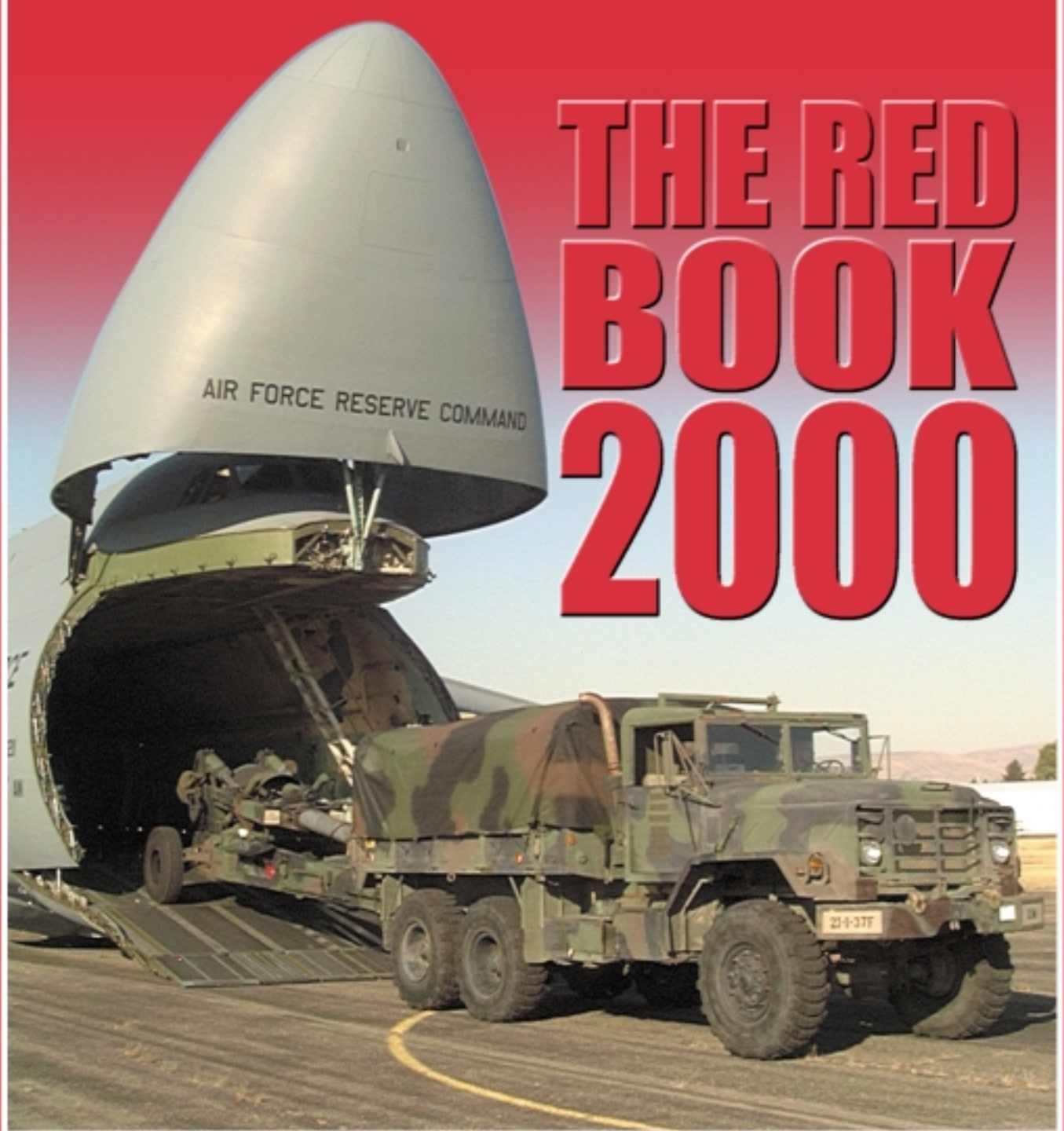


# **Field Artillery**

*A Professional Bulletin for Redlegs*

November-December 2000



Approved for public release; distribution is unlimited.

HQDA PB6-00-6

# Field Artillery

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**Front Cover:** An M198 from C/1-37 FA, part of the Initial Brigade Combat Team (IBCT) out of Fort Lewis, Washington, off loads at Yakima Training Center in Operation Striker Dawn. The deployment marks the first tactical airlift of an IBCT unit. In December 1-37 FA will field the medium tactical vehicle (MTV) to replace the five-ton prime mover shown on the cover.

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**PURPOSE:** (as stated in the first *Field Artillery Journal* in 1911): To publish a journal for disseminating professional knowledge and furnishing information as to the Field Artillery's progress, development and best use in campaign; to cultivate, with the other arms, a common understanding of the power and limitations of each; to foster a feeling of interdependence among the different arms and of hearty cooperation by all; and to promote understanding between the regular and militia forces by a closer bond: all of which objects are worthy and contribute to the good of our country.

**OFFICIAL DISTRIBUTION:** Distribution (free) is to US Army and Marine Corps Active and Reserve Components FA units: seven copies to corps artillery, division artillery and brigade headquarters; 13 to battalions; and seven to separate batteries. In addition, readiness groups, recruiting commands, state adjutant generals, Army and Marine Corps libraries and schools, liaison officers and other Department of Defense agencies working with FA or fire support issues or materiel may request a free copy by writing to the Editor (see "Submissions").

**PAID SUBSCRIPTIONS:** May be obtained through the US Field Artillery Association, P.O. Box 33027, Fort Sill, OK 73503-0027. Telephone numbers are (580) 355-4677 or FAX (580) 355-8745 (no DSN). Dues are \$20.00 per year (\$38.00 for two years and \$56.00 for three years) to US and APO addresses. All others add \$13.00 per subscription year for postage.

**SUBMISSIONS:** Mail to Editor, *Field Artillery*, P.O. Box 33311, Fort Sill, OK 73503-0311. Telephone numbers are DSN 639-5121/6806 or commercial (580) 442-5121/6806 or FAX 7773 with DSN or commercial prefixes. Email is famag@sill.army.mil. Material is subject to edit by the *Field Artillery* staff; footnotes and bibliographies may be deleted due to space.

**REPRINTS:** *Field Artillery* is pleased to grant permission to reprint articles. Please credit the author and *Field Artillery*.

**ADDRESS CHANGES:** *Field Artillery* (ISSN 0899-2525) (USPS 309-010) is published bimonthly. Periodicals postage is paid by the Department of the Army at Lawton, OK 73501 and an additional mailing post office. POSTMASTER: send address changes to *Field Artillery*, P.O. Box 33311, Fort Sill, OK 73503-0311.

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(Organization, Materiel, Doctrine and Training)  
DSN 639-4020 or (580) 442-4020 (24-Hours)

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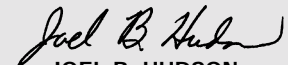
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By Order of the Secretary of the Army:

**Eric K. Shinseki**  
General, United States Army  
Chief of Staff

Official:

  
**JOEL B. HUDSON**

Administrative Assistant to the  
Secretary of the Army, 0022301

**Toney Stricklin**  
Major General, United States Army  
Field Artillery School Commandant

**Editor:**  
Patricia Slayden Hollis

**Assistant Editor:**  
Vacant

**Art Director:**  
Bob T. Coleman

# State of the Field Artillery 2000:

## Looking Ahead to the Objective Force

by Major General Toney Stricklin

**W**hat will the Field Artillery look like in the year 2035? What will be our weapons systems? How will our battalions be organized—will we be organized around battalions, division artilleries, FA brigades and corps artilleries? What doctrine will we use to fight? How will we train artillery soldiers and develop leaders? How will the Field Artillery branch evolve? These are all compelling questions being addressed within the scope of Army Transformation and Field Artillery Modernization and Transformation.

Like so many times during our Army's storied history, we are in a period of rapid change that is presenting opportunities and challenges. This is an exciting time to be a soldier in the best and most powerful Army in the world. But the winds of change are blowing. The "view from Blockhouse Signal Mountain" is not as clear as it once was.

*This is the most significant effort to change The Army in 100 years. Our aim is not a single platform swapout, but a systemic change and full integration of multi-dimensional capabilities—space, air, sea, land.*

**General Eric K. Shinseki,  
Chief of Staff, United States Army**

Courtesy of United Defense Limited Partnership





The post-bipolar world of today has set the conditions for significant change. The world conditions are more fluid than a decade ago, and this has a tremendous impact on the security requirements of the US and the role of the Army.

In this article, I discuss the Chief of Staff of the Army's (CSA's) vision for Army transformation, outline the Field Artillery vision and how it complements the CSA's vision, and address some issues facing our branch.

**The CSA's Vision.** The CSA understands that the Army must transform itself to remain relevant in our national security strategy. Our Army must be able to win two nearly simultaneous major theater wars (MTWs) while possessing the ability to conduct small-scale contingencies (SSCs) and stability and support operations (SASO). The Army is not reinventing itself—it is continuing its long-standing tradition of adapting itself to remain the world's dominant land force, a force capable of responding rapidly and decisively to our nation's call.

General Shinseki outlined transformation in *The Army Vision*. The Army always has been a strategic instrument of national policy whose mission is to fight and win the nation's wars. That has not changed. The manner in which we will accomplish our mission is evolving. As the venerable land warfighting component of our nation's military, our Army's vigilance, preparedness and overwhelming capabilities have laid the foundation for our victory in the Cold War. In turn, this set into motion the requirement for strategic response and decisive action at all points on the spectrum of conflict. To meet these requirements, Army forces must demonstrate the core operational qualities of enhanced responsiveness, deployability, agility, versatility, lethality, survivability and sustainability. There's a clear role for fire support and Field Artillery in the CSA's vision.

Army transformation will proceed along three vectors: the Objective Force, Interim Force and Legacy Force. The Objective Force is the end-state, a more deployable, responsive, survivable, lethal and sustainable force. Heavy forces will become lighter and more deployable without losing their lethality or survivability while our light forces will become more lethal. The logistical footprint for the Objective Force will be smaller than today's force. We will be-



The Fires and Effects Coordination Cell (FECC) of the 1st Battalion, 37th Field Artillery, IBCT, at Fort Lewis is the first "Effects Coordination Cell" in the Army.

gin to field the Objective Force by the end of this decade.

The Interim Force will bridge the gap between our current capabilities and the transformed Army of the Objective Force. It will fulfill the requirement for a rapidly deployable land force and enable the Army to begin to train soldiers and leaders in organization and doctrine with an initial view of the transformed force. The first Initial Brigade Combat Team (IBCT) is standing up at Fort Lewis, Washington, including its direct support (DS) 1st Battalion, 37th Field Artillery.

Until the Objective Force is fielded, our Army must be prepared to dominate in all environments—should a potential adversary miscalculate our resolve and threaten our vital national interests. To that end, we will maintain a portion of our current Army as modernized heavy and light divisions with corps augmentation in both the Active Component (AC) and Reserve Component (RC). This Legacy Force will continue as the backbone of our formidable warfighting capability for decades to come.

**The Field Artillery Vision.** Our vision is an essential component of the Army Vision. The Field Artillery fully supports the CSA's vision and the initiative to transform our force to improve its strategic relevance.

Today's Field Artillery is a system-of-systems organized, equipped and manned to provide critical supporting fires and effects for all Army opera-

tions. However, the Army Vision demands significant changes in our operational approaches and enabling organizations, which will result in a transformed Field Artillery. We are compelled to assess Field Artillery contributions to the full spectrum of operations in the context of transformation and Objective Force capabilities.

The tenets of the Field Artillery Vision were defined five years ago and remain valid today: effects-based fires, organizational transformation, dynamic force tailoring and munitions centrality. These four tenets, coupled with the Army Vision, serve as our roadmap for transformation. They are enabling us to capitalize on emerging technologies and exploit them with new training and leadership methods and organizational adaptation.

**Effects-Based Fires.** Effects-based fires will permit a more dynamic allocation of assets to deliver the desired effects on the right target at the desired time to meet the needs of the maneuver commander. This will require an effects coordination system (ECS) or application within the Army's future battle command system that automates the targeting process using real-time intelligence-target fusion from all relevant sensors and available delivery systems—including joint systems. The result will be increased responsiveness throughout the battlespace and a better synchronization of effects.

