1991, Marine Corps artillery initiated a restructuring of the battalion from the three-battery, eight-gun (3x8) concept to the historical four-battery, six-gun (4x6) organization. This organization was viewed to be simpler to command and control (C^2) and was intended to provide the artillery battalion more flexibility and mobility in support of rapidly moving maneuver.

However, this restructuring didn't account for the downsizing of the Marine Corps directed by the Department of Defense. The reality of downsizing to meet this guidance was met head-on by the Marine Corps with the charter to the Force Structure Planning Group (FSPG). The FSPG was convened at Headquarters, Marine Corps by the Commandant to provide a recommendation on how best to restructure and achieve the most combat power with a significantly smaller force.

The FSPG's subsequent recommendation was based on a Corps of 159,100 Marines and significantly reorganized the structure of the Marine Division. From the 1991 structure of four artillery battalions within the artillery regiment, each with four batteries of six M198 howitzers, the FSPG recommended a reduction to three battalions per regiment while adding a MLRS battalion as a "corps-level" asset.

A similar study group was chartered to review the Marine Corps Reserve structure. The impact on the reserve artillery was similar to the active force in that the battalions would be reorganized into four-battery battalions, each battery having six M198 weapons. One of the battalions would be organized with a total of six batteries to provide a source for augmentation of active-force battalions—similar to that experienced during Operation Desert Storm.

The Marine Corps MLRS, while being procured as a high priority, was not projected to be fielded until FY97/98. Without MLRS, a four-battalion base for the CONUS artillery regiments was considered essential to ensure adequate artillery support for the Marine division. As a result, the artillery organization was modified from the FSPG recommendation by using the manpower structure required for MLRS to "pay" for the retention of a fourth artillery battalion headquarters in both the 10th and 11th Marines. Each of the standing battalions gave up one firing battery to the fourth



An 11th Marines Redleg participates in howitzer live-fire training.

battalion with the final regimental organization being four battalions of three batteries each. Once MLRS is fielded, the fourth artillery battalion headquarters will dissolve and the original FSPG recommendation will be implemented.

By the end of FY92, two artillery battalions remained in the 12th Marines on Okinawa, each with three batteries. The 1st Battalion, 12th Marines in Hawaii will inactivate during FY95, concluding the Marine artillery's portion of the mandated structure reductions.

When the MLRS battalion is fielded, plans call for the battalion headquarters and two batteries to be assigned to the 11th Marines on the West Coast and one battery to be assigned to the 10th Marines on the East Coast. Each battery will have nine self-propelled launcher loaders (SPLLs). One platoon of three launchers will be purchased for each of the three Maritime Prepositioned Squadrons (MPS).

Once restructuring of the Marine Corps artillery is completed, all self-propelled howitzers will have been replaced by M198s, and M101A1s will remain as contingency weapons, primarily for use by the Marine Expeditionary Units (Special Operations Capable) or MEU (SOC).

Training

While MAGTFs continued to deploy worldwide in support of operational contingencies, our planners paid keen attention to a number of major exercises. These exercises were excellent opportunities to enhance the MEF warfighting capability. MEFEX 2-92 incorporated the Army's III Corps and was unique in that I MEF was also the joint task force (JTF) headquarters. In each exercise, Marines trained in the MEF's Force Fires Coordination Center (developed based on requirements generated by Desert Storm). These and future evolutions will allow us to refine doctrine and standing operating procedures (SOPs) and encourage joint training.

The Marine Corps combined arms exercise (CAX) training program is under consideration for significant enhancement. The enhanced CAX proposes a MEF (Forward) as the command element (CE) with an infantry regiment as the ground combat element (GCE). The training opportunities available through the enhanced CAX would be significant; however, the requirement for a larger training package is under consideration at the Marine Corps Combat Development Center.

Once restructuring of the Marine Corps Artillery is completed, all self-propelled howitzers will have been replaced by M198s.

Doctrine

The Marine Corps is revising combined arms- and fire support-related manuals based on lessons learned, the need to update doctrinal publications and standardize operations and the ever-increasing trend toward joint operations.

A key development promoting joint procedures interoperability was the expansion of the Air-Land Forces Application (ALFA) Agency into the Air-Land-Sea Application (ALSA) Center, adding the Navy and Marine Corps to the organization.

Automation

The Marine Corps is in the midst of a major modernization effort to improve C^2 systems. The Marine Corps remains committed to the development and fielding of the advanced Field Artillery tactical data system (AFATDS) as our objective system but is developing an interim system until AFATDS is ready for use. Designed based on the successes and experiences gained through the FIREFLEX test-bed and Desert Storm, the interim system—the Marine Corps fire support system (MCFSS)—was tested by the 11th Marines at the field user's test (FUT) during April and May with positive results. The FUT demonstrated the MCFSS's vast potential for rapid processing, dissemination and exchange of critical information between subscribers on the modern battlefield using computers with digital interface. Procurement decisions are expected in early 1993.

Research, Development and Acquisition

Marines continued to aggressively participate in the research and development of new technologies while continuing to upgrade the equipment currently in the inventory. Recently completed actions include the fielding of Firefinder Version 9 software, the meteorological data system (MDS) modification program and the standardization of conventional survey equipment.

Other anticipated improvements to USMC survey capabilities include the procurement of global positioning system-survey (GPS-S) sets (possible fielding during FY93) and the disk control unit (DCU) for PADS. GPS-S sets will be placed in regimental survey sets as component items, enabling the regimental survey section to rapidly establish survey control points in every clime and place. The DCU allows the electronic maintenance section to quickly program PADS. The met measuring set (MMS), smaller and cheaper to operate than the MDS, has FY93 funding for 14 systems.

An acquisition has been initiated to replace the antiquated and difficult-to-maintain M90 chronograph. Defense cooperative funding has been obtained to partially finance the requirement to procure a new muzzle velocity (MV) system. Current plans call for buying two MV systems per firing battery. A reprogramming request has been certified in the event excess funds are identified to procure 129 MV systems, potentially increasing procurement quantities to one MV system per tube.

A replacement for the modular universal laser equipment (MULE) is being studied. The mission needs statement was approved on 16 June 1992. If the market and technology exploration is successful, the Milestone I demonstration and validation phase could begin in FY93.

Efforts to continue development and procurement of the lightweight 155-mm howitzer suffered a major setback when the program failed to be funded in Program Objective Memorandum (POM) 1994. The requirement is valid and the Marine Corps will continue efforts to upgrade and modernize its cannon artillery. The M198 product improvement program (PIP) is funded and on schedule. It provides a safer, more durable and dependable weapon system.

Conclusion

Faced with the realities of maintaining a constant operational deployment schedule, the Marine Corps continues to plan for the future while ensuring we are prepared for the contingencies of today. Leatherneck artillerymen remain ready. ***Semper Fidelis—Always Faithful!***

Field Artillery Commanders and Command Sergeants Major

As of 1 November 1992

Active Army

Training and Doctrine Command

US Army Field Artillery School and Fort Sill

MG **Marty, Fred F.**
Commandant/CG

CSM **Stewart, David P.**
Fort Sill

BG **Benton, David L., III**
Asst. Commandant

COL **Bowden, Thomas G.**
CSM McFadden, Joseph J.
30th FA Regiment (HHB)

LTC **Coffman, Sammy L.**
CSM Horsley, Johnny L.
TF 2d-2d FA

LTC **Beecher, Robert J.**
CSM Hawkins, Joseph A.
1st Bn, 30th FA

LTC **Waller, Thomas G., Jr.**
SGM Jones, Benjamin R.
3d Bn, 30th FA

COL **Brown, Thomas L.**
CSM Noel, Thomas E.
USAFATC

LTC **Abel, Stephen G.**
CSM Jackson, Rick
1st Bn, 19th FA

LTC **Biggs, John D.**
CSM Porter, Raymond L.
1st Bn, 31st FA

LTC **Lyons, Richard D.**
CSM Shimizu, Antonio T.
1st Bn, 33d FA

LTC **Condit, Howard**
CSM Haynes, Ellis J.
1st Bn, 78th FA

LTC **Brinkley, Phillip L.**
CSM Purdy, Karl
2d Bn, 80th FA

LTC **Hendrickson, James A.**
CSM Krause, Lawrence
3d Bn, 321st FA

Forces Command

III Corps

BG **von Kaenel, Howard J.**
CSM Carr, Thomas E.
III Corps Arty

COL **Cunningham, James E.**
CSM Stockton, Gaylen
17th FA Bde

LTC **Baker, Timothy J.**
CSM Adams, Paul C.
5th Bn, 3d FA

LTC **West, Steven R.**
CSM Dunn, Michael A.
1st Bn, 12th FA

LTC **Furloni, Joe F.**
CSM Causby, Mal E.
3d Bn, 18th FA

COL **Cline, Dennis C.**
CSM Young, Richard A.
75th FA Bde

LTC **Gibbons, Peter W.**
CSM Blackwell, Glenn A.
1st Bn, 17th FA

LTC **Morton, Gregory V.**
CSM Meyer, Dennis
5th Bn, 18th FA

LTC **Taylor, Joe G.**
CSM Mitchell, Sammie
6th Bn, 27th FA

COL **Barcellos, Terrance D.**
CSM Williamson, Guy
212th FA Bde

LTC **Valcourt, David P.**
CSM Santos, Angel, Jr.
2d Bn, 17th FA

LTC **Hunzeker, Kenneth W.**
CSM Evans, Kenneth
2d Bn, 18th FA

LTC **Guillory, Kenneth D.**
CSM Williams, Felton
6th Bn, 32d FA

COL **Elder, Robin L.**
CSM Speichinger, Robert
214th FA Bde

LTC **Waite, Harold G., Jr.**
CSM Mabry, Jimmy L.
3d Bn, 9th FA

LTC **Twohig, John J.**
CSM Brooks, Ernest
3d Bn, 17th FA

LTC **DiGiorgio, Emilio**
CSM Williams, Anthony
5th Bn, 17th FA

XVIII Airborne Corps

BG **Brickman, James F.**
CSM Deese, Gary W.
XVIII Abn Corps Arty

COL **Sakuma, Steven M.**
CSM Murrell, Angelo B.
18th FA Bde (Abn)

LTC **Jones, William S.**
CSM Archbold, Cecilio M.
3d Bn, 8th FA

LTC **Lewis, Dennis R.**
CSM Stewart, Quenten M.
5th Bn, 8th FA

LTC **Smith, Arnold**
CSM Quandt, David T.
3d Bn, 27th FA

LTC **Rose, Lawrence C., Jr.**
1SG Hopkins, Charles D. (Acting)
1st Bn, 39th FA

COL **Aaron, Larry D.**
CSM Henson, Melvin R.
42d FA Bde

LTC **Church, James W.**
CSM Cox, Hubert L.
4th Bn, 82d FA

Division Artilleries

COL **Byrnes, Kevin P.**
CSM Cates, David L.
1st Cav Div Arty

LTC **Starry, Michael D.**
CSM Graves, Roy L.
1st Bn, 3d FA

LTC **Idiart, Phillip L.**
CSM Schmidt, Warren A.
1st Bn, 82d FA

LTC **Brown, Herbert G.**
CSM Duncan, Gary A.
3d Bn, 82d FA

COL **Evans, Richard E.**
CSM Edmundson, Thomas J.
1st IN Div (Mech) Arty

LTC **Hill, Robert D.**
CSM Snell, Stephen A.
1st Bn, 5th FA

LTC **Cuff, Michael V.**
CSM Vogt, David E.
4th Bn, 5th FA

COL **Gloriod, John A.**
CSM Wright, Daniel E.
4th IN Div (Mech) Arty

LTC **White, David C.**
CSM Villines, Kenneth M.
3d Bn, 29th FA

LTC **Wells, Herbert W.**
CSM Powell, Twin L., Jr.
5th Bn, 29th FA

COL **Culling, Thomas E.**
CSM Woods, David C.
5th IN Div (Mech) Arty

LTC **Annen, David M.**
CSM Sylvia, Phillip
4th Bn, 1st FA

LTC **Hayes, Michael T.**
CSM Cross, Lawrence L.
5th Bn, 1st FA

LTC **Kent, Richard F. Jr.**
SGM Mitchell, Joseph A.
9th Bn, 1st FA

COL **Glacel, Robert A.**
CSM Ostos, Joseph M.
7th IN Div (L) Arty

LTC **Odierno, Raymond T.**
CSM Bodisch, Michael F.
2d Bn, 8th FA

LTC **Combest, Michael L.**
CSM Kermode, William J.
6th Bn, 8th FA

LTC **Reese, Robert J.**
CSM Nelson, George H.
7th Bn, 15th FA

COL **Gaddis, Evan R.**
CSM Smith, Walter L.
10th Mtn Div (L) Arty

LTC **Palmer, James T.**
CSM Drummond, Walter L.
1st Bn, 7th FA

LTC **Rash, Charles R.**
CSM Chittum, Steven G.
2d Bn, 7th FA

COL **Townsend, Ronald E.**
CSM Williams, L. C.
24th IN Div (Mech) Arty

LTC **Decker, Robert L.**
CSM Cruz, Arthur E.
1st Bn, 41st FA

LTC **Turner, Albert F., Jr.**
CSM Robinson, Charles L.
3d Bn, 41st FA

LTC **Bell, Donald C.**
CSM Yancey, Andrew C.
4th Bn, 41st FA

COL **Marcello, John J.**
CSM Austin, Johnny J.
82d Abn Div Arty

LTC **Brant, Bruce A.**
CSM Thompson, Ronald
1st Bn, 319th FA

LTC **Svitak, George M.**
CSM Sexton, Frederick E.
2d Bn, 319th FA

LTC **Hood, Jay W.**
CSM Riley, Timothy D.
3d Bn, 319th FA

COL **Miller, Geoffrey D.**
CSM Devoe, Walter
101st Abn Div (AA) Arty

LTC **Zachariasen, Craig Z.**
CSM Freeman. Lesley, Jr.
1st Bn, 320th FA

LTC **Moore, Gordon K.**
1SG Holt, Leon C., Jr.
2d Bn, 320th FA

LTC **McKeeman, Michael W.**
CSM Douglas, Lawrence
3d Bn, 320th FA

Separate Commands

COL **Stricklin, Toney**
CSM Dixon, Donald L.
210th FA Bde
(I Corps Arty)

LTC **Veit, Rudy T.**
CSM Walker, Jimmy L.
1st Bn, 11th FA
2d ACR (L)

