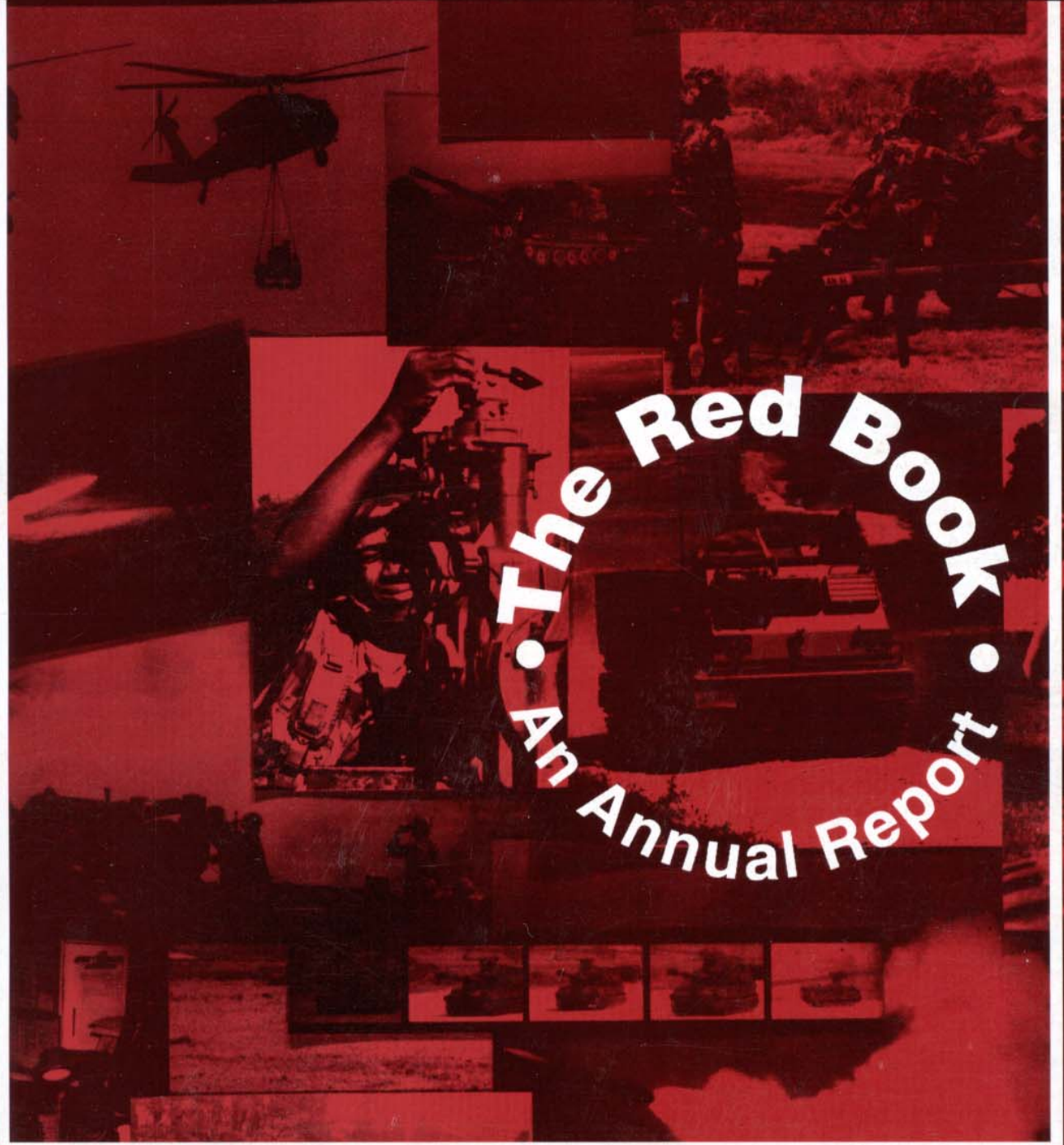




Field Artillery

A Professional Bulletin for Redlegs

December 1994



• The Red Book •
• An Annual Report •



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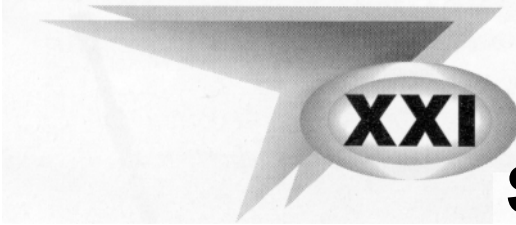
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FORCE



and the Field Artillery: State of the Branch 1994

by Major General John A. Dubia, Chief of Field Artillery

America's Army is evolving into Force XXI, the Army of the year 2000 and beyond. The objective is to create new formations that are strategically flexible, incredibly lethal and remarkably versatile—able to execute a wide range of military operations. Force XXI will be digitized to gather comprehensive battlefield information and share it with astonishing speed across all levels of command.

The Field Artillery stands at the center of this great transformation. Change can be seen in every aspect of artillery, but it's most visible in America's newest weapon system: Crusader. As announced this month, Crusader is the official name of our advanced Field Artillery system (AFAS) with its future armored resupply vehicle (FARV).

Crusader is the symbol system—the sharp edge—of America's determination to build a premiere fighting force for the 21st century. Crusader isn't just the Field Artillery's future cannon system, but also the technology test bed for the entire Army—the blueprint for a generation of ground combat vehicles yet to come. Crusader truly is America's weapon system.

Behind Crusader, we're generating momentum, massing the intellectual power,

dedication and energy of Field Artillerymen everywhere to create the future artillery force. Recently at the Senior Fire Support Conference at Fort Sill, we gave senior leaders from all the armed forces the first glimpse of this effort. We call it Vision 2020.

Vision 2020 is the conceptual bridge between the Field Artillery of today and our force of the year 2020. To envision this force, we developed a revolutionary method of forecasting future needs. In the past, we based combat developments on the principle of sufficiency. We analyzed potential threats and determined what capabilities would be sufficient to defeat them.

The pace of technological developments has made the "sufficiency" method of designing the force obsolete. Today, any

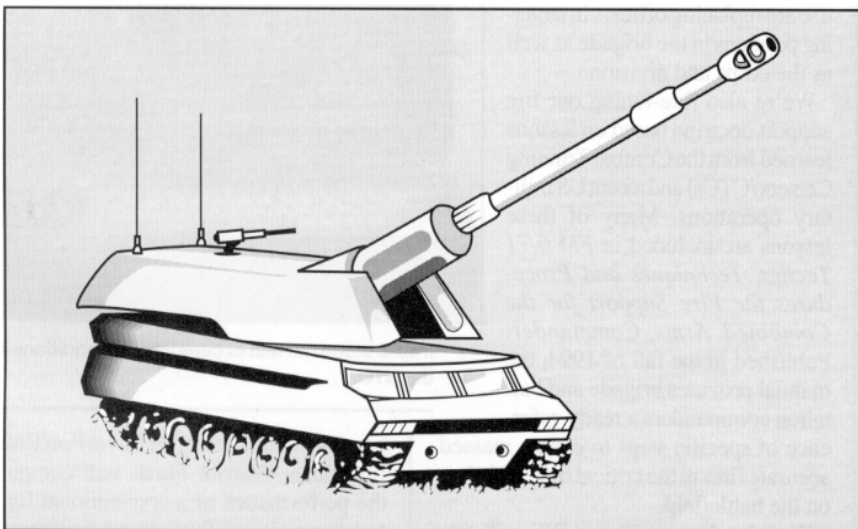
potential adversary can buy state-of-the-art technology on the open market. Even no-tech nations can have high-tech armies in the flash of an arms deal. In a dangerous, unpredictable world, an army based on fleeting sufficiency will find only stalemate or defeat.

What we sought in designing our vision for the Field Artillery of 2020 was overmatching combat power—a force with unequalled warfighting potential. To achieve this force, we envisioned a future Field Artillery limited only by the ultimate capabilities of technology we believe will be available in the next quarter century. We focused on leveraging emerging technologies to overmatch the power of any future enemy.

Our survey of future technology demonstrated a potential for profound change in the fundamentals of warfare. Brigadier General Leo J. Baxter, Assistant Commandant of the Field Artillery School, describes this futuristic warfighting concept in his article "Field Artillery Vision 2020" in this edition. He lays out the specifics of Vision 2020, identifying not only the combat systems, but also the doctrinal, training, organizational, leader and soldier developments required for tomorrow's artillery.

Vision 2020 is our catalyst for developing the Field Artillery of Force XXI. To achieve this force, we'll break traditional cycles of materiel acquisition and doctrinal revision. Our doctrine, organization and equipment will develop simultaneously.

Looking at the state of the Field Artillery today, this dynamic process is already in action.



Computerized rendition of Crusader, America's weapon system.

Joint Venture Teamwork and the AWEs

The Training and Doctrine Command (TRADOC) leads the Army's Joint Venture team, a coordinated effort to design Force XXI. Re-engineering the division is the core focus of Joint Venture. TRADOC plans to employ a series of advanced warfighting experiment (AWEs) to gain the insights required for organizational change.

Desert Hammer. This first AWE was conducted at the National Training Center (NTC), at Fort Irwin, California, last April. In the AWE, we unveiled some of our newest systems.

Paladin was a winner in Desert Hammer. It far exceeded the baseline performance of artillery in previous rotations at the NTC. The 24th Division (Mechanized) Artillery at Fort Stewart, Georgia, completed its Paladin fielding this past fall. The 3d Armored Cavalry Regiment at Fort Bliss, Texas, will receive Paladins this February.

The Bradley fire support team vehicle (BFIST), a quantum leap forward in fire support platforms, is steps closer to fielding. A mock-up of the BFIST participated in Desert Hammer. We expect to award a contract for the initial BFIST production this spring with the first vehicles in the field in 1999.

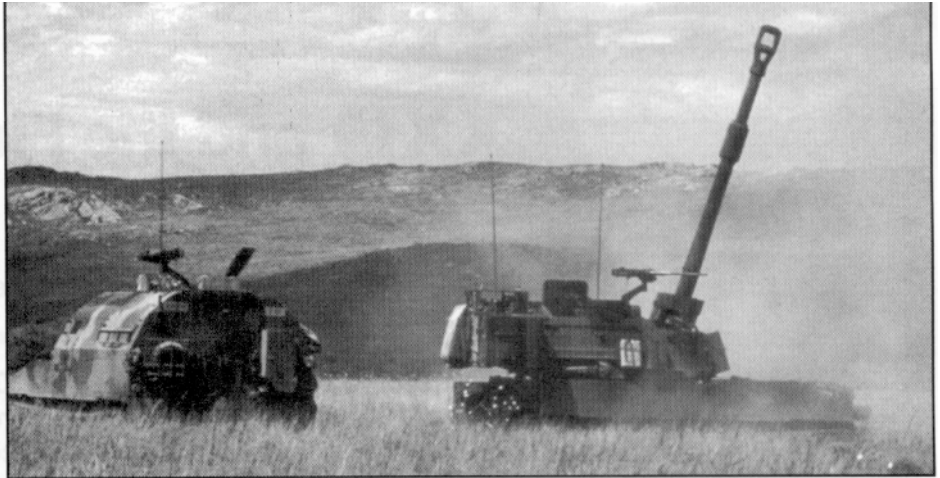
In its debut at the NTC during Desert Hammer, the initial fire support automation system (IFSAS) stood the test of rugged, combat-like conditions. By this summer, IFSAS will replace all the tactical fire direction systems (IACFIRE) in the active force and outfit 80 percent of the Army National Guard. The Marine Corps also is fielding this system.

In 1995, TRADOC will conduct four AWEs. These experiments will incorporate ongoing efforts to modernize the artillery force.

Focused Dispatch. This AWE, scheduled for August 1995 at Fort Knox, Kentucky, will concentrate on mounted operations.

One Field Artillery test in this AWE involves splitting the FIST's traditional dual roles as both a fire support coordinator (FSCoord) and a forward observer (FO) team. In the experimental force, we'll leave only a small team at the company level to act in the FSCoord role. All FOs in the brigade will be consolidated at the task force level.

In addition, we'll experiment with various combinations of platforms for the



The M109A6 Paladin, currently being fielded, was a winner in Desert Hammer.

FO team, including the M981 FIST vehicle (FISTV), the BFIST and an armored high-mobility multipurpose wheeled vehicle (HMMWV). The test's objective is to determine the optimum fire support organization that can match the tempo, lethality and survivability of a fully digitized, modernized brigade.

While we await the results of the AWE, we continue to improve brigade fire support. In one recent development, Field Artillery warrant officer (WO) targeting technician positions were designated for fire support elements (FSEs) and cannon battalion tactical operations centers (TOCs). These WO technicians with years of expertise are replacing officers in targeting positions in the brigade as well as the corps and division.

We're also fine-tuning our fire support doctrine based on lessons learned from the Combat Training Centers (CTCs) and recent US military operations. Many of these lessons are included in *FM 6-71 Tactics, Techniques and Procedures for Fire Support for the Combined Arms Commander*. Published in the fall of 1994, the manual provides brigade and battalion commanders a ready-reference of specific steps to ensure massed, accurate fires at the critical time and place on the battlefield.

Warrior Focus. This AWE will take place next November at the Joint



The BFIST—a quantum leap forward in fire support platforms.



IFSAS stood the test of combat-like conditions at the NTC.

Readiness Training Center (JRTC) at Fort Polk, Louisiana. Warrior Focus will compare the performance of a conventional light task force with a fully digitized dismounted force.

Name-that-Howitzer *Crusader*— a Knight for the 21st Century



In a recent ceremony at Fort Sill, Major General John A. Dubia, Chief of Field Artillery, announced the results of the Name-that-Howitzer Contest for the 21st century advanced Field Artillery system (AFAS): Crusader. The name Crusader was submitted by Captain Bryan F. Karinshak and chosen from worldwide contest entries by a distinguished panel of senior officers, NCOs and civilians. Congratulations to Captain Karinshak, Commander of C Battery, 2d Battalion, 80th Field Artillery, Field Artillery Training Center, Fort Sill, Oklahoma, for naming our future howitzer.

Captain Karinshak received a letter of congratulations from the Chief of Field Artillery and a framed artist's rendition of Crusader. Ms. Jo Ann R. Aragona of Picatinny Arsenal, New Jersey, also came up with the name Crusader, submitting her entry after Captain Karinshak. Ms. Aragona is part of the AFAS/FARV Demonstration and Validation Request for Proposal Team at Picatinny Arsenal.

Field Artillery tests will look at the range of new digitized capabilities from the FO, to command and control systems, to digitized general support artillery. These systems will allow us to test a range of automated quick-fire sensor-to-shooter linkages, offering unprecedented capabilities for light fire support.

The artillery systems to be used in Warrior Focus are being fielded or are close to being fielded—such as IFSAS and the advanced Field Artillery tactical data system (AFATDS). If the equipment is available,

we'll use AFATDS as the Field Artillery command and control system for the exercise.

Development of AFATDS, the Army and Marine Corps fire command and control system of the 21st century, proceeds at a rapid pace. AFATDS will seamlessly interface all Army and joint command and control systems. It will incorporate advanced decision aids to enable leaders to fully exploit the combat information available to a digitized force. Final system testing with the 1st Cavalry Division,

at Fort Hood, Texas, is scheduled this summer. AFATDS fielding begins in FY 96.

The general support artillery for Warrior Focus will be the advanced towed cannon system (ATCAS). ATCAS is a joint Army and Marine Corps developmental system that will replace the M198 155-mm howitzer. For the Warrior Focus AWE, we'll employ surrogates for this future system to help define the operational requirements and capabilities of the next generation of light fire support.

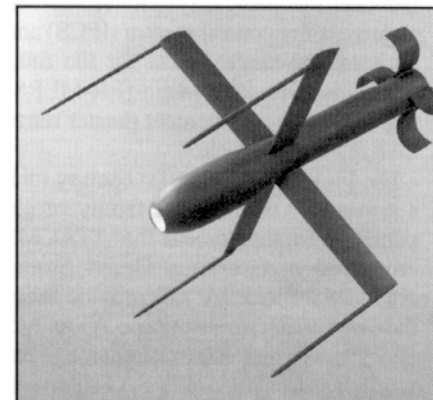
While we continue to develop future technology for light artillery, the fielding of our newest light howitzer, the M119 (105-mm), is ongoing. This fall, the 25th Infantry Division (Light) Artillery, at Schofield Barracks, Hawaii, completed new equipment training on the M119. The 10th Mountain Division (Light Infantry) Artillery at Fort Drum, New York, and the 4th Battalion, 11th Field Artillery at Fort Wainwright, Alaska, will complete fielding this spring.

Prairie Warrior. The Prairie Warrior AWE at Fort Leavenworth, Kansas, will be conducted as part of the Command and General Staff College's (CGSC's) annual capstone exercise. Prairie Warrior 95, similar to a battle command training program (BCTP) Warfighter exercise, will be the second in the Prairie Warrior series of AWEs that focus on division-level operations.

During the exercise, students will command and control a mobile strike force (MSF), an experimental division-sized force. CGSC students commanding the MSF will be able to employ the Field Artillery's most advanced future capabilities, including Crusader, ATCAS, sense and destroy armor (SADARM) munitions, high-mobility artillery rocket system



Fielding for the M119 105-mm howitzer, our newest light howitzer, is ongoing.



The BAT submunition is a deadly addition to the Field Artillery arsenal.

(HIMARS) and Army tactical missile system (ATACMS) Block IIA. ATACMS Block IIA will be armed with a follow-on variant of BAT, a brilliant anti-armor and theater missile defense (TMD) submunition.

To control this future firepower, we'll employ an experimental fire support structure. We're going to eliminate the traditional division FSE. Instead, we'll align fire support personnel functionally within the MSF operations center. They'll work directly with the staff counterparts in the operations, intelligence and planning cells, coordinating their efforts through AFATDS workstations. This experiment will test our ability to distribute and manage advanced information systems in tandem with future combat capabilities.

While the MSF's systems will be simulated, in reality many of them have moved well beyond the concept stage. For example, the Crusader (AFAS/FARV) is fully funded and scheduled for fielding in 2006. Employing a liquid propellant gun, modular armor and the latest digital technology, Crusader will provide America's Army the most capable, technologically advanced artillery system, a system unmatched by any land power in the next century.

A new capability for the next generation of cannons will be the Field Artillery's first smart munition: SADARM. Initial testing and simulations show SADARM will give us a quantum leap in our ability to conduct counterfire and attack high-payoff targets. Initial funds have been approved for low-rate production with fielding scheduled for 1998.

Missile and rocket developments are making steady progress as we move toward the 21st century. Between now and the year 2000, system upgrades will include an M270 launcher improved launcher mechanical system (ILMS), an improved fire control system (IFCS) and an extended-range rocket for the multiple-launch rocket system (ER-MLRS) that will have a 50 percent greater range than our current rocket.

The Field Artillery's 21st century missile arsenal will include a family of capabilities to supplement the ATACMS employed in Operation Desert Storm. ATACMS Block IA will provide twice the range of the current missile. ATACMS Block II will match the current range but will deliver a payload of 13 BAT submunitions against moving armored targets. Block IIA will carry six BAT submunitions to moving or stationary armored and TMD

targets at double the range of the existing ATACMS.

Funding for HIMARS is scheduled to begin in the 21st century. HIMARS will provide a deployable, lightweight rocket and missile launcher that can be transported in a C130 aircraft. HIMARS' mobility will make it an ideal deep strike system for light forces. In addition, its design may be the basis for developing a common launch vehicle platform for the entire land force. In the last year, mockups of HIMARS successfully fired both rockets and missiles at the White Sands Missile Range in New Mexico.

The MLRS smart tactical rocket (MSTAR), a new system under consideration, may join the Field Artillery rocket and missile force after the year 2000. It will combine the ER-MLRS rocket motor with a smart warhead. MSTAR will provide the division commander a fire-and-forget capability to attack targets out to at least 50 kilometers.

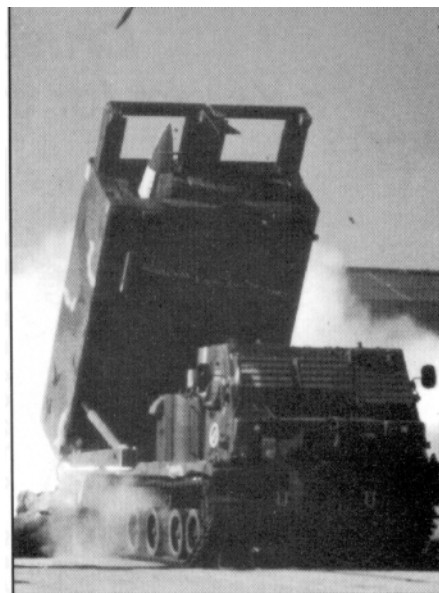
Theater Missile Defense. The TMD AWE is scheduled for April of next year. It will be conducted at Fort Bliss as part of the Joint Project Optic Cobra and Roving Sands exercises.

During this AWE, the Field Artillery will participate in TMD attack operations, going after mobile missile launchers, command and control nodes and missile support equipment. We'll experiment with sensor-to-shooter linkages, employing a range of joint systems and reducing the response times required to identify, track and engage tactical ballistic missiles (TBMs).

The Field Artillery's long experience in conducting tactical counterfire, interfacing with joint systems and orchestrating deep operations makes our contribution to the TMD effort invaluable. A practical result of this AWE will be a TMD attack operations handbook.

Our fire support expertise in both joint operations and deep attack led TRADOC to appoint the Field Artillery School as the Army proponent for the battlefield coordination element (BCE). The BCE interfaces the air component command with the Army forces commander in all joint operations.

This fall, we initiated a series of joint workshops to develop doctrine for BCE operations. The result will be a manual detailing BCE tactics, techniques and procedures (TTPs) for all aspects of air-land coordination—from planning the deep attack to organizing airlift support.



ATACMS Block IIA will carry BAT submunitions to defeat armored and TMD targets.

As an outgrowth of our dialogue with the joint community, the Field Artillery School produced a white paper titled, "Joint Fire Support and Interdiction: Conduct of Operations Between the Fire Support Coordination Line and Forward Boundary." The white paper includes a summary of service and joint doctrine and a guide to joint-service planning for targeting and deep operations.

Another example of work in joint doctrine is the development of *Joint Pub 3-09.3 Tactics, Techniques and Procedures for Close Air Support*. This how-to-fight manual describes the integrated employment of fixed- and rotary-wing attack craft from the actions in the cockpit to coordination with an FO on the ground.

Developments in our own Field Artillery doctrine have been equally productive. We completed a total revision of *FM 6-20-10 The Targeting Process*. The new manual adds information on joint targeting, details targeting responsibilities at the corps and division levels and provides specific TTP for operations at the brigade level and below. The expanded manual is scheduled for publication in spring of 1995.

To implement this doctrine, the Depth and Simultaneous Attack (D&SA) Battle Lab at Fort Sill developed a concept to help commanders conduct deep operations. In concert with the Missile Command, the D&SA Battle Lab has developed a light version of the deep operations coordination cell (DOCC) for the XVIII Airborne Corps and has been working



Funding for HIMARS—shown here in a mockup—will begin in the 21st century.

with I, III and V Corps to refine the concept for heavy corps. The DOCC includes the automated deep operations coordination system (ADOCS), which is a DOS-based software package that automates deep operations planning and coordination. Through a system of workstations linked to other elements of the command post, DOCC/ADOCS equals a greatly improved capability for planning and coordinating deep operations.

Leaders and Soldiers for Force XXI

To link the experiments and developments of today with the weapons and tactics of tomorrow, we'll need the best leaders and soldiers in the history of our Army. We'll need a highly skilled, well trained and disciplined force to exploit the capabilities of overmatching technology.

To develop these future leaders, we'll need a forward-looking doctrine upon which to focus their training. We're beginning to build this base by revising *FM 6-20 Fire Support*, our capstone warfighting manual. Projected for completion in the second quarter of FY 96, this manual will be a team effort with input from leaders across the joint force. It will incorporate the concepts in *Joint Pub 3-0 Joint Operations*, *FM 100-5 Army Operations* and *FM 100-20 Operations Other than War*. *FM 6-20* will be the centerpiece of our future doctrinal developments and will emphasize expanding our ability to support the full range of military operations.

In the past, professional development consisted of three distinct pillars: institutional training, operational assignments and self-development. We reinforced the technical and tactical skills taught at Fort Sill through operational Field Artillery assignments and self development. In the

future, we'll combine new doctrine with revolutionary techniques for training and developing leaders and soldiers.

Technology is not only dramatically changing warfare, but also transforming how we train.

Distance training and education. Recently, we used video teletraining for new equipment training on MLRS and IFSAS for Kentucky, Tennessee and West Virginia Army National Guard units. learning—combining satellite communications and multimedia technology to export training to remote locations—redefines the relationship and proportion of emphasis on the three professional development pillars. Tomorrow's soldiers and leaders will conduct most of their professional development at home station with ready access to institutional knowledge through distance learning.

As TRADOC's primary test bed for learning technology, the Field Artillery School is spearheading the exploration of distance training and education. Recently, we used video teletraining for new equipment training on MLRS and IFSAS for Kentucky, Tennessee and West Virginia Army National Guard units.

Distance training also will enhance institutional training. Recently we demonstrated the ability to link trainers at the NTC with instructors and students at the Field Artillery School in a live, interactive after-action review (AAR).

Our emphasis on leveraging technology for training also is reflected in increased reliance on simulators and simulations to train fire support. We look to simulators to enhance training at the CTCs. The simulated area weapons effects/multiple integrated laser engagement system (SAWE/MILES II) simulates the effects of indirect fire. The system is being fielded at the NTC; Combat Maneuver Training Center (CMTC) in Hohenfels, Germany; and the JRTC.

In addition, we're developing simulators for home-station training. The guard unit armor device full-crew interactive simulation trainer II (GUARDFIST II), a state-of-the-art portable FO training simulator, replaces the training set, fire observation (TSFO) device. The new system is being fielded to both active and Reserve Component (RC) units.

Still in development is the fire support combined arms tactical trainer (FSCATT). FSCATT will train the entire Field Artillery system from target acquisition to execution in a closed-loop simulation system. It will be interactive with other combined arms training simulators. Beginning in 1997, FSCATT will be fielded to both active and RC units.

Field Artillery's efforts in training simulations enhance our role in the emerging Force XXI training program. This program is exploring a range of training strategies and technologies for the future—potentially a new simulation CTC. The program calls for simultaneously training an entire brigade—from staff to crew members—in a single simulation system. Units will be able to "execute" to standard in simulation before they cross the line-of-departure in a live exercise.

Our work on the AWEs and other Field Artillery developments during the past year have given us the momentum to build Force XXI. While we continue our focus on the future, I can assure you it doesn't come at the expense of mortgaging the present. Whether it's today or tomorrow, we won't have the luxury of choosing the time or place of America's next battle.

We must ensure the Field Artillery is prepared to meet the call to arms. It's a great challenge, but America's Field Artillery is equal to the test.



Major General John A. Dubia, Chief of Field Artillery, has been Commandant of the Field Artillery School and Commanding General of the Field Artillery Center and Fort Sill, Oklahoma, since June 1993. His previous assignment was as the Director of Officer Personnel Management in the US Army Personnel Command, Alexandria, Virginia. Among his 12 years of troop assignments were command of three artillery batteries, two in the 2d Armored Division and one in combat in the 1st Infantry Division in Vietnam. He commanded a direct support artillery battalion and, later, the division artillery in the 1st Armored Division, US Army Europe. Major General Dubia has held key staff positions from the battalion to division level, including brigade Fire Support Officer for the 1st Infantry Division in Vietnam and division artillery S3 and division G1, both in the 1st Armored Division. He holds a Master of Business Administration from the University of South Dakota and has completed the Advanced Management Program at Rutgers University School of Business.