There still is an important role for artillery DS to the maneuver brigade commander as a component of his combat power and in general support (GS) to the division commander, enhancing his lethality and force protection. I completely support maintaining our standard tactical mission relationships.

*Organizational Transformation.* This will allow the Field Artillery to separate effects management from the delivery system, making effects-based fires achievable. The increased complexity and accelerating tempo of battle demand we integrate target acquisition, fire support coordination and fire direction into a future effects coordination organization, such as the effects coordination cell (ECC). (The article “Effects-Based Fires—The Future of Fire Support Coordination and Execution” by Colonel Jerry C. Hill and Major Carl R. Trout in this edition describes the ECC and its functions and evolution.)

*Dynamic Force Tailoring.* To truly capitalize on effects management and strategic mobility, we must restructure our organizations and “break the mold” of our current rigid formations. This will enhance our ability to deploy the right mix of Field Artillery forces and expand our operational employment capabilities.

These enhancements will reduce layers of command by tailoring force packages into task force-like command, control and sustainment organizations. These structures will be more adaptable to different situations and more strategically and tactically agile. For example, the ability to rapidly deploy a force package of a pair of Crusaders and a high-mobility artillery rocket system (HIMARS) launcher in SASO is a very powerful strategic capability. Absent a battalion or battery headquarters, these tailored force packages could function through a direct link with the ECC.

*Munitions Centrality.* Finally, by focusing on munitions, we will use the smallest number of munitions capable of providing the desired range of effects and fired by the smallest number of platforms. This tenet exploits current technology to shift much of the burden from the delivery system to the munitions by combining the advantages of inertial guidance and smart submunitions and transcends the limitations of the delivery system. These munitions will have greater precision and may reduce the need to mass fires in some situations while producing the same or greater devastating effects.

**Moving Toward the Objective Force.** Although transformation is underway, it will not happen overnight. Ultimately, the Army will field new weapons systems for the Objective Force. Although it is too early to predict what those systems will look like, they will meet the criteria outlined in the CSA’s vision, including increased range, greater platform mobility and the agility to maneuver fires and effects across the full spectrum of operations.

To meet today’s security needs and respond to potential threats, the Legacy Force will be our decisive force during transformation. The Legacy Force will retain a counteroffensive capability that will include recapitalized and modernized systems to provide the combat power our Army needs until the Objective Force is in place.

The counteroffensive force will retain the US Army’s lethality and survivability in an MTW and be fully capable of putting “boots on the ground” and defeating potential enemies. This force will be a corps-sized unit modernized with the M1A2 System Enhancement Program (SEP) Abrams, M2A3 Bradley, AH64-D Longbow, Crusader and the improved M270A1 multiple-launch rocket system (MLRS) launcher.

The Army National Guard (ARNG) will continue to play a critical role in the US Army Field Artillery force. Today, nearly 70 percent of our Field Artillery organizations and personnel are ARNG. We are truly The Army, and the contributions the ARNG Field Artillery makes to our nation’s defense are immeasurable. As we transition to the Objective Force, we must ensure we set the conditions for combat success by modernizing and transforming the ARNG FA alongside the AC.

*Crusader.* Crusader also is transforming to support the Interim and Objective Forces. Greatly reduced in weight from 55 tons to 38 to 42 tons, two Crusader howitzers can be airlifted strategic distances simultaneously in a C-5B or C-17 cargo aircraft. In just a few sorties, the US Army will be able to rapidly build overmatching indirect fire to augment Interim Brigade or Objective Force units.

Crusader will be fielded as an integral part of the modernized counteroffensive force. It will be the most revolutionary artillery system in the world for the next three decades. Today it has a functioning crew cockpit. Soldiers never touch its ammunition while in the how-

itzer. Automation and robotics enable the Crusader howitzer to fire 10 to 12 rounds per minute or four to five rounds that hit the same target simultaneously. Its operational architecture hosts and seamlessly integrates the advanced Field Artillery tactical data system (AFATDS), Force XXI battle command brigade and below (FBCB<sup>2</sup>) and global command and control system Army (GCCS-A). During the past six months while firing at Yuma Proving Ground, Arizona, this technologically advanced system achieved a 40-kilometer range with incredible accuracy.

Crusader will be the technology carrier to bridge the Legacy Force’s traditional artillery and the Objective Force’s revolutionary capabilities. It will greatly complement Objective Force efforts.

*HIMARS.* This system will provide the Objective Force a critical capability and continue to serve our light forces in future decades. It is a wheeled, indirect fire system capable of firing all current and future rockets and Army tactical missile system (ATACMS) missiles in the MLRS family of munitions. HIMARS can transport and fire one pod of rockets or an ATACMS. It complements cannon artillery and MLRS fires ability to attack in the tactical and operational deep zones and to strike at counterfire, air defense and other high-payoff targets. It is uniquely capable of supporting strategic early entry or contingency force operations because it can be deployed by C-5B, C-17 or intratheater by C-130 cargo aircraft. The Marine Corps will field this highly capable system in its 14th Marine Regiment, and we consider HIMARS a critical component of the Army’s Interim and Objective Forces.

*NetFires: LAM and PAM.* The Army is moving quickly toward an Objective Force built around Future Combat Systems (FCS). One possible FCS munition is NetFires, which is two types of missiles launched vertically from a container. The container is platform-independent—can launch its missiles while based on a variety of vehicles.

NetFires will be able to launch the turbojet-powered loiter attack missile (LAM) that can fly 100 kilometers and loiter for 30 minutes while passing real-time imagery back to the ECC. LAM will be programmable to differentiate among targets and automatically attack priority targets during autonomous operations. It will carry a warhead that can kill infantry and light armored targets.



HIMARS is uniquely capable of supporting strategic early entry or contingency force operations because it can be deployed by C-5B, C-17 or intra-theater by C-130 cargo aircraft.

NetFires also will be able to fire the high-velocity precision attack missile (PAM). The missile will quickly fly directly to the target or use a boost-and-glide trajectory to kill armored vehicles out to 40 kilometers.

NetFires must operate within current command and control (C<sup>2</sup>) systems and any developing FCS overarching C<sup>2</sup> system.

We will continue to work to ensure the FCS force can fight and win in all future engagements.

*Lightweight 155-mm Howitzer (LW 155).* The LW 155 (XM777) is being developed jointly by the Marine Corps and the Army and will replace the aging M198 towed howitzer. At 8,900 pounds, the LW 155 weighs 40 percent less than the M198 and has a smaller logistical footprint. The LW155 is more strategically deployable, tactically mobile, survivable, lethal and crew-friendly while matching the M198's range and exceeding its rate of fire.

In our new Field Artillery modernization and transformation strategy, we will incorporate the LW 155 into the Interim Brigade as its DS artillery.

The LW 155 towed artillery digitization (TAD) package will provide Paladin-like self-locating and orienting capabilities, on-board digital communications and ballistic computations, improved direct fire capabilities and easier to use digital sights. Rapid emplacement and displacement times and C-130 deployability will enable the LW 155 to meet our Army's fire support requirements for the Interim Force and GS requirements for the XVIII Airborne Corps Artillery.

*MLRS.* The M270A1 MLRS is designed for the Army's modernized counterattack corps and the AC-ARNG Field Artillery brigades that support our committed divisions. It fires both extended-range rockets and ATACMS variants and will dramatically improve responsiveness, operational tempo and launcher survivability.

The improved system will decrease the time required to execute fire missions and time spent on the firing point dramatically, thus minimizing the system's vulnerability to counterfire. Additionally, streamlined reloading operations will reduce launcher vulnerability further.

*Cannon-Delivered Smart Munitions.* The sense and destroy armor munition (SADARM) is the Army's first 155-mm smart munition. In limited user tests at Yuma Proving Ground, SADARM proved its effectiveness as a lethal counterbattery precision munition. It supports Army initiatives to make weapons lighter and more lethal and reduce logistical requirements by decreasing howitzer ammunition consumption. One SADARM offsets a requirement for six to eight dual-purpose improved conventional munitions (DPICM)—a significant decrease in our logistics tail with no decrease in lethality. The developmental Excalibur ultimately will become the Objective Force's carrier of a SADARM-type smart munition. It is critical the Army commit itself to precision-smart artillery munitions *now*.

*M119A1 105-mm Howitzer.* The M119A1 will remain in our inventory through 2014. The fully funded light

artillery system improvement program (LASIP) will extend the life of the system. As final Objective Force system decisions are made, we may pursue additional 105-mm munitions to complement the current high-explosive (HE) rocket assisted projectile (RAP) with a range of 19.5 kilometers and DPICM.

The recent Joint Contingency Force Advanced Warfighting Experiment (JCF-AWE) at Fort Polk, Louisiana, and Fort Drum, New York, validated our enhanced digital connectivity and new equipment in the light force. The digitized M119A1 will provide our light forces automated capabilities similar to those of our heavy artillery and to those capabilities the LW 155 with TAD will provide the Interim Force and Marines. On-board digital communications systems greatly increase responsiveness and flexibility.

Other initiatives for our light artillery forces are ongoing and will enhance their lethality. Light optic capabilities under development, such as the digital mini eye-safe laser infrared observation set (MELIOS) and Viper, will enhance target location, help to streamline the digital call-for-fire and minimize the need for a forward observer (FO) to input call-for-fire data into a digital entry device.

*ATACMS Block II with BAT.* This smart missile will provide joint task force, land component and corps commanders an immediately responsive weapon to shape their battlespace by precisely engaging moving armored forces at a range of up to 145 kilometers.

One ATACMS Block II missile contains 13 BAT submunitions that can sense specified targets and attack them. ATACMS Block II with basic BAT will be added to the stockpile inventory in 2001, and the ATACMS Block II with pre-planned product improvement (P<sup>3</sup>I) BAT will begin fielding in 2005.

*Guided MLRS (GMLRS).* The GMLRS rocket is being developed cooperatively with Germany, France, the United Kingdom and Italy. The rocket contains a global positioning system (GPS)-augmented inertial navigation system that enables precision engagement.

For the first time, the guided MLRS rocket will provide a long-range (60 to 70 kilometers) capability to attack more targets with fewer munitions per engagement. This longer-range rocket will increase the number of targets we can service and, at the same time, reduce launcher and crew vulnerability to

counterfire without increasing the logistic burden on the force. We also have established a unitary requirement for ATACMS and GMLRS to minimize collateral damage in urban and complex terrain.

*MLRS Smart Tactical Rocket (MSTAR).* Although unfunded, MSTAR is a highly responsive and effective, precision-guided, fire-and-forget rocket with a maximum range of 60 to 70 kilometers. It can be fired from both the M270A1 launcher and HIMARS.

MSTAR will allow the maneuver commander to precisely engage critical mobile targets in his tactical deep zone, destroying enemy long-range cannon and rocket systems and interdicting and destroying threat maneuver formations before they can engage friendly forces in the close fight.

MSTAR is the key enabler—the combat multiplier—that allowed us to restructure MLRS battalions from 3x9 to the 3x6 configuration. Additionally, MSTAR gives early entry forces employing HIMARS enormous firepower that can be tailored to the situation without increasing the logistical burden on the force.

The Army must reestablish funding for MSTAR to provide our supported forces the capabilities they need to achieve success.

**Issues and Concerns.** The number one issue facing the Field Artillery today is the perception that our fires are unresponsive. The most cogent examples are missions that take 42-plus minutes to execute at the National Training Center (NTC) or that deliver fires “where the mortars used to be” at the Joint Readiness Training Center (JRTC). We all have experienced such frustrations, but I firmly believe the perception is the result of three problems: deficient training aids, devices, simulations and simulators (TADSS); latency in our fire support doctrinal architecture; and a lack of true digital targeting devices.

*TADSS.* A key reason for the perception of unresponsiveness is the poor replication of indirect fires at our Combat Training Centers (CTCs), including the Battle Command Training Program (BCTP). This problem requires substantial resources to fix. Accurate replication of fires is inadequate in the close combat tactical trainer (CCTT) and other virtual and constructive simulations. Some maneuver commanders have stopped relying on indirect fires to be the combat multiplier that both history

and recent operations have proven them to be.