LTC **Kirin, Stephen J.**
CSM Clemmons, Walter
3d Bn, 11th FA

COL **Borland, William E.**
MSG Finch, Lowell R.
TEXCOM FA Board

COL **Cannava, Thomas J.**
SGM Hafler, Phillip H.
US Army Garrison,
Fort Chaffee

United States Army, Europe

V Corps

BG **Swain, Thomas E.**
CSM Underwood, Johnny W.
V Corps Arty

COL **Chambless, James R.**
CSM Stanislas, Rawle B.
41st FA Bde

LTC **Chase, Randall D.**
CSM Dungey, William E.
1st Bn, 27th FA

LTC **Cerutti, Edward A.**
CSM Tillman, Melvin L.
4th Bn, 27th FA

LTC **Bonney, Daniel J.**
CSM Foster, Thomas H.
2d Bn, 32d FA

Division Artilleries

COL **Shoemaker, Christopher C.**
CSM Allen, Bobby W.
1st AR Div Arty

LTC **Dunn, Colin K.**
CSM Castillo, Ivan A.
2d Bn, 3d FA

LTC **Bailey, Stephen L.**
CSM Stewart, John T.
2d Bn, 29th FA

LTC **Moon, Alan B.**
CSM Harris, Sherman W.
4th Bn, 29th FA

LTC **Cribbs, John M.**
CSM Hornsby, Winston D. II
6th Bn, 29th FA

COL **Fox, Alan A.**
CSM Warrick, Ronald E.
3d IN Div (Mech) Arty

LTC **Ralston, David C.**
CSM Sampson, Clyde
3d Bn, 1st FA

LTC **Swartz, Leonard G.**
CSM Speeks, Rickey D.
5th Bn, 41st FA

LTC **Shafer, Jeffery L.**
CSM Lopes, Lucio O.
2d Bn, 14th FA

LTC **Collier, John A., Jr.**
CSM Unroe, James P.
6th Bn, 1st FA

US Army Pacific

COL **Elliott, James E.**
CSM Cunningham, Jackie L.
2d IN Div Arty

LTC **McDonald, John H., Jr.**
CSM Niccum, William W.
8th Bn, 8th FA

LTC **Nahrwold, Scott E.**
CSM Brodeur, Albert J.
1st Bn, 15th FA

LTC **Hopkins, Donald**
CSM Melvin, Richard
6th Bn, 37th FA

COL **Lovelace, James J.**
CSM Luke, Ashley J.
6th IN Div (L) Arty

LTC **Niederlander, Gary D.**
CSM Noah, Larry R.
4th Bn, 11th FA

LTC **Rambow, David J.**
CSM Skipper, Wendell K.
5th Bn, 11th FA

COL **Clemmons, Reginal G.**
CSM Perry, William J., III
25th IN Div (L) Arty

LTC **Soby, Charles S.**
CSM Lunceford, Danny L.
3d Bn, 7th FA

LTC **Boyle, James W., Jr.**
CSM Dinkel, Larry H.
1st Bn, 8th FA

LTC **Peterson, Timothy A.**
CSM Lewis, Harold E.
7th Bn, 8th FA

LTC **Johnson, David E.**
CSM Bostic, Clyde J.
2d Bn, 11th FA

Army National Guard

I Corps

COL(P) **Ewing, Donald M.**
CSM Nelson, John W.
I Corps Arty

LTC **Johnson, James D.**
CSM Boyington, Richard L.
1st Bn, 140th FA

LTC **Bertolio, William D.**
CSM Williams, Brock H.
1st Bn, 145th FA

LTC **Roberts, Daniel S.**
CSM Walbeck, William B.
2d Bn, 222d FA

Division Artilleries

COL **Leite, Abel C.**
CSM Beirne, John E.
26th IN Div Arty

LTC **Huskes, Richard W., Jr.**
CSM Leggett, Ronald L.
1st Bn, 86th FA

LTC **Papas, Gary A.**
CSM Sampson, Richard M.
1st Bn, 101st FA

LTC **Raphael, John**
CSM Ellis, Robert J.
2d Bn, 192d FA

LTC **Taylor, Thomas E.**
CSM Engler, Paul D.
1st Bn, 211th FA

COL **Richar, William C.**
CSM Sheard, James J., Jr.
28th IN Div Arty

LTC **Irvine, John C.**
CSM Honkus, Thomas D.
1st Bn, 107th FA

LTC **Hilliard, George R.**
CSM Nett, David L.
1st Bn, 108th FA

LTC **Gallagher, Brian J.**
CSM Sauer, John J., Jr.
1st Bn, 109th FA

LTC **Messina, Michael R.**
CSM Houston, David J.
1st Bn, 229th FA

COL **Vick, William A.**
CSM Yeager, Thomas E.
29th IN Div (L) Arty

MAJ **Holweck, Ralph D.**
CSM Perando, Scott A.
2d Bn, 110th FA

LTC **Bramlitt, Carl W.**
CSM Sparkman, Miles E.
2d Bn, 111th FA

LTC **Grant, Rorer J.**
CSM Ferguson, Lowell T.
1st Bn, 246th FA

COL **Bode, Louis O.**
CSM Benda, Charles J.
34th IN Div Arty

LTC **Raschke, John S.**
1SG Goodwin, Randy L.
2d Bn, 123d FA

LTC **Trost, Jon L.**
CSM Forelich, Kirby
1st Bn, 125th FA

LTC **Halverson, Ronald L.**
CSM Hodge, Harold L.
1st Bn, 151st FA

LTC **Warnock, Tracy L.**
CSM Peterson, Leslie D.
1st Bn, 194th FA

COL **Mitchell, John W., Jr.**
CSM Rudder, John L.
35th IN Div (Mech) Arty

LTC **Hoefer, Galen D.**
CSM Gorman, Jerry F.
1st Bn, 127th FA

LTC **Tritsch, Thomas M.**
CSM Bahr, Ronald E.
2d Bn, 130th FA

LTC **Jones, Michael A.**
CSM Bush, Robert J.
2d Bn, 138th FA

LTC **Smith, Dennis E.**
CSM Stevens, George E.
1st Bn, 161st FA

LTC **Grandstaff, Curtis G.**
CSM Langhofer, Ronald E.
1st Bn, 168th FA

COL **Burgett, David M.**
CSM Osborne, John D.
38th IN Div Arty

LTC **Vadnais, Gregory J.**
CSM Pennell, Wayne G.
1st Bn, 119th FA

LTC **Montgomery, Michael B.**
CSM Nicholson, Jerry D.
3d Bn, 139th FA

LTC **Stempson, Thomas A.**
CSM Parsons, Jackie P.
2d Bn, 150th FA

LTC **Austin, Larry L.**
CSM Mattingly, James R.
1st Bn, 163d FA

COL **Minetti, Gerald P.**
CSM Marschall, Josef O.
40th IN Div (Mech) Arty

LTC **Newman, Randall H.**
CSM Tafoya, Raymond A.
1st Bn, 143d FA

LTC **Foster, Edward A., Jr.**
MSG Valdez, Roberto J.
1st Bn, 144th FA

LTC **Starich, Jack G.**
CSM Andrews, Gary W.
2d Bn, 144th FA

LTC **Burke, Steven**
MSG Randall, Jerry E.
3d Bn, 144th FA

COL **Alesia, Pasquale A.**
CSM Murfitt, Arthur A.
42d IN Div Arty

LTC **Gidansky, Martin**
CSM Santovito, Ronald J.
1st Bn, 258th FA

COL **Avila, John, Jr.**
CSM Wesch, Larry
49th AR Div Arty

LTC **Ortiz, Victor M., Jr.**
CSM Talbot, Joseph E.
3d Bn, 132d FA

LTC **Bouillion, Kayward**
CSM Rigsby, Thomas
1st Bn, 133d FA

LTC **Kreger, John W.**
CSM Shamy, Robert G.
3d Bn, 133d FA

LTC **Goodwin, William**
CSM Belyeu, Leonard W.
4th Bn, 133d FA

LTC **(P) Chiste, Ronald R.**
CSM Wagner, Roy R.
50th AR Div Arty

MAJ **Starrett, Robert J.**
CSM Szymborski, Stanley
1st Bn, 112th FA

LTC **Petersen, Edward A.**
CSM Newman, Frank T.
3d Bn, 112th FA

Brigades

LTC **(P) Morford, Jim E.**
CSM Plaster, Gerald S.
45th FA Bde

LTC **Haub, Larry D.**
CSM Spruill, James D.
1st Bn, 158th FA

LTC **South, Arthur R.**
CSM Ahrens, Lewis E.
1st Bn, 171st FA

LTC **Shirley, Tom L.**
CSM Ray, Robert F.
1st Bn, 189th FA

COL **Strawn, Marvin I.**
CSM Koehler, Lowell M.
57th FA Bde

LTC **Schiller, James A.**
1SG Idzikowki, William
1st Bn, 121st FA

LTC **Friedl, Michael J.**
CSM Willnow, William W.
1st Bn, 126th FA

COL **Ryan, James F.**
CSM Iannelli. Paul A.
103d FA Bde

MAJ **Wood, John H.**
CSM Fiske, Harold L., Jr.
1st Bn, 103d FA

COL **Lupus, Lawrence G.**
CSM Abraham, Daniel R.
113th FA Bde

LTC **Wallace, John W., Jr.**
CSM Ingram, Larry G.
4th Bn, 113th FA

LTC **Bowling, Wallace D., Jr.**
CSM Ellington, Orman B.
5th Bn, 113th FA

COL **Scharp, Robert C.**
CSM Cash, Jack H.
115th FA Bde

LTC **Dunning, Forest B.**
CSM Hirsch, Bruce A.
1st Bn, 49th FA

COL **Gottschalk, Dempsey**
CSM Blair, Charles M.
135th FA Bde

LTC **Griffey, Bobby G.**
CSM Heinzler, James J.
1st Bn, 128th FA

LTC **Courtney, John M.**
CSM Green, Roger B.
1st Bn, 129th FA

LTC **Smith, James L.**
CSM Dermon, Robert E.
138th FA Bde

LTC **Rankin, Samuel H.**
CSM Hoffman, William F.
1st Bn, 623d FA

COL **Linch, Charles J.**
CSM Fagala, Robin F.
142d FA Bde
142d FA Bde

LTC **Haltom, Larry W.**
CSM Jordan, Alva C.
1st Bn, 142d FA

LTC **Danehower, Ronald K.**
CSM Bull, Jack R.
2d Bn, 142d FA
2d Bn, 142d FA

LTC(P) **Goldhorn, Donald J.**
CSM Logan, Richard L.
147th FA Bde

MAJ **Smith, Conrad G.**
CSM Hurney, Richard J.
1st Bn, 147th FA

LTC **Davies, James R.**
CSM Kraus, Dennis J.
2d Bn, 147th FA

COL **Sipe, Nicholas P.**
CSM Player, Ralph D.
151st FA Bde

LTC **Richardson, Andrew L.**
CSM Davis, Albert E.
3d Bn, 178th FA

LTC **Richardson, Henry B., Jr.**
CSM Smith, James D.
4th Bn, 178th FA

COL **Davila, Manuel B., Jr.**
CSM Finny, Jack E.
153d FA Bde

LTC **Jenson, Paul E.**
CSM Lara, Ysabel S.
1st Bn, 180th FA

COL **Stacks, Jesse T., III**
CSM Miller, David E.
169th FA Bde

LTC **Tyson, John M.**
CSM Rowan, Thomas D.
1st Bn, 157th FA

LTC **Paul, Walter**
CSM Craver, Kenneth E.
2d Bn, 157th FA

COL **Darling, James P.**
CSM McDaniel, John C., Jr.
196th FA Bde

LTC **Marshall, Herschell W.**
CSM Pratt, John F.
1st Bn, 115th FA

LTC **Clark, Alan N.**
CSM Gentry, Gary J.
1st Bn, 181st FA

COL **LeClerc, Joseph G.E.**
CSM Crotto, Gregory H.
197th FA Bde

LTC **Dupee, Bradley S.**
CSM O'Brien, John B.
1st Bn, 172d FA

MAJ **Murphey, Lawrence H.**
CSM Hammell, Leonard D.J.
2d Bn, 197th FA

COL **Losel, Glenn W.**
CSM Flye, Jerome E.
209th FA Bde

MAJ(P) **Valldejuli, Alberto L.**
CSM Cruz, Jose A.
1st Bn, 162d FA

COL **Neff, Jerry L.**
CSM Rushing, William E.
227th FA Bde

LTC **Capitano, Nick V.**
CSM Hafford, John S.
1st Bn, 116th FA

LTC **Connor, Thomas W.**
CSM Danley, Dwight L.
3d Bn, 116th FA

COL **Freeman, William L., Jr.**
CSM Cowley, Gerald R.
631st FA Bde

LTC **Price, Michael L.**
CSM Cummins, Ankle W.
1st Bn, 114th FA

LTC **Farris, Joe P.**
CSM Cooley, Donald L.
4th Bn, 114th FA

Round-Out Battalions

LTC **Triplett, Michael W.**
CSM Marshall, Ben A.
2d Bn, 114th FA
(1st Cav Div Arty)

LTC **Rigdon, Robley S.**
CSM Slaughter, Joseph E.
1st Bn, 118th FA
(24 IN Div (Mech) Arty)

LTC **Jones, Ivan M.**
CSM Schmidt, William C.
1st Bn, 141st FA
(5th IN Div (Mech) Arty)

LTC **Schuster, Donald D.**
CSM Murphy, Patrick W.
1st Bn, 148th FA
(4th IN Div (Mech) Arty)

LTC **Morgan, James T.**
CSM Gliedman, Jeffery A.
1st Bn, 156th FA
(10th Mtn Div (L) Arty)

LTC **Mabry, Buford S., Jr.**
CSM Sexton, Jimmie R.
1st Bn, 178th FA
(1st IN Div (Mech) Arty)

Separate Battalions

LTC **Wray, Cannon S.**
CSM Vacant
3d Bn, 49th FA

LTC **Montague, Harry W.**
CSM Simpson, Lanny E.
1st Bn, 113th FA

LTC **Greer, David E.**
CSM Turner, William B.
3d Bn, 115th FA

MAJ **Welch, Jerold P.**
CSM Porterfield, Robert W.
2d Bn, 116th FA

LTC **Sewell, James P.**
CSM Keeney, John D.
1st Bn, 117th FA

LTC **Reed, Robert E.**
CSM Snyder, Pugh K.
3d Bn, 117th FA

LTC **Schwenner, John T.**
CSM Ambrose, Leo L.
1st Bn, 120th FA

LTC **Kelly, Gregory W.**
CSM Frazier, Robert L.
2d Bn, 122d FA

MAJ **Thompson, Terry N.**
SGM Howard, Steven J.
1st Bn, 136th FA

MAJ **King, Craig S.**
CSM Leggett, Tommy D.
2d Bn, 146th FA

LTC **Fields, Lee S., Jr.**
1SG Rolfe, Randall G.
1st Bn, 152d FA

LTC **Bills, Christopher P.**
CSM Lemons, Winford H.
1st Bn, 160th FA

LTC **Molano, Jesus M.**
1SG Otero, Luis
2d Bn, 162d FA

LTC **Johnson, Sheldon D.**
CSM Bradley, Joseph C.
1st Bn, 182d FA

LTC **Kappa, Stephen S.**
CSM Harman, John E.
1st Bn, 201st FA

LTC **Cox, Norman J.**
CSM Grisham, Walter E.
5th Bn, 206th FA

LTC **Thomas, William A.**
CSM Nicora, Barry D.
1st Bn, 214th FA

LTC **Nessmith, Charles R.**
CSM Allen, Thomas G.
2d Bn, 214th FA

LTC **Tomasovic, Robert S.**
CSM Stephen, Garvin K.
2d Bn, 218th FA

LTC **Carpenter, James R.**
CSM Gibo, Raymond M.
1st Bn, 487th FA

Army Reserve

Brigades

COL **Noirot, George V.**
CSM Ruthford, Barry C.
428th FA Bde

MAJ **Reyes, Rosendo C.**
CSM Cleasby, Gerry L.
4th Bn, 20th FA

MAJ **Inman, William T.**
CSM Burmeister, Roy F.
4th Bn, 38th FA

LTC **Greene, Robert L.**
CSM Dorman, Terry L.
4th Bn, 333d FA

COL **Bannon, George A.**
CSM Holland, Gregory J.
479th FA Bde

LTC **Utz, Bruce R.**
1SG (P) Manno, Richard
4th Bn, 92d FA

Training Brigades

LTC **Davis, Gary W.**
CSM Parker, Frank H.
3d Bde (FA-OSUT)
84th Div (Tng)

LTC **Klem, Bruce T.**
SGM Thompson, John L.
1st Bn, 334th

LTC **Majewski, Anthony J.**
CSM Clark, Charles A.
2d Bn, 334th FA

LTC **Geib, Donnell H.**
CSM Rogers, William T.
3d Bn, 334th FA

COL **White, Larry G.**
CSM Bailey, William
402d Bde (Tng)(FA)
95th Div (Tng)

LTC **Cushman, Paul D.**
CSM Morris, Haywood C.
1st Bn, 89th FA

LTC **Jester, James L.**
CSM Castro, John
2d Bn, 89th FA

LTC **Robinson, Robert G.**
CSM Carter, Garry L.
3d Bn, 89th FA

LTC **Unwin, Jerry L.**
CSM Dunklin, Stanley J.
4th Bn, 89th FA

LTC **Putthoff, Ernest R.**
CSM Gilbert, Billy D.
5th Bn, 89th FA

LTC **Debaca, Frank A.**
CSM Anders, William E.
402d Tng Spt Bn

LTC **Fairbanks, Steven E.**
CSM Brown, Paul L.
402d Rcptn Bn

Separate Battalions

MAJ **Wroblewski, Walter R.**
CSM Harden, Frank W.
7th Bn, 1st FA

LTC **Corrigan, Michael G.**
SGM Trinca, Ernest
5th Bn, 5th FA

LTC **Chavez, Robert M.**
CSM Long, Robert W.
7th Bn, 9th FA

MAJ **Rydell, Terry L.**
CSM Pearson, Andrew L.
3d Bn, 14th FA
(R/O 6th IN Div (L) Arty)

LTC **Zimmerman, Raymond C.**
CSM Weatherford, Edward K.
3d Bn, 15th FA

LTC **Spear, Robert K.**
CSM Braswell, Freddie
4th Bn, 17th FA

LTC **Poling, Kenneth E., Jr.**
CSM Clendenin, Jerry A.
5th Bn, 28th FA

LTC **Lucas, Everett D.**
CSM Tobin, Joseph A.
3d Bn, 42d FA

LTC **Strom, Charles P.**
CSM Lenox, Chester A.
3d Bn, 75th FA

MAJ **Sheldon, Victor L.**
1SG Bradford, Douglas C.
4th Bn, 75th FA

LTC **Younger, Jack R., Jr.**
CSM Carr, Murray C.
3d Bn, 83d FA

MAJ **Martin, John P.**
CSM Hanna, Richard M.
3d Bn, 92d FA

LTC **Zabecki, David T.**
MSG Milewski, William F.
303d Spt Gp (RAOC)
(3d IN Div (Mech))

US Marines

Col **Hanlon, Edward, Jr.**
SgtMaj Felts, Dossy B.
10th Marines

LtCol	**Asadoorian, Levon S.**	
SgtMaj	Holding, Phillip J.	1st Bn, 10th Mar
LtCol	**Ward, Stephen C.**	
SgtMaj	Kapper, Thomas J.	2d Bn, 10th Mar
LtCol	**Webor, Joseph F.**	
SgtMaj	Ridgeway, Harvey W.	3d Bn, 10th Mar
LtCol	**Flynn, George J.**	
SgtMaj	Hardy, George A.	5th Bn, 10th Mar
Col	**McAbee, Jerry C.**	
SgtMaj	Cortez, Ruben	11th Marines
LtCol	**Mitchell, Michael C.**	
SgtMaj	Wilburn, Donald E.	1st Bn, 11th Mar
LtCol	**Davis, Mark S.**	
SgtMaj	Green, Wilfred A.	2d Bn, 11th Mar
LtCol	**Booker, James L., Sr.**	
SgtMaj	Alilaoa, Phil	3d Bn, 11th Mar
LtCol	**Gobar, Henry T.**	
SgtMaj	Medero, Michael A.	5th Bn, 11th Mar
Col	**Turner, Frank L.**	
SgtMaj	Schnacker, Roger P.	12th Marines
LtCol	**Kelly, Thomas R.**	
SgtMaj	Delay, Dennis N.	1st Bn, 12th Mar
LtCol	**Lennox, Dyer T.**	
SgtMaj	Rogers, James H.	2d Bn, 12th Mar
LtCol	**O'Brien, Daniel C.**	
SgtMaj	Cox, Melton E.	3d Bn, 12th Mar
Col	**Smith, Warren L., III**	
SgtMaj	Rivera, Reynold	14th Marines
LtCol	**Studebaker, Roger J.**	
SgtMaj	Lyvere, Douglas C.	1st Bn, 14th Mar
LtCol	**Veteto, Patrick D.**	
SgtMaj	Havens, Merwin H.	2d Bn, 14th Mar
LtCol	**Patterson, Gregory A.**	
SgtMaj	Beckermeyer, John R.	3d Bn, 14th Mar
LtCol	**Wilson, Timothy O.**	
SgtMaj	Haven, Lee J.	4th Bn, 14th Mar
LtCol	**Sager, Roger A.**	
SgtMaj	Holmes, Phillip J.	5th Bn, 14th Mar

Field Artillery Assignment Branches

As of 1 Nov 92

Active Army Branch Teams

Officers

LTC Michael L. Leahy
Colonels Division
Colonels Assignments

LTC(P) Stephen J. Arntz
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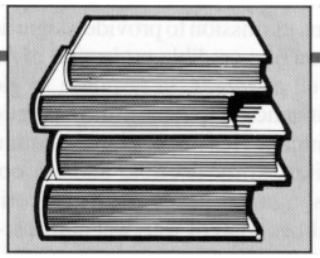
DOTMLS

Update for the Field Artillery

This section of the 1992 Red Book updates the Field Artillery on the Training and Doctrine Command (TRADOC) domains of doctrine, organization, training, materiel, leadership and soldiers (DOTMLS). It complements MG Marty's "State-of-the-Branch 1992" address by providing additional discussion of issues key to the fire support community as we transition to a smaller, continental US (CONUS)-based, force projection Army.