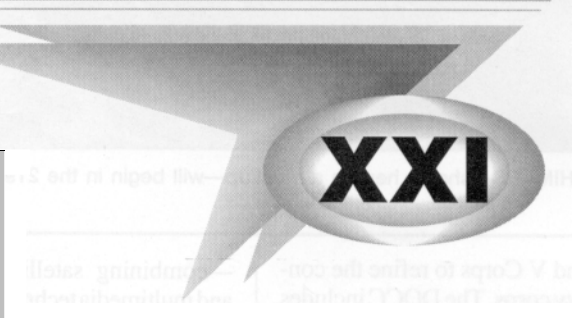


General John H. Tilelli, Jr., Vice Chief of Staff of the Army

The Army and FA Challenges of Designing **FORCE**

by Patricia Slayden Hollis, Managing Editor

“...there's no 'cookie cutter' approach to designing Force XXI. We have to grow intellectually—be open to new ideas—through a methodical analysis and decision-making”



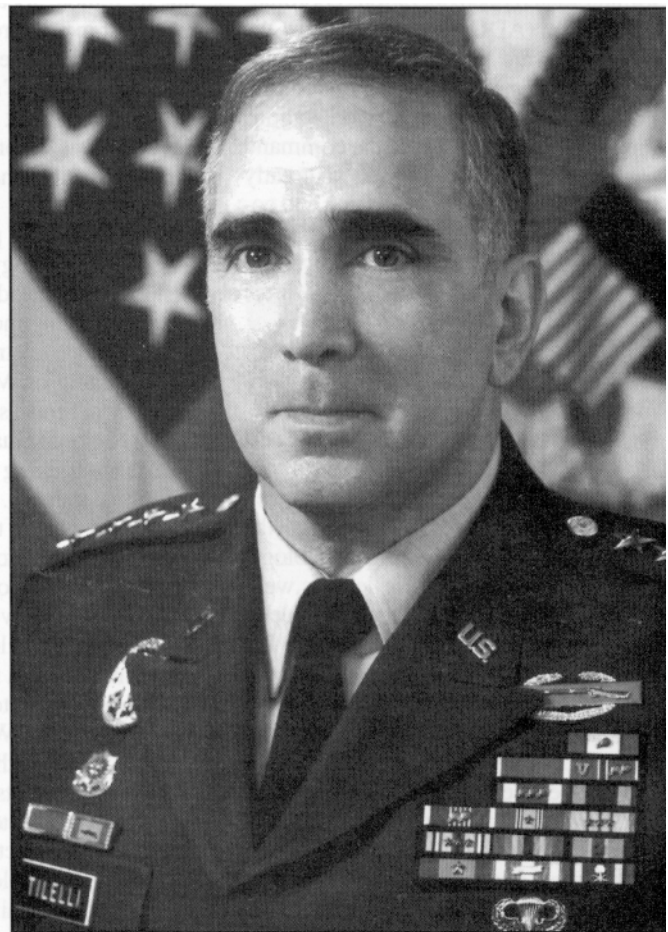
Q TRADOC [Training and Doctrine Command] Pam 525-5 Force XXI Operations is the intellectual underpinning for the development of Force XXI. It builds on and works with FM 100-5. But it calls for revolutionary changes in the way we think about future war. What are some of the more significant intellectual changes we must make as we move toward Force XXI?

A TRADOC Pam 525-5 provides a tremendous conceptual foundation for Force XXI. At the same time, there's no "cookie cutter" approach to designing Force XXI. We have to grow intellectually—be open to new ideas—through a methodical analysis and decision-making process as we move toward the force of the future.

The methodical process we're using to rethink the force for the 21st century includes three axes. TRADOC has the Joint Venture axis looking at the conceptual framework of battle and the Army TOEs [tables of organization and equipment]—the tactical Army. I'm responsible for the TDA [tables of distribution and allowances] axis, for lack of a better description, the institutional or headquarters Army. And the Army Digitization Office is responsible for the third axis, determining how to leverage the microprocessor to change both the TOE and TDA Army.

The key is that designing Force XXI is a process. For example, a TRADOC Battle Lab—one such as the Depth and Simultaneous Attack Battle Lab at Fort Sill—comes up with a concept and tries it out in an Army warfighting experiment, or AWE, in either simulations or an existing or stand-alone exercise. From that part of the process, we get insights and make assessments that inspire new changes. But those changes can't be serendipitous; they must be thought through methodically, using the organizations we have today as the baseline.

The Force XXI design process is to change intellectually, leading us to change physically. That physical change will occur across the entire Army, not just the tactical, or even active Army. The process is complex



and sophisticated—we're redesigning America's Army to operate across the continuum from humanitarian assistance and disaster relief to high-intensity conflict. We must never lose sight

of our primary and most difficult mission: to fight and win the nation's wars.

Q *What do you see as the impact of digitization on the Army? On the Field Artillery?*

A Digitization will have a tremendous impact on the Army. To create Force XXI, we must digitize the Army and its operations. The battlefield of the future will be characterized by fast-moving information and unprecedented lethality. Real-time information will be required to develop intelligence and synchronize our forces and systems to destroy the enemy's ability to wage war. Digital technology allows us to leverage the power of information. As I see it, digitization is the tool to take our "lean" Army and make it better.

We have a plan to digitize the force to incorporate new and emerging technologies in such a way as to allow growth in our systems. We're defining requirements in the context of capability rather than specification. We're using horizontal technology insertion [HTI] to enhance the capabilities of many of our basic systems. You see this today in the position navigation system and the inter-vehicular information system [IVIS] that can transmit location and vehicle status rapidly to other similarly equipped vehicles.

This ability to control and exploit information on the battlefield will allow us to get the right forces—to the right place—at the right time. The M1A2 can electronically link weapon systems that allow commanders to synchronize all the elements of combat power with devastating effects. Using digital communications and information processing, we can get everyone into the fight: all the shooters to shoot, commanders to command and combat supporters to provide the needed support.

In April of this year we saw the first glimpse of the digitized force in action at the National Training Center [Fort Irwin, California]. More than 140 systems from the M1A2 tank to the Paladin howitzer were connected digitally. Digital communications supported the command and control and logistics efforts of the task force. This AWE demonstrated convincingly that digitization improves survivability and enhances lethality, provides more accurate and responsive intelligence and

“...as one of the Army's highest priorities, we must not view Crusader parochially, as just a Field Artillery system ...Crusader will provide the leading-edge technologies for ground systems Army-wide...”

decreases sensor-to-shooter time lines. We're on the right track, and we're moving out to Force XXI.

Q *Given the Army's limited budget, how are we ensuring we develop the systems we need for the future?*

A The process is fairly clear. In layman's terms, the Army devises a budgeting plan that says, "For the next six years, here are the priority systems and programs we want to resource." That list is based on the Chief of Staff's imperatives to maintain a quality Army for the future. Included in these six imperatives are ensuring the Army continues to have quality soldiers, develops excellent leaders and rigorously trains units to standard. Excellent equipment notwithstanding, the top quality of our people, their skills and leadership talents, is why we won so decisively in Desert Storm. And, if we can maintain our quality of people by budgeting the programs and benefits they need, we'll remain a truly formidable force for any foe to face.

Now that's not to say the other three imperatives aren't important—doctrine, organizational mix of forces and modernization—we call them *imperatives*. But the priorities among priorities, at least as we work through resource constraints, are our people and their development and training.

After those three are in the budget, you get into what I call a "rhythm and balance" to spend the rest of the money. We have the luxury of a strategic environment where, for the next couple of years, we won't have a major military power with weapons equal to ours today. So we have time to work today on our vision for tomorrow's force.

Our doctrinal base is solid. We are improving the readiness of our AC/RC [Active Component/Reserve Component] force mix, and we're investing in those programs that give us the greatest impact.

Q *What are our system priorities?*

A The Comanche helicopter and AFAS [advanced Field Artillery system]—as I understand, AFAS was recently named Crusader—are the Army's priority systems. We have money in the POM [program objective memorandum, which is the resourcing document for six years out]. That takes us out to the year 2001, which gets pretty close to Crusader's production.

Now as one of the Army's highest priorities, we must not view Crusader parochially, as *just* a Field Artillery system. In fact, the development of Crusader will provide the leading-edge technologies for ground systems Army-wide: embedded training, liquid propellants, modular armor, information technologies, capabilities that reduce the number of crew members and more. Furthermore, producing Crusader brings the armor industrial base forward and retains this crucial production capability. The Crusader will develop and incorporate technologies we can leverage for the entire force. The same is true of the Comanche.

Q *As we design Force XXI, what do you see as the challenges for Field Artillery?*

A The Field Artillery has been a critical source of firepower for the commander throughout our history and will play a key role in the future.

But like others in the Army, the Field Artillery faces some challenges. You must be a power projection force that's adaptable—able to fight with any combination of forces and accomplish a wide variety of missions—we won't be able to afford the luxury of mission specialists. Field Artillery, like all players on the battlefield, must be deployable, flexible and "interneted."

Beyond all that, you must lead the Army in change. In the past, the Field Artillery



has been preeminent in leading the Army through periods of change—not only the thought process of change, but also its physical execution. Field Artillery is leading the Army in digitization, starting long before the rest of the Army even thought about it. You now are in the process of developing Crusader, not just for the Field Artillery, but for the entire Army. The work being done for Crusader will significantly shape future ground combat systems across the Army and the artillery.

Q *The Army recently briefed several topics to the new Joint Roles and Missions Commission, which is due to report out in late spring of 1995. The topics included deep operations and theater missile defense. What are the issues for these topics?*

A Among other issues briefed to the Roles and Missions Commission, the Chief of Staff of the Army briefed those two issues—deep operations and theater missile defense—issues in which Field Artillerymen, fire supporters, are very much involved. The briefing on deep operations was about the responsibilities the joint land component commander has for the battlefield. The joint land component commander must not focus only on the close battle, but also on the deep battle, ensuring the latter contributes to accomplishing the mission—fulfilling the theater commander's intent.

As one thinks about fighting on this extended, three-dimensional battlefield, each service brings unique capabilities—deep fires via artillery, air interdiction and attack helicopters. That gives the joint force land component commander complementary capabilities to accomplish his mission. The issue is, "Should the battlefield be segmented by service with responsibility for executing combat in a portion of the battlefield or should a single commander be responsible for executing joint combat on an integrated battlefield?"

To me, the answer is clear: one commander, who's focused on the objective

in an integrated battlefield, must have the ability to orchestrate all elements of combat power to win as decisively and quickly as possible with minimum loss to the force.

The issue with theater missile defense, again, is who's responsible for executing combat assets on the battlefield. In the broadest sense, the issue is essentially the same as the deep operations issue.

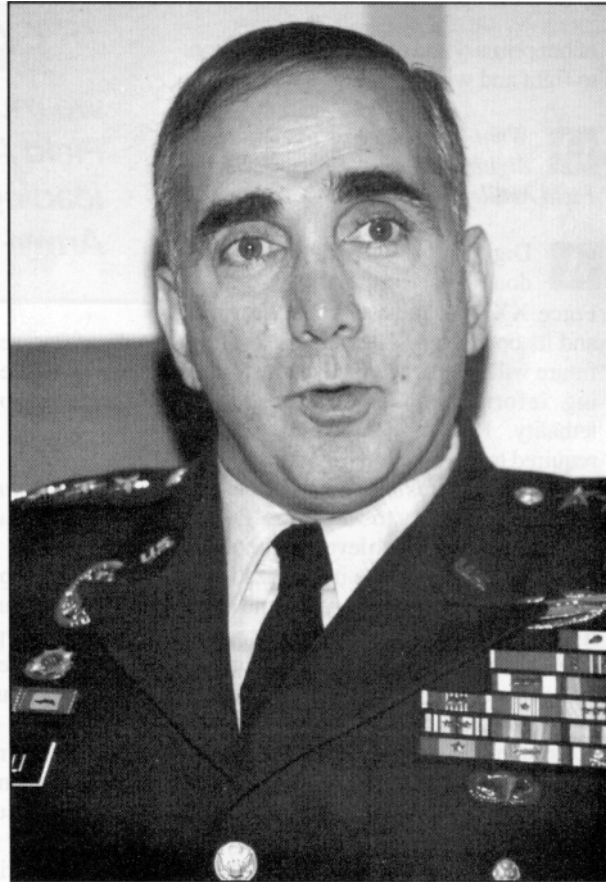
Theater missile defense—whether defending against a conventional or NBC [nuclear, biological or chemical] missile capability—is an inherent part of the land component commander's responsibility to protect his force. Traditionally, that has been an Army mission, one we must retain.

Q *What's the status of these and other roles and missions issues?*

A The Roles and Missions Commission is in the analytical phase still identifying issues—so far 26 issues related to joint warfighting operations, infrastructure or process. So it's still early in the process. But even in this phase, it's important to note that change for change's sake is not in the best interest of joint warfighting. Operational changes must enhance our ability to accomplish the mission.

Our current Joint Pub 3-0 [*Joint Operations*] describes the battlefield about right. That manual was worked very hard by the Joint Staff and vetted through all the services' leadership, staffs and principal agencies. And, oh, by the way, our FM 100-5 [*Army Operations*] complements it—dovetails with Joint Pub 3-0 very well.

The Army views doctrine as the "seed corn" for everything we do, for the intellectual



change that leads to our physical changes. Consequently, we pay particular attention to developing not only Army doctrine, but also joint doctrine.

Now, are the services using Joint Pub 3-0? It's hard to determine, but I'd say, "Yes"—based on Vigilant Warrior, Uphold Democracy and other interservice operations and training.

Q *What can we improve in joint doctrine, given that it's pretty good to start with?*

A Joint doctrine isn't a set of concepts in a manual "set in stone"—it continually changes. The Joint Staff and services are working on doctrinal publications that update joint thinking on how to fight across the extended battlefield.

Improvement comes with the continuing review and updates. Lessons learned and emerging concepts and capabilities—leveraging those two to come up with innovative ideas—will lead the services to change.

For right now, Joint Pub 3-0 is our capstone doctrine, and it's about right as a guide for joint warfighting.

“Field Artillery is leading the Army in digitization, starting long before the rest of the Army even thought about it.”

“The fact of the matter is the only limit to artillery is the limit of our thoughts on how to use it.”

Q *What can we improve in joint training?*

A That's a question that has no right answer—you can *always* improve training. The real question is, "Are we training in a joint environment?" and my answer is, "Yes." The number of joint exercises across all services has increased significantly in the past few years, not only simulations, but collective training with units as well.

The results of this joint training are apparent in recent contingencies in which our servicemen deployed back to the Persian Gulf or to Haiti. It took a lot of training to prepare 10th Mountain and other soldiers to deploy from aircraft carriers into Haiti, training that has been going on a long time. I can give you a list of numerous joint training exercises conducted at every level, every year.

Could our joint training be better? Always. We need to ensure we're getting the most for our time and money—ensure we're training the correct joint objectives and as many of them as we can effectively. Now, could we do more joint training? I'm not sure we can; our op tempo is high now. So, our thesis ought to be better joint training, not more of it.

Q *To fight more effectively, Army leaders worldwide, are rethinking traditional warfighting concepts. For example, in some training exercises, commanders are maneuvering artillery task forces with infantry and (or) armor protection assets forward to kill the enemy at depth. What are your thoughts on such a task force? What other combined arms concepts might we be rethinking?*

A I don't think the artillery task force is new—commanders have always put combined arms assets, in this case artillery, where they needed them on their battlefields, based on the mission, enemy, terrain, troops and time available [METT-T]. When fighting the artillery battles in Desert Shield and Storm, we positioned large quantities of artillery forward with

our armored cavalry—in many cases, forward of our infantry and armored front-line units.

So, that's not new, but it is smart. Those who don't understand how to employ artillery might think it fights well behind the infantry and armored forces. Not so. Artillery has always been in harm's way, forward for counterfire or to fire in the combined arms fight.

During Desert Storm, the 1st Cavalry Division positioned all the MLRS [multiple-launch rocket systems] one could imagine—all that VII Corps controlled—just behind our armored cavalry and forward of our infantry and armored brigades. On 17 February 1991, we fired a massive artillery missile and cannon strike on the Iraqis' 10th Armored Division. The artillery fired hundreds of MLRS rockets and conventional rounds with Firefinder radars aligned right behind the MLRS battalions for counterbattery. We immediately followed the prep on the 10th Armored Division with a cross-border attack by our aviation brigade. The mission called for artillery far forward; therefore, that's the way we task organized to do it.

What do we need to rethink? Our forces need to be modular. The force commander must be able to determine the nature of the mission and then rapidly mix and match modules to accomplish missions that cross the entire continuum of conflict to all-out war.

Our BOS [battlefield operating systems] must be capable of quickly plugging into unique unit configurations. Varying our force to fit situations will change as a function of vision and as new capabilities become available.

Q *As commander of the 1st Cavalry Division during Desert Storm, what did you learn about fighting with fires that we need to be emphasizing today?*

A I learned—actually re-learned—the power of leadership. I saw a lot of innovative ways to fight with fires come out of the heads of our artillery commanders

as we, the division leadership, thought our way through accomplishing varied missions.

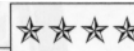
During Desert Storm, I was reassured by the fact that our artillery firepower was in Redlegs' hands. Our artillerymen were so well trained, had such tremendous capabilities, that they always did more than we asked of them and in some of the harshest environments.

You need to continue to train for that versatility, that innovativeness and competence. Never think, "This is the way to employ artillery" and no other. Be prepared to support a task force, be the task force, fight the artillery battle or fire for others.

Be adaptable and modular enough to fall in on others when and where the commander needs you or plug in as an artillery unit as part of a unique force. Don't limit yourselves to cookie cutter configurations or missions that you take out of your "kit bag." The fact of the matter is the only limit to artillery is the limit of our thoughts on how to use it.

Q *What message would you like to send to Redlegs stationed around the world?*

A With the capabilities you bring to the force, you remain the most powerful Field Artillery in the world. The Army leadership is proud of you and recognizes the sacrifices you've made in the past and the challenges you face in helping to shape the future Army. Thanks for all you and your families do for our nation, and thanks for selfless service.



General John H. Tilelli, Jr., was sworn in as the Vice Chief of Staff of the Army on 19 July 1994. His previous two assignments were as Deputy Chief of Staff for Operations and Plans at the Pentagon and Commanding General of the 1st Cavalry Division, deploying the division from Fort Hood, Texas, to Southwest Asia for Operations Desert Shield and Storm. In other assignments, he commanded the Seventh Army Training Command, served as the Chief of Staff of VII Corps and Commanded the 2d Armored Cavalry Regiment, all in US Army Europe. General Tilelli also commanded the 2d Squadron, 6th Cavalry at Fort Knox, Kentucky. He served two tours in Vietnam, commanding a company during one and serving as a District Senior Advisor to the Vietnamese Army during the other.



by Brigadier General Leo J. Baxter

We no longer can agree upon one quantifiable threat as the basis for projecting future requirements—only multiple threats that span the possibilities of warfare. Regardless, we still must forecast our needs in a way that ensures our future Army—our future Field Artillery—maintain technological superiority. At the recent Senior Fire Support Conference at Fort Sill, the Chief of Field Artillery did just that—he unveiled Vision 2020.

Vision 2020 is a panorama of the future, not linked to a threat analysis, but to a thoughtful, rational assessment of the potential of future technologies. It's more than a vision that focuses our developments for the future based on an intuitive assessment of what the Field Artillery will look like in years to come. It's a vision that ensures we're in concert with the Army's vision of land forces in the 21st century.

In fact, Vision 2020 is the birth of a revolutionary method of forecasting force needs, a method of determining the potential of emerging technologies for the future Field Artillery. As our vision, it serves as today's starting point for research and development, an insightful focus for our partners in industry and academia and, most importantly, an inspiration for the future leaders of the Field Artillery.

This article describes Vision 2020 concepts of the future land combat force and future Field Artillery and outlines some equipment capabilities we envision for the future—our starting point for merging technological possibilities with warfighting capabilities. We've chosen not to limit our vision on the basis of current resourcing, an artificial and interim way of determining future needs. The speed of technological change will race ahead, regardless of the level of defense spending. This vision is constrained only by the limits of the technology we believe will be available.

The Future Force

Combined arms is the 20th century endstate for warfighting. The dominant trend has been to achieve synchronization of fire and maneuver through a range of doctrinal, materiel, training and organizational innovations. In the next quarter century, technology will profoundly change our traditional means of balancing combat power, and the days of combined arms warfare will surely come to an end.

Unified Combat Power. Future technology will give the commander the ability to not just coordinate his forces, but to fuse them into a single powerful dynamic: unified combat power. His power will be "unified" because today's awkward manual process of synchronizing systems will be embedded in future systems. We'll use common data bases interoperating among all the battlefield operating systems (BOS), providing an automated course-of-action analysis and decision-making process to synchronize the fight.

While the elements of the joint and combined arms team will remain separate, each performing discrete combat functions, they'll be unified in a single, seamless command structure. Unified combat power will equal the ability to dominate battle space. It gives the commander the means to apply force simultaneously, in-depth on every corner of the battlefield with instantaneous, in fact, "hair-trigger" execution.

Expanded Battle Space Awareness. In the year 2020, leaders' awareness of battle space will be expanded enormously. Leaders will have immediate access to relevant combat knowledge, and execution will be instantaneous and lethal beyond description—supported by a futuristic artillery force.

The future force will be fully netted with data links to access all combat information, providing a fully developed picture of the battlefield in three dimensions. Battlefield data will be immediately available to the leader that requires the information virtually anywhere in the battle space, at any level of command, at any time. As a result, all leaders will share a common situational awareness of the battlefield—everyone will see the same thing (see Figure 1). This instantaneous access to information will result in a dramatic increase in the volume and depth of the space the commander can influence.

Relevant Combat Knowledge. Battle systems of 2020 will transform this expanded battle space awareness into relevant combat knowledge. Our systems will include "filters," collating, prioritizing and presenting information in the format established by leaders at the various levels of command and tailored to their needs (see Figure 2).

The commander's ability to shape the presentation of data through filters will prevent information overload. Based on his assessment of the battlefield, each commander will establish protocols to process information to match his needs.

In addition, the filters will be "smart"—intelligent. They'll not only have the capacity to rapidly process large volumes of data, but they'll also "learn" as they evaluate combat reports. Based on past experience, smart systems will modify themselves to give each leader the information he needs—even if the leader hasn't yet established protocols for the information.

A leader also will have the ability to extract knowledge that neither he nor the system anticipated he'd need. The commander will be able to override protocols and query specific events in his battle

space. He might elect to view—or even hear—a chance event that might turn the course of battle.

Unified Execution. From this superior combat knowledge, commanders will make accurate tactical decisions rapidly—the

decisive advantage of information dominated warfare. The capacity to execute lightning-fast decisions in a shared information environment will result in unified execution—the ability to engage an enemy instantaneously.

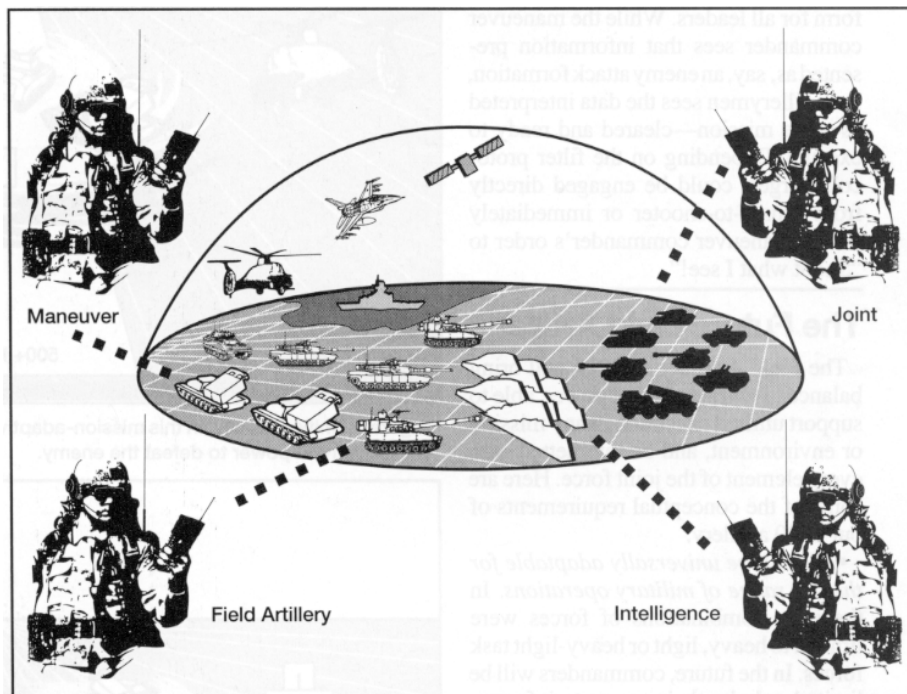


Figure 1. Expanded Battle Space Awareness. The future force will be netted with data links to access combat information and provide a three-dimensional picture of the battlefield.

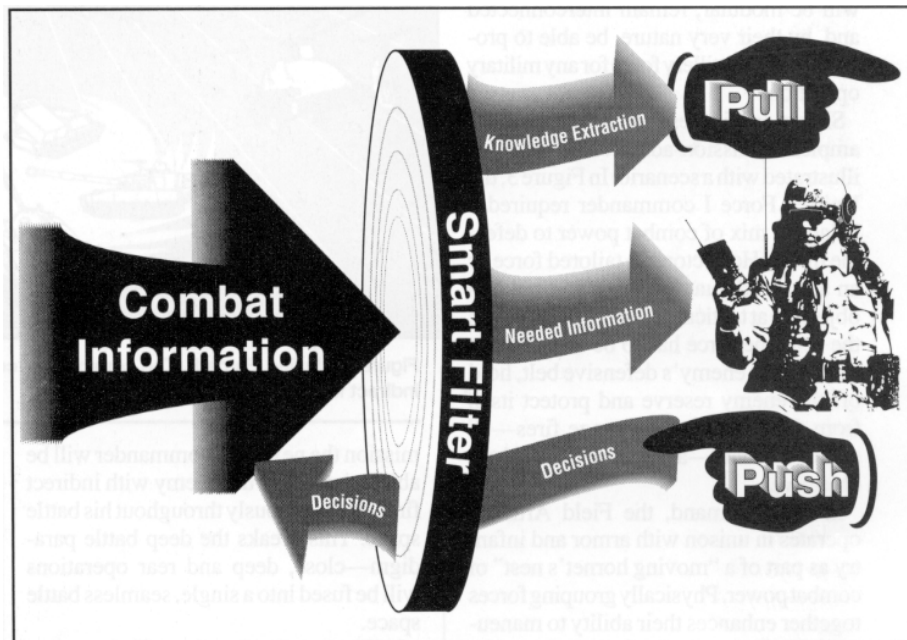


Figure 2. Relevant Combat Knowledge. Filters in our system will present info relevant to the various levels of command. The commander will be able to pull (extract) information from the system, regardless of established protocols. His decisions pushed back into the smart filter will help the system learn and adjust the "Needed Information" routinely output to the commander.

In the process of unified execution, a sensor captures battlefield data and immediately transmits it to the system filter, which translates it into an executable form for all leaders. While the maneuver commander sees that information presented as, say, an enemy attack formation, the artillerymen sees the data interpreted as a fire mission—cleared and ready to execute. Depending on the filter protocols, targets could be engaged directly from sensor-to-shooter or immediately on the maneuver commander's order to "Shoot what I see!"

The Future Field Artillery

The Field Artillery of 2020 will bring balance to unified combat power, able to support unified execution in any mission or environment, and be internetted with every element of the joint force. Here are some of the conceptual requirements of our 2020 artillery.

- *We will be universally adaptable for the full range of military operations.* In the past, combinations of forces were limited to heavy, light or heavy-light task forces. In the future, commanders will be limited only by their access to information to determine the appropriate unified combat power for any mission. Our forces will be modular, remain interconnected and, by their very nature, be able to provide the right artillery force for any military operation.

Shown in Figures 3 and 4 are two examples of mission-adaptive forces, each illustrated with a scenario. In Figure 3, the Unified Force I commander required a balanced mix of combat power to defeat the threat. He vectored a tailored force as an advanced guard to seize and hold an objective at tactical depth. To accomplish the task, the force has to be able to fight through the enemy's defensive belt, hold off the enemy reserve and protect itself from the enemy's long-range fires—all simultaneously—as it moves toward the objective.

In this command, the Field Artillery operates in unison with armor and infantry as part of a "moving hornet's nest" of combat power. Physically grouping forces together enhances their ability to maneuver and protect themselves as part of a single unified team.