The Army must fund fire support TADSS at the same level as the maneuver force TADSS to correct this problem and rebuild confidence in our fire support capabilities. We are working with Headquarters Department of the Army, the Training and Doctrine Command (TRADOC) and the Simulations, Training and Instrumentation Command (STRICOM) to do so.

*Latency.* The tactical fire direction system and top-down fire planning have encumbered our ability to provide timely, accurate fires. I have directed the Field Artillery School to address this issue and provide immediate solutions. It is our intent to demonstrate the results of this effort during the April 2001 Division Capstone Exercise and two fires-focused NTC and JRTC rotations in 2001.

*Digital Targeting.* Other problems include our fire support teams’ (FISTs’) and FOs’ lack of ability to call for fire missions digitally. At some point in the process, our soldiers must manually enter the data into their hand-held digital devices, significantly reducing their speed.

Additionally, our operational architecture is complex. Many units continue to use AFATDS in a user-intervention mode—setting up “stop” points—requiring action from the FO to the brigade fire support element (FSE) through the DS battalion fire direction center (FDC) to the firing unit. We must move beyond this mentality and take advantage of the AFATDS’ capabilities. The new M1A2SEP will allow the tanker to designate targets and process a completely digital call-for-fire over FBCB<sup>2</sup> software, but the Field Artillery has not yet implemented the tactics, techniques and procedures (TPP) to receive these digital missions.

One caution, however: while we move to institute new systems and procedures to streamline processing fire missions digitally, the fire support coordinator (FSCOORD) *must* remain postured to monitor and refocus fires for the maneuver commander, as required.

*Transformation Issues.* Many issues remain unresolved as we continue to field the Initial Brigades and plan for the fielding of the Interim Brigades, an Interim Division and the Objective Force.

Early trends include combined arms organizations with embedded or organic Field Artillery. In years past, organic indirect fire assets faced challenges in providing adequate fires for their sup-

ported maneuver commanders. DS Field Artillery is the basis for combined arms fire support—provides maximum flexibility of fires within the brigade and division. I suspect we will have to let this initiative play out over time to its logical conclusion.

Division artilleries and Field Artillery brigades are the central units of Field Artillery organizations, leadership development, training and branch progression. As long as the Army maintains its current branch system, these organizations will be compatible with the Objective Force. Obviously, they will have to adapt over time; however, it would be a great mistake to eliminate them. I believe we need a division artillery-like organization and functionality in the Objective Force.

A division, corps and land component commander must have the capability to acquire, engage and destroy the enemy at depth with organic, all-weather Army fire support systems. Reliance on a balanced complement of joint effects capabilities is highly desirable; however, over-reliance will place Army soldiers at risk.

Transformation will not be easy. At Fort Sill, we are working hard on these issues. But we all must be prepared for the path leading us through the 21st century to change our traditional organizations, training, doctrine and missions/support relationships.

The Army is changing and so is the Field Artillery. We must seize the opportunity to ensure our Army always has lethal, effective fires and full-spectrum effects to get the job done. ***Field Artillery—On Time, On Target!***



Major General Toney Stricklin has been Chief of Field Artillery and Commanding General of Fort Sill, Oklahoma, since August 1999. In his previous assignment, he was the Director of Requirements in the Office of the Deputy Chief of Staff for Operations and Plans on the Army Staff at the Pentagon. He also served as Deputy Commanding General for Training of Fort Sill and Assistant Commandant of the Field Artillery School. He was Assistant Deputy Chief of Staff for Combat Developments at Headquarters, Training and Doctrine Command (TRADOC), Fort Monroe, Virginia, and Director of Combat Developments at the Field Artillery School. He commanded the 210th Field Artillery Brigade at Fort Lewis, Washington, and the 3d Battalion, 3d Field Artillery in the 2d Armored Division, Fort Hood, Texas.





# Effects-Based Fires

## The Future of Fire Support Coordination and Execution

by Colonel Jerry C. Hill and Major Carl R. Trout

**E**ffects-based fires is the overarching concept of the Field Artillery Vision. It has the potential to shape the Field Artillery's modernization efforts and the branch's contribution to the transformed Army well into the 21st century.

Effects-based fires is an innovative approach to coordinating and executing fires that focuses on the terminal effects of lethal and nonlethal capabilities against high-payoff targets (HPTs) to achieve a combined arms purpose supporting the commander's intent. The objective is to achieve a desired purpose (shaping, protective, decisive, etc.) in time and space vice simply servicing targets as acquired. This shifts the combined arms commander's focus from the delivery source to the results.

The term "effects" is not doctrinal. As defined in the "Fires and Effects" Chapter 8 of the Interim Brigade Combat Team Organizational and Operational Concept (O&O) written by the FA School, dated 6 June 2000: "Effects are the results of the directed application of lethal and nonlethal capabilities to achieve a desired purpose or outcome in support of the commander's intent. Effects are a component of the operations plan and must be fully integrated and synchronized with other elements of the plan, particularly the scheme of maneuver. Effects planning must include the control and management of unintended effects and their impact on the mission.

"Effects do not include subordinate maneuver forces or the direct fires organic to those forces. When fully integrated, effects and maneuver set the conditions for tactical success and combine to achieve the commander's intent."

Effects-based fires will improve the fire support system by capitalizing on information, sensors, weapons and munitions technologies while leveraging joint fires and by expanding to include nonlethal capabilities in the targeting process. Fire supporters will synchronize and integrate all effects in combined arms operations in real time.

**Why Effects-Based Fires?** The operational environment, now and in the near future, presents a complex and challenging set of conditions and adversaries distributed on a nonlinear, non-contiguous battlefield. The anticipated environments likely will include urban and complex terrain, large concentrations of civilians (local populace and refugees) and various noncombatants, such as local governments, non-governmental organizations (NGOs), interagency (IA) representatives and the media. These entities probably will be combined with an array of conventional and unconventional threats who employ both traditional and asymmetrical tactics in a less predictable manner than threats of the past.

These adversaries are expected to be equipped with information technologies and a combination of legacy and

advanced weapons, potentially including weapons of mass destruction. Most potential adversaries will have a mix of heavy mortars, cannons and rockets that will challenge the survivability of our maneuver formations deployed in a contingency.

The various civilian and noncombatant entities represent a nontraditional "target set" that warrants a diverse suite of nonlethal effects provided by non-kinetic capabilities in addition to lethal fire support options. This combination of traditional military targets with non-traditional targets mandates a more versatile and responsive fire support coordination approach.

Technology is beginning to enable the effects-based fires paradigm. At the center of this concept is the requirement to provide highly responsive, accurate and lethal fires to meet the combined arms commander's intent—that is unchanged. However, nonlethal technologies are emerging as an alternative to lethal means. The integration and synchronization of these capabilities require an organization that brings lethal and nonlethal targeting together and uses a holistic approach to dynamically generating "multifunctional effects."

Technology also is emerging that allows our battle command systems to maintain real-time visibility of all sensors and effects providers within the battlespace and facilitates rapid (real-time) coordination for the use of those assets. By including the assets of other services, the commander can access a significantly broader spectrum of on-demand effects.

This effects-based fires concept argues for an organization that can integrate and synchronize all effects—an organization capable of "maneuvering effects" in support of the "maneuvering of forces." While the technology enablers are not yet mature, they are leading toward the objective effects-based fires capability.



**Effects Coordination Cell (ECC).** The Field Artillery Vision ultimately envisions an ECC empowered by the successor to the advanced Field Artillery tactical data system (AFATDS), currently described as the effects coordination system (ECS). This ECS could well be a module or application embedded within the Army's future battle command system. The ECS will complete our transition to an effects-based force.

*The FECC Now.* A fires and effects coordination cell (FECC) in the initial brigade combat team (IBCT) at Fort Lewis, Washington, is serving as the bridge or organizational carrier to the objective ECC. The ECC most likely will be nested in evolving force designs as the Army transforms into the objective force.

The design of the first IBCT includes an FECC capable of integrating both lethal fires and nonlethal effects. (See Figure 1.) At the brigade level, the FECC design incorporates an enhanced targeting cell combined with counterfire and nonlethal effects cells, making it significantly more capable than the fire support element (FSE) it replaces.

The addition of the nonlethal effects cell, with its diverse composition, is the most significant change. It includes information operations, electronic attack, psychological operations (PSYOP), civil affairs and legal assistance. It also includes a tactical intelligence officer who is a key contributor to the FECC's ability to perform target value analysis on nonlethal targets. The FECC has links to the common ground station (CGS) and all-source analysis system

(ASAS). It is designed to exploit sensor technology and leverage organic, joint and national assets.

Introducing the FECC into the IBCT as a first of its type of organization in the transforming Army is providing the venue for the implementation of effects-based fires.

*The Evolving FECC.* The FECC as it evolves will be a combat multiplier for the commander, enhancing the combined arms team with digitized, execution-focused capabilities. Its multi-functionality will allow it to integrate fires and effects along with information operations in a complementary and reinforcing manner. These complementary capabilities will enable the force to mass fires and effects in time, space and purpose against multiple targets in a distributed fashion, simultaneously, in the close fight and at depth.

The decide-detect-deliver-assess (D<sup>3</sup>A) targeting process will remain relevant in the near term, and as it is enhanced by improved connectivity between the FECC and the full range of Army and joint sensors, it will take on a more "execution-centric" nature. The FECC will be force-oriented, attacking HPTs in the battlespace in near-real time or real time instead of having to plan targets that rarely affect the enemy in the manner intended by the time they're executed.

Effects-based fires expand the fire support coordinator's (FSCOORD's) traditional focus on lethal fires to include a diverse suite of nonlethal capabilities, including the potential future development of nonlethal indirect fire muni-

tions. This expanded, holistic approach to effects evolves the role of the FSCOORD to that of effects coordinator (ECOORD).

As envisioned, direct support Field Artillery battalion commanders, division artillery (Div Arty) commanders and corps artillery commanders will serve as ECOORDs for their respective maneuver formations. The authority of command is essential to empower the ECOORD to responsively and effectively coordinate and orchestrate fires and effects to accomplish the combined arms commander's desired outcome. This concept remains relevant now and well into the 21st century.

To become reality, the implementation of effects-based fires requires a strategy of organizational change. This organization must be designed to provide fires and effects coordination (vertically and horizontally), precision target acquisition and the delivery of both lethal and nonlethal action to create the commander's desired effects against the full range of target sets. The Div Arty and corps artillery tactical operations centers (TOCs) and FSEs may merge and transform into digitized FECCs. In this redesign, the Div Arty or corps artillery headquarters establishes the FECCs when tactically employed and collocates them with the division or corps command posts. A conceptual division or corps FECC is portrayed in Figure 2 on Page 8.

The FECC will be a multifunctional command and staff element that performs command and control as the force

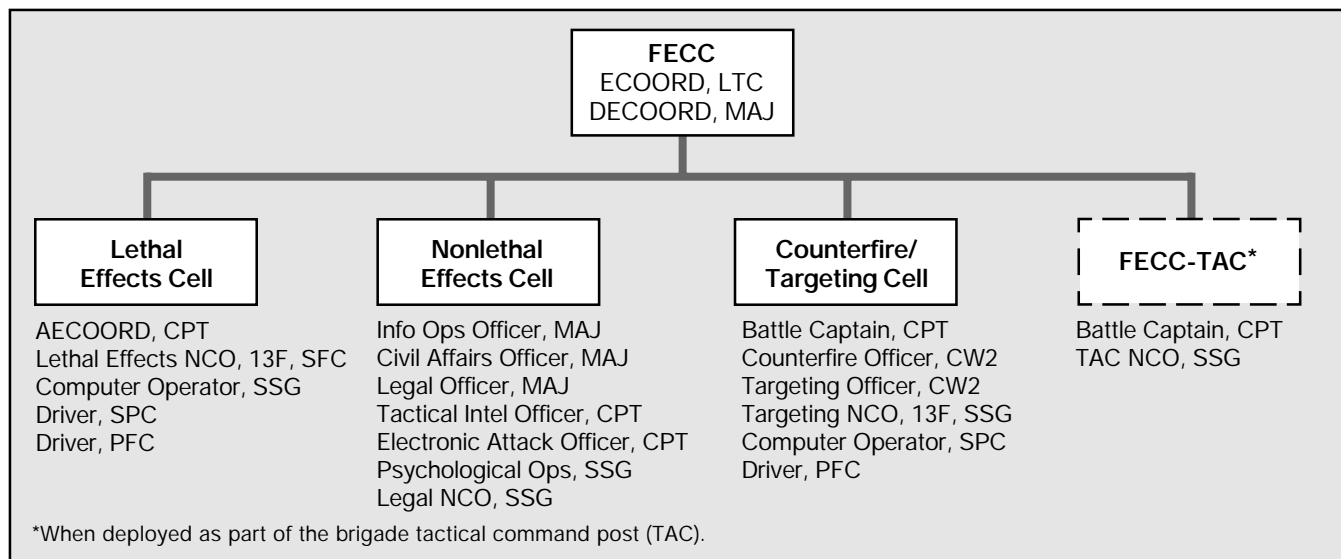


Figure 1: Fires and Effects Coordination Cell (FECC) for the Initial Brigade Combat Team (IBCT) at Fort Lewis, Washington. The FECC is located in the brigade's main command post and is organic to the brigade's headquarters and headquarters company. The effects coordinator (ECOORD) commands the FA battalion and coordinates all effects for the brigade commander.