It by no means discusses all the issues being worked in the training institution or of concern to the field. Rather, the authors provide a unique combination of information and intellectual "food for thought" about some of the challenges we face as fire supporters.

Doctrine



An Update of Major Issues and Changes Influencing Future Fire Support

"As our military "builds down," the Army retains its mission to provide a significant portion of a credible projection of force, as well as forces, in response to global contingencies spanning the operational continuum."

The Army's capstone doctrinal manuals are in the process of evolution, but the improvements contain no radical changes to current doctrine. They address observations and lessons learned from the joint and combined arms operations of the last decade and incorporate the implications of advances in technology. This evolution enhances the Army's ability to first deter aggression and, if necessary, act as part of a joint and combined application of force to quickly achieve decisive results with minimal casualties.

The single most important observation is that our current AirLand Battle doctrine in *FM 100-5 Operations* is basically sound. However, several factors that historically drive doctrinal change again show a need for improvement. In turn, evolving doctrine influences the organization, materiel, training and leadership requirements of the Army. This article presents a few of the many reasons for doctrinal evolution and key joint and combined doctrinal issues that affect the application of fires and provides an update on associated doctrinal efforts in progress.

Defining Change

Primary drivers for improving doctrine include the recent changes in global politics, the diverse nature of threats to peace,

the implications of new technologies and recent experience. All these factors encourage new ideas and concepts and, occasionally, non-traditional thought on the conduct of military operations.

Evolving national security policies and military strategy respond to the changing face of global politics. Global political changes include the disintegration of the Soviet Union, the emergence of many third-world powers with varied interests and requirements and concurrent worldwide proliferation of all categories of weapons.

Complex international politics and a global economy lead to national policies that require a national strategy capable of responding to crises around the world. As our military "builds down," the Army retains its mission to provide a significant portion of a credible projection of *force*, as well as *forces*, in response to global contingencies spanning the operational continuum. This operational continuum requires Army doctrine address operations against threats in peacetime, hostilities short of war, war and post-war nation building.

The threats to national security and those likely to confront the Army are diverse and difficult to define. The dissolution of the Soviet Union created conflicts in several Eastern European countries and left many other countries without a sponsor. The "Union" is dissolved, but "Soviet" doctrine, tactics, techniques and procedures (DTTP) remain in use, modified by the environment and philosophies of the countries that learned them and procured Soviet weapons to support them.

Regional threats still exist in the Middle East, Southwest and Northeast Asia, Africa and elsewhere. Drug trafficking is seen as a threat to the work force, the economy, national values and institutions. It also threatens international relations with countries whose democracy and economy are overshadowed by the drug trade. Terrorism presents another challenge.

The combined effect of these threats increases the role of military forces in operations short of war. The rhetorical question becomes, "How do we establish a doctrine that guides application of military force throughout the operational continuum: peacetime needs of civil-military operations and threats ranging from terrorists to large, organized armed forces in environments ranging from low-intensity conflict to global war?"

> ***"...Army doctrine [must] address operations against threats in peacetime, hostilities short of war, war and post-war nation building."***

Doctrinal changes addressing the operational continuum must consider associated implications of new technology—another impetus for change. New technologies improve our capabilities to execute existing doctrine and (or) require new doctrine to support their application. Some of these applications include global positioning systems; brilliant and genius "fire and forget" warheads; extended-range fire support systems; directed-energy weapons; high-velocity, kinetic-energy weapons; distributed communications networks; enhanced command, control and communications (C^3) systems; selective electronic-warfare battlespace control; space support systems; designer warhead capabilities (soft/partial kills); robotics; artificial intelligence; theater missile defense systems; improved weapons platforms; improved air and ground sensors; improved deployment capabilities (fast sea and air lift) and more. Potential improvements and new capabilities present special problems—especially true considering the US may not be the first to field advanced technology applications.

Joint Warfighting

Recent experiences in Operations Urgent Fury, Just Cause and Desert Shield and Storm, combined with observations from numerous training exercises, highlight the need for improving doctrine in several areas. Foremost among these is the need for a joint warfighting methodology. Joint operations will characterize all future military operations, regardless of the nature of conflict.

Response to any crisis must integrate joint service capabilities across all the operational-level systems: command and control, operations, intelligence, fires, logistics and protection. Each service has complementary and overlapping capabilities and responsibilities. Evolving joint doctrine must establish a methodology for achieving a complementary synergism among service capabilities, one directed toward accomplishing the joint force mission. Experience indicates this is easy to say, but very hard to do—"Everything in war is simple, but the simplest thing is difficult" (Clausewitz, *On War*).

A diverse array of missions and environments present new challenges to commanders operating in a joint environment. Regardless of the threat or the objective, commanders and staffs from all services follow similar procedures to arrive at a decision for employing force or forces. This command decision process takes the commander and staff through an analysis of the mission, course of action development and war gaming to presentation of recommendations and a decision. The process sounds simple, yet the opportunities to train and execute the process in a joint environment are few.

The resulting observation: we need to improve understanding among the services of the capabilities and limitations of each and to clearly define service responsibilities where capabilities and responsibilities overlap. This is an important doctrinal step toward meeting the challenges of joint operations.

Areas of intelligence, fires and operations present significant capability and responsibility overlaps. These overlaps are most controversial between ground and air forces. Limitations in ground-based intelligence systems are complimented by aerial intelligence platforms. Limitations of aerial sensor platforms are complemented by ground-based intelligence sources, such as special operation forces (SOF). Ground-based fires are immediately available around the clock in all weather and now have increased range, lethality and precision. These capabilities augment and complement those offered by the close air support and interdiction capabilities of air operations. Improved attack helicopters provide ground forces a deep operations capability that's more lethal when integrated with Air Force, Naval and Marine air attack systems. These overlapping responsibilities are currently the subject of several Army-Air Force doctrinal working groups.

Progress is evident. Joint doctrine has evolved from services fighting separate

battles through separate, but joint battles that were mutually supporting to the objective for future joint operations. That objective calls for operations that integrate service capabilities throughout the tactical and operational depths of a full dimensional battlefield (ground and air space and time), achieving a complementary and simultaneous application of force.

Evolving joint doctrine emphasizes the necessity for coordination and leveraging technology. Joint doctrine must therefore address a joint warfighting methodology governing decisions on the application of force and employment of forces.

A joint warfighting methodology might follow that used by the Army—the command decision process portrayed in *FM 101-5 Staff Organization and Operations*. It emphasizes the process of Decide, Detect and Deliver. The command decision cycle provides the commander and staff the opportunity to decide the specifics of the mission statement, decide the key functions the opposing force requires to accomplish its mission, decide which of those functions must be attacked to achieve the friendly commander's mission and then decide on a course of action.

The decision process is the most critical. It establishes graphical and functional responsibilities among subordinate forces and operating systems. It also establishes priorities for attack of various targets, focusing on those expected to provide the highest payoff. It places responsibility on echelons of command for the attack of those targets, synchronizing their acquisition and attack with the scheme of maneuver. Thorough coordination during the decision process helps the commander gain and retain the initiative by being "proactive" rather than "reactive." Following the commander's decision, execution of the plan is performed in the detect and deliver functions of the methodology.

The detect function executes the intelligence collection plan and provides situation and target development, focusing on the commander's priority intelligence requirements and high-payoff targets. Target information passes to the appropriate attack system through channels determined during the decide process. Upon receipt of target data, the attack system manager delivers planned lethal or nonlethal attack means on the target.

The deliver function executes the commander's attack guidance that specifies which targets must be attacked, when, how, by whom, the desired effects and applicable attack restrictions. Lethal means include not only indirect fires, but also maneuver systems, such as mobile armored forces, attack helicopters, air assault, airborne and special forces. Nonlethal means include offensive electronic warfare, psychological operations and deception. Also included in the deliver function is the assessment of the effectiveness of target attack.

This three-function methodology is more commonly referred to as the targeting process. Targeting is not a separate and distinct staff function. It involves all the coordinating staff and is integral to the command decision cycle. It serves to meet two primary objectives of the commander: accomplish the mission and protect the force. The process emphasizes centralized planning and decentralized execution, thereby improving responsiveness.

Responsiveness is a primary concern in joint operations. Doctrine must facilitate the responsive exchange of information and execution of support among the services. Lack of a common methodology impedes responsiveness.

The Decide-Detect-Deliver methodology is followed by ground forces but not fully adopted by air and naval forces. There's no joint targeting doctrine to guide the resolution of joint targeting issues. Absence of joint warfighting doctrine makes resolution of many joint issues difficult.

Joint warfighting doctrine is the capstone joint issue. Joint targeting doctrine for employing joint acquisition and attack capabilities is also essential. The joint doctrine also must address the impact of "fires" as a principal means for achieving lethality in force projection and for accomplishing the mission quickly and decisively. All combined arms and joint force commanders must have doctrine to fight fires as capably as they fight their maneuver forces.

But fires is not the only critical system. All other operating systems must be synchronized as well. This leads to the need to identify in doctrine the essential elements of the commander's intent and the planning guidance considerations pertinent to all operating systems.

Operations at Echelons Above Corps

Above the corps level, there's no standard staff structure. Doctrine needs to address organization and responsibilities of the echelon above corps (EAC) staff elements. Currently, no fire support element (FSE) exists doctrinally at EAC. The battlefield coordination element (BCE) is not an FSE.

Current doctrine does not adequately address staff actions for a multi-corps or joint task force environment. Basic procedures are addressed that may be sufficient at lower echelons, but detail is lacking to resolve complex issues at the corps level and higher. For example, who makes recommendations to the joint commander in the absence of an FSE? This argues for establishing a joint force fires coordinator (JFFC), but how would the duties of the JFFC relate to those of the joint force air component commander (JFACC)?

Who establishes priorities for ground and air fires? What is and who determines the relationship between air interdiction and ground-based deep fires, including employing attack helicopters in deep operations? How do we integrate airspace coordination measures and fire support coordinating measures at the joint level, and who does it? What are the requirements for control versus coordination of airspace and joint procedures for positive or procedural control? What are the doctrinal procedures for deconflicting airspace for trajectories of Army tactical missile system (Army TACMS) missions?

How do we plan to employ sensor systems, such as the joint surveillance and target attack radar system (Joint STARS),

"...we need to improve understanding among the services of the capabilities and limitations of each and to clearly define service responsibilities where capabilities and responsibilities overlap."

unmanned aerial vehicle (UAV) and other technologies? Should the fire support coordination line (FSCL) delineate area responsibilities between air and ground forces? Who determines requirements and tasks assets to determine combat assessment (a new term proposed by the Defense Intelligence Agency, or DIA, to more clearly articulate target and battle damage assessment)?

These questions must be addressed by establishing common joint terminology and joint fire support doctrine. This doctrine will guide the development of supporting Army doctrine.

What do we need to improve in manuals addressing how the Army fights? Analysis shows a need for expanding current doctrine, especially at echelons corps and above. These echelons attempt to grasp the concepts of "operational art," the difficult to understand link between the tactical and strategic levels of war.

"Operational art is the employment of military forces to attain strategic goals in a theater of war or theater of operations through the design, organization and conduct of campaigns and major operations" (*FM 100-5 Operations*, Page 10). The theater commander-in-chief (CINC) plans campaigns; the corps commander plans and executes major operations in support of the campaign plan and the plan of the intermediate Army headquarters.

Yes, but what about the intermediate Army headquarters? Doctrine must address the organization and responsibilities of the Army-echelon headquarters. Operations in a multi-corps environment present conflicts that cannot be resolved in the absence of doctrine or a structure for the supervising headquarters. The doctrinal questions are similar to those presented for joint doctrine.

Army targeting doctrine must be refined to better articulate establishing complementary responsibilities of each echelon of command throughout the depth of the battlefield. This includes the horizontal and vertical command and control relationships of each echelon's main, tactical and rear command posts in executing those responsibilities. Command and control needs include information management doctrine and the expansion of doctrine addressing liaison teams, their organization and function.

Experience indicates a need for revising doctrine for combat service support of non-divisional units. The area support system does not meet modern requirements of a mobile force under fast-paced or high operational tempo. Finally, there's a desire in the field for more "how to" discussions or techniques and procedures in doctrinal manuals that address the joint and Army questions discussed in this article.

Ongoing Actions

The Field Artillery School, Fort Sill, Oklahoma, is involved in many actions oriented toward improving joint and Army doctrine. Some actions are Field Artillery School initiatives; others support US Army Training and Doctrine Command (TRADOC) initiatives, including some in coordination with the Air Combat Command (ACC) and the Air-Land-Sea Application Center (ALSA), both at Langley Air Force Base, Virginia. (ALSA is the new name for the Air-Land Forces Application Agency, or ALFA.) These actions address issues concerning fires and other operating systems in a joint warfighting environment.

In addition to developing manuals for which it is the proponent, the Field Artillery School reviews coordinating drafts of all other doctrinal publications, focusing on fire support issues. Currently, several capstone manuals that influence supporting doctrine development are under review. *Joint Pub 3-0 Joint Operations* and *3-09 Doctrine for Joint Fire Support* were reviewed and returned for further development. The school is maintaining a strong position to incorporate doctrinal guidance that addresses all forms of fire support, clearly establishes responsible coordinating agencies and identifies their responsibilities and authority.

Army manuals under development include *FM 100-5 Operations, FM 100-7 The Army in Theater Operations, FM 100-8 Combined Army Operations, FM 54-30 Corps Support Groups* and *FM 100-16 Support Operations at Echelons Above Corps*. These manuals must adequately address fire support issues and must support joint fires doctrine.

The TRADOC "Fighting with Fires" philosophy (***Field Artillery***, June 1992) continues with the objective of resolving issues "to enable the combined arms commander to fight fire support systems with the same skill and vigor with which they employ direct fire systems." Action officers throughout the school are coordinating, developing and improving fire support doctrine for issues concerning the commander's intent and concept of the operation as they relate to fires, liaison teams, combat service support to non-divisional units (with focus on Field Artillery brigades), artillery in reserve, clearance of fires, EACFSE organization and responsibilities, counterfire and targeting. Concurrently, many related joint issues are being addressed.

TRADOC and ACC initiatives address Army-Air Force issues encountered at the division-level and higher. The Field Artillery School participates as the lead or in support of several working groups. For example, the school has the lead for the Fire Support Coordination Line (FSCL)/Battlefield Responsibilities Work Group. The group effort resulted in a draft TTP paper addressing the use of the FSCL and associated Army-Air Force responsibilities.

The school supports the Battlefield Damage Assessment Work Group led by the Military Intelligence School, Fort Huachuca, Arizona; the Airspace Management Work Group led by ALSA; and the Joint STARS review team led by ACC. The Field Artillery School also participates in the DIA initiative, Joint Targeting Training Advisory Committee (JTTAC), that will influence the development of joint and Army targeting doctrine. Another very important doctrine-related issue is the Field Artillery School's support of the Fratricide Action Plan, developing DTTP to reduce civilian and military casualties from improved conventional munitions and cluster bomb units.

"JPS focuses the complementary capabilities of all available systems at each echelon of command to put assets essential to the enemy commander's plan at risk of attack, leaving him no place to hide..."

The Field Artillery School participates in the TRADOC initiative called "battle lab." Fort Sill has the lead for the lab titled "Depth and Simultaneous Attack." Its purpose is to examine the relationship of space, time and resources toward enhancing the Army's ability to plan and execute simultaneous application of combat power against the enemy throughout the depth of the battlefield. This concept is much broader and more complex than "deep attack." This battle lab will help refine emerging doctrine for Joint Precision Strike (JPS).

JPS requires all services cooperate to provide acquisition and attack systems to engage specified targets critical to meeting the combined arms commander's intent and supporting his concept of the operation. These targets may exist anywhere throughout the depth of the battlefield. JPS focuses the complementary capabilities of all available systems at each echelon of command to put all assets essential to the enemy commander's plan at risk of attack, leaving him no place to hide and creating significant doubt as to his options—other than the option of surrender.

The school also supports other TRADOC battle labs: "Early Entry Operations" at Fort Monroe, Virginia; "Battle Command" at Fort Leavenworth, Kansas, and Fort Gordon, Georgia; "Mounted Battle Space" at Fort Knox, Kentucky; "Dismounted Battle Space" at Fort Benning, Georgia; and "Combat Service Support" at Fort Lee, Virginia. The purpose of these laboratories is to analyze, simulate, experiment, evaluate and integrate findings with the objective of developing requirements for doctrine as well as training, leader development, organization, materiel and soldier support.

On a similar vein, the Field Artillery School also supports the TRADOC initiative "Louisiana Maneuvers." This is a high-tech, computer-supported laboratory designed to provide senior leaders with a means for analyzing new ideas for the Army of the 21st century.

Conclusion

The activities of all the work groups mentioned are still in progress. The doctrinal issues presented for the 21st century are many, diverse and complex. The majority are joint in nature, and all require extensive coordination. The causes of the issues must be understood to achieve resolution. Solving the issues requires bright ideas and innovative thought from concerned military personnel and civilians within TRADOC schools, joint service schools and units in the field.

The Field Artillery School continues to develop and contribute doctrinal solutions and solicit support from subject matter experts everywhere. The efforts of all agencies and concerned individuals will ensure, as it has in the past, viable solutions to doctrinal problems projected for the future battlefield.

If you have questions or comments about doctrine, call the Warfighter Division at DCTN 639-5323/5194 or commercial (405) 351-5323/5194 or write Commandant, US Army Field Artillery School, ATTN: ATSF-TW (LTC Oxford), Fire Support and Combined Arms Operations Department, Fort Sill, Oklahoma 73503-5600.

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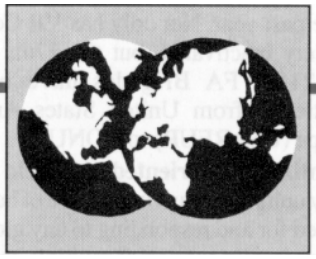
Organization



Building Down: Not Just a Smaller Cold War Force

Changing World

The world is constantly changing, but in the past few years, it seems the pace of change has accelerated dramatically. The collapse of the former Soviet Union and Warsaw Pact have brought into focus significant changes in the strategic environment.