While the artillery is positioned with these forces, its effects will extend across the area of battle, engaging a deep threat one minute and firing a close support

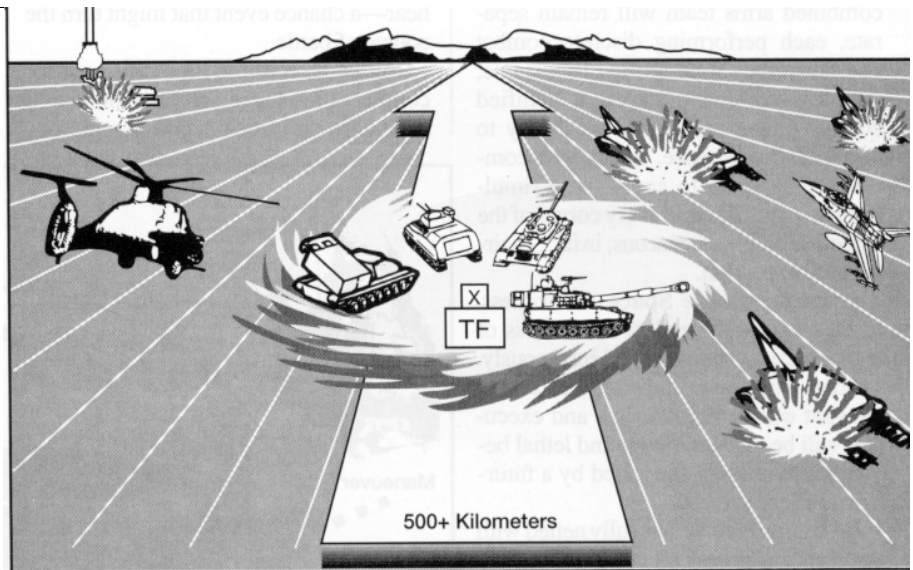


Figure 3. Unified Force I. In this mission-adaptive force, the commander required a balanced mix of combat power to defeat the enemy.

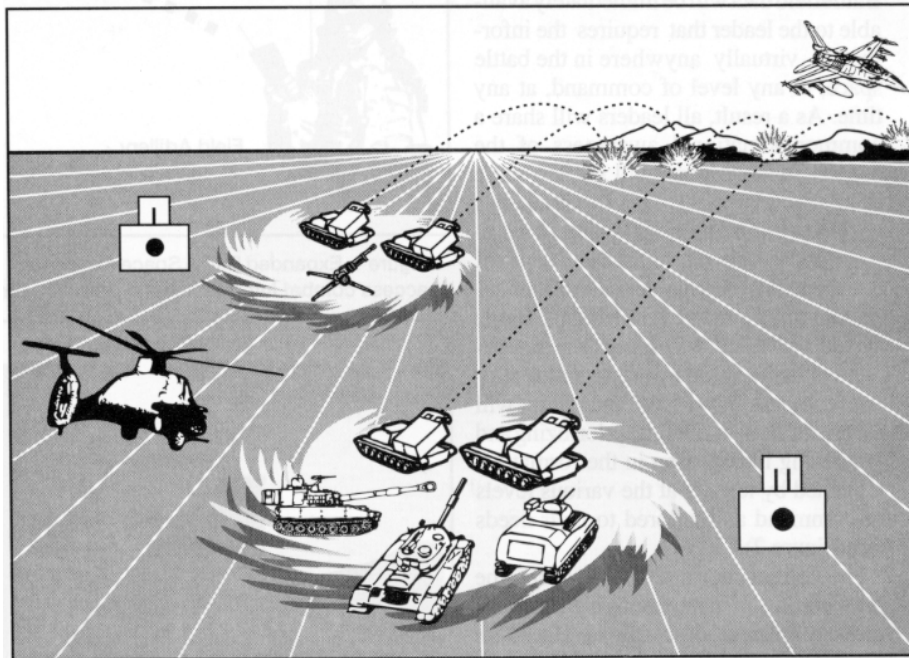


Figure 4. Unified Force II. The commander configured this force to defeat the enemy with indirect fires.

mission the next. The commander will be able to influence the enemy with indirect fires simultaneously throughout his battle space. This breaks the deep battle paradigm—close, deep and rear operations will be fused into a single, seamless battle space.

In Figure 4, Unified Force II shows that the commander configured his force to defeat the enemy with indirect fires. Here he has chosen to strike at operational depth and block a key choke point with fires. This is an economy-of-force mission

in which the commander is focusing his air attacks at even greater depths against an approaching enemy force.

The commander initially inserts a light force armed with light cannons and a complement of missile launchers to block the choke point and cue the advancing enemy force for the air campaign. In addition, an artillery task force maneuvers at depth to a location where it can fire on the choke point and reinforce the "fires bridgehead" established by the light force. The artillery task force includes elements of

armor, infantry, engineers and air defense to protect it.

- *We will redefine the function and organization of fire support.* The term "fire support" may no longer be relevant. The capability to strike with unprecedented speed will break the current fire support paradigm. The fundamental requirement for clearing fires will not change, and fires will still have to attack targets at a time and place and with the effects that support the commander's intent. Shared situational awareness, however, will allow the system to verify the conditions of engagement and vector fires virtually instantaneously without requiring clearance by multiple layers of the fire support system.

Fires execution will be an inherent function of the systems in the unified force and will not require every layer of command to monitor and clear every mission. Rather than clearing targets, fire supporters will focus on assisting the commander primarily with the conceptual aspects of fighting with fires, establishing and refining protocols, intuitive analysis and decision-making. Fire supporters might be consolidated at a single node servicing multiple layers of command. Conversely, individual fire supporters may act independently while fully integrated into staff elements and battle command teams but linked by a central fires processing system.

- *Artillery tactical missions and their inherent responsibilities will drastically change.* They will adjust to a battle space not defined by neat black lines on two-dimensional maps. Future concepts will deal in terms of allocating fires for specific tasks rather than organizing artillery forces to support specific commands.

Establishing priority-of-fires will no longer be necessary. When leaders share situational awareness and relevant knowledge clearly linked to the commander's intent, they'll automatically focus on the high-payoff targets.

Future organizations must get beyond the notion of dedicated, organic, and supporting artillery. Rather, we must focus on designing an adaptive force structured to allocate fires to users at multiple levels—simultaneously.

- *Leader development will be more important than ever in the history of the Field Artillery—of the Army.* Leader training in the information age will encompass the unique challenge of blending past principles with future

technology. The traditional attributes of leadership will not change; we'll always need leaders who can command soldiers in battle, not simply manage machines. But we also must train leaders to exploit the capabilities of the powerful technologies we'll provide them. Future artillery leaders will require intuitive, tactical judgement to a greater degree than ever before.

- *Soldiers will have unprecedented information, capabilities and autonomy.* Our future force must maximize the potential of the individual soldier. Every soldier will be a sensor, gathering combat data on enemy and friendly forces and environmental conditions. Soldiers also will be independent decision makers capable of recognizing and attacking targets without prompting—tied to the framework of the leader's intent by access to the shared situation environment.

- *Training will "equal" combat.* The technology that will provide a quantum leap in our capability to fight also will provide a leap ahead in our ability to train. Simulations will allow us to reach a state of realism that will literally provide "combat without death"—the ability to replicate combat through virtual reality training.

For example, an artillery attack vehicle commander will sit in a parking lot while virtual readouts feed into his command system, replicating actual combat data. A bio-feedback sensor will be attached to his collar harness to replicate the stress and physical intensity of actual battle. The result—the environment of training will equal the environment of battle.

This training will be fully compatible with our focus on the Combat Training Centers (CTCs). Virtual reality training will help units at home station verify with confidence their ability to execute to standard before firing the first round.

Future Materiel Capabilities

To support the force of 2020, we've created conceptual systems—"think pieces"—that define the kinds of capabilities we will need for the 2020 force (see Figure 5 on Page 14). The systems of 2020, some of which I discuss in this article, incorporate the full range of mission requirements from acquisition to execution and assessment.

They are not science fiction. They represent the next logical step in our current modernization programs. At the

current pace of technological development, such systems could be fielded as part of an operating force within the next quarter century.

Light Cannon. Today our light forces employ a mix of cannon systems. In 2020 and beyond, we'll have a single system capable of achieving all the performance characteristics required to support a dismounted force. Panther will combine precise, highly mobile and terribly lethal firepower in a rapidly deployable weapon requiring minimal logistical and manpower support.

Crusader-Plus-Plus. We are fielding Paladin, the Army's first true shoot-and-scoot cannon system. At the turn of the century, our next generation cannon force will be spearheaded by Crusader, formerly known as the advanced Field Artillery system (AFAS) with its future armored resupply vehicle (FARV)—America's weapon system. Without a doubt, Crusader will be the premier cannon system of the 21st century and set the pace for ground combat systems Army-wide.

By 2020, we envision new technologies and evolving requirements will allow us to further improve even this magnificent system. We'll be able to leverage technology for greater range and enhance the system with a "survivability suite" of warning and protection devices. Crusader-Plus-Plus will provide the future force a versatile indirect fire platform that can fight and survive in the most hostile enemy environment.

Launchers. By 2020, we envision a system combining the capabilities of today's multiple-launch rocket system (MLRS) and tomorrow's high-mobility artillery rocket system (HIMARS). Scorpion will provide a deep-strike capability to light dismounted, early entry and heavy mounted forces. In addition, to its lightweight and heavy firepower, Scorpion also will have a suite of warning and protection devices.

Munitions. To meet the indirect fire needs of an adaptive artillery force, our weapons must be capable of delivering a spectrum of effects from destructive lethal blasts to nonlethal materiel-incapacitating agents.

Future systems will employ a variety of munitions including directed-energy weapons, such as non-nuclear electromagnetic pulse and high-powered microwave. Other munitions will deliver nonlethal agents that could cause engines

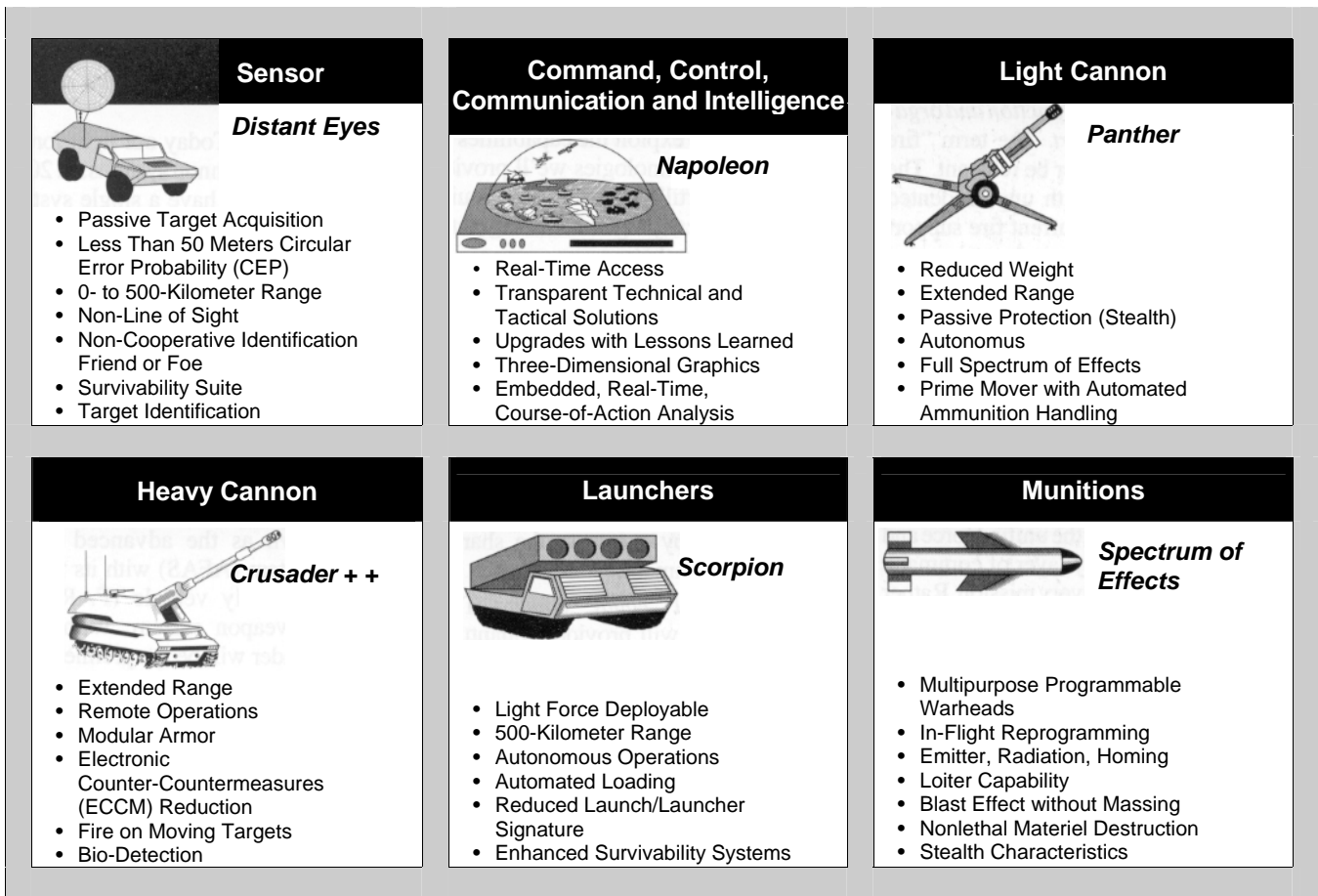


Figure 5: The FA Force of the Year 2020. The systems of 2020 incorporate the full range of mission requirements from acquisition to execution and assessment.

to seize-up or blackout optical sights. We'll also have munitions with explosive and penetration characteristics that are so powerful, we'll be able to achieve the blast effect of a massed battalion without massing.

In addition, to providing a spectrum of effects, future munitions will include new characteristics. Brilliant munitions will be a reality by 2020 with individual projectiles able to identify, track and attack specific targets. Munitions also will have low-observable or stealth-like features to make them invisible to the enemy while in flight. They'll be designed to require a minimum of logistical support and be rapidly adaptable to delivery by cannons or rocket and missile launchers.

Moving Forward

We've already begun to work toward 2020. On August 22, the Chief of Field Artillery established Task Force 2000 at the Field Artillery School. Its mission is to think "outside the box" and focus the Field Artillery portion of the advanced

warfighting experiments (AWE) taking place as the Army designs Force XXI. Using Task Force 2000, the Field Artillery School team is working closely with all the Training and Doctrine Command (TRADOC) battle labs and the other proponent schools to lay the conceptual basis for the mission-adaptive artillery force of the future.

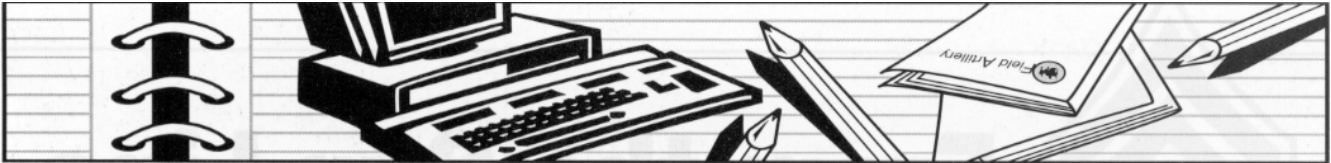
The AWEs are only our first steps toward tomorrow. In the long term, we must consider a study that focuses on potential technologies an enemy might adopt vice the forces he might employ. This innovative means of analysis may serve to clarify needed capabilities and determine future requirements.

We must start the momentum of modernization today. We're less than five years away from writing the mission needs statements and organizational and operational concepts for the force of 2020. The Army has begun the Force XXI effort—guiding us toward the force projection Army of the 21st century. This 2020 Vision provides the framework for our future, ensuring Field Artillery will

lead the way into the 21st century.



Brigadier General Leo J. Baxter is the Assistant Commandant of the Field Artillery School and Deputy Commanding General for Training of the Field Artillery Center, Fort Sill, Oklahoma. He has served in a wide variety of command and staff assignments, both overseas and in the continental United States. During his five tours in Germany, he served as Assistant Division Commander for Support of the 3d Infantry Division (Mechanized); Commander of the 3d Infantry Division Artillery; Commander of the 2d Battalion, 6th Field Artillery in the 3d Armored Division; and Commander of A Battery, 1st Battalion, 17th Field Artillery in VII Corps Artillery. He also was a member of the UN Truce Supervision Organization in Palestine in Egypt, Israel and the Sinai Desert. Brigadier General Baxter holds a master's degree in Personnel Management from Central Michigan State University and attended the Advanced Management College of Stanford University.



1995 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 company-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 fire support or are of special interest to our readers. But the majority of our articles address issues at the tactical or operational levels.

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 and 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 examples when possible.

When writing, think like the Redleg in the field—what is it, what will it do for me and how do I implement it (or when will I get it). 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 and FAX numbers.

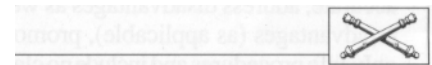
If there's any change in your position or address before the article is published, notify the *Field Artillery* staff as soon as possible.

- 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 DSN 639-5121 or 6806 or commercial (405) 442-5121 or 6806. To FAX, call DSN 639-5121 or commercial (405) 442-5127.



Field Artillery Themes for 1995

Edition	Theme	Copy Deadline
February	Joint and Combined Operations	3 Oct 94
April	Fire Support for Power Projection	5 Dec
June	The Field Artillery Leader	6 Feb 95
August	History	6 Feb (Contest)* 3 Apr (Other)
October	Fire Support Tactics, Techniques and Procedures	5 Jun
December	Red Book: Annual Report	7 Aug

* 1995 US Field Artillery Association History Writing Contest rules are on Page 5 of the August 1994 edition.



From the Gun Line

1995 Author's Guide

From the Gun Line (FGL) Column. FGL is a column featured in the *Field Artillery Bulletin* written by a Command Sergeant Major (CSM). The column is one magazine page and appears in the front of the magazine immediately following the Chief of Field Artillery's "On the Move" column.

Your FGL can cover any subject related to soldiers or NCOs you choose and is not limited to Field Artillery-specific topics. Though the magazine has a theme for each edition, we're not theme-bound. The subject of your column doesn't have to relate to the theme.

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

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 company-grade, both officer and enlisted, with the remaining 60 percent more senior Army and Marine personnel, DoD civilians, retirees, members of other branches and services, allies, corporate executives and our political leaders.

Style. Write clearly and concisely, and put your thesis statement (bottom

line) up front with the body of your column systematically contributing 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.

Submission. Please send—

- A clean four-page double-spaced, typed, unpublished column manuscript. If possible, send a Macintosh disk (3 1/2-inch preferred) or IBM disk in ASCII text format with the hard copy of the column. *Please do not submit a column to **Field Artillery** while it's being considered elsewhere.*

- A biography, highlighting your experience, training and education. Include

your full name, current job, address and telephone number.

- A graphic, if possible, to highlight your column. It can be a black and white or color photograph of any size (no Polaroids, please), drawing, slide, map, chart, graph, unit crest or symbol, etc. If the graphic is a picture, please include a caption.

Please send your column, biography and graphic to—

Field Artillery

P.O. Box 33311

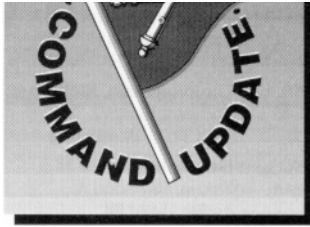
Fort Sill, Oklahoma 73503-0311

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1995 FGL Themes/Deadlines

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December	Red Book: Annual Report	7 Aug



Field Artillery Commanders and Command Sergeants Major

As of 1 November 1994

Active Army

Training and Doctrine Command

US Army Field Artillery School and Fort Sill

MG Dubia, John A.
Commandant/CG

CSM McKinney, James C.
Fort Sill

BG Baxter, Leo J.
Asst. Commandant

COL Heilman, William P.
CSM McFadden, Joseph J.
30th FA Regiment

LTC Smith, Ricky E.
CSM Horsley, Johnny L.
TF 2d Bn, 2d FA

LTC Palmatier, Bruce T.
CSM Hawkins, Joseph A., Jr.
1st Bn, 30th FA

LTC Mayock, Thomas J., Jr.
SGM Howard, Glenn, Sr.
3d Bn, 30th FA

COL Costello, Thomas J.
CSM Mitchell, L. Sammie
FA Training Center

LTC Hughes, Griffith S.
CSM Causby, Mal E.
1st Bn, 19th FA

LTC Madden, Michael T.
CSM Porter, Raymond L.
1st Bn, 31st FA

LTC O'Sullivan, John M.
CSM Adams, Paul C.
1st Bn, 33d FA

LTC Norberg, Joseph M.
CSM Marable, Joseph L.
1st Bn, 78th FA

LTC Lupo, Curtis A.
CSM Niccum, William W.
2d Bn, 80th FA

LTC Zacherl, Donald H.
CSM Kraus, Lawrence H.
3d Bn, 321st FA

Forces Command

III Corps

BG Dodson, Michael L.
CSM Young, Richard A.
III Corps Arty

COL Engel, William F.
CSM Cunningham, Jackie L.
17th FA Bde

LTC Vangjel, Peter M.
CSM Nelson, George H.
5th Bn, 3d FA

LTC Hill, Jerry C.
CSM Chappell, David B.
1st Bn, 12th FA

LTC Redlinger, Mark J.
CSM Leedy, Rodney F.
3d Bn, 18th FA

COL Arntz, Stephen J.
CSM Underwood, Johnny W.
75th FA Bde

LTC Graham, Mark A.
CSM Inman, Paul M.
1st Bn, 17th FA

LTC Laffosse, Miguel D., Jr.
CSM Hall, Steven A.
5th Bn, 18th FA

LTC Cline, Robert A.
CSM Burnett, Steven F.
6th Bn, 27th FA

COL Hahn, Daniel A.
CSM Green, Gary R.
212th FA Bde

LTC Riley, Sidney R.
CSM Lunceford, Danny L.
2d Bn, 17th FA

LTC Hall, Russell J.
CSM Phillips, Robert H.
2d Bn, 18th FA

LTC Coker, Larry W., Jr.
CSM Kelly, John E.
6th Bn, 32d FA

COL Cooper, Billy R.
CSM Dinkel, Larry H.
214th FA Bde

LTC Kniskern, Wayne R.
CSM Wood, Jerry L.
3d Bn, 9th FA

LTC Madden, Robert W.
CSM Shady, Robert C.
3d Bn, 17th FA

LTC Skidmore, John W.
CSM Jackson, Richard M.
5th Bn, 17th FA

XVIII Airborne Corps

BG Ryneska, John J.
CSM Austin, Johnny J.
XVIII Abn Corps Arty

COL Floris, John P.
CSM Dugan, Joseph A.
18th FA Bde

LTC Grates, Christopher J.
CSM Dixon, Donald
3d Bn, 8th FA

LTC Riojas, Jose D.
CSM Melvin, Richard L.
5th Bn, 8th FA

LTC Barron, Michael
CSM Quandt, David T.
3d Bn, 27th FA

LTC Parsons, Steven A.
CSM McPherson, Paul D.
1st Bn, 39th FA

COL Irick, Edward F., III
CSM Henson, Melvin R.
42d FA Bde

LTC Grupper, Ira R.
CSM Lopes, Lucio O.
4th Bn, 82d FA

Division Artilleries

COL Broadwater, Colby M., III
CSM Duncan, Gary A.
1st Cav Div Arty

LTC Johnsen, Nicholas R.
CSM Schmidt, Warren A.
1st Bn, 82d FA

LTC Walsh, Gerard M.
CSM Graves, Roy L.
2d Bn, 82d FA

LTC Dudley, Marcus G.
CSM Tooson, Aubrey D.
3d Bn, 82d FA

COL Stratman, Henry W.
CSM Edmundson, Thomas J.
1st IN Div (Mech) Arty

LTC Willis, Colen K.
CSM Scott, Leroy
1st Bn, 5th FA

LTC Belanger, Van-George R.
CSM Porter, Ronnie
4th Bn, 5th FA

COL Adair, Lawrence R.
CSM Lewis, Harold E.
2d AR Div Arty

LTC Nolan, Daniel A., III
1SG Sherman, Ernest, Jr.
9th Bn, 1st FA

LTC Formica, Richard P.
CSM Broadwater, William B.
1st Bn, 3d FA

LTC Hernandez, Rhett A.
CSM Shelly, Earl L.
1st Bn, 14th FA

COL Johnson, Alan D.
CSM Wright, Daniel E.
4th IN Div (Mech) Arty

LTC Gross, John D.
CSM Tillman, Melvin L.
3d Bn, 29th FA

LTC Klemencic, John V.
CSM Ellingson, Thomas D.
5th Bn, 29th FA

COL Valenzuela, Alfred A.
CSM Strong, Lamar
10th Mtn Div (L) Arty

LTC Bartell, Arthur M.
CSM Griffin, William H.
1st Bn, 7th FA

LTC Sweeney, Patrick C.
CSM Watkins, Don B.
2d Bn, 7th FA

COL Lennox, William J., Jr.
CSM Williams, L.C.
24th IN Div (Mech) Arty

LTC Browne, Donald W., Jr.
CSM Cruz, Arthur E.
1st Bn, 41st FA

LTC Fronzaglia, Robert J.
CSM King, Bruce J.
3d Bn, 41st FA

LTC Bransford, William M.
CSM Yancey, Andrew C.
4th Bn, 41st FA

COL Gottardi, L.D.
CSM Archbold, Cecilio M.
82d Abn Div Arty

LTC Janosko, Theodore J.
CSM Thompson, Ronald
1st Bn, 319th FA

LTC Cutler, David C.
CSM Allen, John G.
2d Bn, 319th FA

LTC Argo, Reamer W., III
CSM Hopkins, Charles D.
3d Bn, 319th FA

COL Nelson, Neil E.
CSM Speeks, Rickey D.
101st Abn Div (AAsst) Arty

LTC Page, Clyde A.
CSM Brodeur, Albert J.
1st Bn, 320th FA

LTC Kimmitt, Mark T.
CSM Wong, Derrick G.
2d Bn, 320th FA

LTC Bagby, Byron S.
CSM Boyd, George M.
3d Bn, 320th FA

Separate Units

COL Leigh, Joseph J., Jr.
CSM Walker, Jimmy L.
210th FA Bde
(I Corps Arty)

LTC Patterson, Dan B.
CSM Welch, Nathaniel A.
3d Bn, 11th FA
(210th FA Bde)

LTC Turner, Frank D.
CSM Christian, Fred L.
2d Bn, 8th FA

COL Dudley, Robert M.
MSG Finch, Lowell R.
TEXCOM FA Board

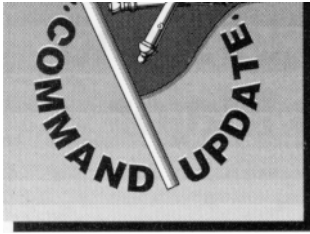
LTC Dow, Robert A., Jr.
SGM Hafler, Phillip H.
Fort Chaffee