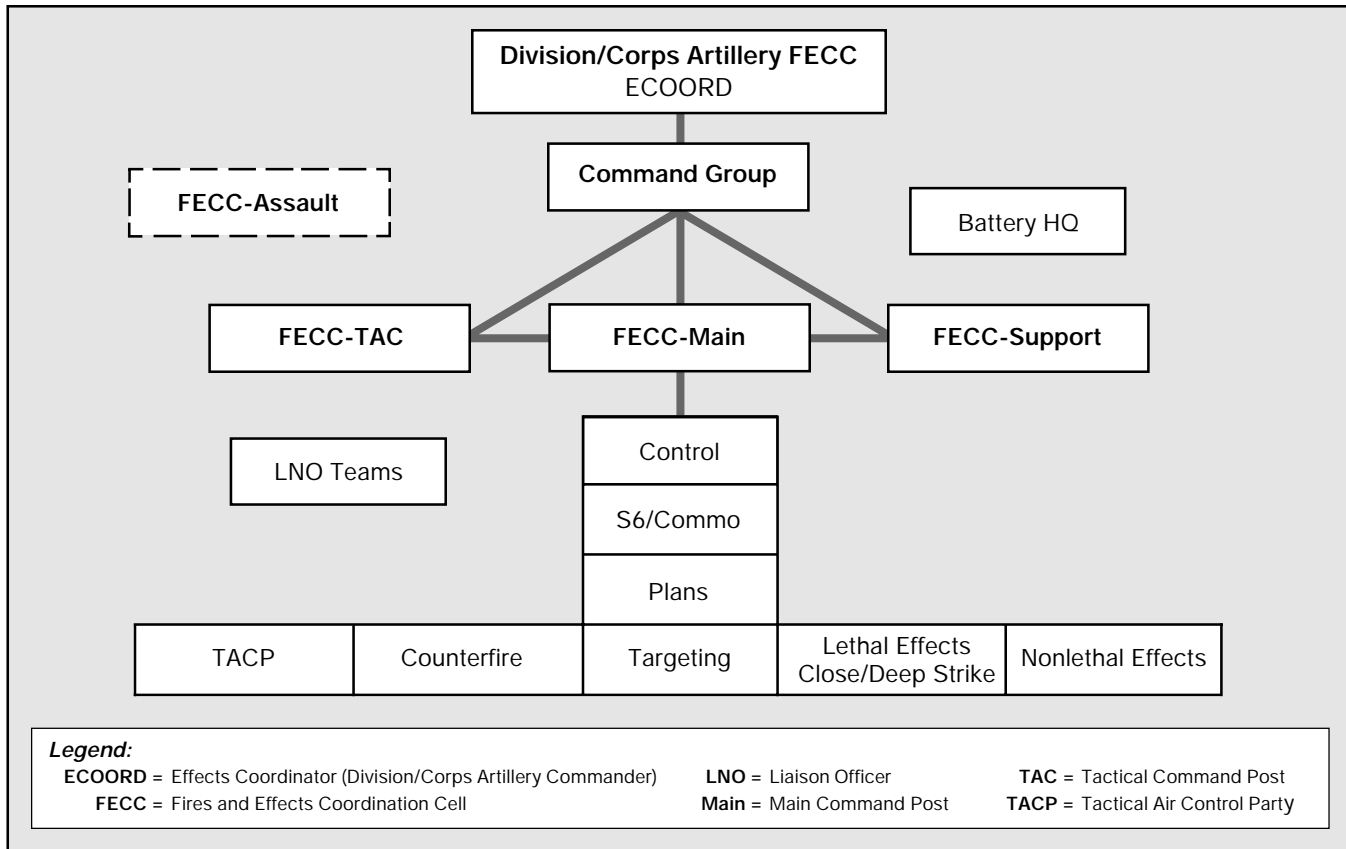


Figure 2: The Division Artillery or Corp Artillery FECC Conceptual Design. As conceived, the FECC will be located in the division or corps command post, but the FECC's personnel and equipment will be part of the division or corps artillery headquarters and headquarters battery's table of organization and equipment (TOE). In addition, an FECC-Assault element will be designed for early entry forces.

FA headquarters, conducts targeting, coordinates lethal/nonlethal effects, plans future operations, supervises current operations, serves as the counterfire headquarters, coordinates deep strike operations and coordinates joint fires. The FECC will be able to receive "plugs" to facilitate access to joint fires and routinely will incorporate a tactical air control party (TACP) from the Air Force.

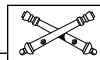
When properly documented, this organization will be a resourced solution to implementing effects-based fires instead of having to stand up an FECC on an "ad hoc" basis. Currently, the deep operations coordination cell (DOCC) has to be resourced "out of hide." The FECC design builds in the DOCC's functionality.

The division or corps FECC is envisioned to reduce the overall headquarters size yet increase organizational efficiencies with its digitized information technologies. By leveraging digitization, the FECC will serve as the "center of gravity" for a responsive and agile sensor-to-shooter network.

The transformation of the FECC into an ECC for the objective force requires a holistic, integrated strategy to synchronize doctrine, training, leader de-

velopment, organization, materiel and soldiers (DTLOMS) to make our effects-based force a reality. The transformation is being "jump-started" by the creation of the first IBCT FECC at Fort Lewis. This provides an intermediate template for higher level FECCs, which will likely be nested into the interim force as it matures beyond the brigade level and, potentially, in the counterattack corps as well.

The effects-based fires concept is key to the Field Artillery's modernization strategy. The ECC will be able to respond rapidly and decisively to the near and distant-future threats and operational environments, realizing the potential of effects-based fires. In doing so, the combined arms commander and team will be able to dominate any future adversary in close combat or at depth, whether on a distributed or linear battlefield, and across the full range of operations.



Colonel Jerry C. Hill is the Director of Combat Developments at the Field Artillery School, Fort Sill, Oklahoma. Previously, he served as the Deputy Assistant Comman-

dant for Futures, also at the FA School. He commanded the 1st Battalion, 12th Field Artillery (Multiple-Launch Rocket System), 17th Field Artillery Brigade, part of III Corps Artillery, Fort Sill. He commanded the first MLRS battery in the Army: C Battery, 3d Battalion, 6th Field Artillery, part of the 1st Infantry Division (Mechanized), Fort Riley, Kansas. He also served as Editor of *Field Artillery* and as G3 Operations Officer for the VII Corps Tactical Command Post during Operations Desert Shield and Storm. He is a graduate of the Army War College at Carlisle Barracks, Pennsylvania.

Major Carl R. Trout, until recently, was the Fires and Effects Coordination Cell (FECC) Concept Officer in Task Force 2000 of the Field Artillery School. He is now the Executive Officer for the 1st Battalion, 14th Field Artillery, 214th Field Artillery Brigade, part of III Corps Artillery. He also served as an the Mechanized Infantry Fire Support Observer/Controller (O/C) and Field Trains O/C at the National Training Center, Fort Irwin, California. Major Trout commanded Headquarters and Headquarters Battery, 2d Battalion, 82d Field Artillery, and served as the Task Force Fire Support Officer for the 2d Battalion, 7th Cavalry, both in the 1st Cavalry Division, Fort Hood, Texas. He's a graduate of the Command and General Staff College, Fort Leavenworth, Kansas.

# 50-Year Commemoration: Marine Artillery in Korea



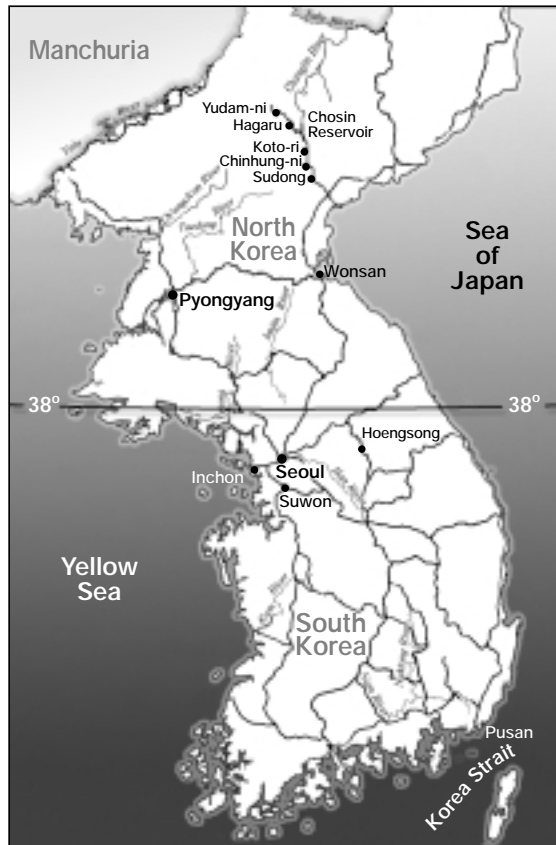
By Kenneth W. Condit

*Ed: This article is a reprint of one by the same name that appeared in the Marine Corps Gazette, November 1952. The author was a Writer/Researcher of the Historical Branch, G-3, Headquarters, US Marine Corps, Washington, DC. The article features the 11th Marine Regiment of Camp Pendleton, California, and covers most of the 11th Marines' contributions in Korea—a fitting anniversary tribute to the FA in the Korean War, 1950 to 1953.*

The Korean War has proved again the truth of Napoleon's remark that "It is by fire... that battles are won.... It is with artillery that war is made." Confronted by an enemy who relies upon "human sea" assaults, the UN forces have had to depend on superior firepower to overcome the enemy's superiority in numbers. Artillerymen of the 11th Marines have done their share to stop the mass attacks of the Communists. And the fire of their howitzers has proved invaluable in blasting enemy caves and bunkers. Operating under a great variety of conditions, the Marine Artillerymen carried out an extremely difficult amphibious operation at Inchon; they operated in the mountains of northeast Korea in the dead of winter; and they participated in large-scale land warfare as part of the Eighth Army.

For the 11th Marines, the Korean War began on 2 July 1950, the date the 1st Provisional Marine Brigade was alerted for Korea.... Arriving in Korea [with 1/11, organized into four-gun batteries] on 2 August, the brigade was soon engaged in the desperate fighting to hold the perimeter around the port of Pusan.

While this fighting was still in progress, Gen MacArthur was preparing his counteroffensive. As early as 4 July, the UN commander had begun to prepare an amphibious operation to seize Inchon and Seoul, and on 22 July, the 1st Marine Division learned it was to spearhead the Inchon landing. D-Day was set for 15 September, only 54 days away.



On the 25th [of July], the [rest of the] 11th was far from ready for combat.... The regimental commander got a good start on the build-up to war strength when elements of the 10th Marines were redesignated as units of his command. Two 105-mm howitzer battalions, 1/10 and 2/10, became 2/11 and 3/11; while 3/10, a 155-mm howitzer outfit, became 4/11. These units arrived at Camp Pendleton on 5 August.... Very little training was accomplished because all hands were busy mounting out.... None of the units received its equipment in time to calibrate guns and radios. In some instances, the gear was not issued to the batteries until after they reached Japan.