We are a member of the world community that will increasingly seek consensus through a multinational response in times of crisis. Coalition actions, as in Operation Desert Storm, will become the norm. Concurrently, the harsh economic reality of competition with domestic requirements for declining resources leads the Congress to dictate a much smaller military force.

Changing Army

The Army is in the midst of major change to counter this different strategic environment. Where we once faced a unified, bipolar threat with a policy of containment, the focus now is on crisis response to counter vague, multipolar threats.

In the past, the Army's primary mission was countering a Soviet-led, European threat with an Active Component that was predominantly forward-based and a Reserve Component geared to total mobilization to counter a major land war. The force was highly structured, relied heavily on nuclear deterrence and pursued a doctrine of attrition warfare. This army consisted of a fighting contingent of five corps and 28 divisions and was manned by roughly 1.5 million soldiers in the Active and Reserve Components.

Today's evolving Army is focused on tailored responses to one or more regional crises. It is primarily continental United States (CONUS)-based, is geared toward rapid force generation and pursues a doctrine of overwhelming decisive victory with conventional weapons. This force is currently *building down and will meet its global requirements with four corps and 20 divisions,* manned by just over one million soldiers. The current drawdown process will be completed in FY 95 when the Active Component reaches a total

strength of 535,000 and a total Reserve Component strength of 550,000.

Changing Field Artillery

As the strategic environment and the Army undergo change, the Field Artillery will change as well. The basic force allocation rules generated from the Army of Excellence (AOE) force design still dictate a tailored division artillery for each type of division in the force, a Field Artillery brigade capable of reinforcing the fires of each division, a Field Artillery brigade to provide general support fires for each corps and a corps artillery headquarters. These force structuring rules have not changed, but the composition and size of maneuver forces (which generate Field Artillery support requirements) have changed drastically. The combination of all these factors dictates a Field Artillery that will be—

Smaller. As budget decreases and the Army's requirement for contingency-oriented forces decreases, the Field Artillery as a branch will be affected in terms of decreased manpower requirements (Figure 1) and a requirement for fewer units in the force (Figure 2).

CONUS-Based. Significant reductions in forward-deployed forces have occurred in the past year. Not only has VII Corps Artillery inactivated, but the 17th, 42d and 210th FA Brigades have been restationed from United States Army Europe (USAREUR) to CONUS.

Contingency-Oriented. All Field Artillery units now must be capable of being tailored for and responding to any global contingency in support of multiple corps.

Non-nuclear. Elimination of nuclear requirements has led to inactivation of all warhead support groups and detachments in both the 59th Ordinance Brigade and the Southern European Task Force (SETAF). Additionally, 8-inch and 155-mm battalions have eliminated their nuclear missions that previously demanded significant resources.

Packaged for Deployability. In an era of decreasing resources, those units that will deploy early-on will receive priority over later deployers for modernization items and other scarce assets.

More Lethal. As we continue to build down, opportunities exist to increase lethality in the remaining force. This has led to the retirement of the aging Lance missile system. The 8-inch transition to the multiple-launch rocket system (MLRS) has been accelerated so the old, manpower intensive system will be out of the active component by 1995, with conversion in the Reserve Components ongoing. In addition, conversion of all Reserve Component 155-mm units to the 3x8 configuration can now take place.

Field Artillery

FY 87 133.8K	
Active Component	63.4K
National Guard	61.4K
Army Reserve	9.OK
FY 90 141.5K	
Active Component	66.8K
National Guard	64.1K
Army Reserve	10.6K
FY 95 86.7K	
Active Component	38.7K
National Guard	41.8K
Army Reserve	6.2K

Active Component	-42%
National Guard	-35%
Army Reserve	-41%

Figure 1: Manpower Reductions in the Field Artillery

Field Artillery

	FY 90	FY 95	Δ
Divisional Battalion	111	70	-41
Divisional Battery	34	26	-8
Corps Battalion	102	62	-40

% **Reduction (Units)**	
Active Component	36%
Reserve Component	34%

Figure 2: Field Artillery Unit Reductions

Future Initiatives

The build-down process dictates we not just decrease force size, but also leverage opportunities to maintain our edge and strengthen the force, building on recent successes. Along with the increases in lethality, the US Army Field Artillery School (USAFAS) has proposed the following organizational initiatives to provide a more versatile, deployable force.

Rocket Battalion for the Division. Many division commanders who deployed to Operation Desert Storm saw the need for an organic rocket battalion in the division. The current design calls for a MLRS battery in each heavy division. But the battery has insufficient launchers to cover the entire division sector and has an inadequate command and control capability. It also provides inadequate supporting fires for the division aviation brigade, division cavalry squadron, suppression of enemy air defenses (SEAD) and counterfire. Operation Desert Storm also surfaced the need for a rocket system for light forces due to the limited range and lethality of the M119 105-mm howitzer and the lack of mobility of the M198 155-mm howitzer.

A current initiative proposes a divisional MLRS battalion organized with two firing batteries of nine launchers each. The Army Chief of Staff recently approved changing the heavy division force design to include a divisional rocket battalion, thus allowing it to compete for resourcing in the Army's force structuring process. The FA School is working a concept that will propose the high-mobility artillery rocket system (HIMARS) for the light division.

At the corps-level, MLRS battalions would remain organized with three firing batteries of nine launchers each. Another concept being worked replaces two of the three 155-mm towed battalions in the FA brigades that reinforce light divisions with two rocket (HIMARS) battalions.

Joint Task Force/Echelons Above Corps Fire Support Structure. Desert Storm also pointed out that a fire support element (FSE) is required at echelons above corps (EAC). Army fire support doctrine requires every echelon of maneuver command be provided some means of fire support coordination. A table of organization and equipment (TOE) is required for the field army, army group and joint task force. USAFAS proposed a 31-man FSE at EAC for the 3d, 7th, and 8th Armies.

Robustness in FSEs. Close Support Study Groups III and IV stated and Desert Storm validated that manning and equipment support for FSEs are inadequate. Brigade and task force FSEs, including

aviation units, must be enhanced for both continuous and split operations. Corps and division rear FSEs must be enhanced by moving the structure from the Reserve Component to the active force.

Combat Service Support (CSS) for Non-divisional FA Units. Desert Storm also pointed out that CSS doctrine and structure for support of corps FA brigades is woefully inadequate. USAFAS is working closely with the Combined Arms Support Command to ensure adequate support organizations are designed and structured.

Summary

A changed strategic environment and economic reality dictate change to the Army and the Field Artillery. We're in the process of building down to a smaller, CONUS-based, contingency-oriented, more lethal Field Artillery capable of contributing to force protection and early, decisive victory.

If you have questions or comments, call DCTN 639-6309/3702 or commercial (405) 351-6309/3702 or write Commandant, US Army Field Artillery School, Directorate of Combat Developments, ATTN: ATSF-CSIF (Mr. Klein), Fort Sill, Oklahoma 73503-5600.

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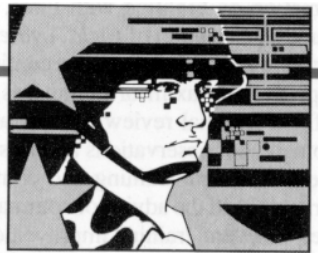
Training



Institutional and CTC Training

"The training of soldiers, leaders, and units to win in combat will remain the Army's single most important task."

Fiscal Year 93 Posture Statement

Training challenges presented in *FM 25-100 Training the Force* are based on the Army's mission of deterrence and, if deterrence fails, winning in combat. Mission accomplishment depends on the Army's ability to mobilize, deploy, fight and sustain combat operations in joint and combined force operations. Training is the process that melds the individual soldier, the crew, the unit and equipment to provide these capabilities.

Tough, realistic, intellectually and physically challenging training in units and institutions provided the skills and teamwork that led to success in Operations Just Cause and Desert Shield and Desert Storm. This excellent quality training must continue, even as the Army decreases in size and faces associated budget cuts. This requires commanders, as primary trainers, to efficiently manage personnel and training resources, incorporating "bright ideas" supported with new technology.

The Army is already developing and implementing training concepts that help maintain the competency of its leadership and readiness of the force. According to the Training and Doctrine Command (TRADOC), training in the Army must support the requirement for power projection. This training emphasis includes rapid mobilization and deployment, fighting with mixed and matched force packages, fighting at the operational and tactical levels, fighting joint and combined, applying combat power rapidly and demonstrating versatility and flexibility. As part of the overall effort, the Field Artillery School, Fort Sill, Oklahoma, continues to review and improve existing institutional training programs and develop programs to support unit training needs.

This article addresses the major training developments that have occurred or are in progress at the Field Artillery School. In addition to updating the core courses, new courses have been added to meet training needs highlighted by recent experiences in Southwest Asia and the combat training centers (CTCs). New technology provides a means for training crews and leaders using simulations, greatly reducing the expense of field training. Commanders are assessing current training proficiency levels to develop training plans that focus on accomplishing their mission-essential task lists (METL). The Field Artillery School is striving to maintain the foresight that identifies future training needs and remain proactive in meeting these requirements. An example of such foresight is the Fighting with Fires philosophy.

Fighting With Fires

Fighting with Fires is now a philosophy, no longer an initiative. It began as a study of why maneuver commanders had difficulty synchronizing maneuver and fires at the combat training centers. Initial coordination completed, the Fighting with Fires warfighting philosophy continues to assist commanders at all levels in maximizing combat power.

When applied, the Fighting with Fires philosophy guides the combined arms commander toward focusing his combat power, employing the complementary capabilities of all available options to suppress, neutralize, destroy or capture key targets at the most appropriate time and place. Work to support and promulgate this philosophy continues as it affects all the TRADOC domains of doctrine,

materiel, organization, training and leader development related to fire support.

As the Field Artillery School reviews doctrinal and training publications, the Fighting With Fires philosophy will guide comments with the intent of integrating the philosophy into combined arms and fire support tactics, techniques and procedures. It is the responsibility of all fire support personnel to assist their combined arms commanders integrate the Fighting with Fires philosophy into training to ensure we train as we'll fight. (For information on Fighting with Fires, see the June 1992 edition of *Field Artillery*.)

Our institutional training must continue to support the maxim of training as we will fight. Internal review of programs, combined with observations and lessons learned from both training and combat experiences and the advice of commanders, led to several training improvements and innovations within the Field Artillery School. These are taking place primarily in the core courses and in the replication of fire support at the CTCs.

Core Courses

Officer Basic and Advanced Courses (OBC/OAC). The number of OBC and OAC classes scheduled during the year is reduced. A total of eight OBC classes per year are scheduled for FY 93 and FY 94. No more than four OBC classes will overlap or run concurrently. A total of four OAC classes per year are scheduled for FY 93 and FY 94, of which no more than two will overlap. This change is the result of reductions in accessions of new artillery officers and the impact of numbers of serving officers who elected voluntary separation. The reduction in the frequency of OBC and OAC classes reduces the potential for conflicting personnel and equipment requirements. This reduces the training support requirements on artillery units stationed at Fort Sill and facilitates efficient management of training resources.

New Courses

The Targeting Process Course. The Targeting Process Course was developed as a result of observations from Southwest Asia and CTC rotations. The two-week course is designed to train officers, warrant officers and NCOs from all services in the Army targeting process and targeting team operations at division level and above. The course uses the Army's targeting methodology of "decide, detect, deliver" as the basis for instruction. The intent is to produce graduates who are knowledgeable of Army doctrine, tactics, techniques and procedures (DTTP), enabling them to more effectively synchronize targeting in a joint environment. The first course ended 25 April 1992 and had students from the Army, Air Force and Marines. Feedback from this and subsequent classes identified the course as professionally demanding and rewarding. The course is currently scheduled quarterly and a mobile training team can provide a condensed version or portions of the course based on unit training needs.

Joint Fire Support Course. Another instructional development resulting from observations of Operation Desert Storm is the Joint Fire Support Course. Desert Storm identified a requirement to better prepare artillery officers and NCOs for duty above the brigade level and increase their ability to interact with fire support coordination personnel from other services. USAFAS designed this course to prepare officers and NCOs for duty in division, corps, or echelon-above-corps (EAC) fire support billets. Instruction includes doctrine, organization and mission of the services with focus on the structure and interfaces of their fire support organizations. The first class started 2 November 1992. This three-week course is conducted concurrently with the Targeting Process Course.

Additional courses added to the USAFAS curriculum include the Battery Computer System Cadre Course (Reserve Component), Field Artillery Officer Advanced Course (Reserve Component) and Cannon Crewman Course (USMC).

Artillery Training Center

The Field Artillery Training Center (FATC), now a part of USAFAS, continues to provide outstanding training to recruits, sending highly capable and motivated young Field Artillery soldiers to units around the world. The FATC chain of command closely monitors training to maintain their existing high standards. FATC ensures new Field Artillerymen receive training on recent modifications to the Field Artillery systems they will operate in their gaining units. To enhance the quality of training, the FATC implemented improvements in the evaluation means for some of the end-of-cycle evaluation tasks, such as that for M60 machine gun operation.

On a larger scale, reduced accessions of MOS 13B Cannon Crewmen led to reorganization of the FATC battalions. Each FATC battalion inactivated one of its five training batteries. This was accompanied by an associated reduction in the total authorization for drill sergeants and cadre. The Drill Sergeant School at Fort Sill was inactivated during FY 92, a result of the TRADOC initiative to consolidate drill sergeant training. Now, all drill sergeants assigned to Fort Sill receive their training at Fort Leonard Wood, Missouri or Fort Jackson, South Carolina.

Combat Training Centers

Commanders and their units benefit greatly from the training received during rotations at the various CTCs, including participation in the Battle Command Training Program (BCTP). The Field Artillery School monitors the results of CTC training with the objective of improving resident instruction and supporting unit training needs. USAFAS established the Combat Training Center Branch within the Fire Support and Combined Arms Operations Department (FSCAOD) to coordinate support to the CTCs, collect data, perform analysis and disseminate observations to the school and fire support community.

Efforts by the CTCs to improve fire support replication is of major interest to the Field Artillery School. This includes measures to assess fire support effectiveness. In its efforts to emphasize the value of fighting with fires, the Field Artillery School position is that if indirect fires have been used effectively to destroy the opposing force (OPFOR) prior to the direct fire fight, the positive impact on friendly operations should be a major point of discussion during the after-action review (AAR). The Commandant of the Field Artillery School further advocates that other CTCs follow the lead of the Combat Maneuver Training Center (CMTC) and stop the battle before the direct fire engagement if the combined arms commander has successfully combined the effects of all combat multipliers to defeat the enemy. The Field Artillery School understands the importance of the direct fire fight to unit training but maintains that training commanders to fight with fires as capably as they fight their maneuver forces is equally important.

To achieve this, the Field Artillery School strongly supports the initiative of a brigade

A FIST from 3d Battalion, 82d FA, 1st Cavalry Division, identifies targets during a National Training Center rotation.

fire support AAR early in the rotation. This allows leaders to implement fire support lessons learned in subsequent battles. Additional measures include incorporating updated munitions effectiveness tables based on the Study of Artillery Effects, Phases II and III.

The issue of fratricide is also receiving closer scrutiny at the CTCs. Earlier, fratricide incidents at the CTCs were treated as an embarrassment. Experiences of the Gulf War changed that outlook. Today, fratricide incidents are treated with all the seriousness of an official investigation. All incidents are investigated to determine the cause and corrective action. This attitude is also reflected by the integration of mandatory fratricide awareness and prevention training in all appropriate courses at the Field Artillery School.

In the past, CTC AARs focused on objective and quantitative feedback, such as number of missions fired, number of effective and ineffective missions and number of kills. This did not meet the need for a subjective evaluation of fire support effectiveness. Did the fire support coordinator comply with the commander's intent and planning guidance? This question is now receiving greater attention in the assessment of fire support.

New Technology and Simulations

Rapidly advancing technology provides training managers excellent means for training individuals, crews and units with savings in key resources: time, money, personnel and equipment. Almost everyone is familiar with the computer-assisted simulation supporting BCTP. The range of simulators and simulations available to support training is much more diverse, offering capabilities that some readers may not know about.

Several Field Artillery related simulation systems have been developed to support training at the individual level. These include an embedded trainer within the Paladin howitzer (M109A6) automatic fire control system (AFCS). This trainer is designed to improve and maintain the proficiency of operators and crews. A similar device is the institutional fire control system trainer (IFCST). This is a table top suitcase trainer designed to provide entry-level training for operators of the AFCS. Many other individual training system simulators and devices are available through Training Support Center catalogues.

In addition to individual training systems, crew training simulation systems are under development. The closed loop artillery simulation system (CLASS) is one of these. CLASS responds to the projected decrease in training ammunition and other maintenance and supply-related expenses, and increasing restrictions at live fire ranges. Designed as a system of systems, it will provide training to gun crews, fire direction center personnel and fire support team observers as a team or separately. It includes a forward observer training module, a fire direction center module, and a howitzer simulator, each having a control console to execute training and provide immediate AAR feedback. Also, one central controller station will be available to orchestrate collective training and provide an immediate AAR. The operational requirements document (ORD) is pending approval at TRADOC. Projected fielding is second quarter, FY 97.

To support large-scale unit training at the CTCs, simulation systems are being improved or developed to better replicate the effects of fire support systems. These include the simulated area weapons effects-multiple integrated laser engagement system II (SAWE-MILES II) and the combined arms training integrated evaluation system (CATIES). The SAWE-MILES II is under development to replace CATIES. These systems will enhance training at the CTCs through more realistic simulation and evaluation of the effects of indirect fire support systems, providing the soldiers and leaders a better training experience and improved fire support AAR data for adjusting future training. SAWE-MILES II is currently undergoing technical testing at the CMTC. It will undergo operational testing and fielding there during April and May 1993. Fielding at the NTC will occur in September 1993 and at the Joint Readiness Training Center in April 1994.

Battle simulations provide economical training support at all levels of unit training. Probably the most well known among these is BCTP, supported by the joint exercise support system (JESS). JESS is a computer simulation that includes combat, combat support and combat service support aspects of forces in battle. The Field Artillery School implemented a similar system earlier this year—Janus.