US Army Europe

V Corps

BG Swain, Thomas E.
CSM Kermode, William J.
V Corps Arty

COL Maples, Michael D.
CSM Ostos, Joseph M.
41st FA Bde



LTC Konkus, Timothy G.
CSM Roddy, Patrick J.
1st Bn, 27th FA

LTC Wynarski, Andrew E.
CSM McPherson, Paul D.
4th Bn, 27th FA

Division Artilleries

COL Gingrich, John R.
CSM Harris, Sherman W.
1st AR Div Arty

LTC Corpac, Peter S.
CSM Evans, Doris, Jr.
2d Bn, 3d FA

LTC Bailey, Stephen L.
CSM Sturdivant, Lash L.
2d Bn, 29th FA

LTC Murphy, Dennis M.
CSM Stewart, Quinton M.
4th Bn, 29th FA

LTC House, John M.
CSM Hundley, William C.
6th Bn, 29th FA

COL Dayton, Keith W.
CSM Foster, Thomas H., III
3d IN Div (Mech) Arty

LTC Moore, Lance A.
CSM Woods, James T.
3d Bn, 1st FA

LTC Keefe, Daniel J.
CSM Harwood, Larry J., Jr.
2d Bn, 14th FA

LTC Hiemstra, Michael A.
CSM Castillo, Ivan A.
5th Bn, 41st FA

US Army Pacific

COL Tetu, William J.
CSM Stockton, Galen V.
2d IN Div Arty

LTC Zipp, Bernard F.
CSM Meyer, Dennis
8th Bn, 8th FA

LTC Cardenas, Eduardo
CSM Drummond, Walter L.
1st Bn, 15th FA

LTC Lingamfelter, Lee S.
CSM Santos, Angel, Jr.
6th Bn, 37th FA

COL Tighe, Dennis W.
CSM Perry, William J., III
25th IN Div (L) Arty

LTC Hall, Dewayne P.
CSM Williams, Anthony J.
3d Bn, 7th FA

LTC Brinn, Rufus T.
CSM Freeman, Lesley, Jr.
1st Bn, 8th FA

LTC Yingling, John A.
CSM Evans, Kenneth L.
7th Bn, 8th FA

LTC Gant, James H., Jr.
CSM Cox, Hubert L.
2d Bn, 11th FA

Separate Unit

LTC Woods, John C.
CSM Brown, Daniel S.
4th Bn, 11th FA

Army National Guard

I Corps

BG Ewing, Donald M.
CSM Boyington, Richard L.
I Corps Arty

LTC Merrill, David F.
CSM Williams, Brock H.
1st Bn, 140th FA

LTC Becker, George A.
CSM Christensen, Kent B.
1st Bn, 145th FA

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

COL Morford, Jim E.
CSM Ray, Robert F.
45th FA Bde

LTC Hills, Thomas L.
CSM Watts, Charles W.
1st Bn, 158th FA

LTC Redelsperger, John C.
CSM Ahrens, Lewis E.
1st Bn, 171st FA

LTC Shirley, Tom L.
CSM Bennett, Larry P.
1st Bn, 189th FA

COL Nevin, Harold J.
CSM Yenchesky, James H.
57th FA Bde

LTC Schiller, James A.
CSM Weller, Gary P.
1st Bn, 121st FA

LTC Gapinski, David D.
CSM Hannah, Bruce J.
1st Bn, 126th FA

COL Wray, Cannon S.
CSM Cash, Jack H.
115th FA Bde

MAJ(P) Dunn, Gary J.
CSM Hirsch, Bruce A.
1st Bn, 49th FA

COL Griffey, Bobby G.
CSM Coy, Eldon L.
135th FA Bde

LTC Henry, Walter E.
CSM Fleetwood, Edward
1st Bn, 128th FA

LTC Wilson, George W.
CSM Green, Roger B.
1st Bn, 129th FA

LTC(P) Whipple, Frank W.
CSM Howe, Randolph H.
147th FA Bde

LTC Schlingen, Daniel L.
CSM Hurney, Richard J.
1st Bn, 147th FA

LTC Davies, James R.
CSM Logan, Richard L.
2d Bn, 147th FA

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

Division Artilleries

COL Richar, William C.
CSM Sheard, James J., Jr.
28th IN Div (Mech) 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 Ruotolo, Leonard J.
CSM Sauer, John J., Jr.
1st Bn, 109th FA

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

COL Wilkins, Daniel B.
CSM Sparkman, Miles E., III
29th IN Div (L) Arty

LTC Holweck, Ralph D.
1SG Forrester, Clarence
2d Bn, 110th FA

LTC Troy, William P.
CSM Halfacre, Howard E.
2d Bn, 111th FA

LTC Bramlitt, Carl W.
CSM Ferguson, Lowell T.
1st Bn, 246th FA

COL Warnock, Tracy T.
CSM Watson, Judd L.
34th IN Div (Mech) Arty

LTC Malicki, Gregg H.
CSM Goodwin, Randy C.
2d Bn, 123d FA

LTC Nash, Michael P.
CSM Ibberson, Steve P.
1st Bn, 125th FA

LTC Zieska, Kenneth W., Jr.
CSM Froelich, Kirby R.
1st Bn, 151st FA

LTC Jipp, Randall A.
CSM Peterson, Leslie D.
1st Bn, 194th FA

COL Kelley, Aaron D., Jr.
CSM Rudder, John L.
35th IN Div (Mech) Arty

LTC Wright, Frank H., IV
CSM Althouse, Michael D.
1st Bn, 127th FA

LTC Clark, William G., Jr.
CSM Supplee, James L.
2d Bn, 138th FA

LTC Miller, Michael J.
CSM Stevens, George E.
1st Bn, 161st FA

LTC Grandstaff, Curtis G.
CSM Terrell, Eldon J.
1st Bn, 168th FA

COL Peterman, Roger D.
CSM Osborne, John D.
38th IN Div Arty

MAJ(P) Bullock, Donald B., Jr.
CSM Wierman, Michael L.
1st Bn, 119th FA

MAJ Kambic, Matthew L.
CSM Dillon, Terry
1st Bn, 134th FA

LTC Combs, William B.
CSM Nicholson, Jerry D.
3d Bn, 139th FA

MAJ(P) Bucklew, Keith J.
CSM Parsons, Jackie P.
2d Bn, 150th FA

COL Throckmorton, Richard L.
CSM Andrews, Gary W.
40th IN Div (Mech) Arty

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

MAJ(P) Kramer, Jeffrey J.
CSM Pointer, John W.
2d Bn, 144th FA

LTC Helton, Edward E.
CSM Randall, Jerry E.
3d Bn, 144th FA

COL Leite, Abel C.
CSM Beirne, John E.
42d IN Div (Mech) Arty

MAJ(P) Delaney, Michael J.
CSM Engler, Paul D.
1st Bn, 101st FA

LTC Markarian, Ralph K.
CSM Szymborski, Stanley C.
1st Bn, 112th FA

LTC Cherry, Alfred B.
CSM Newman, Frank T., Jr.
3d Bn, 112th FA

LTC Gidansky, Martin
CSM Murfitt, Arthur M.
1st Bn, 258th FA

COL Powers, Christopher J.
CSM Wesch, Larry
49th AR Div Arty

MAJ(P) Chapman, Jimmie H.
CSM Rigsby, Hulen T., III
1st Bn, 133d FA

MAJ(P) Villarreal, Pedro G.
CSM Talbot, Joseph E.
3d Bn, 133d FA

LTC Timmerman, Thomas G.
CSM Belyeu, Leonard W.
4th Bn, 133d FA

Brigades

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

LTC Wood, John H.
CSM Paquette, Robert L.
1st Bn, 103d FA

COL Taylor, Robert E., Jr.
CSM Abraham, Daniel R.
113th FA Bde

LTC Fuller, Tony R.
CSM Ingram, Larry G.
4th Bn, 113th FA

LTC Newton, Joel B.
CSM Ellington, Orman B., Jr.
5th Bn, 113th FA

COL Carpenter, Jasper
CSM Dermon, Robert E.
138th FA Bde

MAJ(P) Curtin, Michael J.
CSM Hoffman, William F.
1st Bn, 623d FA

COL Pennington, James R.
CSM Fagala, Robin F.
142d FA Bde

LTC Kimmey, Kim
CSM Jordan, Alva C.
1st Bn, 142d FA

LTC Posey, Carl J.
CSM Bull, Jack R.
2d Bn, 142d FA



COL Sipe, Nicholas P.
CSM Smith, James D.
151st FA Bde

LTC Gordon, Ronnie E.
CSM Herndon, Charles R.
3d Bn, 178th FA

COL Crowder, Ronald G.
CSM Miller, David E.
169th FA Bde

LTC O'Hara, Patrick M.
CSM Rowan, Thomas D.
1st Bn, 157th FA

LTC Paul, Walter
CSM Thomas, Ainsley P.
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 Croto, Gregory H.
197th FA Bde

LTC Aubin, John P.
CSM O'Brien, John B.
1st Bn, 172d FA

MAJ(P) Guise, James R.
CSM Hammel, Leonard D., Jr.
2d Bn, 197th FA

LTC(P) Winter, Brian D.
CSM Flye, Jerome E.
209th FA Bde

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

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

Round-Up Battalions

LTC Lindsley, Daniel M.
CSM Marshall, Ben A.
2d Bn, 114th FA
(1st Cav Div Arty)

LTC Nessmith, Charles R.
CSM Allen, Thomas G.
1st Bn, 118th FA
(24 IN Div (Mech) Arty)

LTC King, Craig S.
CSM Robinette, Max G.
2d Bn, 146th FA
(2d IN Div Arty)

Round-Out Battalions

MAJ(P) Acosta, Thomas W., Jr.
CSM Smith, Robert G., Jr.
1st Bn, 141st FA
(2d AR Div Arty)

LTC Flynn, Fred V., Jr.
CSM Murphy, Patrick W.
1st Bn, 148th FA
(4th IN Div (Mech) Arty)

MAJ(P) Morelli, Dominic A.
CSM Gliedman, Jeffrey A.
1st Bn, 156th FA
(10th Mtn Div (L) Arty)

LTC Templeton, Robert S.
CSM Sexton, Jimmie R.
1st Bn, 178th FA
(1st IN Div (Mech) Arty)

Separate Units

LTC Brubaker, Harry H.
CSM Hoopes, William L.
3d Bn, 49th FA

LTC Eaton, Clark J.
CSM Leggett, Ronald W.
1st Bn, 86th FA

LTC Martin, Mabry E.
CSM Simpson, Lanny E.
1st Bn, 113th FA

LTC Prince, Calvin F.
CSM Turner, William B.
3d Bn, 115th FA

LTC Welch, Jerold P.
CSM Dooley, Gary L.
2d Bn, 116th FA

MAJ(P) Alford, David R.
CSM Danley, Dwight L.
3d Bn, 116th FA

LTC Smith, Perry G.
CSM Jackson, Charles R.
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

MAJ(P) Crane, Damian K.
CSM Kizart, James P.
2d Bn, 122d FA

MAJ(P) Foster, John S.
CSM Bahr, Ronald E.
2d Bn, 130th FA

LTC Tardie, Donald A.
CSM Rolfe, Randall G.
1st Bn, 152d FA

MAJ(P) Bray, Gary D.
CSM Bates, John B.
1st Bn, 160th FA

LTC Valldejuli, Alberto L.
CSM Cruz, Jose
1st Bn, 162d FA

MAJ Rivera, Edwin I.
CSM Lopez, Alcides
2d Bn, 162d FA

MAJ(P) Lynch, Stephen L.
CSM Mattingly, James R.
1st Bn, 163d FA

LTC McCarty, Charles L.
CSM Gates, James A.
1st Bn, 180th FA

MAJ(P) Lemanski, Raymond E.
CSM Young, Robert L.
1st Bn, 182d FA

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

LTC McGee, Nathaniel
CSM Wilson, Harry
5th Bn, 206th FA

LTC Meeler, Joseph L.
CSM Hewell, Gerald M.
1st Bn, 214th FA

LTC Tomasovic, Robert S.
MSG(P) Smith, Joseph A.
2d Bn, 218th FA

MAJ(P) Spear, Bruce D.
CSM Makuakane, Jack K.
1st Bn, 487th FA

Army Reserve

Brigades

COL Bugge, Jimmie C.
CSM Rutherford, Barry C.
428th FA Bde

COL Bannon, George A.
SGM Manno, Richard
479th FA Bde

Training Brigades

COL Dollar, Douglas O.
CSM Bailey, William A.
402d Bde (Tng)(FA)
95th Div (Tng)

MAJ Simmons, William J.
CSM Doudican, Robert C.
1st Bn, 89th FA

LTC Perdue, Johnny L.
CSM Castro, John
2d Bn, 89th FA

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

LTC Pike, David S.
CSM Dunklin, Stanley J.
4th Bn, 89th FA

LTC Centracco, Robert M.
CSM Gilbert, Billy D.
5th Bn, 89th FA

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

Separate Units

LTC Maun, Joseph M.
CSM Jackoviak, Michael
7th Bn, 1st FA

LTC Bitting, Alan C.
CSM McCain, Jerome
7th Bn, 9th FA

LTC Spear, Robert K.
CSM Brown, Samuel H.
4th Bn, 17th FA

MAJ Jahrsdoerfer, Stephen R.
CSM Tobin, Joseph A.
3d Bn, 42d FA

LTC Drewel, Charles A.
CSM Lenox, Chester A.
3d Bn, 75th FA

LTC Scanlan, John J.
CSM Ward, Cecil M.
3d Bn, 83d FA

MAJ(P) Andrews, Mark C.
1SG DeJoseph, Crescenzo E.
3d Bn, 92d FA

Marines

Col Hughes, Philip E.
SgtMaj Seymour, Gerald L.
10th Marines

LtCol Lovely, James M.
SgtMaj Huerta, Ernest A.
1st Bn, 10th Mar

LtCol Darling, Rodell C.
SgtMaj McIntosh, Wylie A.
2d Bn, 10th Mar

LtCol Click, Robert L.
1stSgt Turner, Earl A., Jr.
3d Bn, 10th Mar

LtCol Dunn, Kenneth D.
1stSgt Biggs, Ronald A.
5th Bn, 10th Mar

Col Palermo, Anthony M.
SgtMaj Patri, Michael J.
11th Marines

LtCol Rudder, Philip C.
SgtMaj Deas, Joseph B.
1st Bn, 11th Mar

LtCol Baird, Stephen W.
SgtMaj Nacoste, Lawrence
2d Bn, 11th Mar

LtCol Kruse, John E., Jr.
SgtMaj Pacheko, Alex P.
3d Bn, 11th Mar

LtCol Lindsey, Forrest R.
SgtMaj Madero, Michael A.
5th Bn, 11th Mar

Col Mazzara, Andrew F.
SgtMaj McHenry, Robert, Jr.
12th Marines

LtCol Favors, John D.
SgtMaj Paradine, Ralph A., Jr.
1st Bn, 12th Mar

LtCol Hicks, Michael K.
SgtMaj Rocha, Francisco D.
3d Bn, 12th Mar

Col Stuart, Lynn A.
SgtMaj Baker, Johnny B.
14th Marines

LtCol Hart, Kevin P.
SgtMaj Murphy, Jack L.
1st Bn, 14th Mar

LtCol Poole, Kim T.
SgtMaj Davis, James K.
2d Bn, 14th Mar

LtCol Mears, James A.
SgtMaj Wright, Arthur G.
3d Bn, 14th Mar

LtCol Colella, Tom
SgtMaj Stamper, James J.
4th Bn, 14th Mar

LtCol Bloom, Peter W.
SgtMaj Carrillo, Carlos, Jr.
5th Bn, 14th Mar



Field Artillery Assignment Branches

As of 1 November

Active Army Branch Teams

Officers

LTC David P. Valcourt
Field Artillery Branch Chief

LTC Jeffrey J. Perry
Colonels Division
Colonel Assignments

LTC John W. Morgan III
Lieutenant Colonel Assignments

MAJ(P) Thomas J. Roth II
Major Assignments

CPT William R. Turner
CPT(P) Antoine B. Bethel
Captain Assignments:
Company-Grade Qualified

CPT(P) Jeffrey C. Lieb
Captain Assignments: OAC

CPT Gary R. Hisle, Jr.
Future Readiness/Functional Area
Designation/Professional
Development

CPT David J. Brost
Lieutenant Assignments:
Accessions/OBC

CW3 John M. Clancy
Warrant Officer Career Manager
Assignments

Addresses and Telephone Numbers

Lieutenant Colonels (P) and Colonels:

Commander, PERSCOM
ATTN: TAPC-OPC
200 Stovall Street
Alexandria, VA 22332-0412
Telephone: DSN 221-7862
Commercial (703) 325-7862

Lieutenant Colonels to Lieutenants:

Commander, PERSCOM
ATTN: TAPC-OPE-F
200 Stovall Street
Alexandria, VA 22332-0414
Telephone: DSN 221-0116
Commercial (703) 325-0116

Warrant Officers:

Commander, PERSCOM
ATTN: TAPC-OPW-FA/AD
200 Stovall Street, Suite 6N07
Alexandria, VA 22332-0420
Telephone: DSN 221-5239/7837
Commercial (703) 325-5239/7837

Officers' Microfiche Records.

To request your microfiche in writing, include name, rank, SSN and address and sign the request. Mail to:

Commander, PERSCOM
ATTN: TAPC-MSR-S
200 Stovall Street
Alexandria, VA 22332-0444

Enlisted

LTC John H. McDonald
Field Artillery Branch Chief

SGM Larry L. Harris
Branch Sergeant Major

MSG David L. Evans
Senior Career Advisor
13B (SFC), 13Z (1SG/MSG) and Drill
Instructor

SFC(P) Axel R. Rivera
13B (PVT thru SSG)

SFC Jeffrey S. Ashmen
13C, 13E, 13F and AFSO Program

SFC(P) Jonny A. Murray
13R, 82C and 93F

SFC David P. Hixson
13M, 13P and Recruiting Duty

SFC Roger L. Bunch
Reclassification/Qualitative
Management/Retirement/Service
Schools

Mr. William E. Wagner
ANCO

Address and Telephone Numbers

Commander, PERSCOM
ATTN: TAPC-EPK-F
2461 Eisenhower Avenue
Alexandria, VA 22331-0452
Telephone: DSN 221-1585
Commercial (703) 325-1585

Army Reserve Branch Teams

Officers

LTC Linda M. Witherell
Colonels

LTC Benjamin Burgos
Field Artillery Branch Chief
Lieutenant Colonels

MAJ Gerard Garvey
Majors

MAJ Melvin R. Cape
Captains

MAJ Michael A. Casey
Lieutenants

CW5 Wilbur A. Christopher
Warrant Officer Branch Chief

CW2 Ruth Kelly
Personnel Management Officer

Addresses and Telephone Numbers

Colonels:

Commander, ARPERCEN
ATTN: ARPC-OP-COL
9700 Page Boulevard
St. Louis, MO 63132-5200
Telephone: DSN 892-3431
Commercial (314) 538-3431
Toll Free 1-800-325-4387

Lieutenant Colonels to Lieutenants:

Commander, ARPERCEN
ATTN: ARPC-OPC-FA
9700 Page Boulevard
St. Louis, MO 63132-5200
Telephone: DSN 892-2109/3351
Commercial (314) 538-3301/3351/3302
Toll Free 1-800-325-4950

Warrant Officers:

Commander, ARPERCEN
ATTN: ARPC-OPF-WO
9700 Page Boulevard
St. Louis, MO 63132-5200
Telephone: DSN 892-3997
Commercial (314) 538-3997
Toll Free 1-800-325-4361

Enlisted

MSG William E. Richardson
Field Artillery/Air Defense Branch
Chief

SFC Tiana M. Otis
SFC Charles W. Toland
SFC Joe C. Cohen

All personnel assisted on a first come, first served basis.

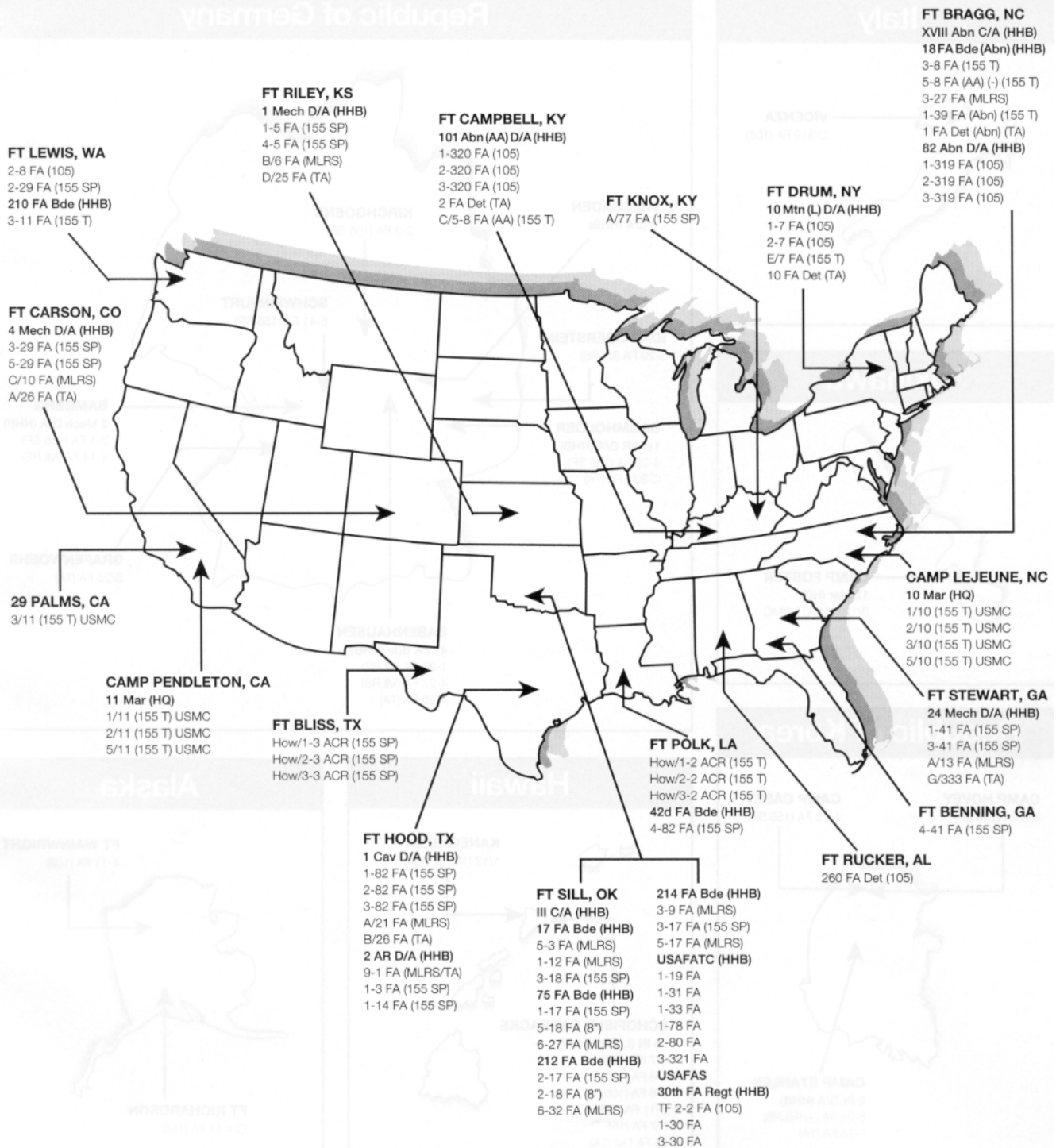
Address and Telephone Numbers

Commander, ARPERCEN
ATTN: ARPC-EPA-FA/AD
9700 Page Boulevard
St. Louis, MO 63132-5200
Telephone: DSN 892-2219
Commercial (314) 538-2219
Toll Free 1-800-325-4730



Active Army and Marine Units in CONUS

As of 1 November 1994





Active Army and Marine Units **OCONUS**

As of 1 November 1994

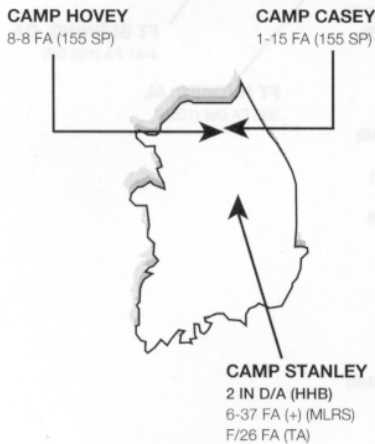
Italy



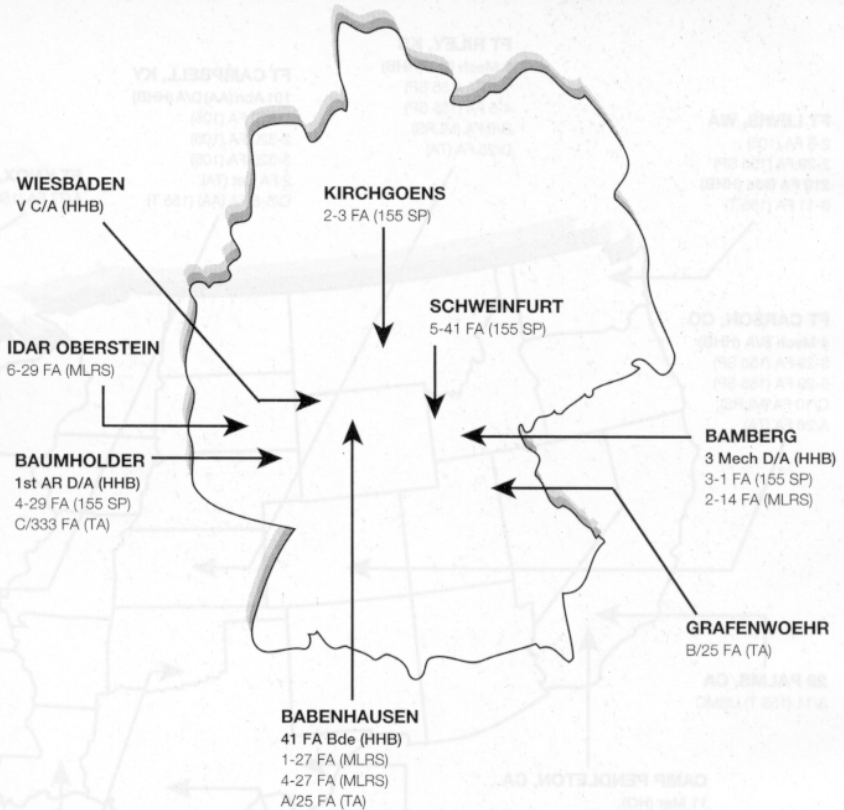
Okinawa



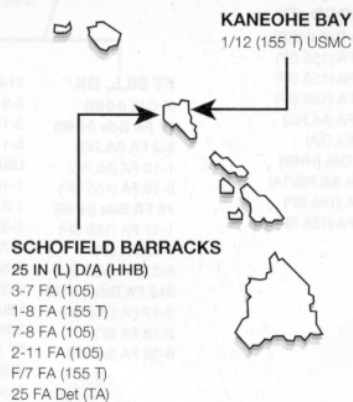
Republic of Korea



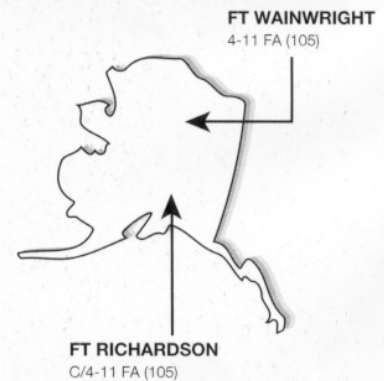
Republic of Germany



Hawaii



Alaska





Army and Marine Reserves

As of 1 November 1994





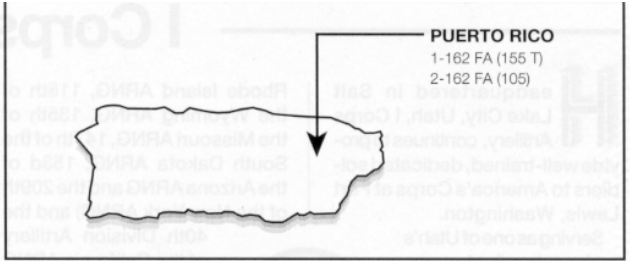
Army National Guard

As of 1 November 1994

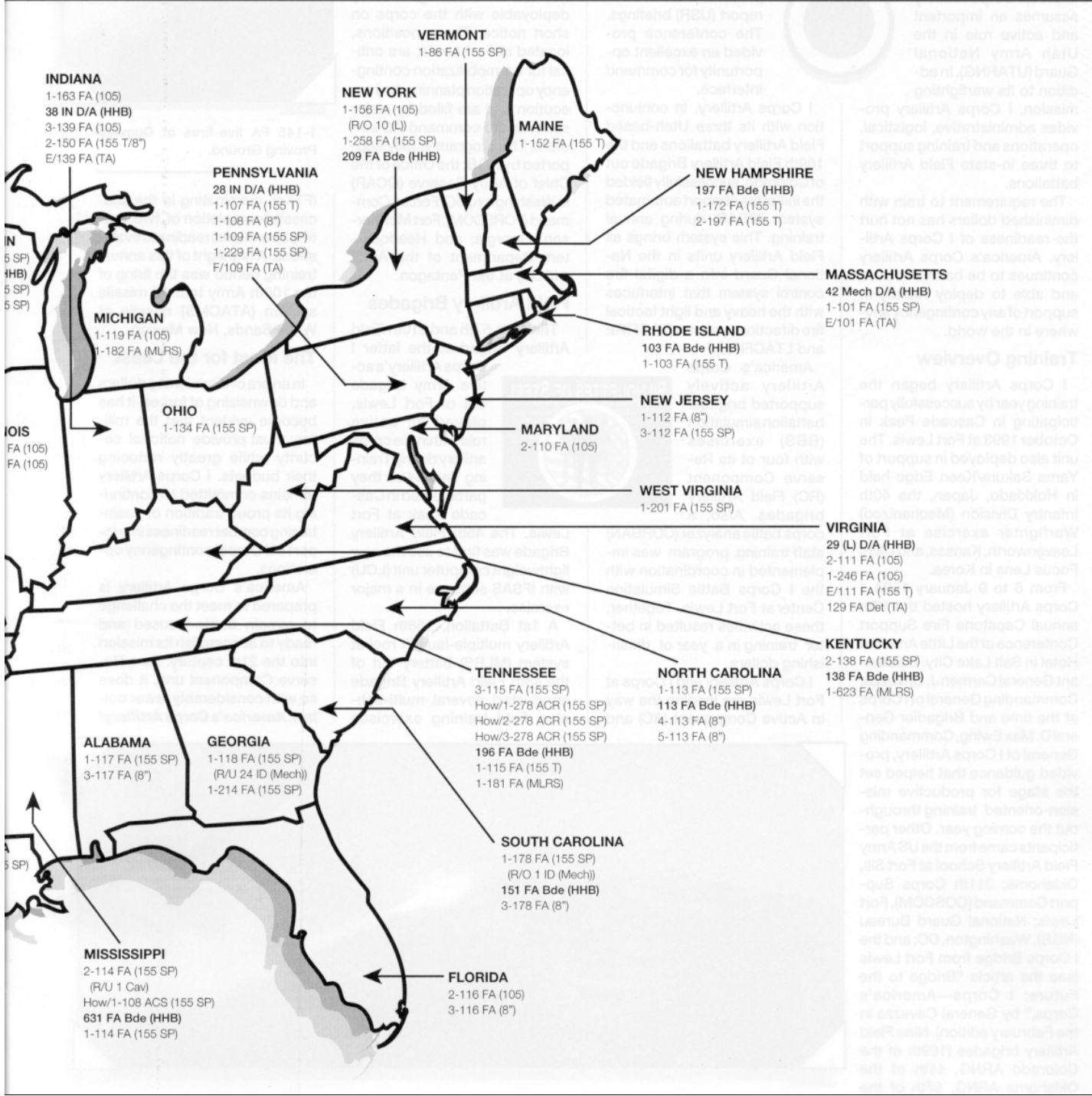




HAWAII
1-487 FA (105)



PUERTO RICO
1-162 FA (155 T)
2-162 FA (105)



I Corps Artillery

Headquartered in Salt Lake City, Utah, I Corps Artillery, continues to provide well-trained, dedicated soldiers to America's Corps at Fort Lewis, Washington.