Lack of training was a serious problem, particularly in the 3d and 4th Battalions where the urgency of build-up demanded the assignment of many officers and men who were not qualified artillerymen. But all hands were eager and quick to learn, and key officers and NCOs quickly whipped their outfits into

shape once they got in combat. This was done so successfully that not a single round fell short on friendly troops.

The 11th Marines, less the 3d Battalion, departed on schedule and landed at Kobe, Japan, on 29 August. A few days later, the regimental commander and his staff were briefed on the division plan. The landing was to be carried out in two stages. At dawn, 3/5 was to land on Wolmi island just offshore from the port of Inchon. Then on the afternoon tide, the main force would land on the main island. At this time, the artillery was to go ashore on Wolmi to support the advance inland. To provide additional general support, the Army 96th FA Battalion, a 155-mm howitzer outfit, was to be attached.

On the basis of this information, the artillery plan was drawn up. Only five days remained to complete the work before the troops embarked for Inchon. To add to the difficulties, suitable maps of the landing area were almost impossible to obtain, the regimental and division staffs were too widely separated for proper liaison, and the Navy tractor area plan did not arrive until the day of departure. Although serial photographs of Wolmi were available, it was impossible to tell whether there were sufficient position areas for three battalions of artillery on the island.

On 9 September, the 11th Marines departed for Inchon in nine LSTs [landing ship tanks] and the AKA [ammunition assault craft] *USS Washburn*. Six LSTs and the AKA lifted the main body of the regiment from Japan, while the three remaining LSTs carried the 1st Battalion from Pusan. Arriving on Inchon on 15 September, the ships moved to the designated tractor area and prepared to launch DUKWs [open, amphibious, wheeled vehicles] loaded with troops and equipment. Meanwhile, a reconnaissance party landed on Wolmi with assault troops of 3/5...

By 1845, the firing batteries of the 1st and 2d Battalions began crossing the

beach, and by 2145, they were in position ready to fire. Lack of space prevented the 4th Battalion from landing until the next day when it went ashore on the mainland. Heavy smoke over the city and lack of targets limited fires to a few rounds during the first night.

Very little opposition was offered by the enemy to the landing, and infantry troops moved rapidly inland. By the 21st, the regiment had advanced about 15 miles and were on the outskirts of Seoul. To support the advance, 1/11 fired in direct support of the 5th Marines, and 2/11 in direct support of the 1st Marines. General support for the 5th Marines was provided by 4/11, while the 96th FA Battalion performed the same mission for the 1st Marines. Artillery units had to displace frequently to keep within range to deliver supporting fires. During these five days, 1/11 displaced six times. The battalions moved forward a battery at a time so there would be no interruption of fire support.

The frequent displacements were not the only problems confronting the 11th Marines. The infantry scheme of maneuver created a wide dispersal of units by calling for a two-pronged advance on Seoul. The 5th Marines advancing north and then swinging around to approach the city from the northwest, was separated from the 1st Marines, pushing directly toward the city on the Inchon-Seoul highway, by as much as eight miles. To assure proper control during this movement, 1/11 was attached to the 5th Marines.

Complicating control problems, communications difficulties plagued the artillery regiment throughout the operation. Untrained communicators and worn out or improperly tuned equipment were largely responsible. For the first five days, control of operations was actually in the hands of the battalion commanders. By the 19th, communications problems had been licked sufficiently so that the regiment could exercise effective control. At this time, 1/11 was detached from the 5th Marines.

During the advance on Seoul, the enemy had offered relatively little opposition. But all this changed when the Marines attacked the capital city and its industrial suburb of Yondong-po. The North Koreans put up fanatic resistance to the 5th Marines on the hills to the northwest and in the city itself, where houses had been turned into fortresses and innumerable blockades had been thrown across the streets. The 5th Ma-

rines received excellent support from 1/11 and 4/11 in the attack on the hills west of the city. But when the infantry entered the city streets, artillery was of limited value. There were relatively few good artillery targets. To destroy a house merely made it a better defensive position because the enemy could hide in the rubble; and tanks, with their pinpoint fire, were more effective for destroying road blocks.

Artillery came into its own in delivering defensive fires and, on two occasions, played a major role in breaking up North Korean counterattacks. The first attack struck 2/1 on the night of 20 September and was immediately taken under fire by 2/11. The accuracy of the maps of Seoul and the information on the location of the enemy made it possible for 4/11 to fire unobserved missions with excellent effect.

This performance was repeated on the 26th when 3/1 was counterattacked. Again, 2/11 poured fire into the attacking North Koreans. This time, both medium battalions, 4/11 and the 96th FA, delivered highly accurate unobserved fire.

On the same day, elements of the Eighth Army, which had broken out of the Pusan perimeter, linked up with X Corps troops at Suwon. Seoul fell on the 27th, and by 7 October, the Eighth Army took over from X Corps. But there was to be no respite for the 11th Marines. Plans were already being made for further operations.

To pursue the advantage over a disorganized enemy, Gen MacArthur ordered the Eighth Army to attack directly north toward Pyongyang, the enemy capital, while X Corps made an amphibious landing at Wonsan on the east coast. Before this assault landing could be carried out, rapidly advancing ROK [Republic of Korea] troops occupied the city. On 26 October, the 1st Marine Division landed unopposed at Wonsan and prepared to push onto the Manchurian border.

The large area assigned to the division, with the resulting dispersal of forces, compelled the division commander to attach artillery battalions to infantry RCTs [regimental combat teams]. The 1st Battalion was attached to RCT-5, the 2d to RCT-1, and the 3d to RCT-7. As a result, it was never possible for the regiment to exercise effective centralized control of the artillery fired in support of the division.

The Marines had hardly landed at Wonsan when the intervention of the Chinese Communists produced a brand

new war. Only seven days after landing, 3/11 with RCT-7 went into action against the new enemy. Ordered forward to relieve an ROK regiment on the road to Chosin reservoir, the RCT-7 was attacked by a Chinese division in the Sudong gorge. For four days, the RCT was heavily engaged. Throughout the engagement, 3/11 delivered excellent offensive and defensive supporting fires. The most spectacular mission came on the night of 6 November when the Chinese reserve regiment was caught moving into frontline positions and mauled so badly it had to withdraw.

Problems encountered in this engagement were typical of those confronting artillerymen throughout the operation. In the mountainous terrain, good position areas were few and far between, and even though artillery was granted priority, it was often hard to find enough level ground to emplace a battery, much less a battalion.

Artillery operations were restricted even more by the necessity to operate within the infantry perimeter. Operating with regiment-sized or smaller combat teams in enemy-infested territory, this was the only way to provide security for the artillery units. But from within the perimeter of an infantry regiment, many targets were at very short ranges. To provide 360-degree coverage, it was necessary to lay the batteries on different azimuths. In some cases, the howitzers could not be brought to bear without shifting trails. Under these conditions, it was very difficult to mass fires. Short ranges and high hills combined to require a great deal of high-angle fire. Gen Almond, the X Corps commander, who visited 3/11 in position for high-angle fire at Sudong, thought the battalion looked more like an AAA [antiaircraft artillery] outfit.

Following the defeat of the Chinese division at Sudong, the Marines pushed on toward the Chosin reservoir. Enemy opposition was negligible, although there were signs of the presence of hostile forces. By the middle of the month, the Marines were confronted by a new enemy, the cold. Temperatures went down below the zero mark, presenting a whole new set of problems. Truck and bulldozer engines had to be turned over every half hour during the night to prevent them from freezing. The ground was frozen so hard that it was impossible to dig in the trails, and it took several minutes for the howitzer tubes to return to battery after firing.



In spite of the cold, the advance continued, and by 27 November, RCTs-5 and -7 had reached Yudam-ni on the western side of the reservoir. With the exception of H Battery still in Hagaru, the attached artillery elements were emplaced at Yudam-ni to support their RCTs. Under new orders from Gen MacArthur calling for participation in an envelopment movement with Eighth Army, both RCT-5 and RCT-7 were ready to attack west. To give general support to the attack, 4/11 was moved up to Yudam-ni.

RCT-1, relieved by Army units of its security mission to the south, was now deployed at selected strongpoints along the MSR [main supply route] to the coast. Its artillery elements were distributed over a wide area...

But the great "end of the war" offensive never got rolling. On the 25th, the Chinese struck Eighth Army, and two days later, the Chinese attacked X Corps. The 1st Marine Division bore the brunt of the attack, and by the morning of 28 November, all the Marine perimeters were isolated. The two most advanced, Yudam-ni and Hagaru, were under heavy attack by eight enemy divisions.

Typical of these fights was the defense of Yudam-ni. Here the three artillery battalions—1/11, 3/11 and 4/11—were in position to support the attack to the west when the enemy struck. It was obvious that the howitzers should be redeployed to provide the best coverage all around the perimeter. But before this could be done, it was necessary to establish some form of centralized control. Regimental headquarters was to have moved forward to Yudam-ni. To remedy the deficiency, an artillery group was formed under the command of the senior battalion commander, LtCol Harvey Feehan of 1/11. Under his direction, the batteries were spotted around on different azimuths to cover all avenues of approach.

Artillery made every effort to meet all requests for fire missions but was handicapped by ammunition shortages. With the MSR cut, airdrop was the only means of resupply. But only about 1,200 rounds of 105-mm ammunition were dropped, and of these, only about 600 were usable. No effort was made to drop 155-mm ammunition, as an equivalent weight of 105-mm was more valuable in the minimum range missions against enemy attacking infantry frontlines. To conserve the limited amount of heavier caliber ammunition, 4/11 limited its fires to



M/4/11 in action. To conserve its 155-mm ammunition that was in short supply, 4/11 limited its fires to counterbattery and heavy troop concentrations. (Photo by SSgt Robert H. Mosier)

counterbattery and heavy troop concentrations. This restriction was justified by the enemy's limited use of artillery.

Further to handicap the artillery units in their delivery of fires, they were required to provide infantry replacements. On the 28th, artillery units furnished seven officers and 314 men. The next day, they were called upon to supply an additional four officers and 164 men. As a result, it was not always possible to man all the howitzers. In 4/11, for instance, one platoon (two howitzers) in each battery had to be put out of action, but all the weapons were laid, and the crews shifted from one piece to another, depending upon the direction of targets.

After two days of heavy fighting, the Marines at Yudam-ni were ordered to withdraw to Hagaru. This was to be the first step in a general withdrawal of the whole division to the coast. As a preliminary step, the two RCTs redeployed into a valley running south of the two and astride the road to Hagaru. Artillery and service units were displaced first, followed by the infantry. Then, on 1 December the withdrawal began.

Artillery tactics during the withdrawal called for leapfrogging units. As the main column moved out, it was covered by a unit emplaced at the point of departure. Near the head of the column were other units which would advance about 5,000 to 6,000 yards and emplace to fire both forward and back. At this point,

the units at the point of departure would displace forward to repeat the process...

Using these tactics, the 11th Marines continued to support the withdrawal of the 1st Marine Division from Koto-ri to the sea. By 15 December, the Marines had completed outloading and had sailed for South Korea. Following a period of reorganizing and training and a brief anti-guerrilla campaign, the 1st Marine Division was committed to the Eighth Army front.

The Marines were to participate in Operation Killer, a limited objective offensive designed to keep the pressure on the enemy, inflicting maximum casualties and preventing him from mounting a counteroffensive. Jumping off on 21 February, the Marines moved methodically ahead and had achieved their objectives by 4 March. Operation Killer was so successful that it was continued at once under the name of Operation Ripper.

For artillerymen, these operations were war "by the book." The 11th Marines headquarters was able to control the artillery supporting the division, to mass fires, and to deliver TOT (time-on-target) missions. The 105-mm battalions were assigned to direct support of the same regiments they had supported in previous operations. To supplement the general support fires of 4/11, the Army 92d Armored Field Artillery [AFA] Battalion was attached to the 11th Marines until 20 March....For short peri-

ods, the 11th Marines also had batteries of 8-inch howitzers of the Army 17th FA Battalion attached. These heavy artillery pieces were powerful and extremely accurate and were used for precision fire against enemy bunkers and artillery positions.