On 27 March 1992, the Field Artillery School opened the Battle Simulation Center in Knox Hall. The Center uses the Janus (named after the Roman two-faced god of portals) battle simulation system to train students in a command post exercise environment. Janus offers a simple, easily manipulated data base, accurate map and terrain data, detailed field of observation depiction, weapon system and effects portrayal and a tailored, unpredictable threat force. The advantage of Janus is its simulation of the execution phase of war, based on plans input by the student staff. The primary focus for the simulation is the battalion task force.

Janus takes the place of the old terrain board and provides students and the instructor a complete evaluation of the students' knowledge and abilities. It allows OAC students to plan and execute warfighting missions. A realistic threat environment provides authentic responses to the students' initiatives, fires and positioning

of units. The analyst's work station allows the instructor to provide a meaningful after-action review, including an evaluation to determine if fire support planned and executed met the commander's guidance.

In Conclusion

General (Retired) Carl E. Vuono, former Chief of Staff of the Army, concludes the preface to *FM 25-100 Training the Force* by stating, "Training remains the Army's top priority because it is the cornerstone of combat readiness." In the coming years, all Army trainers face the challenge of training a shrinking fire support community for expanding global contingencies with an ever-diminishing budget. Fort Sill intends to meet this challenge and continue producing the best trained artillerymen in the world.

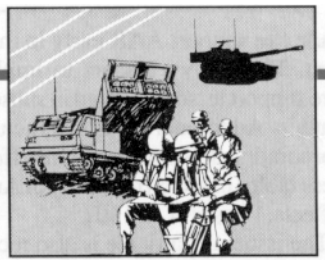
If you have comments or questions about training, call the Warfighter Division at DCTN 639-5323/5194 or write Commandant, US Army Field Artillery School, ATTN: ATSF-TW (Mr. Bielinski), Fire Support and Combined Arms Operations Department, Fort Sill, Oklahoma 73503-5600.

Vincent R. Bielinski, Chief, Joint and Combined Branch, Warfighter Division, FSCAOD Field Artillery School, Fort Sill, OK

"The best form of 'welfare' for the troops is first class training, for this saves unnecessary casualties."

Field Marshal Erwin Rommel

Materiel



Fire Support Weapons Systems: Thor's Hammers

The US Army and the Field Artillery are currently in a state of evolution. Change, reorganization and restructure are causing a reevaluation of the role of fire support and its contributions on the battlefield. In these turbulent times we must keep sight of the fact that no soldier is fully effective unless he is resourced with adequate tools. Concurrently, no artillery commander can execute his fire support mission of fighting with fires if he is not afforded the materiel to support the combined arms commander.

The World Environment

The body politic within the United States and, to a large extent, our allies as well are absolutely convinced the demise of the Soviet Union and its Warsaw Pact Alliance has ordained the end of threats to our national interests and security. There is some validity to this concept viewed against the fabric of the last 50 years. There is, however, a more subtle dynamic at work. The political vacuum in Eastern Europe and the Third World countries created by retrenchment within the former Soviet Union has created an environment that fosters political instability.

As formerly fettered strong men seek to assert themselves, there exists a set of conditions that could lead to the national interests of the United States being challenged. Additionally, ethnic and sectarian violence have demonstrated a disconcerting upswing. Recent history has demonstrated that subtlety and diplomacy don't always work. Against this very real backdrop, there exists the possibility the United States and its allies may be compelled to deploy armed forces to reestablish peace and regional stability. These forces must be prepared and equipped to either maintain the peace or to win quickly and decisively.

The Role of FA

In the event the political decision is made to deploy US forces, every care must be taken to ensure friendly and noncombatant casualties are minimized. While the American public may support a "popular" war (e.g., Desert Storm), it will not support any war of attrition or long duration. Against this political reality, the role of the Field Artillery assumes an even greater significance into the 90s and beyond.

Given the current and projected world situation, contingency operations represent the most probable course of military action for the United States for the next decade. The limitations on the availability of strategic airlift for contingency operations will cause us to incrementally deploy forces. Light forces will deploy early with follow-on heavy forces deploying by sea. Key to early success is the ability of early deploying Field Artillery to hold threat forces at risk and to minimize the probability of close combat for light maneuver forces. As deploying heavy forces arrive in theater, the Field Artillery denies freedom of movement to threat forces, allowing heavy forces to join the order of battle.

We possess the capability to engage threat forces unremittingly across the depth and breadth of the battlefield. We can use our outstanding capabilities at the theater, operational and tactical levels to significantly reduce the threat posed to friendly maneuver forces. The bottom line is threat regiments can be reduced to understrength battalions prior to closing in the close-battle zone. This capability ensures the combined arms commander has the ability to engage threat forces with minimum risk to friendly forces.

Materiel Enhancements

Through the efficient use of existing artillery systems, we can adequately support combined arms commanders. However, current programs under development at the Field Artillery School, Fort Sill, Oklahoma,

will significantly increase and improve this capability. Among these are:

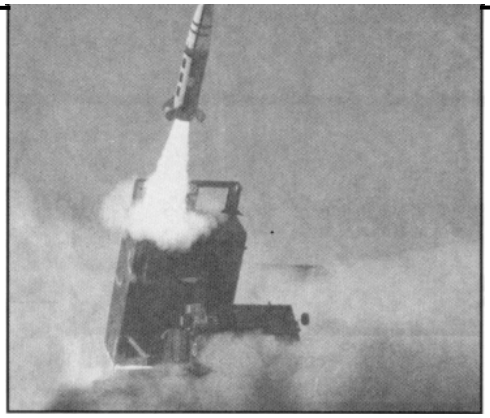
HIMARS. The high-mobility artillery rocket system (HIMARS) is a wheeled multiple-launch rocket system (MLRS) launcher that will fire the entire suite of MLRS munitions and will be transportable by C-130 aircraft. The HIMARS is designed to provide operational rocket and missile fires to early deploying contingency forces. The program is currently unfunded, but efforts continue to find funding and produce the system.

Paladin. The M109A6 howitzer is currently under low-rate initial production (LRIP) and is undergoing operational testing at Fort Sill. The Paladin is a product-improved version of the M109 howitzer and provides significant operational enhancements. It will offer the Field Artillery a howitzer system with voice and digital communications, on-board position and navigation (PosNav) capability and increased reliability and survivability. The initial Paladin unit will be fielded in III Corps Artillery at Fort Sill in the third quarter of FY 93.

Extended-Range Rocket (MLRS). The MLRS extended-range rocket is an engineering change to the existing MLRS rocket. It is designed to achieve ranges in excess of 45 kilometers. The extended-range rocket will utilize a more reliable submunition that will significantly reduce dud munitions on the battlefield. This will reduce collateral risk to friendly maneuver units, thereby enhancing freedom of maneuver. Through the use of a wind-measuring device and a slightly redesigned launch tube, the extended-range rocket will achieve equivalent or better accuracy and effectiveness than the basic rocket.

Extended-Range Army TACMS. The Field Artillery School is developing a requirement in conjunction with the Project Manager-Army TACMS to extend the range of the Army tactical missile system (Army TACMS) missile. This program is similar to the MLRS extended-range rocket program. The extended-range Army TACMS will give the Field Artillery an enhanced capability to attack and defeat targets at operational depths. These include the targets associated with the Joint Precision Strike concept and tactical ballistic missile defense.

TSSAM. The tri-service standoff attack missile (TSSAM) is a classified program that is the carrier vehicle for the brilliant anti-armor submunition (BAT).



Army TACMS will be a delivery vehicle for the brilliant anti-armor submunition (BAT).

BAT. This brilliant anti-armor submunition is top-attack and uses a dual-mode (acoustic and infrared) seeker. It is specifically designed to attack armor formations at operational depths. BAT will be used by the corps or theater commander to destroy threat armor forces prior to their closure in the close-battle area. BAT is the first submunition that gives the operational-level commander a significant capability to fight with fires at operational depths.

SADARM. The sense and destroy armor submunition is designed as a counterfire munition. SADARM is a shoot-to-kill munition that is guided to its target by a dual-mode (millimeter-wave and infrared) seeker. It fires an explosively formed penetrator to defeat its target. It is especially effective against self-propelled artillery. The SADARM will be delivered by either an MLRS rocket or by a 155-mm howitzer projectile. The program is currently under engineering and manufacturing development and is scheduled to be fielded in the fourth quarter of FY 94 for 155-mm and the first quarter of FY 96 for MLRS.

FDDM. The fire direction data manager (FDDM) is an interim software and hardware system that bridges the gap between the tactical fire direction system/MLRS fire direction system (TACFIRE/FDS) and the advanced Field Artillery tactical data system (AFATDS). It will provide tactical and technical fire direction and command and control for the MLRS family of munitions. The FDDM will support all new and developmental rocket and missile systems for the MLRS. It is currently undergoing tests and is scheduled to be fielded in the fourth quarter of FY 93.

Lightweight 155-mm Howitzer. The lightweight 155-mm howitzer effort is a tech-based initiative scheduled to begin in FY 96. The Field Artillery School has developed a requirement for a lightweight 155-mm howitzer to replace the M198 howitzer and the M119A1 howitzer in the light divisions. Specific definition of required system capabilities is ongoing. Technical testing of a 155-mm lightweight howitzer prototype has been conducted by the British Royal Ordnance Corps ending in June 1992.

AFAS. The advanced Field Artillery system (AFAS) is in the concept, exploration and definition phase of development. The AFAS will incorporate and expand upon the technologies introduced in the Paladin. Additionally, it will employ liquid propellant and achieve substantially greater ranges and rates of fire than current artillery systems. The AFAS will be fielded as part of a howitzer system comprised of the howitzer and an armored resupply vehicle.

The expanded capabilities these systems and munitions bring to the battlefield will allow the fire support coordinator and the combined arms commander to wage a violent and lethal campaign against threat forces. This campaign can be conducted across the depth and breadth of the battlefield and greatly minimize the risk to friendly maneuver. The application of modernized systems, smart munitions and extended ranges to the contingency battlefield provide an exponential increase in the combat power of the deployed force.

The Field Artillery must be resourced with the appropriate mix of munitions and weapons to minimize the risk faced by our ground combat soldiers. To do any less would betray the faith and trust of the American public. As the Army aligns itself for its changing missions into the next century, the Field Artillery must lead the way in battlefield lethality. Only in this way can maneuver forces be conserved and employed at the critical point in place and time on the battlefield.

If you have questions or comments, call the Training and Doctrine Command System Manager, Rocket and Missile Systems (TSM-RAMS) at DCTN 639-6701/5205 or commercial (405) 351-6701/5205 or write Commandant, US Army Field Artillery School, TSM-RAMS, ATTN: ATSF-RMS (MAJ Sorrell), Fort Sill, Oklahoma 73503-5600.

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Leader Development to Fight with Fires

By now, you've read about—perhaps entered into a discussion or two—about Fighting with Fires. You probably have a grasp of how critical it is to future success on the battlefield. Along the way, you should have realized that Fighting with Fires is more than a "buzz phrase" you can use to impress the boss.

Fighting with Fires is a challenge to accept, an azimuth to follow and a cornerstone upon which to base our strategies in the traditional Training and Doctrine Command (TRADOC) domains of doctrine, organization, training, materiel, leader development and soldiers (DOTMLS).

Major General Fred F. Marty, the Chief of Field Artillery, stated, "Perhaps none of the DOTMLS domains offers greater leverage in fighting with fires than that of leader development." This article describes some of the leader development initiatives designed to prepare our branch to lead from the front in Fighting with Fires.

Developing Leaders

Our Army is trained and ready—capable of deploying anywhere at any time to complete any mission our nation gives us. This will continue to be our goal for the future.

The Chief of Field Artillery and the Field Artillery School, Fort Sill, Oklahoma, are committed to developing the best leaders to face future challenges. Our officers, warrant officers and NCOs expect and deserve a leader development system that allows them to learn, grow and mature into confident and competent leaders.

The Army's formal leader development system consists of three important pillars: institutional training, operational assignments and self-development. These dynamic pillars accommodate force structure reductions, constrained resources, advances in doctrine and technology, as well as individual professional objectives. It's within this framework that the FA develops leaders who can help the combined arms commander employ his fire support systems with the same skill and vigor he employs direct-fire systems.

There are two fundamentals critical to Fighting with Fires. First, recognize the maneuver commander for who he is—the *combined arms commander* responsible for integrating and synchronizing *all* battlefield operating systems. Second, we must ensure all Field Artillerymen recognize their role as *fire supporters.* We must advise and train combined arms commanders and other leaders to fully comprehend employment considerations for fire support.

There are many institutional changes under way designed to support Fighting with Fires. The Chief of Field Artillery accepts the challenge of determining the duties, qualifications and standards for leaders in our branch.

Officer Development Changes. The proposed revision of *DA Pamphlet 600-3 Commissioned Officer Development and Utilization* contains major career development changes for FA officers. DA Pamphlet 600-3 is a key document, establishing professional development standards for all officers, encompassing the three pillars of leader development.

Chapter 11 of the pamphlet emphasizes developing our officers as full-fledged fire supporters, rather than Field Artillerymen who merely accept responsibility for other fire support systems. To put teeth into that concept, company-grade officers will be required to serve as fire support officers (FSOs) or work at a fire support element (FSE) at any level, in order to become branch qualified. Service as a fire supporter will have equal standing with battery command when it comes to career development and progress.

Warrant Officer Development Changes. One of the most exciting and innovative concepts being implemented is the restructuring of the 131A Target Acquisition Technician into the Target Acquisition Warrant Officer (TAWO). We will be able to offer the combined arms commander a targeting specialist, carefully trained and developed, experienced and fluent in the targeting process. He will understand the employment of Firefinder radars, meteorological data systems, and survey systems and their role in the delivery of fires.

As the TAWO concept matures, the commander will enjoy the benefits of experience and a detailed knowledge of the equipment and processes involved in targeting. This will greatly enhance our credibility as part of the combined arms team and is a critical component of making Fighting with Fires a reality.

NCO Development Changes. For too long, we've asked our 13F Fire Support NCOs to serve as FSOs in the absence of the company, battalion or brigade FSO without training them in the skills they need to be most effective. Our sergeants and staff sergeants have had no institutional training to prepare them to operate a company fire support section, other than leadership, equipment-oriented and basic observer training. These same NCOs have become fire support NCOs in task force and brigade FSEs. Without formal training, they've performed well—a tribute to their personal commitment and professionalism.

The Chief of FA directed a study of 13F training to ensure all leaders in the FSE are able to advise the commander on employing fires. In August 1992, the study group recommended the fire support instruction in the Basic NCO course (BNCOC) and Officers' Basic Course (OBC) be closely aligned, as well as the contents of the Advanced NCO Course (ANCOC) and the Officers' Advanced Course (OAC). This means our NCOs will receive training in AirLand Battle doctrine, tactical decision making, the threat, fire support planning and execution and tactical operation center (TOC) operations. This alignment may also include a practical exercise where ANCOC students are integrated as fire support NCOs into OAC small groups. Commanders in the field should start seeing significant changes in the skills, knowledge and abilities of 13F NCOs, giving them more effective and versatile FSEs.

Study of Military History. Studying military history is important in the professional development of military leaders. OAC contains a fairly large dose of military history. Officers are required to research and prepare a written and oral battle analysis and participate in a staff ride to the Pea Ridge Battlefield in Arkansas. These are tough assignments designed to develop critical thinking skills that will enable the officer to learn lessons from the past and apply them to current or future situations.

This study of military history must not be limited to institutional training. Too many officers arrive at OAC who have never participated in a staff ride. Many have not read the most basic military history books.

Military history should be incorporated into each pillar of leader development. Units should include it as part of their professional development programs. They can get started by having recent OAC graduates present the battle analysis they prepared during OAC. While they are at it, OAC graduates also could present the book review they prepared, perhaps encouraging others to start a lifelong program of professional reading. The ability to understand the present by studying the past is a critical skill for synchronizing fires and maneuver.

Janus Simulation. The Field Artillery School has a first-rate reputation for training leaders on complex and extremely lethal equipment. We have made great strides teaching the doctrinal and tactical leadership skills necessary to employ that equipment effectively. Computer simulation enables us to measure the effectiveness of our efforts. In March 1992, the school brought its Janus Computer Battle Simulation Center on-line.

For the first time, officers attending OAC and OBC can plan an operation, see it graphically arrayed on the Janus screen, and then fight the battle. Their success is directly tied to how well they synchronized all battlefield operating systems. Currently, each OAC runs two practical exercises on Janus, and each OBC student gets eight hours in the computer facility. We expect to add another eight hours to OBC instruction. ANCOC students also may get the opportunity to use this great equipment. The Janus system is a key tool we are using to prepare future company, task force and brigade FSOs to be effective in their role on tomorrow's battlefield.

Balancing the Three Pillars

These are some of the initiatives working at the Field Artillery School. There are many more. We will continue to produce the very best leaders for the King of Battle. Our best efforts, however, will fall far short unless commanders ensure leader development is an integral part of their unit training.

Each of us is responsible for our own self-development. We must be competent citizens of the fire support community, completely fluent in the language, culture, doctrine, tactics, techniques and procedures. We must understand our profession from a historical perspective and prepare ourselves for the future. All three pillars of leader development must be working in order to develop leaders who will Fight with Fires.

If you have questions or comments about leader development, call the Fire Support Division at DCTN 639-4809/6851 or commercial (405) 351-4809/6851 or write Commandant, US Army Field Artillery School, ATTN: ATSF-TFA, Fire Support and Combined Arms Operations Department, Fort Sill, Oklahoma 73503-5600.

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Small Group Leader
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Soldiers

Training Tomorrow's NCO's Today

Promotions are the primary motivation factors for soldiers—and achieving professional excellence in everything the soldier does still remains at the top of the promotion scale. Next is military education; graduating at the top of the class in a noncommissioned officers education system (NCOES) course helps assure the soldier a place on the promotion list. Of course, seeking and demanding tough assignments with troops makes a strong statement to promotion boards. Finally, enrolling and participating in a civilian education program earns the soldier promotion points and rounds out a career as a professional soldier.