Serving as one of Utah's major subordinate commands, I Corps Artillery assumes an important and active role in the Utah Army National Guard (UTARNG). In addition to its warfighting mission, I Corps Artillery provides administrative, logistical, operations and training support to three in-state Field Artillery battalions.

The requirement to train with diminished dollars has not hurt the readiness of I Corps Artillery. America's Corps Artillery continues to be battle-focused and able to deploy rapidly in support of any contingency anywhere in the world.

Training Overview

I Corps Artillery began the training year by successfully participating in Cascade Peak in October 1993 at Fort Lewis. The unit also deployed in support of Yama Sakura/Keen Edge held in Hokkaido, Japan, the 40th Infantry Division (Mechanized) Warfighter exercise at Fort Leavenworth, Kansas, and Ulchi Focus Lens in Korea.

From 6 to 9 January 1994, I Corps Artillery hosted the 12th annual Capstone Fire Support Conference at the Little America Hotel in Salt Lake City. Lieutenant General Carmen J. Cavezza, Commanding General of I Corps at the time and Brigadier General D. Max Ewing, Commanding General of I Corps Artillery, provided guidance that helped set the stage for productive mission-oriented training throughout the coming year. Other participants came from the US Army Field Artillery School at Fort Sill, Oklahoma; 311th Corps Support Command (COSCOM), Fort Lewis; National Guard Bureau (NGB), Washington, DC; and the I Corps Bridge from Fort Lewis (see the article "Bridge to the Future: I Corps—America's Corps," by General Cavezza in the February edition). Nine Field Artillery brigades (169th of the Colorado ARNG, 45th of the Oklahoma ARNG, 57th of the Wisconsin ARNG, 103d of the

Rhode Island ARNG, 115th of the Wyoming ARNG, 135th of the Missouri ARNG, 147th of the South Dakota ARNG, 153d of the Arizona ARNG and the 209th of the New York ARNG) and the 40th Division Artillery of the California ARNG presented unit status report (USR) briefings. The conference provided an excellent opportunity for command interface.

I Corps Artillery, in conjunction with its three Utah-based Field Artillery battalions and the 169th Field Artillery Brigade out of Colorado, successfully fielded the initial fire support automated system (IFSAS) during annual training. This system brings all Field Artillery units in the National Guard into a digital fire control system that interfaces with the heavy and light tactical fire direction systems (TACFIRE and LTACFIRE).

America's Corps Artillery actively supported brigade/battalion simulation (BBS) exercises with four of its Reserve Component (RC) Field Artillery brigades. Also, a corps battle analyzer (CORBAN) staff training program was implemented in coordination with the I Corps Battle Simulation Center at Fort Lewis. Together, these activities resulted in better training in a year of diminishing dollars.

I Corps Artillery and I Corps at Fort Lewis are leading the way in Active Component (AC) and

RC integration with the establishment of the "Bridge" program. This program fills critical areas and positions with a mix of AC and RC soldiers—Active Guard/Reserve (AGR), mobilization day (M-DAY), additional duty special works (ADSW), etc. Members of the bridge are fully deployable with the corps on short notice. These positions, located at Fort Lewis, are critical for no-mobilization contingency operation planning and execution and are filled by major subordinate command RC soldiers. The program is fully supported by NGB; the Office of the Chief of Army Reserve (OCAR) in Washington, DC; Forces Command (FORSCOM), Fort McPherson, Georgia; and Headquarters Department of the Army (HQDA) at the Pentagon.

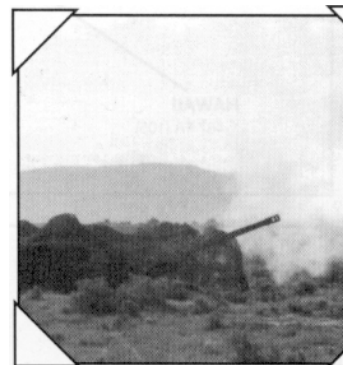
Field Artillery Brigades

The 45th, 57th and 210th Field Artillery Brigades, the latter I

Corps Artillery's active Army brigade out of Fort Lewis, played an active role within the corps artillery during Training Year 94 as they participated in

Cascade Peak at Fort Lewis. The 45th Field Artillery Brigade was first to use the new lightweight computer unit (LCU) with IFSAS software in a major exercise.

A 1st Battalion, 158th Field Artillery multiple-launch rocket system (MLRS) battery out of the 45th Field Artillery Brigade conducted several multi-echelon field training exercises



1-145 FA live-fires at Dugway Proving Ground.

(FTXs), culminating in the successful completion of two battery operational readiness evaluations. A highlight of this annual training period was the firing of the 100th Army tactical missile system (ATACMS) missile at White Sands, New Mexico.

The Most for the Least

In an era of diminishing dollars and downsizing of forces, it has become evident that the military must provide national security while greatly reducing their budgets. I Corps Artillery remains committed to continuing its proud tradition of maintaining combat readiness in support of I Corps' contingency operations.

America's Corps Artillery is prepared to meet the challenge to remain battle-focused and ready to accomplish its mission into the 21st century. As a Reserve Component unit, it does so with considerably fewer dollars. **America's Corps Artillery!**



1-158 FA (MLRS) in a live-fire exercise.

III Corps Artillery

Firepower on the move has become the hallmark of the *Phantom Corps Artillery* at Fort Sill, Oklahoma. With 12 artillery battalions and two combat support battalions, III Corps Artillery is the largest concentration of artillery in the free world. Its mission is to mobilize and deploy mechanized artillery to support contingencies anywhere in the world.

Headquarters, III Corps Artillery.

Once again, the Phantom Corps Artillery spanned the continental United States as exercises took us from Fort Drum, New York, for the 42d Infantry (Mechanized) Division (New York ARNG) BCTP Ramp-up to Fort Carson, Colorado, for the 4th Infantry (Mechanized) Division BCTP Warfighter. Among the stops in between were Fort Bliss, Texas, for Joint Task Force (JTF) Exercise Roving Sands; Fort Riley, Kansas, for the 1st Infantry (Mechanized) Division Warfighter and Fort Bragg, North Carolina, for the XVIII Airborne Corps Warfighter. But the highlight of the calendar was the corps' Phantom Saber IV, where the corps fought across the plains of Texas, beginning near San Angelo and ending at Fort Hood.

On the leading edge of technology, the corps artillery fielded the automated deep operations coordination system (ADOCS). ADOCS simplifies and expedites planning and coordinating deep fires and dramatically reduces sensor-to-shooter times.

17th FA Brigade. The *Thunderbolt Brigade* met all the challenges in 1994, beginning with a successful brigade FTX in October and followed by deployment to Fort Hood for the corps Warfighter. Also, the entire headquarters battery deployed to Fort Carson for the 4th Division Warfighter. As a result of an aggressive counterfire fight, the FA was instrumental in the division's victory. In September, the brigade headquarters supported the 1st Cav Division during Phantom Saber IV.

The battalions continued METL-focused collective training enhanced by their participation in a variety of exercises. 5-3 FA completed its battery- and battalion-level collective training

and its first EXEVAL, becoming the Army's newest certified MLRS battalion. It subsequently deployed to Twentynine Palms, California, for Desert Fire Exercise (DEFIREX) 1-95 for extended joint training with the USMC. 1-12 FA enjoyed a deployment to White Sands Missile Range in New Mexico, and the battalion leadership helped administer an EXEVAL to 6-37 FA in the 2d Infantry Division, Korea. 3-18 FA continued its habitual mission of providing DS fires to the 3d Armored Cavalry Regiment (ACR). It

participated in several exercises, including a full deployment to the NTC.

75th FA Brigade. The *Diamond Brigade* participated in several challenging events. These included a post-level EDRE in January; the annual brigade FTX Taut Lanyards in February; and Exercise Roving Sands in May, where the corps served as the JTF headquarters and the brigade helped define the role of a joint force fires coordination center (JFFCC). Other events were the 1st Division Warfighter exercise at Fort Riley in June; Phantom Saber in September and the XVIII Corps Warfighter in December. The brigade also fielded several items of NBC equipment and the

palletized loading system (PLS) in September and partially fielded the single-channel ground and airborne radio system (SINCGARS) in December.

The battalions focused on section and platoon lane training, resulting in successful battery and battalion EXEVALs. During Taut Lanyards, the brigade massed the rocket and cannon fires of 6-27 FA (concurrently undergoing its EXEVAL), 1-17 FA and 5-18 FA.

In the past year, 5-18 FA deployed to the NTC to support the 1st Cav, while 6-27 FA completed Bold Shift and a highly successful AT for 1-158 FA, Oklahoma ARNG, in June. 1-17 FA underwent a 100 percent EDRE in January, to include rail-load operations and deployment into a brigade FTX.

212th FA Brigade. 1994 was another great year of challenges and accomplishments for the

Courage and Command

Brigade. The staff kicked off the year with the corps Warfighter at Fort Hood, working with the 1st Cav and providing fire support to other

corps divisions. The brigade also supported the 42d Division Warfighter at Fort Leavenworth, Kansas, and then the XVIII Corps Warfighter.

2-17 FA, the Army's first Paladin battalion, participated in NTC 94-07 and Desert Hammer VI,

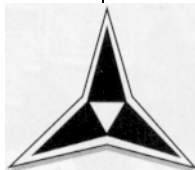
an advanced warfighting demonstration that focused on digitizing the battlefield. 2-17 FA also provided fires for the 3d ACR at the NTC. 2-18 FA (8-inch) conducted a highly successful sea EDRE and supported the 1st Cav Div at the NTC. Both 2-17 FA and 2-18 FA supported Fort Sill's CALFEXs. 6-32 FA had a unique opportunity to train with the 11th Marine Regiment and the 1st Marine Division when it provided MLRS fires in DEFIREX. Also, the Redlegs of 6-32 FA completed a tough EXEVAL. Additionally, 6-32 FA conducted a mobilization and interoperability exchange program with the 12th Rocket Artillery Battalion in Nienburg, Germany. The year ended with 2-18 FA beginning its conversion to MLRS.

214th FA Brigade. The *Naturally We Lead Brigade* remains the Army's largest, most diverse FA brigade with five battalions: 3-9 FA, 3-17 FA, 5-17 FA, 19th Maintenance and the 47th Combat Support Battalion. Within the brigade are medical, ordnance, chemical, aviation and finance personnel.

FY 94 found our FA units training on METL tasks to deploy, fight and sustain operations. 5-17 FA underwent an EXEVAL at White Sands, the first since its transition from the 8-inch howitzers to MLRS. 3-17 FA supported the 4th Division's NTC rotation and two CALFEXs. 3-9 FA conducted collective training for an Israeli MLRS battery. The 47th Field Hospital deployed to Egypt in Operation Bright Star. Soldiers from the 19th Maintenance Battalion supported every corps Artillery field exercise and deployment.

The brigade headquarters tested the initial fire support automated system (IFSAS), fielded SINCGARS and conducted two brigade CFXs to sustain digital communications. The brigade participated in the Phantom Saber III and the 2d Armored Division's Focused Warrior I and II. Also this year, our Redlegs deployed to Korea, Germany, Western Sahara, Alaska, Honduras, Kuwait, Egypt and Cuba.

III Corps Artillery stands trained and ready to deploy and meet any challenge with a diverse and flexible mix of **Phantom Firepower!**



An MLRS launcher from B/6-27 FA off-loads from a C5A Galaxy at Twentynine Palms for DEFIREX. (Photo by M. Clark)

V Corps Artillery

This past year was an especially poignant and meaningful time for V Corps and V Corps Artillery (VCA). The year brought the inactivation of the 2d Battalion, 32 Field Artillery, the relocation of the VCA headquarters to Wiesbaden, Germany, and several events to remind us of our responsibilities as the Army's only forward-deployed corps artillery. As the corps' executive agent for the 50th D-Day Commemorative Activities at Normandy, VCA had a unique chance to honor past victories while continuing to play an integral role in the development of Army deep battle doctrine and force modernization. This mixture of past, present and future truly characterized the year.



Modernization

In staying on the forefront of fire support, two exciting new MLRS additions included the fire direction data manager (FDDM) and the reduced-range practice rocket (RRPR). The RRPR greatly increases the training value of live firing, and the FDDM dramatically increases the responsiveness of our fires. The most exciting addition stemmed from a program that V Corps Artillery developed in coordination with the Advanced Research Projects Agency and the Defense Intelligence Agency—the automated deep operations

coordination system (ADOCS). ADOCS links critical elements within the fire support cell (FSC) to facilitate processing fire missions. (See the article "ADOCS: An Automated Approach to Targeting" in the August edition.)

ADOCS allows the FSC to receive targets electronically and quickly coordinate the execution of fires. ADOCS further allows the FSC to create and display graphics, to include flight routes and the location and envelopes of enemy air defense artillery. ADOCS also can communicate with current fire direction systems, to include TACFIRE, FDDM and the fire direction system (FDS). Planned enhancements soon will allow the system to communicate with the maneuver control system (MCS) and the all-source analysis system (ASAS). ADOCS is currently being considered for adoption Army-wide.

Training

Training remains the cornerstone of V Corps Artillery, and our training continued to be routinely joint, combined and multinational. The multinational ties have become even closer with the exchange of dedicated liaison officers between the corps artillery and II German Corps in Ulm. Additionally, VCA worked with the Polish, British and Dutch militaries. The 41st Field Artillery Brigade transferred five counterfire radars to the Jordanian military for use in Bosnia and conducted a tri-national CPX and live-fire with the 12th Regimental Artillery (French) and the 122d Rocket Artillery (German).

The corps artillery participated in several theater-level exercises, to include battle staff training and Trailblazer II—where a multinational force exercised a joint force air component command (JFACC) battlefield control element (BCE). ARCADE Fusion



German exchange officer Hauptmann Dieter Neersen works with SPC Ronald S. Wilson in the VCA current operations van during Ironsides Victory. (Photo by CPL Sheila L. Horgan)

exercised the command and control of the Allied Rapid Reaction Corps.



Corps-led exercises serve to validate corps artillery training. Corps exercises during the year included Central Fortress 94 and Caravan Guard

94. Both stressed the close coordination necessary to make corps deep operations work and validated the often decisive effectiveness of the corps artillery in influencing the battlefield. Shadow Canyon and Atlantic Resolve were multinational exercises that included the British, French, Germans and Dutch.

In addition to participating in these exercises, the 41st FA Brigade deployed to the Grafenwoehr Training Area twice and sent elements to the CMTC at Hohenfels once during the year. During those deployments, the brigade completed brigade-level field training exercises, battalion evaluations, battery evaluations and many live-fire exercises.

World War II Commemoration

The D-Day World War II 50th Commemorative Activities were the highlight for many V Corps artillerymen. The corps artillery's role was to plan, coordinate and execute all US-hosted ceremonies in Normandy and Southern

France. President Bill Clinton and the First Lady personally thanked the V Corps Artillery soldiers for their successful efforts.

V Corps Artillery was proud to return to the beaches it helped secure 50 years ago and pay tribute to the veterans, both living and deceased. The 41st FA Brigade similarly played a key role in the commemorative activities by planning, organizing and executing the Normandy American Cemetery ceremony and by firing a salute with World War II-vintage howitzers. The planning and coordination of these activities trained the staffs of both the 41st Field Artillery Brigade and V Corps Artillery on the complexities of synchronizing joint and combined operations on foreign soil. The success of these events, however, depended on the help of many other units from all military services, both in Germany and the United States.

The World War II commemoration offered VCA the unique opportunity to honor its past victories and soldiers. At the same time, it provided today's corps artillery soldiers a showcase in which to display their professionalism and competence. As with these challenges and others, VCA met the task at hand and again proved itself **Steadfast and Strong!**



VCA's BG Thomas Swain presents President Clinton a gift during D-Day commemoration activities. (Photo by CPL Sheila L. Horgan)

XVIII Airborne Corps Artillery

To maintain a strategic crisis response force, manned and trained to deploy rapidly by air, sea and land anywhere in the world, prepared to fight and win, is the XVIII Airborne Corps' mission and the impetus of the XVIII Airborne Corps Artillery. With its headquarters at Fort Bragg, North Carolina, the XVIII Airborne Corps Artillery is an integral part of the nation's crisis response force, maintaining rapid response packages able to project the power of a corps-level fire support element, 155-mm towed howitzers and MLRS within 18 hours to any place in the world.

This year marked a significant point in our history with the solidification of the 42d FA Brigade at Fort Polk, Louisiana, as a fully deployable part of the corps artillery and the participation of the Fort Bragg-based 18th FA Brigade in several NTC and JRTC rotations. Through the execution of its METL, the XVIII Airborne Corps Artillery continues tough and realistic training in airborne, air assault, rail and sea deployments. This year, our METL was revised to reflect the total operational continuum faced by today's Army.

Among our most demanding tasks, we must provide battle command

of six Field Artillery brigades; plan, coordinate and synchronize lethal and non-lethal fire support means available to the corps; and plan, coordinate and integrate combat service support for deployed units. To perfect the skills for these METL tasks, the corps artillery started the training year with Dragon Fire IV, the largest FIREX ever conducted by the XVIII Airborne Corps Artillery. Dragon Fire



IV not only included six artillery brigades of Active, National Guard and Reserve units and the Div Artys of three divisions, but also the firepower of USMC, USAF and Canadian forces.

The year's METL training culminated in the live-fire exercise Market Square/Sand Eagle. During this exercise, the 42d FA Brigade TOC joined the 18th FA Brigade at Fort Bragg under corps artillery control. Crises responses, changes in artillery organization for combat and airborne and sustainment operations were executed to their fullest extent.

The premiere training event for the 18th FA Brigade was the 82d Airborne Division's BCTP Warfighter exercise. In preparation

for this challenging event, the brigade participated in several Giant Step CPXs in early 1994. During the Warfighter, the effective counterfire provided by the brigade greatly contributed to the division's success.

In January, the 42d FA Brigade supported the 101st Airborne Division (Air Assault) in its Warfighter and was equally successful. In May, the brigade executed an internally developed CPX using the Fort Polk BBS innovatively to exercise its critical combat functions in a free-play environment.

An essential METL task the corps artillery practices often is deploying artillery packages within 18 hours of notification. For example, B/1-39 FAR deployed a



two-gun platoon package to the White Falcon Ferry exercise at Fort Pickett, Virginia, within 18 hours in support of Task Force 2-325, 82d Airborne Division. 3-8 FAR conducted air-land operations while exercising alert procedures and deploying a four-gun package on C-130 aircraft. Service Battery, 5-8 FAR conducted a C5 aircraft upload to expand and test its deployment capability. B/3-27 FAR (MLRS) deployed to Fort Stewart, Georgia, to participate in a sea EDRE, exercising sea upload procedures.

The 42d Brigade participated in a corps EDRE by deploying to its port of embarkation and loading its equipment on fast sealift ships. This event marked the final chapter in the brigade's transition from a forward-deployed, European-based unit to a fully deployable member of the XVIII Airborne Corps Artillery.

Our METL task to provide timely and accurate artillery fires in support of the corps and division in airborne and air assault operations is built into the scenarios of all our major exercises. The 1-39 FAR, the Army's only airborne 155-mm battalion, successfully completed a rigorous ARTEP in December 1993. Additionally, the 18th Brigade's battalions also conducted many

CALFEXs with the 82d Airborne Division.

The 4-82 FAR supported both heavy and air assault divisions with artillery fires in an ARTEP also administered in December. The ARTEP was immediately followed by a JRTC rotation with the 75th Ranger Regiment, marking the first time M109 howitzers supported a unit training at the JRTC; the rotation provided several lessons for 4-82 FAR and the JRTC Operations Group.

The 3-8 FAR deployed an operations and intelligence (O&I) section to the NTC with 1st Brigade, 24th Infantry Division (Mechanized) in November 1993. 3-8 FAR also served as the operational test bed for the M198 product improvement package (PIP)/service life extension program (SLEP) by providing a four-gun platoon to test airborne and air assault operations under ARTEP conditions.

On 1 June, 5-8 FAR (AAst) was granted the authority to use the parenthetical designation of Air Assault after its name. However, it's important to note that all corps artillery battalions, to include the MLRS battalion, have the expertise to conduct air assault operations. 5-8 FAR (AAst) continued its transition to air assault by sponsoring air assault and rappel masters courses at Fort Bragg. 5-8 FAR (AAst) also evaluated 4-113 FA, North Carolina ARNG, during its AT at Fort Bragg.

Fire support operations were enhanced by the XVIII Corps Artillery's role in influencing the artillery of the future. The corps artillery hosted an informative high-mobility artillery rocket system (HIMARS) demonstration in June in an effort to gain funding support for this much-needed system.

The mission of the XVIII Airborne Corps Artillery demands highly trained, superbly motivated and well-equipped soldiers. The corps artillery continues to practice its METL tasks, thereby helping to ensure the effectiveness of the nation's contingency corps. America's premiere crisis response artillery force works to make the best even better. **Fire of the Dragon!**



The XVIII Airborne Corps Artillery's 3-27 FA spits forth some of the Fire of the Dragon.

Field Artillery Training Command

Our mission is to ensure America's Field Artillery can fight and win on today's and tomorrow's battlefield. We train Army and Marine Field Artillerymen and their leaders, develop and refine warfighting doctrine and design the force of the future. And we do it all with 20/20 vision—clearly maintaining Redleg readiness today while reaching out with vision to the year 2020. We are the FA School, the FA Training Center and the NCO Academy, all at Fort Sill, Oklahoma, the home of Field Artillery, the world's center for fire support.

Readiness Today. In 1994, we trained almost 16,000 Redlegs—from initial-entry soldiers and Marines to senior NCOs and from second lieutenants to colonels about to take command. We taught them the technical, tactical and leader skills to provide fires when and where needed. And we've conducted the training with a leaner staff and tighter curriculum while maintaining the emphasis on hands-on training.

Currently, we're fielding the Paladin, the improved M109 howitzer. The Paladin makes Field Artillerymen as agile and mobile as the forces they support

and provides independence of operations and speed of responsiveness—all boiling down to greater lethality and survivability. The fielding of the M119 light 105-mm howitzer—almost complete—is also making our light artillery more mobile and agile.



Our initial fire support automation system (IFSAS)—the next digitization step for the FA—is being fielded to AC and RC units. It enhances fire direction capabilities and bridges the gap until we start fielding the advanced FA

tactical data system (AFATDS) in FY 96.

We continue to improve our Janus Simulation Center, making it one of the Army's premiere centers. Next year, we plan to connect our Janus via satellite with other Janus users, such as those at Forts Knox and Benning, for integrated exercises. In addition, we'll interface existing and developmental Field Artillery digital equipment with Janus for "hands-on" training simulations.

Our goal for today and tomorrow is to train the FA in "classrooms without walls" with the school and field units networked

together. By using telecommunication systems, such as the satellite-based teletraining network (TNET), and a mix of multimedia technologies, the FA School has taken the lead in distance learning. This year, we installed 22 TNET sites across a seven-state area, including two at Fort Sill, and have established the FA School as the regional video-teletraining hub for delivery and distribution of not only FA training, but other military training as well. We have training initiatives ongoing with other services, industry and academia to create telecommunications networks and expand military use of the information super highway.

Force of the Future. This summer, we organized Task Force 2000 in the FA School to help look out to the turn of the

century with vision—to "think outside the box" and explore initiatives for the future FA. During the next two years, TF 2000 will test fire support concepts in the "center of gravity"

Army warfighting experiments (AWEs) and the Army battle labs' projects to help design the FA and fire support for Force XXI. Examples in 1995: concept tests will be part of AWEs at Fort



Knox to digitize Brigade 96, at the JRTC to design the future light force and during Prairie Warrior at Fort Leavenworth to design the 1999 corps and division-sized 2010 mobile strike force (MSF). The overall fire support objectives are to help digitize the Army and to increase the responsiveness and simultaneity of deep and close fires while seamlessly integrating fire support planning and execution with the other battlefield operating systems.

The Depth and Simultaneous Attack (D&SA) Battle Lab at Fort Sill is developing an integrated Army concept of operations for theater missile defense (TMD). This concept, along with several advanced technologies, will be tested in a spring 1995 TMD AWE. Outcomes of the AWE will be an Army "How to Fight" manual for TMD and recommendations for future investments to counter the TMD threat.

The Lab also is working with the Joint Precision Strike Demonstration Project Office to improve the Army's sensor-to-shooter time lines in the attack of high-payoff targets. In another project, the Lab is aggressively expanding simulations to exploit our ability to participate in the virtual battlefield of the future.

From IFSAS to AFATDS and from Paladin to the advanced FA system (AFAS)—newly named Crusader—and the lightweight 155-mm howitzer under development, we're making fire support in Force XXI hair-trigger responsive and a deadly reality. Crusader, America's weapon system, will reduce the crew size needed for operation and will double the effectiveness of Paladin, leveraging new technologies—for example, regenerative liquid propellant. Crusader will be fielded in the early part of the next century.

Also under development is the Bradley FIST vehicle (BFIST), making our FISTs and COLTs more mobile and agile and indistinguishable from Bradley infantry vehicles on the same battlefield. The BFIST is incorporating the horizontal technologies of digitization, a battlefield combat identification system (BCIS), second-generation forward-looking infrared (2D Gen FLIR) and other capabilities. The FA force will start receiving BFISTs at the turn of the century.

Co-Challenges. The FA Training Command enlists the assistance of the entire FA force to meet the challenges of today while implementing our vision for the future. Your thoughts and ideas and your feedback on the "Field Artillery Vision 2020" article, also in this edition, will keep us **On Time, On Target—Today and Tomorrow.**



PVT David Light, a "fast-tracker" at the FA Training Center, opens the gunner's site to observe the colimator. (Photo by SGT Gina Baltrusch)

1st Armored Division

The Redlegs of the 1st Armored Division, Germany, take great pride in placing steel on target for America's Tank Division. The 1993 training year has been extremely challenging as well as rewarding.