As the Marines moved slowly forward, the enemy conducted delaying actions from successive hill positions. For artillery as well as for infantry, one attack was much like another. Typical of these actions was the attack of the 1st Marines on Hill 166 south of Hoeng-song. During the night before the attack, howitzers of 2/11 kept up harassing and interdiction fires to keep the enemy awake and to soften him up. At 0800, an air strike came in and hit the target hill, while the infantry moved up to jump-off positions. When the planes retired, artillery and 4.2-inch mortars fired their concentrations. Infantry and tanks attacked under cover of the artillery and mortar fires. As each howitzer had been individually registered, it was possible to keep the fire on the objective until friendly troops were within 100 yards of the enemy positions. At this point, the artillery lifted to fire on the next ridge, and 81-mm mortars began hitting the reverse slope of the objective. Under the cover of these supporting fires, the assault troops had no difficulty in seizing the hill.

This pattern was repeated time and again as the Marines moved methodically ahead. After a month of this sort of fighting, the artillery was confronted with an additional problem by the attachment of the Korean Marine Corps (KMC) regiment to the division. With four infantry regiments and only four battalions of artillery, the balance of arms was upset. The ordinary procedure of providing a 105-mm battalion for direct support of each infantry regiment and a 155-mm battalion for general support of the whole division could no longer be used. As an expedient, the division shifted the direct support battalion along with forward observers and liaison officers from the reserve regiment to the KMC's regiment when it was on the line. But there was a very real danger of getting caught short if it were ever necessary to commit all four infantry regiments.

Those fears were realized on 23 April when the Chinese launched a major offensive and broke through the ROK division on the Marines' left. To refuse the exposed flank, the 1st Marines was

ordered to occupy the blocking positions with two battalions, while the other battalion reinforced the 7th Marines. It was necessary to assign 4/11 to a direct support mission, as no other artillery unit was available....Although 155-mm howitzers are not ordinarily used in direct support, Marines of 4/11 fired these missions with excellent effect. On the night of 23 April, they brought fires within 50 yards of friendly troops and helped to break up Chinese attacks. One enemy column of 500 men, advancing through a valley on which the howitzers were registered, suffered an estimated 50 percent casualties.

All along the front, enemy attacks were met by Marine artillery fires. Reinforcing fires came from the Army 213th AFA Battalion, which was attached to the 11th Marines, and from the 92d AFA Battalion, now part of corps artillery. There were so many targets that it was impossible to take them all under fire. But the fires that were delivered were extremely effective. According to the testimony of one Chinese prisoner, artillery fire frequently broke up troop concentrations, making it very difficult for the enemy to mass for an attack. During the period of heavy enemy attacks, 22 to 24 April, the 11th Marines had fired 527 missions, consisting of 12,844 105-mm rounds and 4,008 155-mm rounds. Enemy casualties inflicted by artillery fire were estimated at 5,000.

Although by 24 April, the Marines had beaten off the enemy attacks, still the gap on the left created by the breakthrough remained. In danger of being outflanked, the Marines were ordered by Eighth Army to withdraw. During the next eight days, the division pulled back to successive defensive positions for a distance of about 30 miles before the Eighth Army was able to stabilize the front. This withdrawal required four successive artillery displacements, carried out by echelon, so that the infantry was never without artillery support. By 30 April, the 1st Marine Division was deployed along a new defensive line, and the Chinese attack had been stopped all along the line.

Following the collapse of the Chinese April offensive, Eighth Army ordered defensive positions to be prepared in depth with minefields, wire entanglements, and prepared fields of fire. On 16 May, the Chinese returned to the attack, striking this time at the US 2d Infantry Division and at ROK units on

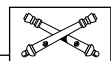
the east. Again, the enemy achieved a breakthrough, but timely shifting of reserves slowed down the attack. As the main enemy thrust struck the UN forces to the east of the Marine positions, the 11th Marines was free to support the hard-pressed 2d Infantry Division. Heavy concentrations were fired in harassing and interdiction missions, but as very few specific targets had been assigned, the effect was merely to saturate the areas with undetermined results.

By the 20th, the enemy attacks had lost their momentum. An immediate counter-offensive was ordered, and by 15 June, UN forces had advanced some 30 miles. At this point, they ran up against the enemy main line of resistance. Both sides dug in, and the war settled down to a stalemate, with neither side willing to attempt a major attack. Shortly after, truce negotiations were started.

As the truce delegates were holding their first meetings to discuss a cease-fire agreement, the enemy opened up with his heaviest artillery fire of the war. From that point on, counterbattery fire became a vital mission for Marine artillerymen. Beginning on a modest scale in July, the enemy gradually increased his fires, both in volume and accuracy. At first, he followed the Japanese practice of firing single weapons from cave positions, but by the end of the month, he was massing battery fires. The 76-mm guns with which the enemy began his effort were soon supplemented by 122-mm howitzers, captured American 105s, and even a few 152-mm weapons. Infantry positions were the first enemy targets, but he soon began firing on the artillery emplacements as well. On 1 November, 2/11 was shelled by [120 rounds of] 76-mm guns and 122-mm howitzers...killing one man [and] wounding four others...

Counterbattery and other fires against the enemy artillery were primarily the responsibility of 4/11. In June, this battalion had devoted a mere two percent of its efforts to this type of mission, but the next month, the figure jumped to 15 percent...[and] gradually increased until it reached 22 percent in April 1952.

More than two years has elapsed since the 11th Marines first arrived in Korea....The end of the war is still not in sight. In fact, the enemy continues to build up his forces. But whatever happens, the 11th Marines stands ready to meet the challenge.





(580) 442-XXXX  
or DSN 639-XXXX

# Field Artillery Training Command DIRECTORY 2000

As of 1 November 2000

## Command Group

**Commanding General, Fort Sill (ATZR-C)**  
MG Toney Stricklin  
3006/3709/FAX 4700  
Email: stricklin@sill.army.mil

**Asst Cmdt, FA School  
DCG-Trng, Fort Sill (ATSF-A)**  
BG William F. Engel  
6604/3622/FAX 7191  
Email: engel@sill.army.mil

**C/S, Training Command (ATSF-AD)**  
COL Michael T. Madden  
2301/3022/FAX 7191  
Email: maddenm@sill.army.mil

**CSM, Training Command (ATSF-B)**  
CSM Ricky L. Hatcher  
2301/6935/FAX 2304/7191  
Email: hatcherr@sill.army.mil

**Executive Officer (ATSF-AX)**  
MAJ Suzanne M. DeNeal  
3022/2301/FAX 7191  
Email: deneals@sill.army.mil

## US Army Field Artillery School

**Dep Asst Cmdt, Trng, Org and Doc  
(ATSF-AT)**  
COL Theodore J. Janosko  
4640/5013/FAX 7191  
janoskot@sill.army.mil

**Dep Asst Cmdt, ARNG (ATSF-ARC)**  
COL James M. Nuttall  
4587/FAX 1635  
Email: nuttallj@sill.army.mil

**G3, Tng Cmd (ATSF-ADO)**  
4203/6708/FAX 7494  
Email: hoodj@sill.army.mil

**Special Actions Office (ATSF-AD-S)**  
3323/4509/FAX 6800  
Email: eimerr@sill.army.mil

**FA Proponency Office (ATSF-ADF)**  
4970/6365/FAX 7118  
Email: fapo@sill.army.mil

**Command Historian (ATZR-ADM)**  
6783/3804/FAX 5102  
Email: dastrupb@sill.army.mil

**Morris Swett Library (ATSF-ADL)**  
4525/4477/FAX 5102  
Email: duckworths@sill.army.mil

**Senior Air Force Rep (ATSF-LAF)**  
COL Mark H. Skattum  
2300/3261/FAX 7629  
Email: skattumm@sill.army.mil

**British Liaison Officer**  
LtCol Michael R. Healey  
4309/FAX 7305  
Email: britlno@sill.army.mil

**Canadian Liaison Officer**  
MAJ James R. Fisher  
4217/FAX 7254  
Email: canlno@sill.army.mil

**French Liaison Officer**  
LTC Mark F. Billot  
4806/FAX 7412  
Email: frelno@sill.army.mil

**German Liaison Officer**  
LTC Peter H. Piwonski  
4003/FAX 5109  
Email: gerlno1@sill.army.mil

**Korean Liaison Officer**  
LTC Rakgi Lee  
4816/FAX 2304  
Email: korlno@sill.army.mil

## D&SA—Depth and Simultaneous Attack Battle Lab

**Director, D&SA (ATSF-FB)**  
COL Peter S. Corpac  
3706/3636/FAX 5028  
Email: corpacp@sill.army.mil  
Toll Free 1-800-284-1559

Deputy, George A. Durham  
3706/3636/FAX 5028  
Email: durhamg@sill.army.mil

Simulations 3649/3834  
• FireSim XXI Model  
• Simulation Support  
• Simulation in Classroom  
• Janus  
• BBS

Experiments and Demonstrations 3139  
• ACTDs (TPSO)  
• TMD Attack Operations

Science & Technology 2928  
• S&T  
• STOW  
• ACT II

CECOM LNO 2933  
ARDEC LNO 2936  
ARL Field Office 5051  
ARL LNO 1946

## DCD—Directorate of Combat Developments

**Director, DCD (ATSF-FC)**  
COL Jerry C. Hill  
2604/6980/FAX 7216  
Email: hillj1@sill.army.mil

Deputy, Harold L. Gardner  
2604/6980/FAX 7216  
Email: gardnerh@sill.army.mil

Chief, Task Force 2000 (ATSF-FT)  
LTC Ralph W. Haddock  
4511/5206/4225/FAX 8226  
Email: haddockr@sill.army.mil

Materiel Requirements & Integration  
(ATSF-FCM) 3814/3152/FAX 4300  
• FA Weapons/Munitions  
• FIST Equipment  
• Radars  
• Meteorological Equipment

Analysis (ATSF-FCA) 4715/5707/FAX 4802  
• FA Related Studies/Scenarios  
• TA Fire Support Model

Force Programs & Priorities (ATSF-FCF)  
6309/2807/3702/2726/6520/FAX 4802  
• Force Structure/Documentation  
• Prioritization/Concepts  
• Budget  
• Science and Technology (S&T)  
• Force Design Update (FDU)  
• Total Army Analysis (TAA)  
• Warfighting Lens Analysis (WFLA)

ARNG Force Mod Officer (ATSF-FCF)  
6309/3702/FAX 4802  
Email: brownt@sill.army.mil

USMC Liaison Officer (ATSF-FCU)  
4927/FAX 4802  
Email: mullinsm@sill.army.mil

## TSM-CN—TRADOC System Manager-Cannon

**TSM-Cannon (ATSF-MC)**  
COL Michael V. Cuff  
6902/4451/FAX 5902  
Email: cuffm@sill.army.mil

Deputy, Douglas B. Brown  
6902/4451/FAX 5902  
Email: brownd5@sill.army.mil

Crusader 3716

SADARM/Excalibur 3803

Lightweight 155-mm Howitzer 6000

Training 3454

**PEO-GCSS—Program Executive  
Officer-Ground Combat and Support  
Systems Field Office**

**PEO Field Officer (SFAE-GCSS-FS)**

J. Bernard Garcia  
2028/FAX 7008  
Email: garciab@sill.army.mil

**TSM-RAMS—TRADOC System  
Manager-Rocket and Missile Systems**

**TSM-RAMS (ATSF-MR)**

COL Michael C. Barron  
6701/5205/FAX 6126  
Email: barronm@sill.army.mil

Deputy, Leighton L. Duitsman  
6701/5205/FAX (580) 442-6126  
Email: duitsman@sill.army.mil

M270A1 MLRS Launcher 5205

HIMARS 5205

Rockets 6701

ATACMS 6607

**TSM-FATDS—TRADOC System  
Manager-FA Tactical Data Systems**

**TSM-FATDS (ATSF-MA)**

COL James G. Boatner  
6836/6837/FAX 2915  
Email: boatnerj@sill.army.mil

Deputy, William D. Sailors  
6836/Secure 8065/FAX 2915  
Email: sailersw@sill.army.mil

Software

5607/FAX 2915

Email: shuckerd@sill.army.mil

- AFATDS/IFSAS/LTACFIRE 5607
- Communications/VIR 5966
- MLRS/FDS 6851
- Paladin/BCS 4867
- Firefinder/Met 6067
- FED/HTU 6418
- Fire Support Interoperability 6418
- C<sup>3</sup>I Architecture 6865