This article discusses the military education aspect of preparing tomorrow's NCOs for their leadership roles, providing an update of some of the key soldier issues surrounding the education of future and serving NCOs at Fort Sill's Noncommissioned Officer Academy.

Primary Leadership Development Course (PLDC)

Train as you fight. That's what you'll do if you are scheduled to attend PLDC at Fort Sill. Starting in October 1992, the Fort Sill NCO Academy began conducting PLDC at Camp Eagle's field training site. Students will now reside at Camp Eagle for the duration of the course.

PLDC students are placed in a stressful, but rewarding training environment for a 30-day period. These soldiers, recommended for advancement into the NCO Corps, are evaluated 24 hours a day on their leadership skills. The student leader must use his initiative, motivation and skills to accomplish everyday survivability tasks. An environment is created where teamwork and individual interaction within a squad determines its success. The squad can live in relative comfort or in conditions less desirable—the leader and team interaction determine which one.

One objective for this move is to enhance creative ideas and ingenuity to overcome harsh conditions and boredom through team organized athletics, sports

events and competition. But the main objective is to return junior enlisted soldiers back to their units highly motivated and trained in field craft, with a survive and win attitude—ready to assume challenging and demanding leadership positions.

BNCOC and ANCOC

NCOES is now linked to promotions. Commanders, command sergeants major and first sergeants must establish an order of merit list that will send the right soldiers to the right school at the right time. Select, train and then promote is the proven way to develop both our soldiers and NCOs.

Course Scheduling. To help the commanders in the field send the right soldier to the right school at the right time, the Fort Sill NCO Academy will fill every class to maximum capacity and can accommodate adjustments in scheduling.

The Academy trained well over its projected annual training rate in FY92 and now has the resources to train every NCO on the ANCOC standing list in FY93 and every student who needs to attend a BNCOC class.

Skill Level 2 Training. The missing link in our enlisted military education system is at skill level (SL) 2. There is no formal military occupational specialty (MOS) school for this skill level, so training these soldiers remains the responsibility of the commander in the field. Commanders must use the unit's NCO professional development plan, through the command sergeant major, to identify tasks the soldier must learn to be proficient at SL 2.

Overweight Soldiers. Soldiers continue to arrive at the NCO Academy overweight. Effective 1 October 1991, with Interim Change 101 to *AR 600-9 The Army Weight Control Program*, leaders attending a professional school who report overweight must be recommended for disenrollment to the General Court Martial Convening Authority. The general officer with this responsibility can allow the soldier to remain in school, disenroll the student, remove the soldier permanently from the ANCOC or BNCOC list and stop the soldier's permanent change of station (PCS), awaiting clearance from FA Branch.

The bottom line—a soldier who enters a professional school overweight kills his career.

Manual Gunnery Skills. Students reporting to the 13E BNCOC school continue to experience difficulty with manual gunnery. Most 13E BNCOC students fail the diagnostic test and must be retrained on most SL 1 and 2 tasks. BNCOC 13E small group leaders work very closely with the students and spend many hours assisting them. NCOs scheduled to attend a 13E BNCOC course must review manual gunnery procedures. The Gunnery Department, FA School, Fort Sill, Oklahoma mailed copies of the 13E BNCOC diagnostic test to all Division Artillery and FA Brigade commanders. Commanders are encouraged to administer the diagnostic test to their 13E NCOs and develop training to correct identified weaknesses prior to their reporting for 13E BNCOC.

Research and Writing. Every ANCOC and BNCOC class must prepare an NCO history research paper and submit it to the commandant upon completion of the course. One paper was printed in the October 1992 edition of ***Field Artillery***. The focus is on the student's ability to write and, at the same time, enhance his knowledge about the NCO Corps and its history.

Training Your Boss. The Field Artillery School and the NCO Academy are developing a two-hour class on "How to Train Your Lieutenant." The idea is to bring out the talent and knowledge the staff sergeants and sergeants first class have and teach them how to share that knowledge with their new lieutenants. The first 30 days a lieutenant spends in his initial assignment are the most critical. The lieutenant's NCO counterpart must get as much "mud" on the lieutenant's boots as possible in that 30 days. The intent is to provide ideas to help the NCO transition the new officer from a student to a leader and teach him the "on-the-ground" tasks he did not learn in formal schooling.

Master Warfighter. A Master Warfighter is a leader who has displayed all those qualities required to fight, win and survive on the battlefield. The Fort Sill NCO Academy recently changed its policy on ANCOC and BNCOC student recognition. In the past, one student per class was selected as the distinguished honor graduate and one student was selected as the leadership award winner. This type of recognition proved to be detrimental to the small group process. Students competed against their peers and were not always freely participating in the small group. Group interaction was being hampered and the sharing of knowledge and experience was not fully exploited.

What's the fix? Eliminate competition among students and develop a learning environment where the student competes against himself and every student has the opportunity to measure up to a standard. This is the genesis of the Master Warfighter award. Students who score 290 or above on the Army Physical Fitness Test (APFT), maintain a 95 percent academic average, receive all first-time GOs and have no adverse counseling statements are designated Master Warfighters. Every student can graduate as a Master Warfighter. All the student needs to do is measure up to the standard.

Every student who graduates as a Master Warfighter will receive a special diploma and a Master Warfighter medallion to be worn around the neck. Raters are encouraged to make appropriate comments on the NCO's evaluation report under competence. Identifying individual excellence through individual effort, where *all* who excel are recognized, motivates the student to excel and instills confidence in the small group learning process.

The NCO Academy at Fort Sill is working hard to provide the learning environment necessary to train tomorrow's NCO leadership today. Innovation in training is allowing us to make many improvements in the NCOES courses offered at Fort Sill. All of these efforts are directed at providing the field the finest, most competent NCO leadership possible.

If you have questions or comments about soldiers issues or NCOES, call the NCO Academy at DCTN 639-2417/3141 or commercial (405) 351-2417/3141 or write Commandant, Noncommissioned Officer Academy, Fort Sill, Oklahoma 73503-5600.

CSM Harold F. Shrewsberry
Commandant
NCO
Academy
Fort Sill, Oklahoma.

Paladin—A Revolution in Cannon Artillery

by Lieutenant Colonel David P. Valcourt and Captain Jack C. Riley

Can you imagine going to the NTC with a battalion of howitzers that self-locate, compute firing data, survive through the greatest opposing forces (OPFOR) counterfire efforts, communicate by voice and digital means with the platoon operations center (POC) and deliver massed, accurate fires in less than a minute—even when on the move? Soon the Paladin howitzer (M109A6) will make this a reality.

For the past six months, the 2d Battalion, 17th Field Artillery (2-17 FA), 212th FA Brigade, Fort Sill, Oklahoma, has trained with the Paladin howitzer in preparation for the follow-on test and evaluation (FOTE) and will become the Army's first fielded Paladin battalion in the third quarter of FY 93. This article is a report to Redlegs on experiences with this revolutionary system from the eyes of a battalion and battery commander.

A typical Paladin soldier FOTE training day begins at 0600. Following a hot A-ration breakfast, vehicle preventive maintenance checks and services (PMCS), pre-combat checks and initialization, the platoon hits the start point (SP) at 0800. First rounds are downrange before 0805, as a hip shoot is normally received en route to the first position area.

Firing continues throughout the day, peaking at four missions in an hour. Missions require between 5 to 10 rounds to be fired by each howitzer. All authorized propellants are fired, to include three M203 and four M119A2 missions. The platoon normally conducts rearm, refuel, resupply and survey point (R^3SP) operations in the late afternoon, primarily to update navigational systems, and then enjoy a good, hot T-ration dinner. Ammunition resupply is also conducted, although our sustainment system of alternating the M992 Field Artillery ammunition supply vehicles (FAASVs) is so effective that Class V does not drive the R^3SP. The resupply takes about 90 minutes, due in great part to tester administrative requirements and realignment of the automated range safety instrumentation system (ARSIS) gyros.

Firing continues until about 0130, when the platoon receives a "cold platoon" mission status. Arriving at a battery life support area, crews complete after-operations PMCS, tear down breech blocks, punch tubes and report maintenance problems to the battery motor sergeant. Howitzer crews hit their sleeping bags about 0200 for four short hours of much deserved rest.

During one day of Pilot Test 3, the platoon of four Paladins shot 1,186 rounds (almost 300 rounds per gun) during 39 fire missions and made 23 survivability moves and three tactical moves. That's shooting and moving!

Our Road to Paladin

The first step to Paladin is 3x8 conversion in the fullest sense. The battalion must be fully trained to deploy, fight and sustain six howitzer platoons. Following redeployment from Operation Desert Storm, the 2-17 FA received six additional howitzers and three platoon fire direction sections. (The battalion had fought magnificently in the desert as a 3x6 battalion.)

Adding additional howitzers was a relatively transparent drill, but converting to platoon operations, updating to Version 9 tactical fire direction system (TACFIRE) software and doubling fire direction centers (FDCs), along with realigning the combat service support (CSS) structure, were significant drills. The battalion battle staff and combat sustainers trained to command and control platoon-sized elements. Mission, enemy, terrain, troops and time available (METT-T) dictated which option was preferred, battery or platoon operations, but the battalion had to be sufficiently flexible to plan and execute either option.

Current Doctrine

Paladin, unlike the multiple-launch rocket system (MLRS), is not considered a "new system." The tactics, techniques and procedures (TTP) developed for Paladin are based on traditional M109A3 TTP and are found in *ST 6-50-60 Paladin Tactics, Techniques and Procedures*. Much like *FM 6-50 FA Cannon Battery*, which offered 3x8 doctrine for transitioning 155-mm battalions, ST 6-50-60 was our starting point as we discovered how to employ Paladin and meet the operational requirements of the FOTE.

We have followed most of the TTPs provided by ST 6-50-60 but have tailored some pieces to fit the chemistry of the battalion. There was a lot of old baggage that had to be left behind—in some cases defining new roles for many old soldiers.

Our experience to this point has been with a platoon of M109A6 howitzers assigned to 2d Platoon of Charlie Battery. But with a full battalion of 24 Paladins just around the corner, our standing operating procedures (SOPs) and training have always considered six platoons. More

importantly, our organization and TTPs must work outside of the test environment—at the National Training Center (NTC), Fort Irwin, California, or on the next battlefield.

Command and Control

From the perspective of the battalion commander and battalion operations officer, Paladin offers tremendous flexibility. A battalion of Paladins can do everything a 3x8 outfit can do and much more. Paladin howitzers can be fought using traditional battery or platoon (3x8) organizations, or they can be decentralized into 12 howitzer pairs, four in each battery. The capability also exists to employ single howitzers.

We believe the paired howitzer technique is the best method of employment. It provides the best tactical trade-offs and the greatest flexibility. The paired-howitzer technique calls for two Paladin howitzers to form a "fire team," each platoon having two fire teams. Survivability, tactical movement, survey, logistics and threat are the factors that led us to this preferred choice of employment. Howitzer pairs are clearly the most survivable against enemy counterfire and can be positioned in areas that would not accommodate larger groups of howitzers. We found that Paladin pairs maximize scarce terrain resources and still maintain the ability to accurately mass fires.

Since decentralized operations are normally the most challenging, we see the paired-howitzer employment option as our most challenging option to maintain a "fully trained" mission-essential task list (METL) assessment. If we are fully proficient using this option, we can readily form four-gun platoons or eight-gun batteries.

The role of the Paladin battery commander remains virtually unchanged from 3x8 operations. He recons platoon "goose-eggs" (see Figure 1), coordinates support for the battery and directs combat operations as required. The battery commander must have a complete understanding of the maneuver tactical situation, particularly the "what" and "where" of friendly operations as he positions his platoons.

Communications

Communications can be a "war-stop-per." The Paladin battalion communicates using the single-channel ground and airborne radio system (SINCGARS). In addition to the normal 3x8 distribution of radios, the Paladin battalion has two SINCGARS radios per howitzer, one for voice and one for digital communications. Additionally, the FAASV is equipped with one SINCGARS radio.

The battalion began the transition to SINCGARS in October 1991. This was excellent timing as we were able to fully implement training and sustainment while developing new formats for signal operating instructions (SOIs) and the repair parts prescribed load list (PLL). To best facilitate the Paladin transition, SINCGARS should be on hand 12 to 18 months before fielding the howitzer. Fielding the Paladin and SINCGARS simultaneously would be an extremely difficult mission.

All of our AN/VRC-12 series radios were replaced by the SINCGARS-imbedded communications security (COMSEC) version radios. The initial distribution of SINCGARS, however, only included normal radio authorizations, including command and control nodes. So howitzer crews were not included in the first batch of soldiers trained because their radios were not yet on hand.

Soldiers who normally operated 12-series radios required about two weeks of new equipment training and several communications exercises to become SINCGARS proficient. Much to our surprise, we were communicating on all nets, voice and digital, using the secure frequency-hopping mode very quickly. Training cannoneers to use the radio has been exciting. The junior 13Bs (Cannon Crewmembers) take to the hardware very well, but confidence and communications discipline develop slowly. Paladin section chiefs must have an understanding of communications electronic line-of-sight to ensure continuous communications with the POC.

Although Paladin also can operate using AN/VRC-12 series radios, SINCGARS has been far superior and well worth the initial training investment. Taking advantage of the increased security offered by SINCGARS, we have adopted fixed call signs for all internal nets. This makes great sense and works extremely well. Incidentally, we envision each firing battery having two platoon voice nets to be used by howitzer pairs and the POC for both tactical and administrative requirements. These are not yet doctrinal, but our training experience clearly justifies establishing them.

Artillery battalions will find their authorizations for communications soldiers to support Paladin most austere. Wire use within the battalion is nearly non-existent, with the exception of assembly area operations, trains areas and mobile subscriber equipment (MSE) hookups. No longer does an advance partyman install wire communications to lay the platoon.

The large majority of 31K (Combat Signaler) soldiers must be cross-trained to perform 31V-type (unit-level communications/maintenance) services within the battalion. Virtually no SINCGARS internal repairs are authorized at the battalion level, but a good 31V is critical to troubleshoot cables, antennas and other problems. We have asked the Field Artillery School, Fort Sill, Oklahoma, to relook communicator authorizations for the Paladin battalion.

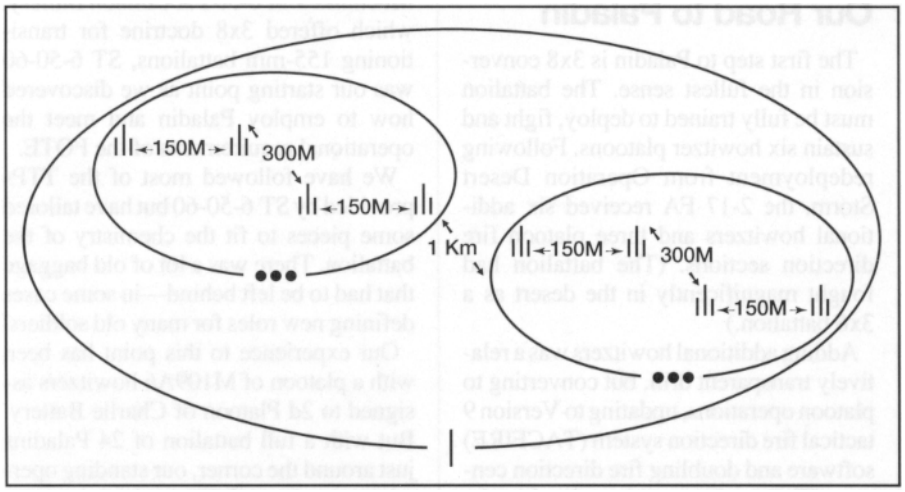


Figure 1: Position Area Parameters

The Paladin POC

The Paladin POC provides both tactical and technical fire direction to the Paladin platoon. It is manned and equipped identically

to a 3x8 platoon POC with one significant addition—the platoon leader.

One of the lessons learned during the initial operational test and evaluation (IOTE) for Paladin in 1989 was the platoon POC, actually the platoon FDC, became absolutely overwhelmed with combat information. The FDC was incapable of managing its technical and tactical fire direction responsibilities. To solve this problem, we moved the platoon leader into the POC. His vehicle is positioned to the rear of the POC as shown in Figure 2. Here, the platoon leader tactically commands and controls his platoon howitzer pairs over the platoon command net (voice). He communicates with the battalion S3 on the battalion command fire 1 (CF1) net.

The platoon leader is in a position to fight his howitzers by controlling positioning, azimuth of fire, movement and sustainment from the POC. He reports the status of his platoon to the S3 and shares the responsibility of commanding and controlling the guns with the FDC. Managing ammunition and survivability movements of howitzer pairs is a full-time job and is best performed by the platoon leader.

The FDC and fire direction officer (FDO) must continue to "manage the nickel" (five requirements of accurate predicted fire) but are not overwhelmed by the tactical requirements of moving and resupplying the platoon. The FDC portion of the POC now manages five computer data bases that include the battery computer system (BCS) and the automatic fire control system (AFCS) computer found on-board each Paladin. Powder temperature, muzzle velocity information and digitally transmitted meteorological (met) messages from a meteorological data system (MDS) are carefully tracked by the FDC. Fire missions are sent digitally from the FDC to the Paladins over the assigned digital fire direction net. If the AFCS becomes nonoperational, the FDC is prepared to provide the howitzer voice firing data determined by the BCS, which is manually input to the howitzer. The Paladin POC is virtually a scaled-down version of the battalion operations section and is the hub of activity for the platoon.

Paired Howitzer Operations

The Paladin battery is organized with one heavy platoon, including the battery trains elements and one light platoon.

Figure 2. In a Paladin POC, technical fire direction is performed in the M577 under the direction of the FDO. The Platoon leader's HMMWV is the hub of tactical fire direction and all operational orders and reports.

Our concept for paired howitzer operations maximizes the advantages of the Paladin howitzer while minimizing the command, control and sustainment disadvantages of decentralization.

As mentioned earlier, each Paladin platoon has two fire teams. Each fire team has two howitzers, two FAASVs and a fire team sergeant (FTS). The howitzer fire teams are employed as shown in Figure 3. Distances between guns are METT-T driven, although paired guns should be intervisible as they depend heavily on each other for defense and mutual aid. We normally position Paladins 100 to 150 meters apart. Paladins communicate with each other, the FTS and the POC on the voice net when required.