In light of the emphasis on military operations other than war (OOTW), we revised our METL and re-examined our training strategy. While retaining the tasks essential for high-intensity combat operations, the Div Arty developed new gunnery, fire support and artillery tactics to comply with the OOTW concept.

We began the year preparing for and executing the BCTP Warfighter. The artillery's ability to silence the opposition's indirect fire means was unprecedented. The early employment of "Team Champion"—one MLRS battery, a Bradley security company, Stinger teams, Firefinder radar and the Div Arty



The Gunners of 2-3 FA conduct a cross-carriage fire mission during Table XII at Grafenwoehr Training Area.

assault CP—were the key to Old Ironsides' success.

The Div Arty's training continued to focus on the pillars of our training strategy: artillery maneuver, gunnery and the integration of fires. In light of the drawdown and money constraints, the Div Arty began conducting battalion TOC evaluations and CPXs to reduce the cost of exercises in MRAs. Our gunnery training program

has semi-annual live-fire densities at Grafenwoehr Training Area with smaller densities at Baumholder; we trained the integration of fires with maneuver at the CMTC. The Iron Steel gunners initiated the concept of two batteries simultaneously in the box at the CMTC. In addition, we were the first Active Component Div Arty to field the initial fire support automated system (IFSAS).

2-3 FA from Kirch-Goens, 4-29 FA from Baumholder and 6-29 FA (MLRS) from Idar-Oberstein passed all EXEVALs and rotated through the CMTC. 2-29 FA from Baumholder conducted "Homeward Bound" operations, joining the rest of 1st Armored Division's 3d Brigade at Fort Lewis, Washington.

In 1994, we'll continue our training strategy with the new OOTW conditions and tasks. **Iron Steel!**



1st Cavalry Division Artillery

The Red Team of the 1st Cavalry Division Artillery, Fort Hood, Texas, has enjoyed a banner year. Our three DS battalions of the 82d Regiment—1-82 FA, 2-82 FA and 3-82 FA, as well as A/21 FA (MLRS) and B/26 FA (TA)—all have accomplished demanding missions. Highlights include three NTC rotations, four division CPXs, a III Corps CPX and the III Corps BCTP Warfighter exercise. Additionally, 3-82 FA deployed to Montana for Operation Firefighter in August to help contain the fires in the Northwest.

The Div Arty tested and integrated new systems throughout the year. The advanced Field Artillery tactical data system (AFATDS) has been our major testing/training focus. Our efforts are designed to ensure the FA community will have a digital system capable of carrying us

into the 21st century. The palletized loading system (PLS) was fielded in the 2d Quarter, and the enhanced position location reporting system (EPLRS) was tested by Red Team soldiers in August.

NCOs of the Red Team continued to provide the leadership and training to ensure all our soldiers remained technically and tactically proficient. They organized and conducted Red Team Stakes, a comprehensive military skills and physical fitness competition between Div Arty units. This past year, the Red Team re-implemented an EXEVAL program to enhance ongoing battery/platoon STX lane programs. The EXEVAL is administered to a battalion during the preparation and train-up for its NTC rotation. Each battalion undergoes a 72-hour

NTC-like scenario and is evaluated by the Div Arty with assistance from the last unit to go to the NTC.

The Red Team also maintains readiness as units rotate through the division's ready brigade structure

and conduct EDREs and gunnery sustainment training.

The Red Team continues to ride high in the saddle, ready to provide the First Team the best fire support, whenever necessary, wherever needed. **Red Team—First Team!**

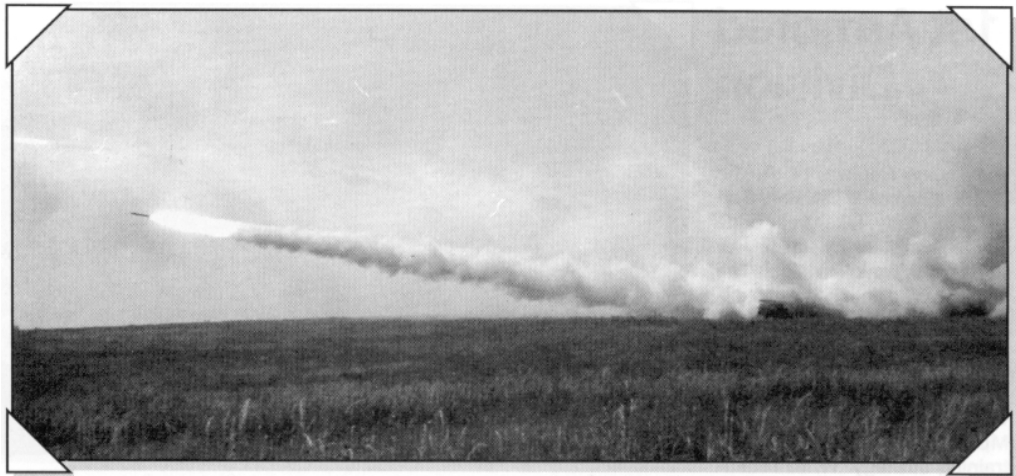


C/2-82 FA conducts tactical moves during a battalion EXEVAL in training for the NTC.

1st Infantry Division (Mechanized) Artillery

"**F**ocused on warfighting" best describes the Big Red One Div Arty, Fort Riley, Kansas. Two outstanding NTC rotations, corps and division BCTP Warfighter exercises and an Army-level operational readiness exercise validated our units' abilities to "Fight with Fires" in FY 94.

1-5 FA, 4-5 FA, B/6 FA (MLRS), D/25 FA (TAB), 12th Chemical Company and HHB Div Arty all completed rigorous section, platoon EXEVALs with exemplary results. The Div Arty massed cannon and rocket fires and synchronized attack by fires during its August live-fire exercise. DS battalions sharpened their synchronization skills with realistic situational training exercises (STXs) and computer-based simulation training. Many brigade



A Big Red One MLRS "focuses on warfighting."

battle simulation (BBS) exercises focusing on command and control, counterfire operations and tactical fire control sustained our fire support proficiency. The Big Red One devastated the world-class OPFOR with massed air and artillery during the division's BCTP. Highly effective counterfire from the 75th FA Brigade, III Corps Arty, coupled with synchronized close support fires and

aggressive deep attacks with artillery and attack helicopters, ensured a decisive victory.

Drumfire soldiers helped 1-178 FA (South Carolina ARNG), transition to a 3x8 configuration and evaluated platoon operations during AT. The *True and Tried* battalion demonstrated exceptional firing skills.

In FY 95, fielding the palletized loading system (PLS), the initial fire support

automation system (IFSAS) and HMMWV-based COLTs will begin a new era in fire control, resupply and fire support operations. Company FSOs and NCOs are aggressively developing realistic and demanding STXs that train fire support coordination on a mobile battlefield and the attack by mass fires of moving enemy formations.

Soldiers of Drumfire Artillery are ready to fight and win our nation's wars. **Drumfire!**



2d Armored Division Artillery

Hell's Fires blazed high in 1994 as the Redlegs of the 2d Armored Div Arty, Fort Hood, Texas, completed a year of rigorous challenges that they met with outstanding performance.

Early in 1994, the Div Arty turned in a stellar performance during the division's Warfighter exercise. BCTP O/Cs recommended adopting the 2d Armored Division's program as the doctrinal model for deep cell operations. The Div Arty achieved target effects on 78 percent of missions fired, far surpassing typical Blue Force artillery effects. Highly effective SEAD enabled the division to fly multiple cross-FLOT attack helicopter

battalion missions with minimal losses while devastating the OPFOR artillery hordes.

The Div Arty continued its tradition of quality training and evaluation for the Army National Guard. We provided a training assessment model (TAM) for the 42d Infantry Division (Mechanized) (New York, ARNG) at Fort Drum, New York, and the 3-115 FA (Tennessee ARNG) at Camp Shelby, Mississippi. 1-14 FA

supported our round-out 1-141 FA (Louisiana ARNG) at its AT at Fort Polk, Louisiana.

The NTC sizzled in August as 1-3 FA *First Gunners* excelled in support of the 1st (Tiger) Brigade and the division's aviation brigade. The battalion validated its intensive training program by shooting superbly.

9-1 FA *Deep Strike* excelled during many training events. Early in the year, A/92 FA (MLRS) deployed to White Sands Missile Range, New Mexico, and fired an ATACMS. After a radar upgrade, H/25 FA (TAB) deployed to the NTC in August and again in November to support both DS battalion rotations.

Hell's Fires erupted at the NTC in November as 1-14 FA deployed to support both our cavalry squadron and the 2d (St. Lo) Brigade. Despite an unconventional mission, the *Steel Warriors* pounded the OPFOR with unrelenting fury.

Outstanding accomplishments characterized the second year of the reborn Hell on Wheels Artillery. The 2d Armored Division Artillery stands ready to annihilate any opponent with **Hell's Fires!**



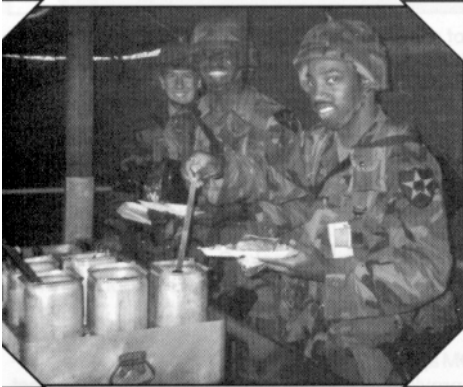
The 1-3 FA preparing to fire during Hipshoot, EXEVAL, May 94. (Photo by SGT Gregory Davis)

2d Infantry Division Artillery

The world focused on the Korean peninsula this year with North Korea prohibiting nuclear inspections and the uncertainty following the death of Kim Il Sung. Despite the debate on the possible outcome from these events, the most forward-deployed Div Arty



6-37 FA live-fires at Cholmae Sea Range.



Soldiers from the 2d Div Arty HHB enjoy a meal in the field

in the world—*Second to None*—remained decisively oriented on its mission to support the Warrior Division and our Republic of Korea (ROK) allies.

Interoperability with our fellow ROK Army Redlegs was one cornerstone of our efforts this year; battle plans were integrated to a degree never before tried.

Joint exercises with the ROK Artillery validated TTP for a synchronized combined fight.

Tough, realistic training kept our fire supporters' skills sharp. Units participated in an Eighth Army CPX, a division CPX, a BCTP and two division terrain walks. The 6-37 FA (+) (MLRS) conducted two live-fires and a rigorous two-week Warsteed evaluation to exercise the division's counterfire force.

The 8-8 FA and 1-15 FA sharpened their synchronization skills DS to their maneuver brigades or designated task forces. They culminated the year by

performing superbly in their own Warsteed—also contributing significantly to their brigades' success. The F/26 FA (TA) observed every round fired in the division artillery this year and gave many capabilities demonstrations to senior military and government officials.

The Div Arty conducted an extremely successful safety program for live-fire and driver certification. Enhanced leader development, awareness and participation in the safety process significantly contributed to the successful firing of 9,000 safe rounds into an impact area the size of one grid square.

This year saw dynamic changes in the Div Arty. All three battalions and both separate batteries changed commanders; also, 8-8 FA moved to Camp Hovey and 6-37 FA to Camp Stanley.

A higher percentage of artillerymen are being assigned to Korea than ever before. These professionals will find their year of service and sacrifice fast-paced and rewarding as they work hard and stand ready to provide **Warrior Thunder**.



3d Infantry Division (Mechanized) Artillery

"**M**arne Thunder" in Germany continued to "Fulfill its Mission" of excellence during a dynamic year of tough and demanding training.

After the 6-1 FA performed its final "Fire Mission" to drawdown in January, this year's training began with the Div Arty's support of 1st Armored Division's Warfighter (BCTP) followed by a Grafenwoehr Training Area (GTA) density in January and February. While hosting exchange officers from Hungary, all three battalions trained, and the Div Arty evaluated the gunnery and fire support skills of 5-41 FA (M109) during its EXEVAL. During mass fire exercises, 2-14 FA (MLRS) fired the first reduced-range practice rockets (RRPR) ever fired in USAREUR. The Div Arty also

conducted Operation Firestarter a maneuver-shooter exercise with elements of 3-1 FA.

In June, the Div Arty Headquarters, in support of Task Force Fox Green, planned, prepared and conducted the Airdrop Ceremony in Ste. Mere Eglise in commemoration of the 50th Anniversary of the Invasion of Normandy. 2-14 FA's salute battery had the unique honor of firing the Presidential salute during the 6 June ceremony at Utah Beach.

The year also saw more serious discussions and planning for the challenging role of artillery during operations other than war (OOTW). In the July Grafenwoehr density and CMTC rotations, 5-41 FA and 3-1 FA tackled the special problems of peacekeeping, peacemaking

and peace-enforcing operations. Additionally, selected Div Arty personnel

took part in Peacekeeper 94, an OOTW exercise in Russia with the 3d Division's Russian partnership division.

The second half of the year brought demanding simulation center exercises, such as Caravan Guard and Atlantic Resolve,

the fielding of the initial fire support automation system (IFSAS) and another CMTC rotation.

The "Rock of the Marne" Div Arty closes this challenging year with pride in knowing that our soldiers "Fulfilled their Missions" with high standards while providing lethal fires in support of the 3d Infantry Division (Mechanized). **Marne Thunder!**



Redlegs from 5-41 FA load a Copperhead round during exercises at Grafenwoehr Training Area in July.

4th Infantry Division (Mechanized) Artillery

The 4th Infantry Division (Mechanized) Artillery, Fort Carson, Colorado, had another very active and successful year. It began with the deployment of both the 3-29 FA *Pacesetters* and 5-29 FA *Eagles* to the NTC to provide timely and accurate fires. The year ended with another NTC rotation executed by 5-29 FA and 1-17 FA, 75th FA Brigade, III Corps Arty out of Fort Sill, Oklahoma. Each rotation provided valuable fire support coordination training to the 4th Div Arty.

The highlight of the year was the division's BCTP Warfighter in April. The division excelled against the world-class OPFOR, primarily due to the devastating firepower coordinated by the Div Arty. The 4th Div Arty, reinforced by the 17th FA Brigade, also of



The instrument of death—a 4th Div Arty tube—reaches out of a camouflaged position at the NTC.

III Corps Arty, repeatedly delivered crushing blows to the OPFOR.

The Div Arty continued its support to the National Guard when 3-29 FA executed the Bold Shift mission for our round-out 1-148 FA *Scorpions* (Idaho ARNG) at Fort Carson in July. We also supported the training of the 169th FA Brigade (Colorado ARNG) at Fort Carson and the 38th Infantry Div Arty (Indiana ARNG) at Camp Atterbury,

Indiana, and Camp Grayling, Michigan.

A/26 FA (TA) *Firefinders* executed a three-week deployment exercise in July that tested its ability to prepare for and deploy by rail, sea and road. The deployment was a complete success and the highlight of the division's training this year.

The division is awaiting FORSCOM approval to form a provisional FA battalion to be designated 1st Battalion,

29th Field Artillery (Provisional). If approved, the battalion will form on 15 December and consist of HHB, Div Arty; A/26 FA (TA); C/10 FA (MLRS); 31 Chemical Company (Divisional); and 172 Chemical Company (Smoke Generation). It's fantastic having 1-29 FA coming back into the Div Arty.

The soldiers of the Div Arty continue to perform magnificently as part of one of the best divisions in the United States Army. ***Iron Gunners!***



10th Mountain Division (Light Infantry) Artillery

The 10th Mountain Division Artillery, Fort Drum, New York, continued support of combat operations in Somalia that began in December 1992. FISTers from 2-7 FA as well as other members of the 10th Div Arty participated as part of the quick reaction force for the Ranger operation during the 3-4 October battle. 1-7 FA and 2-7 FA Q-36 radar sections controlled by the 10th TA Detachment continued their invaluable warnings of hostile mortar fire and the locations of mortars.

In the days that followed 3-4 October, the division FSE answered the call and deployed to Somalia to form the Joint Task Force Somalia fire support coordination center. In addition, FISTers from 1-7 FA deployed with their maneuver battalion as part of the significant increase

of US presence in Somalia. Operation Continue Hope ended as the last Div Arty soldier departed Somalia in late March 1994.

1-7 FA spent the winter preparing for a JRTC rotation. The *King of the Mountain* did very well and learned the most important lesson: "Winning is

Learning." 2-7 FA *Guns of Glory* executed a series of battery EXEVALS to determine its level of readiness and participated in the 1st Infantry Division (Mechanized) Warfighter exercise at Fort Riley, Kansas. All these activities validated the battalions' training strategies and ability to put steel on target on time.

The remainder of the year included a visit by Chief of Field Artillery, Major General John A. Dubia, from Fort Sill, Oklahoma; 2-7 FA's

support of West Point cadet summer training; and new equipment fieldings of the forward entry device (FED), meteorological measuring system (MMS), light tactical fire direction system (LTACFIRE) Version 10 software, single-channel ground and airborne radio

system (SINCGARS) and the M119 light howitzer.

The Redlegs of the 10th Mountain Div Arty continue to demonstrate their expertise in the conduct of operations other than war. As such, they deployed in support of Operation Uphold Democracy in Haiti. ***Mountain Thunder!***



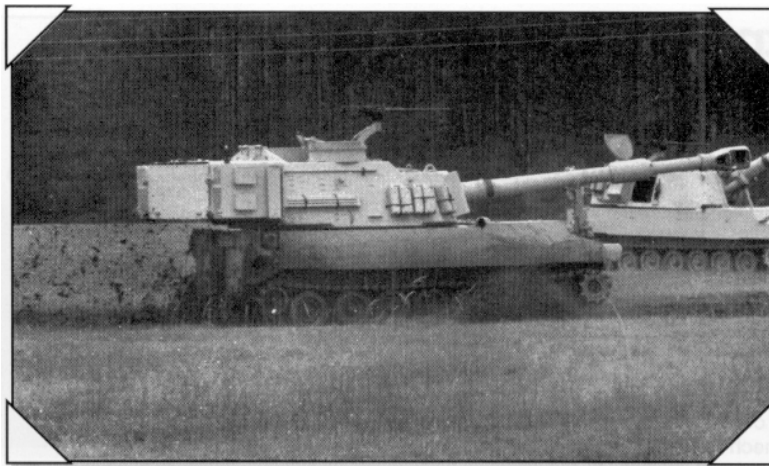
The 2-7 FA Regiment "Guns of Glory" in action.

24th Infantry Division (Mechanized) Artillery

The Redlegs of the 24th Division (Mechanized) Artillery at Fort Stewart, Georgia, can proudly claim the title of being the most modern, lethal direct support (DS) artillery in the world.

During the past year, the 24th Division Artillery has fielded the initial fire support automation system (IFSAS), M109A6 Paladin howitzer, M992A1/A2 Field Artillery ammunition support vehicle (FAASV) and palletized loading system (PLS). These new systems, coupled with future force modernization, will maintain the 24th Division Artillery as the premiere heavy division artillery in the world.

The mission of the 24th Division Artillery remains to deploy to a contingency area by air, sea and land and provide fire support for mobile, combined arms



An M109A6 Paladin moves across Evans Field, Fort Stewart, with an M109A2 in the background. The Paladin formally replaced the M109A2 during the handoff ceremony on 17 June 94.

offensive and defensive operations worldwide. This mission was accomplished more than once this past year: first with the deployment of C Battery, 3d Battalion, 41st Field Artillery to Egypt in support of Operation Bright Star and then with the deployment of C Battery, 1st Battalion, 41st Field Artillery and fire support

elements of 3d Battalion, 41st Field Artillery to Mogadishu, Somalia, in support of Operation Continue Hope. In July 1994, A Battery, 4th Battalion, 41st Field Artillery deployed to Kuwait in support of Operation Intrinsic Action. Then in October, 1-41 FA deployed to Kuwait in Operation Vigilant Warrior, prepared to defend

the country against the Iraqi's latest military threats.

Also, the 24th Div Arty's focus on force projection continued with CPXs, EDREs and MAPEXs oriented toward warfighting to include performing its nonstandard mission of deploying other divisional assets in the absence of the Corps Support Group. Finally, the 24th Div Arty answered the call again by sending members of Headquarters and Headquarters Battery, 3d Battalion, 41st Field Artillery, to Haiti in support of Operation Uphold Democracy.

These operations, coupled with many rotations to the National Training Center at Fort Irwin, California, and participation in advanced warfighting experiments (AWEs), demonstrate the ability of the Victory Division Artillery to deploy and conduct sustained combat operations in response to worldwide contingency operations. **First to Fight!**



25th Infantry Division (Light) Artillery

The 25th Infantry Division (Light) Artillery *Tropic Thunder*, headquartered at Schofield Barracks, Hawaii, has once again proven we are trained and ready to deploy anywhere, at any time in defense of our national interests within the Pacific Rim. Battle-focused, mission-essential task list (METL)-based training on critical battle tasks formed the foundation of our 1994 training plan.

In the past 12 months, Tropic Thunder units were deployed worldwide, validating our deployment, warfighting and fire support skills: JRTC rotations, live-fire exercises at the Pohakuloa Training Area on the Island of Hawaii, exercises and exchanges with the Australian Army and exercises Team Spirit and Ulchi Focus Lens in Korea,

Orient Shield and Yama Sakura in Japan and Cobra Gold in Thailand—some of the many opportunities for Tropic Thunder Redlegs to excel.

The Div Arty routinely exercised its deployment modules during division emergency deployment readiness exercises (EDREs), integrating both direct support (DS) and general support

(GS) Field Artillery units.

Active participation in the division's Lightning Thrust Brigade external evaluation (EXEVAL) program and a robust division command post exercise (CPX) program allows us to maintain "the edge" in our deployment and fire support skills.

The Div Arty integrated new combat systems throughout the

year, the most significant being the fielding of the M119A1 howitzer in the DS battalions and the fielding of the MK19 grenade launcher, the precision lightweight global positioning system receiver (PLGR) and a chemical agent monitor.

Tropic Thunder Redlegs close out the year proud of our accomplishments and ready to tackle the challenges of the future. **HOOAH—Tropic Thunder!**



A1-8 FA conducts air assault operations at Pohakuloa Training Area on the island of Hawaii. (Photo by SGT Juan Contenas)

28th Infantry Division (Mechanized) Artillery



All four FA battalions of the 28th Div Arty (Mech) have transitioned to M109A5 self-propelled howitzers.

The 28th Keystone Division Artillery (Pennsylvania ARNG) continued to focus on the modernization of the Field Artillery this year, supporting the division's conversion from infantry to mechanized infantry.

The 1-109 FA in Wilkes-Barre conducted lane training at Fort Pickett, Virginia, to support its ongoing transition to M109 howitzers, while the 1-229 FA in New Castle did the same at Fort Indiantown Gap.

Two other battalions took the first steps in making M109 their new weapons system. The 1-108 FA in Carlisle began to convert from the M110 howitzer and the 1-107 FA in Pittsburgh began progressing from the M198 howitzer.

The members of the 28th Division Artillery displayed their

dedication and service to the state by activating four times for snow emergency relief in 1994. Soldiers on state active duty helped transport patients and medical personnel to and from hospitals, assisted the state police in road rescue operations and helped the Pennsylvania Department of Transportation haul salt across the state.

The 28th Division Artillery also was instrumental in the

creation of a three-credit-hour Field Artillery course developed in conjunction with Lebanon Valley College in Annville. The course is believed to be the first of its kind offered in the country. It was established as a result of the Division Artillery's three-year affiliation with the college's physics class taught by Professor Michael Day.

The soldiers of the 28th Division Artillery credit much of

our success to the continued support of the 24th Infantry Division (Mechanized) Artillery out of Fort Stewart, Georgia, the Readiness Groups from Fort Indiantown Gap and Pittsburgh and the Family Support Group for their commitment to our training.

As we strive to stay on top and seek out new challenges, the 28th Infantry Division (Mechanized) Redlegs remain **Charged to Excellence!**



29th Infantry Division (Light) Artillery

Training Year 1994 consisted of a myriad of exercises at various locations for the 29th Div Arty (Virginia and Maryland ARNG). The emphasis was on combined arms training and joint live-fire exercises with the Navy, Marines and Air National Guard. The Div Arty FSE honed its warfighting skills by participating in two Army training battle simulation system (ARTBASS) and two brigade command battle staff training (BCBST) exercises. In addition, we participated in the 29th Division's annual CPX. The Div Arty fielded Version 10 software for its LTACFIRE BCTs and forward entry devices (FEDs). The FDCs also received their lightweight computer units (LCUs). Consequently, digital communications received training priority,

thereby improving information flow.

We participated in many community and commemorative events; unit representatives went to Normandy for the 50th anniversary of the invasion while each subordinate unit participated in one of the country's largest reenactments at Fort Story, Virginia.

In preparation for its JRTC rotation, the 2-111 FA (Virginia) trained with the 2d Brigade Task Force. The JRTC rotation effectively assessed the unit's state of training and provided a sound foundation for future training plans.

The 1-246 FA (Virginia) participated in a BCBST exercise and provided fire support personnel for both an NTC and JRTC rotation. An aggressive LTACFIRE sustainment training program increased the unit's level of proficiency.

The 2-110 FA (Maryland) participated in a BCBST exercise with the 3d Brigade. The battalion continued to focus training on LTACFIRE/digital communications. In addition, it has taken a "proactive" role in junior leader development and strength management

for future federal/state missions.

Our GS E/111th FA (Virginia) conducted six live-fire events, which included two combined arms live-fire exercises. The 129th FA Det (TA) (Virginia) completed its most successful training

year since its reorganization with both Q37 radars operating at 98 percent.

Combat skills and digital comms are our watchwords here at the 29th Division Artillery, supporting the only Reserve Component light division in the US Army. **We stand ready!**



The 29th (HHB) Div Arty conducts sling-load operations with the 2-224 Aviation, Fort Pickett, Virginia.

34th Infantry Division (Mechanized) Artillery

The 34th Red Bull Artillery (Minnesota, Iowa and Illinois ARNG) completed aggressive annual training that culminated in a highly successful Warfighter exercise.

All three DS battalions completed the fielding of the M102 howitzer. All battalions fielded the lightweight computer unit (LCU) and the gun display unit (GDU) to complete their modernization. TY 95 will focus on the fielding of the initial fire support automation system (IFSAS). This system will link us digitally with the Active Component's automated fire direction systems. All four battalions will complete the fielding of IFSAS during July and August 95 AT at Camp Ripley, Minnesota.

The 1-125 FA (Minnesota) trained on the M102 howitzer

through the year and completed the artillery tables with a series of lanes. The battalion staff and fire support detachment supported Army training battle simulation system (ARTBASS) training and many maneuver exercises this year.

The 1-151st FA (Minnesota) completed a year of individual and section training leading to an AT period in which they conducted lane training for low-density MOS and a 48-hour firing battery lane evaluation.

The 1-194 FA (Iowa) used its successful SEE from TY 93 as the basis for its TY 94 program that focused on leader/section validations, artillery tables and lane training. Its AT at Camp Ripley included air assault operations, gunnery validations, lane training direct fire and assault fire operations.

The 2-123 FA (Illinois) conducted Artillery Table VII with evaluators from the 34th Div Arty. The battalion fire support personnel supported the 66th Infantry Brigade situational training exercise (STX) and the brigade's mortar LFXs. They also controlled



C/1-125 FA prepares for action during training at Fort Ripley, Minnesota.

A-10 and F-16 aircraft CAS during AT.

The Div Arty and E/151 FA Target Acquisition (TA) supported the battalion's AT periods and participated in the 34th Division's BCTP Warfighter

exercise at Fort Leavenworth, Kansas, in August.

The 34th Red Bull Artillery stands ready to accept new challenges as it moves into the age of automated fire support, always ready to **Attack, Attack, Attack!**

35th Infantry Division (Mechanized) Artillery

For the units of the 35th Div Arty, headquartered in Kansas as part of the ARNG, 1994 was another successful year. The major training

triumph was the successful fielding of the initial fire support automation system (IFSAS). Fielding began in May with two of our DS battalions; 2d Battalion, 138 Field Artillery of the Kentucky ARNG received new equipment training (NET) at Fort Campbell, Kentucky, and 1st Battalion, 168 Field Artillery of the Nebraska ARNG conducted NET at Camp Guernsey, Wyoming. The remaining Div Arty units—1st, Battalion, 127th Field Artillery (DS), 1st Battalion, 161st Field Artillery (GS) and HHB Div Arty—had NET at Fort Sill, Oklahoma, in July. For the first time in recent memory, Reserve Component units have state-of-the-art equipment concurrent with or, in some instances, prior to fielding of the same equipment in Active Component units. There's now a digital communications



link with in the entire gunnery chain—the speed with which steel can be brought to bear on the target is unprecedented.