Plans/Operations/Training

6838/6839/FAX 2915

Email: bridgfordr@sill.army.mil

24 Hour Hotline 5607

http://www.army.mil/tsm\_fatds

AFATDS NETT (CECOM)

6362/4754/FAX 7631

**WIDD—Warfighting Integration  
and Development Directorate**

Director, WIDD (ATSF-D)  
Dr. Phyllis D. Robertson  
2005/2002/FAX 5724  
Email: robertsonp@sill.army.mil

SGM Tony M. Wynn  
5102/2021/FAX 5724  
Email: wynnt@sill.army.mil

Unit Training Division (ATSF-DD)  
5644/3300/FAX 5724

- ARTEP MTPs
- TADSS
- FA Tables
- Unit TSP Development
- CATS
- SATS
- STRAC
- New Systems Integration

Integration and Operations Division  
(ATSF-DI) 4902/FAX 5724

- TASS/Accreditation
- Individual Training Plans
- FA WOES/NCOES POIs
- STPs
- TATS (Institution and FA Trng Bn)  
POIs and TSPs
- Strategies
- ACCP Technical Enquires
- ASAT
- Multimedia Development

Training Management Division (ATSF-DM)  
5903/3611/FAX 7764

- ATRRS
- VTT Training On Demand
- Classroom XXI
- Distance Learning

**FSCAOD—Fire Support and Combined  
Arms Operations Department**

**Director, FSCAOD (ATSF-T)**

COL Leonard G. Swartz  
4704/3995/FAX 6003  
Email: swartz1@sill.army.mil

Deputy, LTC Michael T. Dooley  
6424/3995/FAX 6003  
Email: dooley@m@sill.army.mil

SGM Anthony Lovett  
6424/3995/FAX 6003  
Email: lovetta@sill.army.mil

PreCommand Course 5194

Fire Support 5819/4557

Combined Arms 4653/6808

Fire Support Automation 3811/6385/  
FAX 6526

Communications and Electronics  
3115/5107/FAX 2602

Target Acquisition 6207/3867/FAX 4202

- Warrant Officer 4925/2971/FAX 7861
- Radar 2408/6111/FAX 7861
- Meteorology 2406/5014/FAX 4202

**GD—Gunnery Department**

**Director, GD (ATSF-G)**

COL Thomas G. Waller, Jr.  
2400/2014/FAX 5615  
Email: wallert@sill.army.mil

Deputy, Michael G. Hubbard  
2014/2400/FAX 5616  
Email: hubbardm@sill.army.mil

1SG Allen R. Stokes  
(Acting SGM)  
2014/2400/FAX 5616  
Email: stokesa@sill.army.mil

Paladin (M109A6) NET 4418/5301/FAX 3901

Paladin Cadre Course 2708/3994

Cannon Division 2761/3103

M119/M198 Maintenance (ASI U6) 6318

OBC Revision 6224/5409

Manual/Automated Gunnery 6224/5409

Unit-Level Logistics System (ULLS) 2323

New Systems 4418/5301/FAX 3901

MOS 13E Instruction 6803/5345

MLRS Instruction Branch 4711/5151

MLRS Fire Direction Branch 6121/2606

MLRS NET 2431

**USMC—Marine Corps Detachment**

**Commander (ATSF-MCR)**

Col John M. Garner  
6311/6498/FAX 5127  
Email: garnerj1@sill.army.mil

Deputy, LtCol B. J. Kramer  
4204/6498/FAX 5127  
Email: kramerb@sill.army.mil

SgtMaj Richard L. Arndt  
3873/2307/FAX 5127  
Email: arndtr@sill.army.mil

Training/Education (Info for all Courses) 4204

Marine Personnel Locator for Fort Sill  
2307/3873

Marine Battery Commander/1Sgt 5615

GySgt, Marine Battery 2467

GD-Senior Marine 6224/2622  
• Enlisted Instruction Branch  
(MOS 0844 and 0848) 3579

- OIC/NCOIC, Marine Cannon  
Crewman Course (MOS 0811)  
5595/6811



- OIC/NCOIC, Survey Branch  
6179/FAX 3216

FSCAOD-Senior Marine, Fire Support  
Division 6889

- Advanced Fire Support Branch 4809
- Basic Fire Support Branch  
(MOS 0861) 5343/3085
- Radar/Met Branch  
(MOS 0842 and 0847) 2408

DCD-Marine Corps Warfighting  
Liaison Officer, MCCDC 4927

Hazardous Material Handling Course 2111

### 30th Field Artillery Regiment

#### Commander (ATSF-B)

COL Michael T. Madden  
2301/3022/FAX 7191  
Email: maddenm@sill.sill.army.mil

Deputy CO, LTC Brian T. Boyle  
5088/2009/FAX 7613  
Email: boyleb@sill.army.mil

CSM Ricky L. Hatcher  
2301/6935/FAX 7191  
Email: hatcherr@sill.army.mil

Adjutant/Personnel 5330/3394  
Email: sochaf@sill.army.mil

International Student Division (ATSF-BL)  
4600/4726/FAX 5142  
Email: johnsonr@sill.army.mil

2-2 FA (ATSF-BG)  
2803/3265/FAX 4744  
Email: raymondnb@sill.army.mil

1-30 FA (Staff and Faculty) (ATST-BF)  
5088/2009/FAX 7613  
Email: boyleb@sill.army.mil

3-30 FA (OAC/OBC Students) (ATSF-BO)  
6194/6415/FAX 3124  
Email: haithcockj@sill.army.mil

## NCO Academy

#### Commandant, NCO (ATSF-W)

CSM Joseph W. Stanley  
2417/3141/FAX 8290  
Email: stanleyj@sill.army.mil

Asst Cmdt, SGM Gary W. Bess  
2417/3141/FAX 8290  
Email: bessg@sill.army.mil

Adjutant/PAC/S1 5606/3466

Staff Duty NCO 2417/3141

BSNCO (DL) 1740

PLDC 4241

BNCOC 6127/2097

ANCOC 2619/6970

Camp Eagle: PLDC Operations 3648/2940

## Field Artillery Training Center

#### Commander, FATC (ATSF-K)

COL Thomas J. O'Donnell  
1261/1262/FAX 1279  
Email: odonnellj@sill.army.mil

Deputy, LTC Mary A. Baker  
1261/1262/FAX 1279  
Email: bakerm@sill.army.mil

CSM Walter L. Drummond  
1262/1261/FAX 1279  
Email: drummondw@sill.army.mil

S3 2011/6198/FAX 6118

Sr ARNG Liaison NCO 1146/1147/FAX 6118

Sr USAR NCO 4168/6107/FAX 3525

1-19 FA (BCT/OSUT) (ATSF-KF)  
1401/1402/FAX 7601  
Email: durantb@sill.army.mil

1-22 FA (BCT/OSUT) (ATSF-KN)  
2345/2541/FAX 7117  
Email: sheridane@sill.army.mil

1-40 FA (BCT/OSUT) (ATSF-KI)  
1200/1203/FAX 7120  
Email: wrefordd@sill.army.mil

1-78 FA (Training Committee) (ATSF-KT)  
2611/5022/FAX 7907  
Email: pucketta@sill.army.mil

1-79 FA (BCT/OSUT) (ATSF-KG)  
1301/1302/FAX 7121  
Email: condrym@sill.army.mil

2-80 FA (AIT) (ATSF-KL)  
5818/6272/FAX 7600  
Email: fultonc@sill.army.mil

95th AG Battalion (Reception) (ATSF-KR)  
3606/4576/FAX 7974  
Email: henkell@sill.army.mil

# 2001 Senior Fire Support Conference

The theme and specific days of the 2001 Senior Fire Support Conference, 23-27 April, at the Field Artillery School, Fort Sill, Oklahoma, are approved. This year's theme, "The Field Artillery in Transformation," focuses on the role and make-up of the Army and Marine Field Artillery in the future. Senior Army and Marine leaders will provide updates and presentations of their transformation perspectives.

The conference is five days: 23-27 April. The first day, Monday, is for Army Active Component (AC) and Reserve Component (RC) corps artillery, division artillery and FA brigade commanders and their command sergeants major. On Tuesday, there will be a golf tournament, special subject matter expert presentations and many exhibits to enjoy. Additionally, a General



Officer session for Army FA active and National Guard general officers is scheduled for Tuesday afternoon. The general conference will begin on Wednesday, 25 April, and conclude mid-day on Friday, 27 April.

Other conference invitees include Army corps and Marine expeditionary force (MEF) commanders, AC and RC Army and Marine division command-

ers, other selected active and retired general officers, AC and RC Marine regimental commanders and their sergeant majors, Training and Doctrine Command school commandants and FA Association corporate members. Invitations to the conference will be mailed in January.

Registration information, further details of the conference agenda and information regarding guest speakers will appear in the January-February 2001 edition. By 1 December, the Field Artillery School will activate its 2001 Senior Fire Support Conference Email address to answer questions and provide additional information: [conf@sill.army.mil](mailto:conf@sill.army.mil). As details of the conference become available, they will be posted in the Training Command portion of the Fort Sill home page: <http://sill-www.army.mil/sfsc>.

# F<sup>2</sup>C<sup>2</sup> Experiments for Rapid Transformation to Effects-Based Fires

by Lieutenant Colonel (Retired) William A. Ross



Part of the Lethal Effects Elements of the ECC

Several forces are interacting to shape the transformation of the Field Artillery to an effects-based, information-centric system-of-systems. Rapid technological advances, asymmetric or uncertain threats, complex operational environments and shifting national priorities and interests are converging on our warfighting organizations to present new leader and soldier challenges.

These geo-strategic changes are resulting in a dynamically complex environment that has fundamentally altered how artillery staffs must organize, train, equip, man, lead and fight artillery forces in the future. Throwing more technology at the problems or expecting battle staffs to accommodate change without a trade-off in performance are typical

responses that have proven costly and ineffective under these new battlefield conditions.

This article reports on a series of experiments the FA School, Fort Sill, Oklahoma, is using to develop efficiently adaptable fires organizations, begin implementing effects-based fires and introduce information architectures for Army-wide transformation. These experiments will help the FA transform more rapidly into a force capable of meeting the fires and effects challenges of the future.

**Future Fires Command and Control (F<sup>2</sup>C<sup>2</sup>) Concept Evaluation Program (CEP).** The F<sup>2</sup>C<sup>2</sup> is an ongoing series of brigade-level, interactive, simulation-supported, command post experi-

ments begun in 1999 that are conducted in a unique Fires Test Bed at Fort Sill and use III Corps Artillery soldiers as test battle staffs. The purpose of the experiments is to re-engineer personnel, systems and information architectures to accomplish full-spectrum effects-based fire. The effects-based fires concept is described by Colonel Jerry C. Hill and Major Carl R. Trout in their article "Effects-Based Fires: The Future of Fire Support Coordination and Execution" in this edition.

The catalyst for changing the FA was the FA Vision outlined in the Chief of Field Artillery Major General Leo J. Baxter's article, "Meeting the Future: State of the Field Artillery 1998" in the 1998 November-December Red Book. The chief's vision describes a strategy for adapting to new patterns of operations with next-generation organizations, information and systems technologies. The FA Vision was also the catalyst for starting the series of future fires command and control experiments.

The Depth and Simultaneous Attack Battle Lab (D&SA BL) at Fort Sill formed an advanced concepts team to conduct the experiments. The team is made up of behavioral scientists from the Human Research and Engineering Directorate of the Army Research Laboratory and software developers and information technologists from industry and the Army Materiel Command.

The primary areas of interest in the experiments are organizational transformation, such as the effects coordination center (ECC) and future Field Artillery battalion tactical operations centers (TOCs), and effects management. Organizational transformation involves separating battalion command from tactical fire control, while effects management addresses requirements for centralized planning and coordination of effects-based fires.

In brief, the concept team is using a series of focused, quick turn-around, in-house experiments to operationalize the FA Vision and help determine the FA's organizational transformation. For the FA to transform rapidly into the force needed for the future, the solutions must be timely and relevant and our fires culture must be willing to adopt new methods for improving fires and effects planning, coordination and distribution.