Paladin defense in the paired mode is based on the unique ability of pairs to "go to ground" and hide, shoot and scoot. Camouflage nets aren't normally erected, and perimeters aren't used, although one of the two ammunition carriers is positioned in an overwatch position to observe the avenues of greatest risk.

Role of the FTS

During paired operations, the traditional roles of the "Smoke" (Chief of Firing Battery) and "Gunny" (Gunnery Sergeant) go away. We have taken the TTP of ST 6-50-60 a step further and created new roles for them.

Our sergeants first class are called Fire Team Sergeants. Each is in charge of a team of two Paladin howitzers and two ammunition carriers. Assigned a goose egg and receiving operational orders from the platoon leader, each FTS recons, issues

Figure 3. A Paladin Fire Team consists of 2 Paladins, 2 FAASVs and a FTS. Here, a fire team prepares to conduct a survivability move, led by the FTS in a HMMWV.

orders to chiefs and fights his pair of guns. He is personally responsible for survivability moves, sustainment of his team and ammunition management. Each FTS rides in a high-mobility multipurpose wheeled vehicle (HMMWV)—currently only one of two are resourced. He also may use one of his FAASVs (which have radios) or the old advanced party's 2 1/2-ton truck with some loss of mobility.

The FTS is the eyes of the platoon leader on the battlefield and provides critical reports to the POC regarding the operational status of his howitzer pair. He carries an aiming circle in his vehicle for degraded operations when he must lay howitzers. He verifies piece grids currently by map spot but eventually will use a global positioning system (GPS).

Once his pair of howitzers have occupied positions and are ready to shoot, the FTS recons the next position, checking trafficability, obstacles, site-to-crest and communications with the POC. Survivability moves are 300 meters at a minimum and, by our SOP, are made after every other mission. Upon completion of the recon, the FTS rejoins his team and monitors firing operations and ammunition resupply.

Paladin Crew and Fire Mission Processing

The Paladin crew consists of nine cannoneers. Four man the howitzer while the remaining five operate the FAASV. The section chief, gunner and number-one man occupy the firing compartment while the driver remains in the driver's hatch during missions and records data fired. There are only three crewmen in the firing compartment of the howitzer during fire missions. All crewmen in the Paladin wear a combat vehicle crewman (CVC) helmet for hearing protection and internal and external communications.

Paladin pre-fire checks mirror the current M109A3 checks with the addition of ensuring the AFCS data base is validated. After tactical moves or when command directed, a dry-fire mission is initiated by the POC and data is compared between the BCS and the AFCS.

The chief of section (COS) operates the AFCS and is personally responsible for checking charge, fuze setting and the safety "T" during firing. Unlike a M109A3 chief, the Paladin chief's duties are all inside the howitzer. Paladin howitzer emplacement and firing can be completed without any crew member exiting the gun. This is possible because spades are not used unless firing the M203 charge or when firing in loose sand. On-board position and navigation devices lay the tube for direction, eliminating the use of aiming circles and traditional aiming points. We select distant aiming points (DAP) for back-up reference as part of position improvement. The FTS, not the COS, moves and positions ammunition carriers.

Fire missions are received digitally from the BCS and firing data is displayed on the AFCS. Upon receipt of a mission in the POC, while the BCS is processing the mission, a voice "Head's Up" warning order is sent to the guns and the FTS over the platoon voice net. The Paladin COS cycles through the AFCS to process the mission and issues fire commands as the number-one man sets the fuze (verified by the chief) and rams the projectile. The gunner cuts the charge (verified by the number-one man) and loads the propellant. The number-one man then primes and fires the piece. As a positive safety measure, the lanyard is maintained by the COS until the gunner views the AFCS screen and provides a positive check that commanded firing data equals the actual howitzer lay data.

Without describing all of the technical procedures of the AFCS, the howitzer "lay key" activates the automatic gun-drive servos which slew the tube to the commanded deflection and quadrant. The gun-drive servos are not enabled unless the lay key is depressed (normally immediately after the howitzer is primed), otherwise the tube remains at load deflection and quadrant. Ensuring the Paladin is laid on the commanded data is critical to safety to prevent the howitzer from being fired at the load deflection and quadrant. After the weapon fires, the section chief depresses the load key and the tube automatically returns to loading deflection and quadrant.

For health and safety reasons, Paladin crews button up, don a ventilated facepiece (M25-series protective mask) and wear double hearing protection when firing the M203 charge or high volumes of M119 charges. White and green bag firing do not incur added requirements.

As with the M109A3, mission-oriented protective posture (MOPP) firing of the Paladin remains difficult, but the Paladin's micro-climatic system (MCS) delivers some comfort by providing cool-air circulation around each crewman's face using the M25 protective mask and upper torso using a vest. Internal crew communications during MOPP IV missions is also much better than in the M109A3 since the CVC helmet plugs into the M25 mask system. Our crews found the MCS to be a real winner in reducing the degradation of MOPP IV firing.

Resupply Operations

Paladin battalion logistical requirements are very similar to a 3x8, M109A3 battalion. R^3SP operations are driven by METT-T. Our battalion conducts R^3SP operations in conjunction with a tactical movement. Preferably, the R^3SP site is located near the route release point and close to the firing battery position areas. Upon entering the R^3SP, each platoon runs the rearm, refuel, resupply gauntlet traditional of most R^3SPs. Maintenance, medical and supply contact teams provide support as required.

The key difference in a Paladin R^3SP is the requirement to update the on-board position navigation devices. Paladin can travel up to 27 kilometers without significant degradation. The reconnaissance and survey officer (RSO) must coordinate with the S3 and emplace a confidence update point at or near the R^3SP location for each howitzer to update on-board systems. Since we normally push one platoon at a time through the R^3SP, four surveyed points (12-digit grid and altitude) and an orienting line are prepared. Howitzers require about 15 minutes to conduct the confidence check. This procedure restarts the "shot clock" on the Paladin's 27-kilometer requirement for navigational update. Orchestrating concurrent activity within the R^3SP is key to ensuring all operations are completed in a timely manner. For example, FAASVs are reloaded while the guns are at the confidence check points.

The FTS or platoon leader will verify any survey data changes to the AFCS data base at the R^3SP. Frequently, the FTS will go forward, recon the next position and return to the R^3SP site to brief his section chiefs.

Our preferred technique to resupply Paladins is done by replenishing the rounds fired by each howitzer immediately after each mission. Each howitzer can carry 37 complete rounds and two Copperheads. Rounds carried in the howitzer are fuzed and propellant cannisters are secured in designated positions. The quickest method used to replenish the howitzers is to manually reload them from the side window of

the FAASV. The conveyor belt is used only when resupplying a FAASV from a heavy expanded-mobility tactical truck (HEMTT). Our crews can load 90 complete rounds into a FAASV using the conveyor belt in less than 10 minutes. The conveyor conserves crew strength and minimizes needless injuries.

Sustainment of Paladin ammunition is the responsibility of the platoon leader and the FTSs. As previously mentioned, FAASVs operate under the command and control of the FTS. He provides orders to the FAASV's ammunition team chief, a sergeant. This was initially a tough act to sell to the "old chiefs" but has proven a real winner. The FTS directs *one* FAASV to resupply *both* Paladins. This process continues until the FAASV is empty. The second FAASV of the fire team then leaves its overwatch position and takes over ammunition sustainment of the howitzer pair. The FTS directs the empty FAASV to return to the POC under the control of the ammunition team chief. The ammunition team chief reports over the voice net to the FTS as he returns for replenishment and navigates back to his pair of howitzers. Land navigation skills are a *must* for the ammunition team chief because frequently the howitzer pair will conduct a survivability move while he is away.

Firing Safety

Paladin was built to be a high operations tempo (OPTEMPO) weapon. The required operational capabilities (ROC) document for Paladin specifies it be able to fire 254 rounds per tube per day. The Paladin also is required to make 22 survivability moves (300 to 800 meters each) and at least two tactical moves (each greater than 7 kilometers) in a 24-hour period.

The full benefits of the system are not realized unless decentralized operations and frequent survivability moves are trained. This necessitates decentralized safety certification and places a tremendous responsibility squarely on the shoulders of the platoon NCOs. There is no "line of metal," no powder man, no safety circle and no officers on the "gun line." The AFCS will provide an accurate ballistic solution, but we must carefully manage the AFCS data base. Our platoon FDO validates the data base by shooting an initial dry mission upon first occupation and after every subsequent tactical move. Dry missions may be conducted whenever there has been a significant change to the data base or when the data from AFCS or BCS are suspect. The FTS contributes to safe firing by verifying piece grids (map spot or position navigation device), checking azimuth of fire with a compass and ensuring danger area "echo" (a 400-meter are to the front of the howitzer) remains clear.

Once data bases have been verified through a BCS-AFCS dry mission (much like a BCS-BUCS check), the critical path for ensuring a safe and accurate round includes verifying charge and fuze setting and checking to ensure the lay key has been depressed and the Paladin AFCS screens indicate the weapon is ready to fire.

Although traditional firing point and position area safety procedures are time proven, they do not facilitate Paladin "shoot and scoot" tactics. They may certainly be used, however, when employing Paladin in a battery or platoon configuration. While we are training for FOTE, we use the ARSIS, but this system will not be fielded to Paladin battalions. The safety solution for high OPTEMPO Paladin training must enable frequent movement within a given position area without taping or continuously changing safety Ts and cards.

We see the application of lane training techniques as the safest and most efficient way to make this happen. Training lanes established for survivability moves with a prescribed set of firing data safety limits (charge, minimum and maximum quadrant, deflection/azimuth and fuze setting) are one possibility.

We are continuing to work the safety issue with the Gunnery Department at the Field Artillery School to find a solution that will allow us to train as we intend to fight and still be safe.

Situation Report

The battalion received the first production-model Paladin howitzers in August and immediately took them to the field to begin Phase II collective training. To the man, every soldier was thrilled with the response of the Paladin as it charged cross-country onto Quanah Range. There we calibrated the M119A2 charge with shell HE and the M203 charge fired on the M825 smoke projectile. All systems checked out extremely well as training continued to achieve the levels required for the FOTE.

The Paladin crews have routinely demonstrated the ability to fire the howitzer within 30 seconds of receiving the mission. The time required to conduct survivability moves continues to improve. Hipshoots have become routine and are easily achieved within 60 seconds, once the chief selects his firing position. The platoon POC concept has proven effective, and the FDC is meeting all mission processing times. Automotively, the Paladin has measured up to all expectations. We stressed the Paladin by firing over 12,000 rounds with four Paladins in just 30 field days.

All Paladin crews completed certification in September and were fully prepared for the final operational test and evaluation conducted in November 1992.

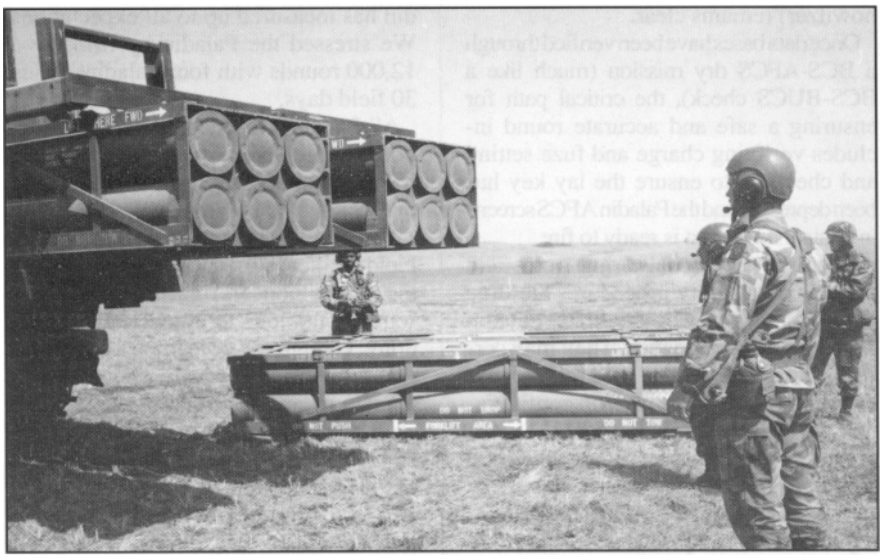
The Paladin and its follow-on advanced Field Artillery system (AFAS) will change the way cannoneers fight moving through semiautonomous to autonomous operations. Though we've learned a lot, there's still much more to learn about Paladin operations and tactics. But one thing is clear, the Field Artillery of the 1990s will be prepared for the warfighting demands of the 21st century.

Lieutenant Colonel David P. Valcourt commands the 2d Battalion, 17th Field Artillery, 212th FA Brigade, III Corps Artillery, Fort Sill, Oklahoma. Prior to assuming command, he was the III Corps Artillery G3. His other assignments include Brigade S3 for the 212th FA Brigade and Executive Officer for the 2d Battalion, 17th Field Artillery at Camp Pelham, Korea. Lieutenant Colonel Valcourt is a graduate of the Command and General Staff College, Fort Leaven-worth, Kansas. He holds a master of science degree in physical education from Springfield College, Springfield, Massachusetts.

Captain Jack C. Riley commands C Battery, 2d Battalion, 17th Field Artillery, 212th Field Artillery Brigade. Previously, he commanded A Battery, 2d Battalion, 18th Field Artillery, also at Fort Sill. During Desert Storm, he was assigned as an Assistant Operations Officer in the 212th Field Artillery Brigade Operations Section. Following his commissioning and Officer Basic Course attendance, he was assigned to the 4th Infantry Division (Mechanized) Artillery, Fort Carson, Colorado, and later accompanied the 6th Battalion, 29th Field Artillery to Idar-Oberstein, Germany.

A Bold Shift for the Field Artillery

by Lieutenant Colonel Joe G. Taylor, Jr., and
Lieutenant Colonel Gary D. Haub



On 17 February 1991, the 1st Battalion, 158th Field Artillery (Multiple-Launch Rocket System, or MLRS), Oklahoma Army National Guard (OKARNG), closed on its forward assembly area in the 1st Infantry Division (Mechanized) sector to the west of Wadi Al Batin in Saudi Arabia and prepared for immediate combat operations. Elements of the battalion were committed in raids within 48 hours under the control of the 75th Field Artillery Brigade and the 1st Infantry Division Artillery. The battalion fired in support of breaching operations within the week and then provided the corps artillery commander key and highly mobile fire support reinforcement during the commitment of the corps reserve.

The 1-158 FA and many other company-and battalion-level Reserve and National Guard units had real success stories during Operations Desert Shield and Storm. These were units fully capable of performing their wartime missions. But, as with all units, they required varying amounts of post-mobilization training to reach the standard for combat operations. This varying level of competency at which Reserve and National Guard units enter post-mobilization training is the target of a One-Army standard enhancement program called Bold Shift.

Bold Shift is an outgrowth of the desert deployment experience. Combat operations absolutely validated the prescription that superior weapons manned by highly trained professionals using fully developed collective battle skills win wars. Bold Shift uses a permanent partnership training relationship between like Active Component (AC) and Reserve Component (RC) units to develop and hone collective readiness. Operational readiness exercises (ORE) are planned in FY 93 to validate the training effort and pre-mobilization readiness against the One-Army standard, so AC and RC units maintain battle skills at about the same level.

The 6th Battalion, 27th Field Artillery (MLRS) of the 75th Field Artillery Brigade, III Corps Artillery and 1-158 FA (MLRS) of the 45th Field Artillery Brigade, OKARNG, were selected to form a Bold Shift pilot training partnership program. This partnership takes advantage of a tradition of mutual respect between the two battalions that has been an outgrowth of both the desert deployment and the location of the respective headquarters at Fort Sill and Lawton, Oklahoma. This article provides a discussion of the goals of the program, the training-relationship concept and implementation and a review of progress to date.

Program Goal

With guidance from III Corps and III Corps Artillery, the commander of the 75th FA Brigade initiated coordination among Headquarters, State Area Command (STARC), OKARNG; the 45th Field Artillery Brigade (OKARNG); Headquarters, Forces Command (FORSCOM); regional RC advisors and the leaders of 1-158 FA and 6-27 FA. These efforts culminated in a formal conference held at Fort Sill in April 1992.

Concurrently, the two battalions developed a training concept and plan that incorporated the pending two-week annual training (AT) in June 1992 and future inactive duty training (IDT) weekend drills through AT-93 the following summer. That plan was circulated among the respective headquarters prior to the conference. (The specifics of the training concept are discussed later.)

The most important decision reached by the conference attendees was a clear statement of the goal of the training relationship. Initially, both the AC and RC units struggled with the notion of raising training standards because MLRS task-performance standards are clear-cut and the same for both components. Somehow, raising those standards for the RC unit had little rationality. Post-mobilization training requirements, however, are a direct reflection of unit training readiness. If Bold Shift proved effective, then the post-mobilization training time required should be reducible. Thus, the initial agreement was to focus and concentrate on making the best use of the 1-158 FA's 24 IDT days during the year.

Traditionally, the 1-158 FA required a 28-day training period to be fully prepared for deployment. A thorough review of the training concept indicated a significant reduction in post-mobilization training was possible. As a result, the conference approved the goal of achieving a reduction in the post-mobilization training requirement by the conclusion of AT-93.

Final refinement and execution of the training plan was then handed to the two battalions. Training plan refinement was complete by 1 June 1992.