Additionally, the process by which fires are called and approved through the fire support channels before reaching the firing unit is enhanced.

In addition to the IFSAS fielding, 35th Div Arty units conducted lane training. Lane evaluation/observer controller (LE/OC) validation was

accomplished in March with our counterparts from the 1st Infantry Division (Mechanized) Artillery out of Fort Riley, Kansas.

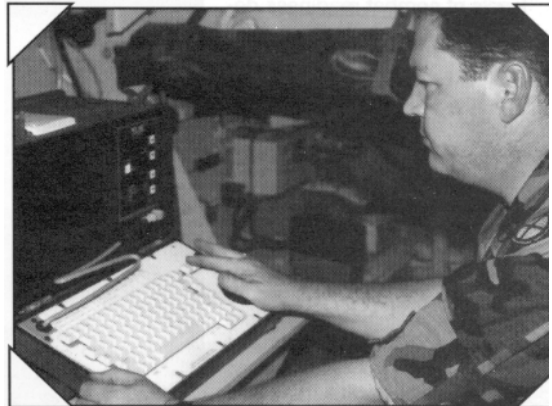
The focus was on battle tasks in fight, survive and defend lanes. Once again, this training

concept has proven valuable and has enhanced section, battery and individual soldier readiness.

The 35th Infantry Division (Mechanized) Artillery has a long, proud tradition to uphold. Ever mindful of our past, the cannoners of the 35th Div Arty look forward to the future by constantly honing their combat skills. Fire support from the 35th Div Arty always will be ready to support the **Santa Fe Division.**



A Redleg from the 1-127 FA unloads an M109A4 howitzer as part of a deployment to Fort Sill for annual training.



SFC Joel Dunn on the IFAS computer during the 35th Div Arty's CPX portion of IFSAS fielding.

38th Infantry Division Artillery

The 38th Div Arty (Indiana, Ohio and Michigan ARNG), with its headquarters in Indianapolis, participated in demanding training programs this year that focused on section and battery lane training. Our four battalions participated in AT from 11 to 25 June at Camp Atterbury, Indiana, and Camp Grayling, Michigan, with E/139 FA (TA) supporting them with its Q-36 radars. The lane training used the FA tables and culminated in the firing batteries' undergoing a 16-hour lane. In addition this year, the 38th Div Arty started reorganizing along with the 38th Infantry Division.

The 1-119 FA (Michigan), an MIOIAI howitzer battalion, conducted AT at Camp Grayling. The battalion is DS to the division's 46th Infantry Brigade.

The 1-134 FA (Ohio), an M109 howitzer battalion that came to the Div Arty this year from the

28th Infantry Division (with its headquarters part of the Pennsylvania ARNG), also went to Camp Grayling for AT, focusing on section validation. In the reorganization, the battalion is DS to the division's 37th Armor Brigade.

The 3-139 FA (Indiana), an MIOIAI howitzer battalion, conducted AT at Camp Atterbury. It will be converting to M102 howitzers in the fall of 1995. The battalion will be DS to the division's 1st Infantry Brigade.

The 1-163 FA (Indiana), an MIOIAI howitzer battalion, conducted AT at Camp Atterbury. The battalion has converted into a DS battalion for the newly formed 76th Separate Infantry Brigade (SIB) and is no longer with the Div Arty. The alignment occurred 1 September.

The 2-150 FA (Indiana), an M198/8-inch howitzer battalion,



An 8-inch gun crew of D/2-150 FA from Lebanon, Indiana, hustles to get steel on target.

also conducted AT at Camp Atterbury and is GS to the division.

This was the first year of what we hope to be a long

relationship with the 4th Infantry Division (Mechanized) from Fort Carson, Colorado. The 38th Div Arty is prepared to perform its mission as **Cyclone's Thunder**.



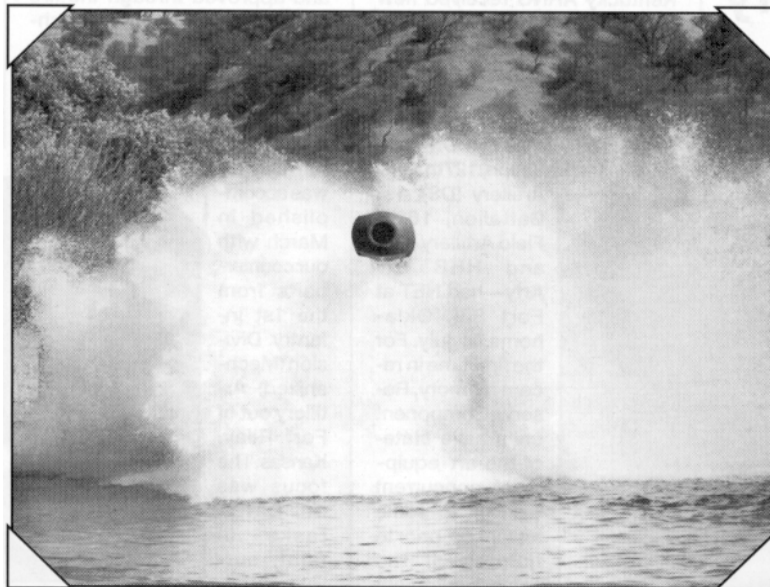
of aid bags at graduation. The 1st Battalion, 143d Field Artillery was successful in completing an EXEVAL for all five batteries, which was highlighted by a visit from the Forces Command

(FORSCOM) Commander, General Dennis J. Reimer, still and always an artilleryman. The 2d and 3d Battalions, 144th Field Artillery had a fruitful training year with the completion

of lane training and direct fire competition while integrating F Battery, 144 Field Artillery (TA) into all training events.

The Div Arty headquarters and division FSE participated in a number of FTxs and CPxs with the 40th Division Headquarters and then went on to Fort Leavenworth, Kansas, for the division's Warfighter. The Div Arty also completed fielding and validation of mobile subscriber equipment (MSE), now routinely operational throughout the Div Arty. Receiving briefings on and preparing for the fielding of and new equipment training for the initial fire support automation system (IFSAS) has kept the Div Arty staff energetically engaged. The fielding is scheduled for January 1995.

Based on the training completed in 1994 and the professionalism of our Redlegs, Training Year 1995 will be an exciting time for the **Fighting Fortieth Div Arty!**



The "business end" of C/3-144 FA's howitzer comes first during a river crossing.

40th Infantry Division (Mechanized) Artillery

The 40th Division (Mechanized) Artillery, California ARNG, headquartered in Los Angeles, continued to progress toward new levels of combat readiness despite significant efforts in support of the Los Angeles Earthquake Recovery

Operations. The focus for the Div Arty was on individual-through battery-level training, culminating in successful Field Artillery lane training by all battalions at Fort Hunter-Leggett and Camp Roberts in California.

The Div Arty concluded a yearlong 13F MOS school supported by the 2d Battalion, 144th Field Artillery and the 8-inch guns of D Battery, 144 Field Artillery, producing a significant number of MOS-qualified soldiers. In addition, the Combat Lifesaver Course was given to soldiers of all MOS, culminating in the issue

42d Infantry Division (Mechanized) Artillery



Redlegs of the 42d Div Arty train 13Bs during Training Year 94.

During 1994, the 42d Infantry Division (Mechanized) Artillery—Massachusetts, New Jersey and New York Army National Guard (ARNG)—with its headquarters in Rehoboth, Massachusetts, combined to concentrate on developing and instituting lane training for all firing and nonfiring elements.

Training year 94 was momentous because it marked the first year that the "new" 42d Division Artillery was able to function as a team. Redlegs from Headquarters and Headquarters Battery of the Division Artillery, E Battery, 101st Field Artillery (Target Acquisition) and the 1st Battalion, 101st Field Artillery (all of the Massachusetts ARNG) plus the 1st Battalion, 112th Field Artillery and the 3d Battalion, 112th Field Artillery (both of the

New Jersey ARNG) with our 1st Battalion, 258th Field Artillery (New York ARNG) continued to hone their skills, conducting innovative training during inactive duty training and AT. Training ranged from up-gunning in the 1-101 FA to conducting battalion-level training in the 1-258 FA and 1-112 FA.

The 42d Infantry Division staff, the division artillery staff and our direct support

(DS) and general support (GS) battalions participated in many staff training exercises throughout the year; the objective was to prepare for the 42d Division's battle command training program (BCTP) Warfighter exercise at Fort Leavenworth, Kansas. Training began with a two-day Army training battle simulation system (ARTBASS) program during Annual Training 93 in field

locations at Camp Edwards, Massachusetts, that focused on tactical decision making. The training progressed through a series of command post exercises (CPXs) at Fort Drum, New York, and culminated with the Warfighter exercise in July.

We have pooled the talents and capabilities of the new 42d Infantry Division (Mechanized) Artillery units to function as a team—one and all for the **Rainbow Division!**

49th Armored Division Artillery



successfully used the lightweight computer unit (LCU), improving mission speed

and accuracy; and preparations for fielding the initial fire support automation system (IFSAS) have begun.

The M109 howitzer battalions conducted live-fire exercises at Fort Hood and Fort Bliss, Texas, with the assistance of the E/133d FA (TA). The Div Arty and the battalion staffs continued to hone command and control

skills with a series of CP and TOC exercises. The division's FSE worked hard to

remain a cohesive and focused targeting team with the division chief of staff, G2 and G3. Revisions to the Div Arty tactical SOP continued as new lessons were incorporated.

Training Year 1994 at Fort Hood again witnessed the entire Div Arty operating as an integrated unit. The Div Arty participated in a highly successful

BCTP sustainment exercise—Iron Star 1994—conducted in the field and supported by the III Corps Simulation Center. As the Div Arty and battalion staffs fought Iron Star, the firing batteries conducted lane training. Merging BCTP sustainment, lane training and live-fire exercises has now become "SOP" for the Texas Artillery, making the most of every training minute.

Employer support of the Guard and Reserve was the highlight of AT. Some 50 civilian employers, local officials and members of the Texas and US House of Representatives were treated to an equipment display, meal of MREs and a live-fire demonstration by batteries of the 4-133 FA (155 SP).

C/1-171 FA, the Texas MLRS, completed its unit certification at AT in May and fired its first rockets at Fort Sill in September. The Texas battery continues to be a vital member of the Oklahoma ARNG.

As 1994 ends, the 49th Armored Div Arty trains for an uncertain future. The 49th Div Arty will continue to build upon its traditions of strength and professionalism as the **Texas Artillery!**

Training Year 94 was a year of change for the 49th Lone Star Armored Div Arty, Texas ARNG. The upgrade of M109A4 howitzers to M109A5 specifications continued; all firing batteries



C/1-171 FA fires the first rocket by a Texas MLRS during final certification at Fort Sill, Oklahoma.

82d Airborne Division Artillery

For the 82d Div Arty, Fort Bragg, North Carolina, this year was marked by substantial achievements—those accomplished in the present and commemorative of the past.

We exploited every training opportunity to train up for our BCTP Warfighter, including the XVIII Airborne Corps Artillery Dragon-fire mass-fire exercise where the division CPX coincided with corps artillery CPX/live-fire.

In March, the Div Arty massed fires for our most successful Warfighter to date. Ably assisted by the 18th FA Brigade, 1st FA Det (TA) and XVIII Airborne Corps Arty, also on Fort Bragg, the Div Arty regained the title of "greatest killer on the battlefield," with more kills than the aviation brigade.

Also this year, the Div Arty deployed its three DS battalions to the JRTC and had an average

of one EDRE per month. We deployed our headquarters battery and one battalion to Camp Lejeune, North Carolina, for the USA Command Agile Provider. Then we deployed a number of Redlegs to commemorate the 50th Anniversary of D-Day and reenact the parachute assault into Normandy during the invasion: Operation Neptune—the air drop portion of Overlord.

In August, we fielded the precision lightweight GPS receiver (PLGR), AN/PVS-7B night-vision glasses and the improved single-channel ground and airborne radio system (SINCGARS). In August, we also refined the fire support and FA support plans for operations as part of the 82d Airborne Division Task Force troop-listed against Operation Uphold Democracy, the invasion of Haiti.

Our troopers commemorated Operation



A howitzer is de-rigged and all troopers "stand-in" to get the piece off the platform.

Market Garden, the 1944 airborne invasion of Holland, in September. Afterwards, we chuted up for the invasion of Haiti. Although our FSEs, FISTs and B/3-319 AFAR were airborne, the threat of the division's commitment tipped the scales during the

US-Haiti negotiations, and the invasion was called off.

Our troopers have a heritage of courage and commitment stretching from 1944 to 1994; no matter how much the world may appear to change, the Field Artillery remains *Ultima Regio Belli*—the last argument of Kings. **Airborne!**



101st Airborne Division (Air Assault) Artillery

During the past year, the 101st Division Artillery, Fort Campbell, Kentucky, participated in many internal and external training

events. All of these events focused on continuing to improve the Div Arty's ability to provide accurate and responsive fires in support of the Army's only Air Assault Division.

In January, the Div Arty participated in the division's BCTP Warfighter, Eagle Destiny. The success of the division's Air Assault operations during Eagle Destiny were directly attributable to the effectiveness of the targeting cell's ability to synchronize all fire support assets. This training enhanced the 101st's ability to set the conditions for air assault operations in any contingency scenario.

The Div Arty continued to maintain a high operational tempo in both training and readiness exercises, to include the continuation of Eagle Fires IV. This is an exercise focused on evaluating our DS battalions' abilities to execute their gunnery skills.

Our 1st Battalion participated in two deployments to the JRTC, one in March (94-05) and one in November (95-02). Additionally, in May, the 1st Battalion deployed one battery to Fort Chaffee for Operation Agile Provider.

Our 2d Battalion also participated in two successful deployments to the JRTC, one in May (94-07) and another in September (94-10).

During the month of May, our 3d Battalion deployed to the NTC and participated in the first light/heavy rotation with the emphasis on air assault tactics.

New equipment and improvements to the Div Arty included the modification and upgrade of the Q-36 Firefinder system

and the introduction of Version 10 software to the battery computer system (BCS), forward entry device (FED) and LTACFIRE. These improvements upgraded the Q-36's air assault capabilities and our fire direction capabilities.

As the year progresses, the Redlegs of the Screaming Eagle Division continue to train hard and stand ready to deploy worldwide in its next rendezvous with destiny. **Guns of Glory!**



A 101st Div Arty howitzer moves out on a mission.



Redlegs of the 1-320 FA conduct advance party procedures.

10th Marine Regiment

At 80 years old—the oldest artillery regiment in the USMC—the 10th Marines from Camp Lejeune, North Carolina, deployed and trained in Alaska, the Mediterranean Sea, Okinawa and the Caribbean this year. While deployed with the 22d, 24th and 26th Marine Expeditionary Units, our units participated in contingencies in Bosnia, Somalia and Haiti.

10th Marines conducted extensive joint training in FY 94. In October 1993, the 10th Marines participated in Dragonfire with the XVIII Airborne Corps Artillery at Fort Bragg, North Carolina. In early 1994, the 1st Battalion traveled to Fort Wainwright, Alaska, as part of Operation Northern Edge, while the 2d Battalion traveled to Fort Campbell, Kentucky, with the 6th Marines to participate in BCTP.



A 10th Marine's M198 howitzer and its prime mover on the tarmac ready to deploy in a contingency.

During January and February, the 3d Battalion supported CAX 3/4-94 at the Marine Corps Air Ground Combat Center (MCAGCC) while the regiment, along with a contingent of 4/14 Marines prepared for and deployed to Fort Bragg for a firing exercise in March. In April, the regiment celebrated its 80th birthday with an SNCO parade and a dining-out that included 13 former regimental commanders.

In May, the regiment

participated in Operation Agile Provider 94, a USA Command (USACOM) field exercise, while the 5th Battalion deployed to Fort Knox, Kentucky, in support of the 2d Tank Battalion. Also beginning in May, the regiment provided security forces for Haitian and Cuban migrants aboard Coast Guard and Navy ships. In June, the regimental headquarters and the 1st

Battalion combined with the 2d Light Armored Reconnaissance

Battalion to form Task Force (TF) Razorback and deployed to Fort Sill, Oklahoma, as part of an air mobility command operational readiness inspection: Operation Crisis Reach. The operation culminated with a fire support coordination exercise. In August, the 2d Battalion deployed to the MCAGCC in support of CAX 9/10-94.

10th Marines remain the 2d Marine Division's **Arm of Decision.**



11th Marine Regiment

The year 1994 has been one of intense operations for the 11th Marine Regiment—our units deployed all over the globe as part of the nation's "911" force. With its headquarters in Camp Pendleton, California, the regiment deployed Cannoneers to Somalia, Korea, Haiti, Southwest Asia, the Indian Ocean, the Persian Gulf, Australia and Japan.

The regiment supports the unit deployment program (UDP) with firing batteries deploying to Okinawa, Japan, for six-month rotations. Additionally, firing batteries deploy with either the 11th, 13th or 15th Marine Expeditionary Units every six months. In the states, Marine Cannoneers routinely deploy for training to the Chocolate Mountains near Yuma, Arizona; to the Mountain Warfare Training Center at Bridgeport, California; and to

the Mojave Desert in Twentynine Palms, California.

The capstone exercise for the 11th Marines is the semiannual desert firing exercise

(DEFIREX) at the Marine Corps Air Ground Combat Center (MCAGCC) at Twentynine

Palms—this year, conducted during March and

September. These joint exercises integrate the fires of the Army's III Corps Artillery MLRS, 14th Marines and multiple fixed-and rotary-wing USMC and joint air sorties. In each DEFIREX, more than 13,000 rounds and 108 MLRS practice rockets were fired.

On 22 April, former President Richard M. Nixon passed away; on 27 April, the Redlegs of R/5/11 Mar executed two flawless 21-gun salutes for the former President's funeral.

On 31 July, the Cannon Cockers responded to a call for help by providing the command element and one battalion to fight fires in Washington State. The 11th Marines' Colonel Anthony M. Palermo commanded the 1,100-strong Task Force Wildfire that deployed to Wenatchee to aid federal fire fighters battling the out-of-control wildfire.

This year has presented many challenges and opportunities for the 11th Marines. More than ever, the 11th Marines have shown they're truly a force in readiness, able to answer any call for help, at home or abroad, as the **Cannon Cockers!**



11th Marines hump the steep mountainous terrain in Wenatchee while helping federal fire fighters battle wildfires.

12th Marine Regiment

This has been a year of dramatic challenges and change for the *Thunder and Steel Regiment* headquartered at Camp Foster on the island of Okinawa, Japan. As the corps' only forward-based, globally sourced artillery regiment, the 12th Marines remain the "Crossroads of the Marine Artillery," receiving firing batteries through the unit deployment program (UDP) from other artillery units in CONUS and Hawaii.

Throughout 1994, the regiment executed an aggressive on- and off-island exercise employment plan in support of the 3d Marine Division and III Marine Expeditionary Force. Our units deployed in support of joint and combined operations, including Freedom Banner, Ulchi Focus Lens and Team Spirit in Korea; Keen Edge and Yama Sakura in Hokaido, Japan; Forest Light on mainland Japan; Cobra Gold in Thailand; Balikatan in the Philippines;

and Operations Northern Rampart, Tempest Express, Beach Crest and a division-level command post exercise/tactical exercise without troops on Okinawa. The regiment also participated in the Saipan 50th Commemorative and the amphibious operation "Cooperation from the Sea" with the Russian Naval Infantry in Vladivostok, Russia.

The 1st Battalion, headquartered on Oahu in Hawaii, deployed batteries to Pohakuloa Training Area on Hawaii, conducted joint artillery raids with units of the 25th Infantry Division (Light) using CH-47 helicopters and provided artillery raid demonstrations for high-level representatives of the Chinese and Russian militaries.

With no lapse in our tempo or forward-deployed operational



Battery L 3/12 conducts a helicopterborne raid to Ie Shima island from Gimbaru Training Area on Okinawa.

focus, the regiment stood down the headquarters battery of our 2d Battalion in the 3d Quarter of FY 94 to comply with mandated force reductions.

Although streamlined in terms of

structure, we stand ready to face any and all challenges. At the same time, We'll maintain our central focus on the delivery of devastating fires in support of maneuver on time, on target as—*The Thunder and Steel Regiment!*



14th Marine Regiment

The 14th Marine Regiment, headquartered in Dallas, Texas, as the USMC's only Reserve artillery, continues to be the largest artillery regiment in the free world. With the 45 percent reduction of active Marine Corps tube artillery during the last few years, the 14th Marines—with its five battalions and 90 M198 howitzers—has evolved as one of the most relevant organizations in the Marine Corps Reserve. In 1994, the regiment, whose motto is "At the Ready," focused on its primary mission of augmenting and reinforcing the active regiments and seized every opportunity to train with the 10th Marines, Camp Lejeune, North Carolina, and 11th Marines, Camp Pendleton, California. The transition from GS self-propelled battalions to "generic" M198 battalions was completed for the 4th and 5th Battalions. Now all Reserve

battalions are equipped, manned and trained for each of the four standard artillery tactical missions. In March, the 1st and 5th Battalions participated in the 11th Marines' Desert Fire Exercise (DEFIREX) at Twentynine Palms, California. The 4th Battalion conducted a FIREX at Fort Knox, Kentucky, using equipment borrowed from the 10th Marines, which saved transportation costs. During the summer, the regiment conducted its annual training.

In May, the headquarters, 2d and 4th Battalions and a combat service support detachment deployed to Fort Knox. The 2d and 4th Battalions underwent successful combat readiness evaluations during this exercise. The 3d Battalion participated in CAX 7-94 and supported an amphibious training exercise at Camp Pendleton. The 1st and 5th Battalions formed an artillery groupment to support the largest ever enhanced CAX 8-94 at Twentynine Palms.

In October, the 1st Battalion participated in DEFIREX with the 11th Marines, and the 3d Battalion traveled to Fort Bragg,

North Carolina, for a regimental FIREX with the 10th Marines. Also in October, the 4th

Battalion conducted a joint total force exercise with 3-320 FA,

101st Airborne Division (Air Assault) at Fort Campbell, Kentucky.

The 14th Marines remain focused on augmenting and reinforcing the active regiments. *Fire for Effect!*



The 14th Marines train to augment and reinforce the active regiments.



Experimenting with the Army of the 21st Century

by Lieutenant Colonel James K. Greer, AR

Imagine, if you will, a division that's organized around information...one digitally connected across every battlefield operating system at every echelon so every soldier or leader has access to the exact information required to execute his battle task to standard...a division where the commander can express his intent to every one of his soldiers simultaneously and then modify that intent as the situation develops...one where sensor-to-shooter

time lines are measured in seconds rather than minutes or hours...a 21st century division with overwhelming lethality, unparalleled survivability and an unmatched, sustainable tempo of operations.

Well, such a division already exists—at least in simulation. It was formed this year, organized, equipped, trained and deployed, and it fought seven battles against corps-sized enemy formations.

The division is the Mobile Strike Force (MSF), an experimental unit with a staff of officers from the Command and General Staff College fighting this simulated 21st century division during the annual Prairie Warrior battle command training program (BCTP) exercise conducted at Fort Leavenworth, Kansas. The MSF experiment is part of the Army's campaign to design Force XXI.

The Training and Doctrine Command's (TRADOC's) intent for the MSF is to build a land combat force from the battle labs' input that uses the organization, materiel and operational concepts derived from *TRADOC Pam 525-5 Concept for Force XXI Operations* to significantly increase the lethality, survivability and tempo of land combat in the 21st century. The mission is to wargame this force in a competitive, constructive environment using leaders who will be the senior leadership in the time frame such a force might be fielded. The process should result in insights into the battlefield validity of doctrine, organization, training, leadership,

materiel and soldiers (DOTLMS) with sufficient clarity to either pursue ideas further or adjust or terminate them.

During the past two years, the Army's battle labs have been exploring areas in which battle appears to be changing rapidly and, through experimentation, indicating how the Army can enhance its capabilities in the future. We call those areas where battle appears to be changing "battle dynamics," and there are battle labs focused on each of the five battle dynamics. Among them, the Depth and Simultaneous Attack (D&SA) Battle Lab at Fort Sill, Oklahoma, has experimented with the means to extend lethality into every corner of battle space—in length, width, height and time. The D&SA Battle Lab has other significant projects that are input for the development of the MSF, including decreasing sensor-to-shooter time lines, enhancing deep operations coordination and improving intelligence analysis and coordination. These initiatives combined with those of the other battle labs are providing the materiel and procedures for the MSF.

The basis for the MSF came from *TRADOC Pam 525-5* (the conceptual frame work for the entire Force XXI design) and is that the force must have the ability to acquire, process, distribute and,

above all, use information. This concept envisions an army with information connectivity across the entire force from foxhole to factory. The connectivity produced by the "digitization" of the force and enhanced voice and data communications will significantly improve how we fight, leading to units that are more lethal, survivable and have higher tempo than ever before. Force XXI elements will not only exploit information, they'll fight to get it and keep the enemy from getting it.

MSF Operations

For the MSF experiment, the battle labs and School for Advanced Military Studies (SAMS) at Fort Leavenworth developed an operational concept. Based on this concept and the materiel and technological capabilities expected to be available in the first few decades of the 21st century, the initial experimentation version of the MSF structure was designed (see Figure 1, Page 44).

Force Design. During Prairie Warrior 94, a significant portion of the MSF experiment was devoted to learning how best to organize the future force capabilities based on operational demands. The operational concept envisions the MSF in a nonlinear environment, often without

friendly elements on either flank. Accordingly, the security forces of the MSF included both ground and air cavalry squadrons. Because brigades are expected to operate dispersed beyond mutual direct fire support, they were organized as combined arms maneuver elements that were relatively self-sufficient and 100 percent mobile. The aviation brigade was designed and staffed as a true maneuver element and also was self-sufficient in terms of combat service support (CSS).

Because of the increase in planning and coordination capabilities resulting from total information connectivity, it appears that combat support (CS) and CSS processes could be more internetted than hierarchical and, thus, more efficient. To test this theory in the 1994 Prairie Warrior exercise, the MSF operated without a division artillery, engineer brigade or division support command (DISCOM) headquarters.

Battle Command. The second main effort of the MSF experiment in Prairie Warrior 94 was to experiment with the art and science of battle command. The Battle Command Battle Lab at Fort Leavenworth sponsored an elective for the 1994 Command and General Staff College students to prepare them to play in the exercise. This elective was not only designed to examine how to conduct battle command in a 21st century division, but also to serve as a means to organize and train the staff that would fight the MSF in Prairie Warrior.

Innovative means to conduct battle command were developed and experimented with, to include organizing the headquarters into forward and main battle command support centers (BCSC) vice the traditional division tactical command post (DTAC), division main command post (DMAIN) and division rear command post (DREAR). Additionally, all division, brigade and separate battalion BCSCs were connected by live, continuous video teleconferencing as well as special digital systems for planning, intelligence, battle command, fires, terrain and space. For four months before the Prairie Warrior exercise, the more than 50 students in the elective course learned and practiced in simulation exercises the processes and skills to execute battle command of the future force.