Training Concept

Three fundamentals formed the basis of the annual Bold Shift training plan. First, training would be based on 1-158 FA's mission-essential task list (METL)-derived platoon and section battle drills. Second, the drills would be supplemented

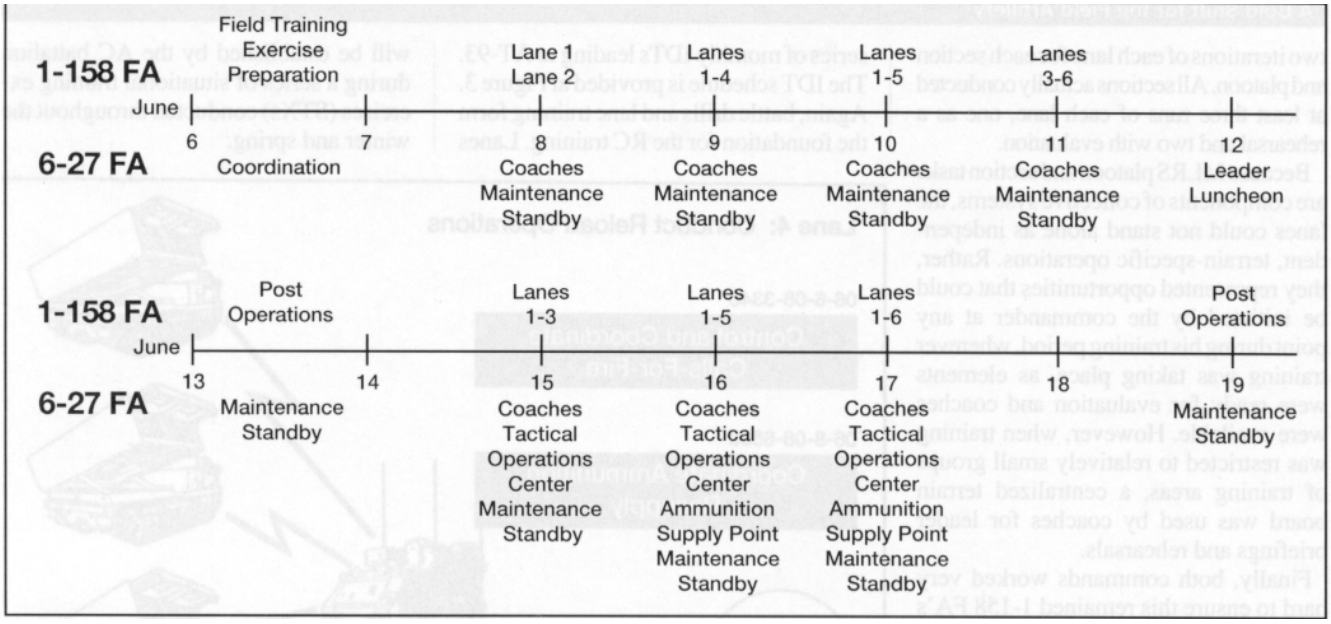


Figure 1. 1-158 FA Training Plan for AT-92. Training lanes emphasizing section battle drills were the focus of this AT period.

by lane training packages that would allow evaluated scenario-driven battle drill execution during weekend drills. Finally, habitual relationships would be established at the battery-level to further foster an effective team-training relationship throughout the year.

Additionally, both commands fully agreed that the Bold Shift training goal could not be achieved immediately. Instead, planning reflected a building block approach that would achieve the reduction in the post-mobilization training requirement by the conclusion of the AT-93 collective training period. This also would allow the respective commands to take advantage of limitations placed on the approaching AT-92 training period.

FY 92 was 1-158 FA's year scheduled for individual training and schools. As a result, fully three quarters of the battalion spent their two-week active duty period in school rather than in unit training at Fort Sill. The remaining battery-sized element was composed of a number of partial platoons and sections. As a result, training supported by lanes that emphasized section battle drills represented a rational employment of these smaller elements than would collective operations with an "ad hoc" battery. Figure 1 shows the basic training plan for AT-92.

Battle Drills

The 75th FA Brigade is a proven leader in the use of battle drills as a basis for section- and platoon-level training. The 6-27 FA had just completed a six-month long deductive analysis and crosswalk of the battalion and battery METLs leading to a group of key drills for each platoon and section in the unit. The computer software that supports the Standardized Army Training System (SATS) proved invaluable for developing the initial task lists. However, the many checklists and operator-level tasks associated with each drill, their compilation and checklist verification proved a demanding process. This was particularly true for MLRS, a system for which little of this kind of development had been accomplished. The worth of that effort became quickly apparent as the repetitive execution of the drills freed invaluable field time for true collective training.

Because the two battalions' METLs were similar, most of the new battle drills were applicable to the RC unit. The battalions agreed the approaching AT-92 was the ideal vehicle to introduce battle drill employment to the National Guard battalion. To make the drills even more effective, key tasks would be packed in "training lanes" that the AC unit would provide during the AT and during the IDTs leading to the 1993 summer training period. The AT-92 experience was designed specifically to introduce the coming year's training methods and reinforce the concept of training lanes to 1-158 FA coaches and trainers.

Lane Training

The lanes represented planned support packages of coaches, command and control structures and equipment that could be provided by the AC battalion during both the AT and future IDTs as requested by the RC commander. A total of six lanes were developed by the two headquarters.

•Lane 1: Conduct Tactical Assembly Area (TAA) Operations

•Lane 2: Conduct Firing Platoon Operations

•Lane 3: Conduct Reconnaissance, Selection and Occupation of Positions

•Lane 4: Conduct Firing Operations

•Lane 5: Conduct Ammunition Operations

• Lane 6: Conduct Platoon Nuclear, Biological and Chemical (NBC) Operations

Performance-oriented checklists were developed for the platoon and section tasks incorporated in each lane. In each case, the tasks represented battle tasks that had been developed by the AC battalion.

For example, in Lane 4, a total of five platoon and section tasks were evaluated. These included Control and Coordinate Calls-for-Fire, Coordinate Ammunition Resupply, Conduct Reload Operations, Execute a Launcher Fire Mission, and Recover and Displace. Figure 2 (Page 54) shows a schematic of Lane 4. Coaches from 6-27 FA completed checklists on each task and provided them to the commander of 1-158 FA.

Procedures for the conduct of the lanes adhered fully to current battle-focused training principles. Coaches provided platoon leaders and section chiefs with leader briefings, conducted rehearsals and led immediate after-action reviews (AARs). The training goal was to conduct at least

two iterations of each lane for each section and platoon. All sections actually conducted at least three runs of each lane, one as a rehearsal and two with evaluation.

Because MLRS platoon and section tasks are components of collective systems, the lanes could not stand alone as independent, terrain-specific operations. Rather, they represented opportunities that could be initiated by the commander at any point during his training period, wherever training was taking place, as elements were ready for evaluation and coaches were available. However, when training was restricted to relatively small groups of training areas, a centralized terrain board was used by coaches for leader briefings and rehearsals.

Finally, both commands worked very hard to ensure this remained 1-158 FA's training opportunity. The RC battalion determined the training schedule, decided which elements were ready for a lane iteration and was the sole recipient of coaches reports following the completion of a lane. The 6-27 FA provided extensive training support so the RC commander could focus on training rather than on distractions.

Habitual Relationships

The logic of basing Bold Shift on a habitual relationship between the two MLRS battalions was not lost to either command. An agreement was quickly forthcoming that paired the firing batteries of each unit in a similar partnership. The same advantages resulting from familiarity at battalion level with needs and personalities could pay dividends at battery level.

Moreover, like many RC battalions, the subordinate elements of 1-158 FA are scattered over several different communities. A permanent training relationship between batteries would greatly simplify support packaging for the coming year's series of IDT periods.

As a final buttress to the partnership, the two battalions instituted periodic leadership meetings. Planned to occur on a semiannual basis, the first was hosted by 6-27 FA during AT-92. All senior NCOs (master sergeant and above) and officers attended the meeting. It provided an ideal opportunity to solidify mutual training objectives and secure a common philosophical foundation for the coming training year.

Inactive Duty Training

With the successful conclusion of AT-92, emphasis has shifted to the coming series of monthly IDTs leading to AT-93. The IDT schedule is provided at Figure 3. Again, battle drills and lane training form the foundation for the RC training. Lanes will be established by the AC battalion during a series of situational training exercises (STXs) conducted throughout the winter and spring.

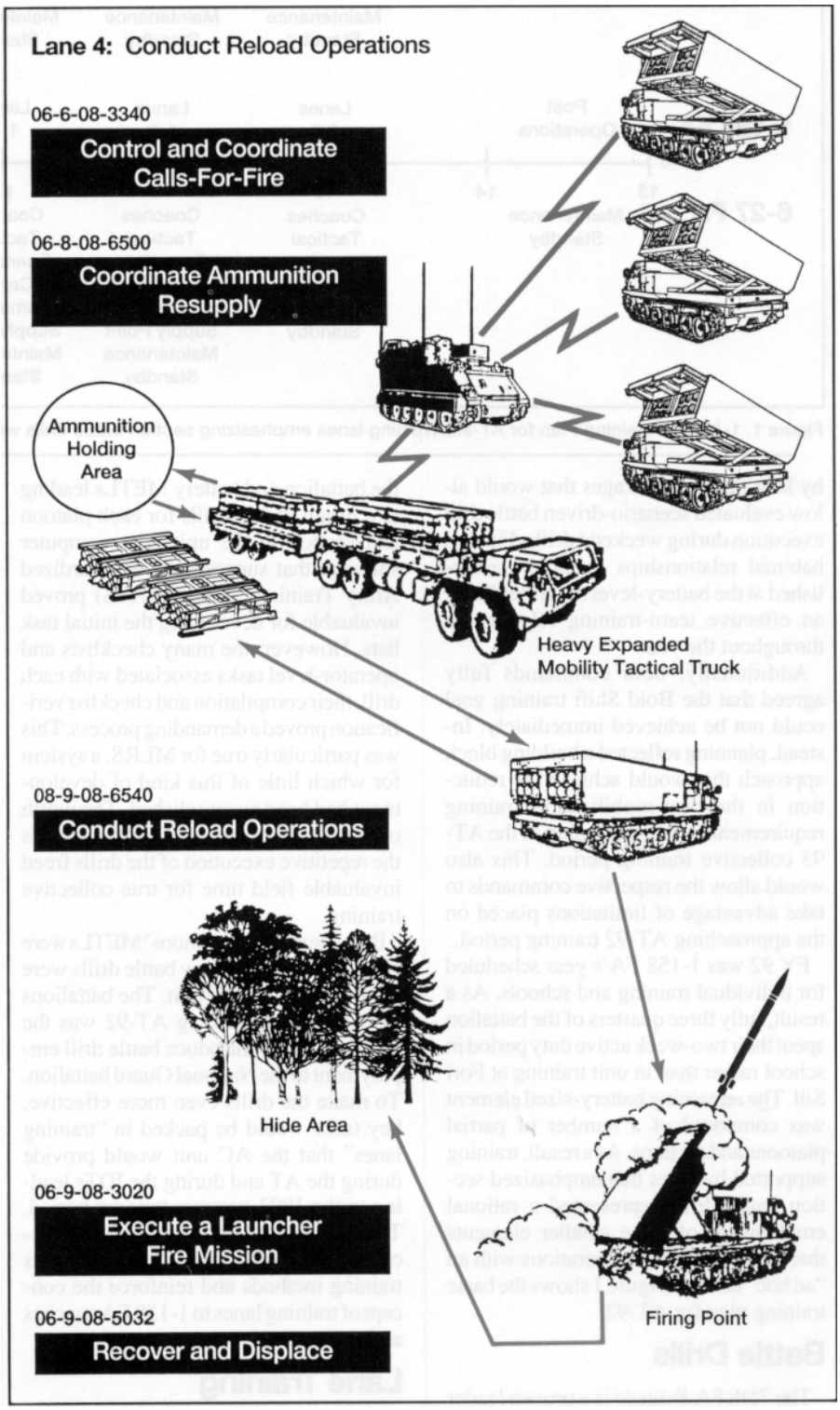


Figure 2: Conduct Reload Operations Training Lane. This is an example of a training lane developed and provided to 1-158 FA for training during AT-92 and the IDT periods leading to AT-93.

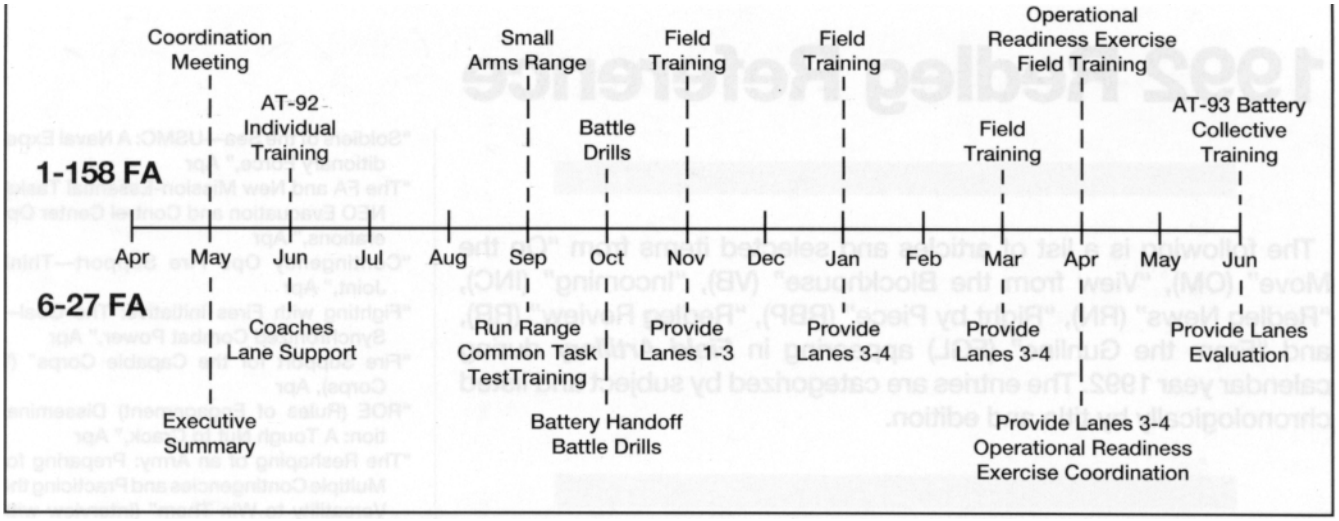


Figure 3. 1-158 FA Monthly IDT Training Plan. Battle drills and lane training form the foundation of this Bold Shift training strategy.

Thorough after-action reviews are key to successful lane training.

Three of those IDT periods will be devoted to RC training for many other missions, such as riot control and disaster relief. But individual sections will still have the opportunity to rehearse battle drills, even if only as "chalk talks" and "rock drills," during the IDT.

If the training relationship during the IDT cycle proves as successful as both commands believe it will, tremendous collective training value will be realized during next summer's AT period. Because of the solid foundation developed in basic section and platoon tasks through battle drills and STX lane training, valuable training time will not have to be devoted to fundamental skill development. Instead, field time will be available for true collective training, resulting in a meaningful reduction in post-mobilization training requirements. In addition, the normal warm-up period when units take time to work on basic crew and section tasks in preparation for collective training will be eliminated. The 1-158 FA will enter AT-93 ready for immediate collective training.

Operational Readiness Exercise

ORE evaluation teams, consisting of a mix of active Army, Army National Guard and US Army Reserve officers and NCOs, will conduct two-part evaluations of Bold Shift units to provide an objective evaluation of the RC battalion's pre-deployment readiness. As a result, the ORE will provide an objective basis for measuring achievement of 1-158 FA's goal to reduce the post-mobilization training requirement. During the first phase of the exercise, a compliance evaluation of unit administration will be completed. The second phase evaluates unit training, requiring elements and individuals to demonstrate battle skills during an intensive training exercise.

The administrative compliance inspection of 1-158 FA is currently scheduled for April 1993. The training inspection will take place in July following AT-93. Both the AC and RC commands are certain the battle drill and lane training concept is the most effective way to prepare for collective training.

Why Bold Shift?

With a worldwide contingency strategy, the Field Artillery must be prepared with little warning to deploy, fight and win, despite a smaller active-component force. Inevitably, greater reliance must be placed on Reserve and National Guard units.

Lessons from the Gulf War and cuts in the active force structure have prompted the initiation of the Bold Shift program to ensure the RC has every opportunity to fully prepare for its increasingly important role. Bold Shift will provide that opportunity by wedding Active and Reserve Component Field Artillery units in an enhanced training relationship. Strategic planners will know that the Field Artillery, regardless of component, is ready for global deployment and is fully trained to a One-Army standard.

Lieutenant Colonel Joe G. Taylor, Jr., commands the 6th Battalion, 27th Field Artillery (Multiple-Launch Rocket System), 75th Field Artillery Brigade at Fort Sill, Oklahoma. Prior to assuming command of the Proud Rocket Battalion, Lieutenant Colonel Taylor served as S3 of the 75th FA Brigade during its Southwest Asia deployment. Other recent assignments include Executive Officer of 3d Battalion, 27th Field Artillery (MLRS), XVIII Airborne Corps, and Assistant Fire Support Coordinator (AFSCOORD), XVIII Airborne Corps Fire Support Element at Fort Bragg, North Carolina. Lieutenant Colonel Taylor also commanded Headquarters and Headquarters Battery, 72d Field Artillery Group, in Germany.

Lieutenant Colonel Gary D. Haub commands the 1st Battalion, 158th Field Artillery (MLRS) Lawton, Oklahoma, part of the 45th Field Artillery Brigade, Oklahoma Army National Guard. He commanded the battalion during its deployment in Operation Desert Storm. Prior to assuming command of the battalion, Lieutenant Colonel Haub served as the Battalion Executive Officer and S3. He has held various assignments in the 45th Field Artillery Brigade, including as S3 of 1st Battalion, 171st Field Artillery, and Brigade Signal Officer. Lieutenant Colonel Haub resides at Hydro, Oklahoma, and is a Production Technologist for Minnesota, Mining and Manufacturing Company at Weatherford, Oklahoma.

1992 Redleg Reference

The following is a list of articles and selected items from "On the Move" (OM), "View from the Blockhouse" (VB), "Incoming" (INC), "Redleg News" (RN), "Right by Piece" (RBP), "Redleg Review" (RR), and "From the Gunline" (FGL) appearing in ***Field Artillery*** during calendar year 1992. The entries are categorized by subject and listed chronologically by title and edition.

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"The FA and New Mission-Essential Tasks: NEO Evacuation Control Center Operations" (3-7 FA, 25th IN Div Arty), Apr
"Fire Support for the Capable Corps" (V Corps), Apr
"Battalion S1 Operations at the JRTC" (82d Abn Div), (RBP) Oct
"Silhouettes of Steel" (Reports by US FA Div Artys and Corps Artys), Dec

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"The Senior Fire Support NCO Conference," (RBP) Jun
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"Fire Support and FA Issues at the Maneuver CTCs," Oct
"The Spartan Brigade's Training to Fight with Fires," Oct
"A Fire Support Training Strategy for the CMTC," Oct
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"ROE (Rules of Engagement) Dissemination: A Tough Nut to Crack," Apr
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