Digitization. We gained several significant insights from the battle command effort with relevance for warfighting with future digitized forces. First, we can't simply insert technological innovations and

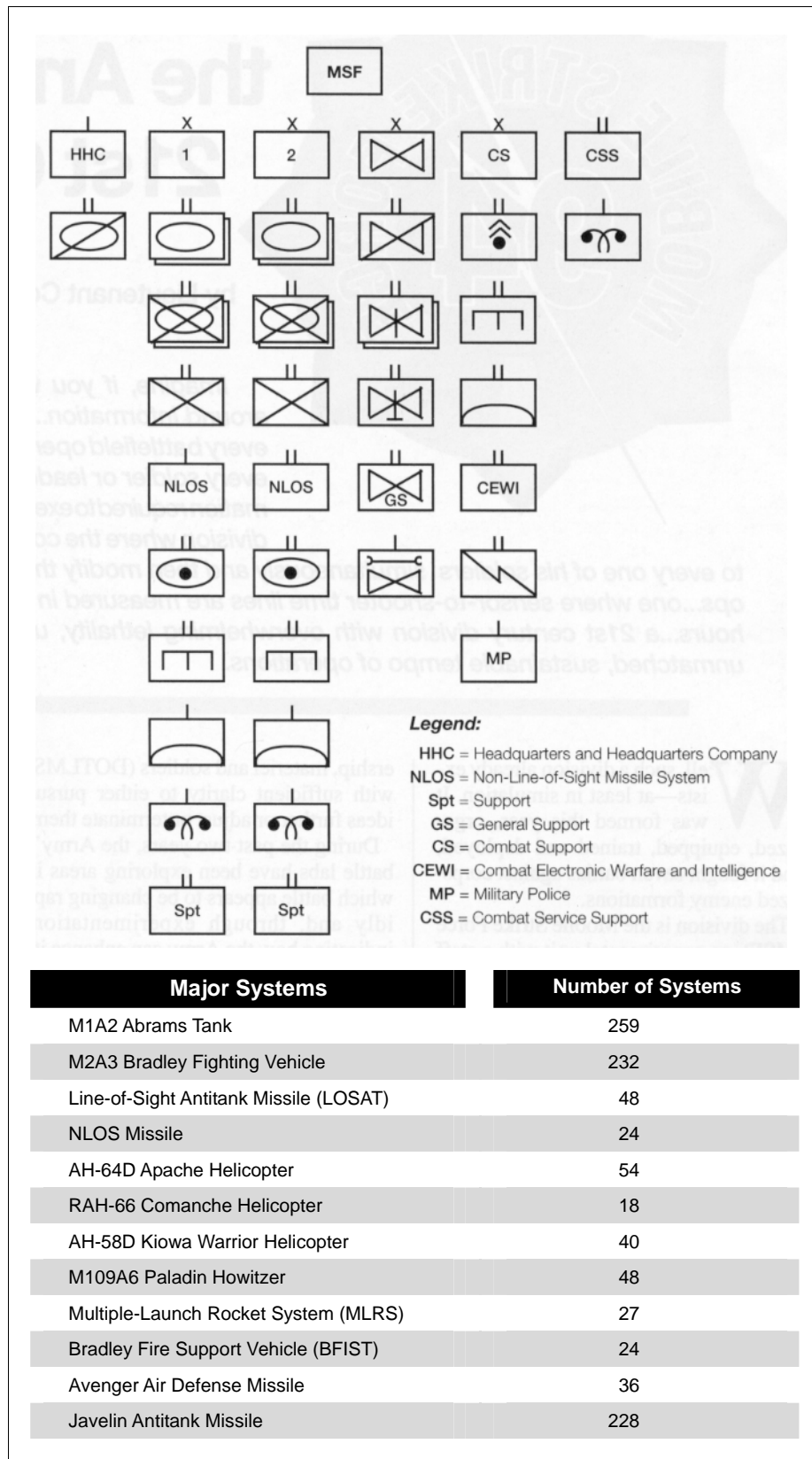


Figure 1: This was the initial Mobile Strike Force design used to begin experiments in Prairie Warrior at the Command and General Staff College in August 1994. The MSF structure was altered significantly after iterative experiments with more to come in 1995.

expect leap-aheads in warfighting capabilities. Instead, our battle command processes, such as the command estimate process, must mature along with the insertion of digital systems and connectivity. The Field Artillery experiences incorporating the tactical fire direction system (TACFIRE) into the force is an excellent example of how to proceed along that course.

Next, leader education for the future digitized force will demand far more than just computer literacy. Future leaders at all levels will have to leverage the full capabilities available through digital connectivity and processes for battle command. They must have superb technical and tactical proficiency in warfighting. Even further, they must be able to combine that proficiency with innovative approaches to take advantage of new capabilities—from mission receipt through mission accomplishment to preparing for the next fight. And one old adage still applies: understanding the limits of the various systems is at least as important as understanding their capabilities.

The MSF in the Fight

In Prairie Warrior 94, the MSF fought as the theater reserve under corps control with an exploitation mission to destroy the enemy's reserve heavy armored corps. The battle was fought within BCTP against the world-class opposing force (OPFOR).

During operations, the MSF conducted a 200-kilometer approach march, passage-of-lines, deep operations, attack and exploitation. This fight offered observers and data collectors alike a unique glimpse into the future of warfighting.

Before commitment, the aviation brigade was able to conduct a full-up rehearsal with all participants across the division using digital connectivity. This rehearsal resulted in effective suppression of enemy air defense (SEAD) missions and fires on target in support of a successful attack because the division had already fought the engagement in simulation. Additionally, planners were able to wargame various courses of action using the same digital systems they'd use for execution.

The result was cycles that significantly decreased the length of time the MSF took to make decisions. The Battle Command Decision Support System used by the MSF staff points toward the new planning and rehearsal capabilities that will be available to future commanders and staffs.

Other systems, such as the all-source analysis system (ASAS) and the space-enhanced command and control system (SPECC), increased the staff's abilities to support planning with near real-time intelligence pulling from all sources within the theater and from the continental United States (CONUS).

A significant weapons system that was added to the MSF was the non-line-of-sight missile system (NLOS), also known as enhanced fiber-optic guided missile (EFOG-M), used in both the fires and air defense roles. Innovative members of the MSF staff, those future authors of the commander's intent, found that NLOS could be subordinated to the cavalry to provide responsive, precision fires in support of fast-moving security missions. Also the staff used NLOS as a reconnaissance platform, functioning as an armed unmanned aerial vehicle (UAV).

New systems such as NLOS required innovative tactics, techniques and procedures (TTP). The staff found that mission orders and attack guidance matrixes were the best means to guide effective employment of such future systems.

One result of the Prairie Warrior experiment was to highlight the difficulties in combining digital and non-digital elements in one battle, whether joint, coalition or intra-Army. MSF capabilities were often downgraded when combined with non-digital elements. Many planning and coordination efforts required time-consuming transfer of information from analog to digital, including overlays, Army airspace command and control (A²C²) plans and fire plans. Coordination with flank units proved difficult. This is an area in which the MSF experiment reinforces the need for continued experimentation and development of innovative solutions.

The MSF operated without a division artillery. While results indicate that most fire support functions could be executed using a fire support element (FSE) with enhanced digital capabilities, the division artillery should be retained to provide force artillery battle command, provide a single source for the counterfire fight and execute the administration and logistics for fire support assets. But it would appear that digitization can produce a leaner, more effective division artillery. In later iterations of the MSF, the division artillery was added back to the structure.

After Prairie Warrior 94, the TRADOC Analysis Command (TRAC),

in conjunction with the battle labs, conducted six more iterations of the MSF battle. These iterations were used to examine other combinations of combat, CS and CSS elements within the MSF as well as other TTP. For example, variations of the MSF structure included Crusader—the new name for the advanced Field Artillery system (AFAS); up to three multiple-launch rocket system (MLRS) battalions; extended-range missiles; and future munitions, such as BAT (the brilliant antitank submunition), wide-area deep munitions (WAM) and various combinations of deep and close fires.

Force Observations

Several observations from these experiments could have profound impact on how the 21st century Army will fight.

- The first is the emphasis on *decide* of the targeting methodology of decide-detect-deliver. In current practice, the most difficult task is usually to detect the target after a decision has been made, yielding *decide-detect-deliver*. However with improved sensors, information connectivity and decreased sensor-to-shooter time lines, the difficult task will be choosing what to strike among many options. If we can find and strike almost any target we desire, the challenge then becomes *decide-detect-deliver*. This change has significant training, education and planning implications.

- A second observation is that deep-close-rear become one battlefield. If brigade, division and corps all have access to the same intelligence (whether from a scout or theater assets) and all three echelons can be task organized with Army tactical missile system (ATACMS) missiles with a future range beyond 200 kilometers, our present deep-close-rear division of the battlefield will have to be modified.

The current battlefield geometry was developed from the practical standpoint that each higher echelon could "see" and shoot farther than its subordinates. In the MSF experiments, this was no longer true. We'll have to develop a new battlefield geometry to take advantage of our emerging capabilities, perhaps a geometry that focuses on structuring the battle space based on *purpose* rather than capability.

- Self-Protection becomes more important on the nonlinear battlefield. Brigades habitually operated 75 kilometers apart, out of direct fire support but with overlapping

long-range Crusader and MLRS fires. Additionally, the division artillery often was separated from maneuver forces by an even greater distance while executing deep missions or was prepositioned forward or to a flank during MSF approach marches.

Fire support assets needed ground and (or) air cavalry elements coupled with dynamic obstacles for protection while they conducted fire support missions. "Dynamic" obstacles mean those that can be hastily emplaced and programmed to be effective against specific targets or for a certain length of time.

In addition, CSS elements moved about the battlefield without the protection of major maneuver elements. The need for CSS self-protection and expanded Military Police roles became evident the more nonlinear the battles became.

- Increased intelligence of enemy actions deep, coupled with enhanced fires and dynamic obstacle capabilities, provided new opportunities to attack the enemy at extended ranges. Better intelligence before forces made contact yielded more effective and rapid planning cycles, so the MSF could more proactively set up deep engagements. More precise terrain information with long-loiter UAVs providing a real-time view of the deep battlefield gave the commander virtually the same ability to see the deep battle that he currently has to see the close fight.

The analysis and control element (ACE) provided the capability to develop and make decisions from a coherent picture of the deep battle space. Dynamic obstacles, such as precision deep-fired wide area munitions (deep WAM) yielded a capability to "build" an engagement area at extended ranges just as we currently build engagement areas with obstacles for the close fight. With decreased sensor-to-shooter time lines, the deep engagement area could be fought real-time—just like we fight the direct fire fight today.

- Another result: increases in the brigade's depth of intelligence coverage make it significantly more effective. Currently, the brigade is almost blind between about five and 25 kilometers beyond its forward line of own troops (FLOT). Five kilometers is the limit of the ground surveillance radar, and 25 kilometers out is the range at which division and higher systems begin to focus intelligence efforts for their purposes.

In an MSF with access to all sensor

products, the brigade won't have this intelligence gap. Instead, the brigade will have ample warning to plan and posture for initial contact and to structure that fight through deep operations. The brigade commander will be able to decide how he wants to engage the enemy and structure the battlefield accordingly.

This structuring is accomplished through deep fires (such as organic NLOS) to take out specific enemy capabilities and establish the conditions for the close-in fight. Close air support (CAS) missions are enhanced by better target locations, longer warning and preparation times for air crews and dynamic obstacles (such as WAM) precisely delivered. The brigade will be able to fix the enemy with minimum forces, maneuver for quick direct fire strikes and then break contact before the enemy will be able to react. By structuring the enemy forces, the brigade becomes significantly more lethal and survivable.

- Air defense missions were conducted across the entire depth of the battle space during Prairie Warrior 94—not just over friendly elements. This was particularly important in nonlinear battles where the MSF wasn't assured of being under the corps air defense umbrella.

In addition to the early warning enhancements of digitization, the Comanche served well in an aerial air defense screen role. The MSF leaders also made good use of the deep WAM's capability to be rapidly emplaced and attack a specific target, in this case enemy helicopters as they passed over the

munitions. By firing WAM deep into chokepoints along enemy helicopter avenues of approach and then covering those with NLOS used for air defense or Comanches armed with surface-to-air missiles (SAMs), the MSF was able to defeat enemy helicopters and some fixed-wing aircraft before they became a threat to friendly ground forces.

Based on the intelligence preparation of the battlefield (IPB), WAM also was fired into likely battle positions for enemy helicopters. WAM only was activated if the enemy, in fact, occupied those positions, avoiding fratricide to friendly helicopters.

One counter-air insight gained was the need for improved stealth technology for forces with long dwell times, such as Field Artillery, command posts and CSS. Another insight was that the MSF could digitally tie into naval surface air defense assets to tap those capabilities for ground operations in a joint environment.

- Simulations revealed that when the enemy's sensors are eliminated first, the lethality and survivability of the MSF increase geometrically—the last and potentially most significant observation to be mentioned. Simply put, future warfighting will be more dependent on information than ever before. If we eliminate the enemy's capability to acquire information, we'll accomplish our mission at lower cost to our soldiers (see Figure 2).

The observations or insights resulting from the MSF experiment are too numerous to discuss all of them in this article. However, comprehensive results are in

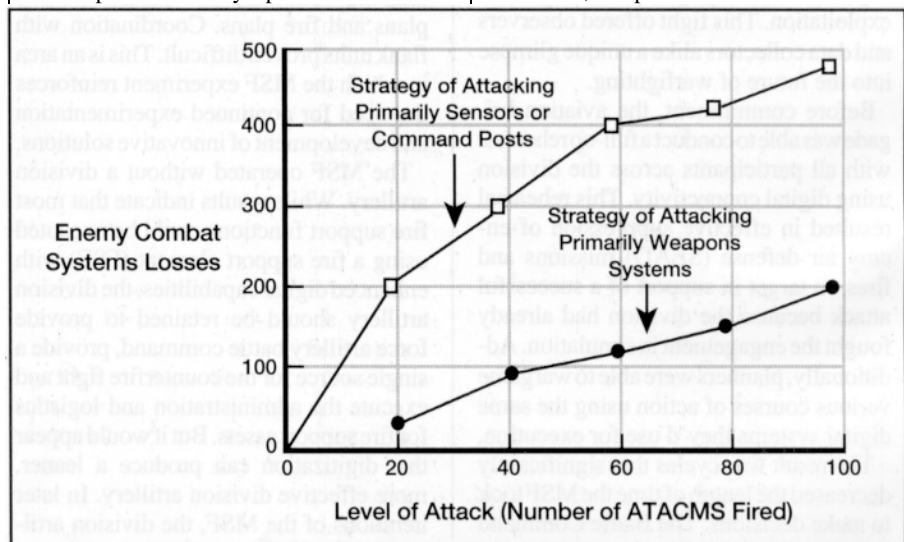


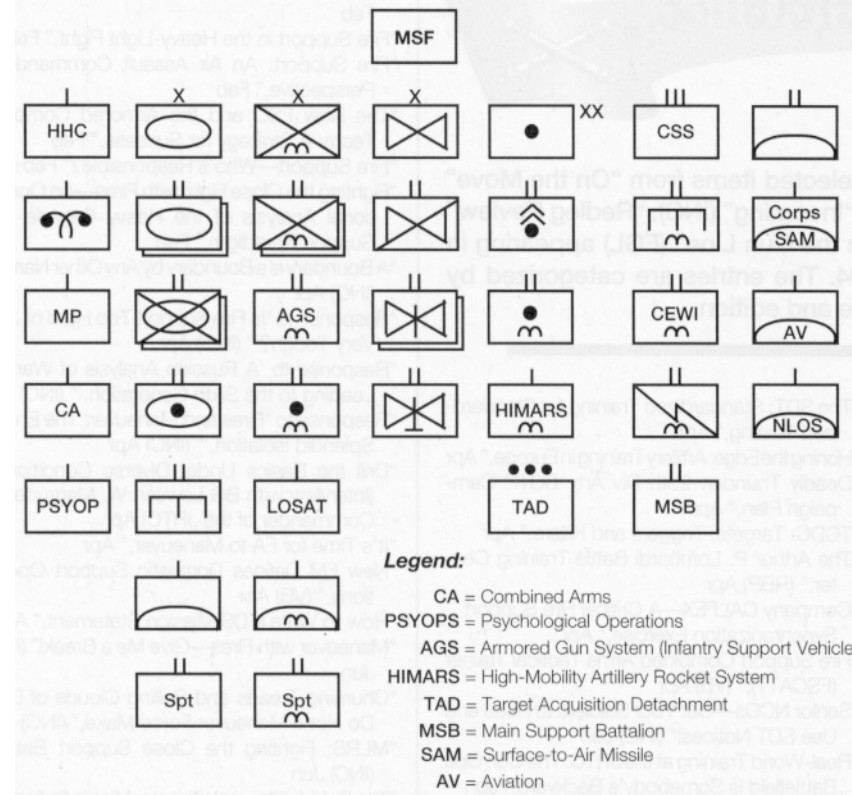
Figure 2: Simulations indicate that when you eliminate the enemy's sensors or command posts first, the lethality and survivability of the MSF increase geometrically, as shown here in this chart of Army tactical missile system (ATACMS) attacks.

Fort Leavenworth's Center for Army Lessons Learned (CALL) collection plan and observation management system (CALLCOMS); you can telephone CALL at DSN 552-2255 or 3839 or commercial (913) 684-2255 or 3859, and CALL personnel will help you access CALLCOMS' data, using your modem. As an alternate, you can contact TRAC's representative on MSF, Mr. Tim Bailey, at (913) 684-7388.

MSF 95 and Beyond

The experiments mentioned in this article are the first few steps along a long journey. Designing and learning how to fight the MSF is an iterative process that's continuing with planning for MSF 95.

The MSF design has evolved through several versions in 1994, incorporating lessons learned from experiments. In addition, the MSF design for Prairie Warrior 95 has two new requirements: deployability and lethality upon early entry (see Figure 3). These requirements link the MSF experiment with ongoing early entry force analysis and add significant warfighting challenges. This newest MSF effort will move the Army closer to our force structure for the 21st century.



Major Systems	Number of Systems
M1A3 Future Tank	116
M3A4 Future Scout Vehicle	24
M2A4 Future Infantry Fighting Vehicle	116
Crusader	24
Lightweight 155-mm Howitzer	48
MLRS	27
HIMARS	9
Corps SAM	12
LOSAT	36
AGS	58
Javelin	108
NLOS-CA	16
Avenger	36
BFIST	16
MANPADS (Man-Portable Air Defense System)	36
Comanche Helicopter	51
Apache Helicopter	30

Figure 3: After experimenting with various designs of the Mobile Strike Force in 1994, this organization has become the experimentation force for Prairie Warrior 95. This iteration of the MSF adds deployability and early entry lethality requirements to experiment with in the 1995 Prairie Warrior exercise.

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1994 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 Review" (RR), "Right by Piece" (RBP) and "From the Gun Line" (FGL) appearing in *Field Artillery* during calendar year 1994. The entries are categorized by subject and listed chronologically by title and edition.

Unit Reports

- "Fire Support in the Heavy-Light Fight," (1st IN Div Arty), Feb
- "Honing the Edge: Artillery Training in Europe," (1st AR Div Arty), Apr
- "The Arthur P. Lombardi Battle Training Center," (101st Abn Div (Air Asslt) Arty) Apr
- "Deadly Thunder: 25th Div Arty BCTP Campaign Plan," Apr
- "Dragonfire IV: Anatomy of a Fire Support Exercise," (XVIII Abn Corps Arty) Jun
- "Deploying for Victory II: The 24th Div Arty in Somalia," Aug
- "Versatility and a GS Battalion in the Close Fight," (3-8 FA, 18th FA Bde) Oct
- "Deliberate Reorganization: Reconstituting the Force," (4-82 FA, 42d FA Bde) Oct
- "DESFIREX 1-94: MLRS in USMC Operations," (6-27 FA, 75th FA Bde) Oct
- "Silhouettes of Steel," (Reports by US FA Corps Artys and Div Artys) Dec

Training

- "Fires and Maneuver: The End of Splendid Isolation," Feb
- "Bridges to the Future: I Corps—America's Corps," Feb
- "Is Fire Support Too Hard or Just Very Tough?" Feb
- "Fire Support in the Heavy-Light Fight," Feb
- "Fire Support: An Air Assault Commander's Perspective," Feb
- "The New FSO and the Armored Company Team: A Strategy for Success," Feb
- "Fire Support—Who's Responsible?" Feb
- "Azimuth Check: FAOAC Update," (VB) Feb
- "RC Officers' New FAOAC Option," (VB) Feb
- "FAOBC Enhancements," (VB) Feb
- "MLRS: The Training Gets Better," (VB) Feb
- "Training for the 21st Century," (OM) Apr
- "Response to 'Is Fire Support Too Hard or Just Very Tough?'" (INC) Apr
- "Response to 'Fires and Maneuver: The End of Splendid Isolation,'" (INC) Apr
- "Drill the Basics Under Diverse Conditions," (Interview with BG Lawson W. Magruder III, Commander of the JRTC) Apr
- "Rockin' with CSS," Apr
- "CMTC Tips for the Company/Team," Apr
- "Paladin NET Lessons for Those Who Follow," Apr
- "FATC Update: Training the Army's New Redlegs," Apr
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- "Company CALFEX—A Critical Fire Support Synchronization Exercise," Apr
- "Fire Support Combined Arms Tactical Trainer (FSCATT)," (VB) Apr
- "Senior NCOs—Get Your Soldiers to Read and Use SDT Notices!" (INC) Jun
- "Real-World Training at the JRTC: The Con Ops Battlefield is Somebody's Backyard," Jun
- "Officer Leader Development for the 21st Century," Jun
- "ARNG Battalion Transition to MLRS: Meeting the Challenges of Change through Leadership," Jun
- "Dragonfire IV: Anatomy of a Fire Support Exercise," Jun
- "USMC Fire Support Conference 1994," Aug
- "Military History Training at the Field Artillery School: A Vision for the Future," (VB) Aug
- "Paladin Cadre Course Begins at Fort Sill," (VB) Aug
- "Counterfire in the Close Fight—Are We Shortchanging Our Key Players?" (INC) Oct
- "Problems of CAS in the Post-Cold War Era," (INC) Oct
- "Versatility and a GS Battalion in the Close Fight," Oct
- "Deliberate Reorganization: Reconstituting the Force," Oct
- "DESFIREX 1-94: MLRS in USMC Operations," Oct
- "Force XXI and the Field Artillery: State of the Branch 1994," Dec
- "The Army and FA Challenges of Designing Force XXI," (Interview with GEN John H. Tilelli, Jr., Vice Chief of Staff of the Army) Dec

Doctrine and Tactics

- "A Concert of Combat: Coordination and Killer Missions," (OM) Feb
- "Air-Ground Cooperation: Response to 'The AirLand Composite Wing,'" (INC) Feb
- "Wear Your Earplugs!" (INC) Feb
- "Artillery—The Most Important Factor on the Battlefield," (Interview with LTG Barry R. McCaffrey, Director of J5 Strategic Plans and Policy, Joint Staff in Washington, DC) Feb

- "Fires and Maneuver: The End of Splendid Isolation," Feb
- "Is Fire Support Too Hard or Just Very Tough?" Feb
- "Fire Support in the Heavy-Light Fight," Feb
- "Fire Support: An Air Assault Commander's Perspective," Feb
- "The New FSO and the Armored Company Team: A Strategy for Success," Feb
- "Fire Support—Who's Responsible?" Feb
- "Fighting the Close Fight with Fires—An Operational Analysis of the Heavy Brigade Fire Support Paradigm," Feb
- "A Boundary is a Boundary by Any Other Name," (INC) Apr
- "Response to 'Is Fire Support Too Hard or Just Very Tough,'" (INC) Apr
- "Response to 'A Russian Analysis of Warfare Leading to the Sixth Generation,'" (INC) Apr
- "Response to 'Fires and Maneuver: The End of Splendid Isolation,'" (INC) Apr
- "Drill the Basics Under Diverse Conditions," (Interview with BG Lawson W. Magruder III, Commander of the JRTC) Apr
- "It's Time for FA to Maneuver," Apr
- "New FM Defines Domestic Support Operations," (VB) Apr
- "How to Write a DS Mission Statement," Apr
- "Maneuver with Fires—Give Me a Break!" (INC) Jun
- "Churning Treads and Rolling Clouds of Dust Do Not a Maneuver Force Make," (INC) Jun
- "MLRS: Fighting the Close Support Battle," (INC) Jun
- "The Field Artillery and Theater Missile Defense," Jun
- "The AFAS/FARV for Lethality, Mobility and Survivability," Jun
- "Division Targeting Cell Meetings—Are Yours Productive?" Jun
- "The Emerging National Military Strategy—Enduring Goals, Evolving Ways and Means," Jun
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- "Massing Fires—Our Enduring Imperative," (Interview with LTG (Ret) David E. Ott, Former Chief of FA and Commander of VII Corps) Aug
- "USMC Fire Support Conference 1994," Aug
- "ADOCs: An Automated Approach to Targeting," Aug
- "Beyond Doctrine: 'Pushing the Envelope' with MLRS," Aug
- "Close Battle Future," (OM) Oct
- "Problems of CAS in the Post-Cold War Era," (INC) Oct
- "Noise or Music? Orchestrating Fixed-Wing Air in the Close-In Battle," Oct
- "Synchronizing the Close Assault: The TF FSO and the Deliberate Attack," Oct
- "Fighting in Your Face—and Winning," Oct
- "Battery Defense in OOTW: How to Harden a Static Position," Oct
- "Versatility and a GS Battalion in the Close Fight," Oct
- "Copperhead: More than a Tank Killer," Oct
- "Deliberate Reorganization: Reconstituting the Force," Oct
- "Force XXI and the Field Artillery: State of the Branch 1994," Dec

"Field Artillery Vision 2020," Dec
 "Mobile Strike Force 94: Experimenting with the Army of the 21st Century," Dec
 "The Army and FA Challenges of Designing Force XXI," (Interview with GEN John H. Tilelli, Jr., Vice Chief of Staff of the Army) Dec

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 "The Targeting Production Section: 13R Contrast with 13F," Feb
 "Response to 'The Mech Company FIST...A Proposal for Reform,'" (INC) Apr
 "Observations of a CGSC Selection Board Member," Apr
 "Counseling for Excellence," (FGL) Jun
 "Redlegs Looking Forward," (OM) Aug
 "NCO Development: New DA Pamphlet 600-25," Aug
 "The Army—Bringing Order to Chaos," (Interview with SMA Richard A. Kidd) Oct
 "Fire Support and Desert Hammer VI—The Advanced Warfighting Experiment," Oct
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 "Field Artillery Assignment Branches," Dec
 "US FA Units Worldwide," (Maps of Army Active and Reserve Component and Marine Active and Reserve Units) Dec

Leadership

"Commander's Risk Management Assessment," Apr
 "The Touchstone of Army Leadership for the 21st Century," (OM) Jun
 "Counseling for Excellence," (FGL) Jun
 "Top-Down Leadership," Jun
 "Leadership XXI," (Interview with LTG John E. Miller, Deputy CG of TRADOC, CG of CAC and Fort Leavenworth, Kansas; and Commandant of CGSC) Jun
 "Leadership Versatility for Operations Other Than War," Jun
 "Trust: A Critical Factor in Leadership," Jun
 "Officer Leader Development for the 21st Century," Jun
 "ARNG Battalion Transition to MLRS: Meeting the Challenges of Change through Leadership," Jun
 "Force XXI and the Field Artillery: State of the Branch 1994," Dec

History

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 "On the Mark—Give or Take Seven Million," (INC) Aug
 "Massing Fires—Our Enduring Imperative," (Interview with LTG (Ret) David E. Ott, Former Chief of FA and CG of VII Corps) Aug
 "To Teach a Man to Shoot: Dan T. Moore and the School of Fire, 1909-1914," Aug
 "Testing the Principles of Fire Support: The Meuse-Argonne Offensive of 1918," Aug
 "WWII: Artillery in a Jungle Environment," Aug
 "An Artilleryman's Guide Through the History of Combined Arms Warfare," Aug
 "The Myth of Destruction: Artillery in the Great War," Aug
 "Military History Training at the Field Artillery School: A Vision for the Future," (VB) Aug

Equipment and Technology

"When You Get M119s, Just What Happens to the M102s?" (INC) Feb
 "Video Imaging Projectiles for Future Battlefields," Feb
 "Paladin NET Lessons for Those Who Follow," Apr
 "FDDM Fielding," (VB) Apr
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 "Video Imaging Projectiles—An Idea Whose Time Has Come," (INC) Oct
 "MLRS in Low-Intensity Conflict," Oct
 "The Bradley Fire Support Vehicle," Oct
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 "DEFIREX 1-94: MLRS in USMC Operations," Oct
 "The Army and FA Challenges of Designing Force XXI," (Interview with GEN John H. Tilelli, Jr., Vice Chief of Staff of the Army) Dec

Contingency Operations

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 "Certain Victory: The US Army in the Gulf War," (RR) Feb
 "Leadership Versatility for Operations Other Than War," Jun
 "Real-World Training at the JRTC: The Con Ops Battlefield is Somebody's Backyard," Jun
 "Deploying for Victory II: The 24th Div Arty in Somalia," Aug
 "LNOing United Nations Style," Aug
 "The Army—Bringing Order to Chaos," (Interview with SMA Richard A. Kidd) Oct
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