**The Fires Test Bed.** This is a research facility that can produce a realistic synthetic battlefield to evaluate operational

concepts. It is made up of a system of constructive warfighting simulations; command post mock-ups linked by a digital, single-channel ground and airborne radio system (SINCGARS)-compatible communications network; and re-configurable work stations that support a wide range of battlefield visualization technologies.

The test bed is instrumented to facilitate in-depth measurement of performance and unobtrusive observation of command post activities. In addition to the experimental applications, the test bed can support command post training or be linked to large-scale training or exercise events.

The experiments simulate a rapidly evolving distributed battlefield consisting of overlapping operational requirements for humanitarian assistance, peacekeeping and warfighting that tax the resources of the ECC and brigade. Each F<sup>2</sup>C<sup>2</sup> experiment employs an expansive, nonlinear battlefield setting to allow the ECC players to conduct information-centric operations and leverage information superiority. The intent is to create an operational environment where the problems are complex, information sources overlap and converge, and collaborative problem solving is central to accomplishing mission critical tasks.

Several simulations make up the distributed, interactive environment. Fire support systems operated in FireSim XXI, a Battle Lab-managed simulation that processes tactical information to the decision support system. High-resolution maneuver operations are simulated in the joint conflict and tactical simulation (JCATS). JCATS represents complex and urban terrain features that are especially important in small-scale contingency operations. The in-flight, three-dimensional terrain model for unmanned aerial vehicles (UAVs) is simulated in the multiple unified simulation environment (MUSE) model. The extended air defense simulation (EAD-SIM) provides intelligence feeds from national assets to spot reports from individual soldiers.

This type of environment demands adaptive thinking and team collaboration, as the information about the situation is unclear, extensive and often conflicting. Several operational issues have been identified for further exploration. What is the arrangement of personnel and systems necessary to leverage information dominance? What interfaces and information linkages define pro-

posed operational architectures? What information technologies are most suitable to gather, organize and display information for effects processing?

The results of these experiments point the way toward defining the information needs of fires organizations and highlight functional requirements for a future effects control system (ECS) that will replace the advanced FA tactical data system (AFATDS). The experiments also are offering insights for performance on distributed battlefields.

**Issues, Insights and Implications.** F<sup>2</sup>C<sup>2</sup> experiments require the player-participants to operate “outside of the box” to examine the key tenets of the FA Vision: manage effects-based fires, transform the force organizationally, tailor the force dynamically and move to munitions centrality. Emerging F<sup>2</sup>C<sup>2</sup> results illustrate the complex nature of on-going transformation processes and provide insights for information management, training, organizing, equipping and fighting forces for future operations.

*Overcoming Information Barriers.* Information technology is a key enabler for successfully transforming to future organizations. The development, maintenance and sharing of situational awareness within and between command posts are necessary, but not sufficient for ensuring an efficiently adaptable battle staff.

The F<sup>2</sup>C<sup>2</sup> experiments introduced prototype information systems to test theories about knowledge engineering and team collaboration. Two barriers had to be overcome: the notion that information in itself is power and the lack of collaborative tools to support military decision-making processes.

Information filters and intelligent agents were introduced to reduce the impact of information overload on performance. This was accomplished by introducing the battlefield visualization tool called the future fires decision support system (F<sup>2</sup>DSS), which is prototype software that displays the common operating picture of friendly and enemy situations. F<sup>2</sup>DSS can be configured at the different work stations to provide timely information relevant to the operator, including the status of all acquisition,

lethal and non-lethal attack assets available to the brigade. It also provides ECC operators total asset visibility, including army force (ARFOR) collection platforms and joint systems.

The F<sup>2</sup>DSS computer displays do not replace the need for voice communications between commanders and for unit cross-talk and situation reports when these information exchanges are critical to battle outcomes.

The F<sup>2</sup>DSS that improves battlefield visualization and information sharing is facilitating the transformation to the ECC. With F<sup>2</sup>DSS, the battle staff can shift its focus from individual information maintenance and gathering to team problem solving. Even though F<sup>2</sup>DSS is a prototype, it enables the smaller ECC to function.

*ECC Organization and Operations.* The ECC experiment consisted of intelligence, targeting and effects staff elements that planned coordinated and provided full-spectrum effects through the F<sup>2</sup>DSS. The ECC is a multifunctional team where targeting, lethal and nonlethal effects processing, battle management and planning are interdependent tasks.

The coordination of effects to support the scheme of maneuver was complicated by the responsibility to reconcile every action with the rules of engagement (ROEs)—especially when the ROEs were ambiguous, unclear and conflicting.

*Role of Unmanned Aerial Vehicles.* The unmanned aerial vehicle (UAV) proved a versatile tool important for intelligence gathering and targeting. The UAV was employed in several roles. One role was as an intelligence, surveillance and reconnaissance (ISR) asset to provide over-the-hill intelligence.



F<sup>2</sup>C<sup>2</sup> Targeting Element

The ECC is a multifunctional team where targeting, lethal and nonlethal effects processing, battle management and planning are interdependent tasks.





Synchronization of fires and effects with maneuver was key to shaping the fight and creating the time and distance needed to defeat enemy forces.

Because ISR operations were widely dispersed, the maneuver elements of the brigade lacked the “eyes” to look deep or ensure intelligence collection in-depth. Once gaps in the intelligence picture arose, the UAV served as a collection tool that was focused on the brigade’s critical area.

Subsequently, the UAV was re-tasked to perform targeting for shaping or counterfire operations. The UAV was most effective for targeting when the UAV controller and targeting officer were collocated so both saw the image and had constant communications. UAV operations were somewhat less effective when only the targeting officer was able to see the images.

UAV employment will be critical in developing the enemy situation. The operational control of the UAV as well as the positioning of the controller and downlink for imagery must be evaluated as part of future experimentation.

*Exploitation of Intelligence Assets.* Links and feeds from joint and ARFOR intelligence, targeting and attack assets were important to the success of the brigade’s operations. The lighter, more mobile brigade does not have many organic intelligence or targeting assets.

Timely and direct access to joint and ARFOR intelligence information and the ability to influence the employment of assets were important components of the shaping and counterfire fights. In one engagement when joint and ARFOR intelligence assets were denied, the brigade was unable to conduct the counterfire fight effectively.

*Preemptive Counterfire.* The ECC’s ability to target and attack indirect fire systems at depth was a major force multiplier in the brigade fight. The infantry-based brigade force was very

vulnerable to indirect fire. Enemy artillery forces used during major theater of war (MTW) offensive and defensive simulated scenarios employed more artillery systems with greater range capabilities. The enemy employed small concentrations of artillery that operated from dispersed firing positions as an effective tactic to neutralized the friendly force’s ability to attack his assets via the air or mass fires.

Fighting a primarily reactive counterfire fight al-

lowed the enemy to inflict casualties and suppress direct fire weapons as he closed on friendly battle positions. During a reactive counterfire fight, the brigade had insufficient counterfire radar systems to cover its entire area of operations and its attack assets had limited effect.

*Shaping the Fight with Fires and Effects.* During the MTW engagements, the synchronization of fires and effects with maneuver was key to shaping the fight and creating the time and distance needed to defeat enemy forces. Attack assets, such as electronic warfare (EW), attack helicopters and close air support (CAS), were an important part of the shaping fight. High-mobility artillery rocket system (HIMARS) fires had little effect against moving or armored targets. Long-range artillery and CAS were the principal killing effects employed for the reconnaissance, surveillance and target acquisition (RSTA) squadron.

As enemy formations synchronized their main and supporting attacks, large numbers of massed, close fires were required simultaneously at multiple locations throughout the MTW operations. These fires were critical to slow and attrit the enemy so maneuver forces had favorable conditions for the close fight. When the enemy mechanized and motorized units were able to close with the friendly motorized battalions using the terrain, urban areas or mass, they inflicted extremely heavy casualties.

**Future Challenges.** The F<sup>2</sup>C<sup>2</sup> experiments need to continue to explore future fires for urban warfare; tools for assessing nonlethal effects; improved means for measuring the situational awareness process and team work performance; and collaborative tools for planning, mission rehearsals and deci-

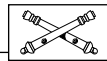
sion-making that are embedded in data processors.

The experiment process merely scratched the surface of urban fire support requirements. The traditional fire support tasks of isolating the objective, attacking the reserve and conducting counterfire were insufficient because maneuver battalions still had to clear each building and city block to meet their mission requirements. Rocket and mortar fires were ineffective in supporting fighting in buildings. Future experiments must evaluate tactics and techniques for destroying buildings and assess the effects of rubble on the fight.

No tools or simulations for processing or assessing nonlethal effects are available (information operations, psychological operations and civil affairs). The ECC needs the means to plan, execute and assess the effectiveness of nonlethal effects to perform its mission critical tasks.

The Army is committed to a process of systematically revolutionizing how the FA will operate on future battlefields where our roles and missions will require command posts that are agile, versatile and multifunctional. The approach implemented during the F<sup>2</sup>C<sup>2</sup> CEP provides a research environment where emerging concepts can be put to the test—can be taken from concepts to a living laboratory. This approach also gives combat and materiel developers the performance data they need to formulate requirements and tactics, techniques and procedures for future effects-based organizations.

F<sup>2</sup>C<sup>2</sup> experimentation facilitates the rapid transition of fires and effects doctrine, training, organizations, and materiel systems to the force.



Lieutenant Colonel (Retired) William A. Ross, until recently was a Senior Research Scientist with L-3 Communications, Inc., conducting applied and field research for the Army Research Laboratory in the Depth and Simultaneous Attack Battle Lab at Fort Sill, Oklahoma. He served as the Operational Manager for a series of Future Fires Command and Control (F<sup>2</sup>C<sup>2</sup>) Concept Evaluation Program (CEP) experiments. He is now a Senior Project Engineer for the Operational Testing of Crusader, working for United Defense Limited Partnership in Minneapolis, Minnesota. Lieutenant Colonel Ross, Field Artillery, retired from the Army in 1988. His last assignment was as Chief of Mobile Training Team B, part of the Battle Command Training Program at Fort Leavenworth, Kansas.



# 2001 *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.

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

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

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

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

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

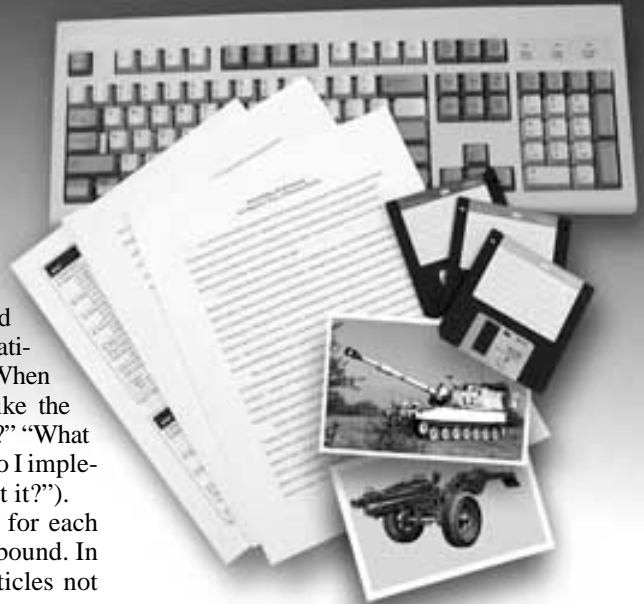
*Field Artillery* has a theme for each edition, but we're not theme-bound. In most editions, we include articles not related to the theme.

**Submissions.** Include—

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

Send a PC-formatted text disk along with the hard copy of the manuscript. (We use MS Word 97.) Please do not layout your article with columns and graphics inserted or use the automatic footnote feature of some software programs; it causes us extra work to strip out the design before editing it and moving it to layout.

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



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

The *Field Artillery* staff will edit all manuscripts and put them in the magazine's style and format. Authors will receive a "check copy" of the edited version before publication.

**Magazine Information.**

- Call us at DSN 639-5121 or 6806 or Commercial (580) 442-5121 or 6806. To Fax, call DSN or Commercial 7773. Our email is famag@sill.army.mil.

- Mail your submission to us at *Field Artillery*, P.O. Box 33311, Fort Sill, Oklahoma 73503-0311.

- Over-night your submission to us to Building 758, Room 7, McNair Road, Fort Sill, Oklahoma 73503-5600.

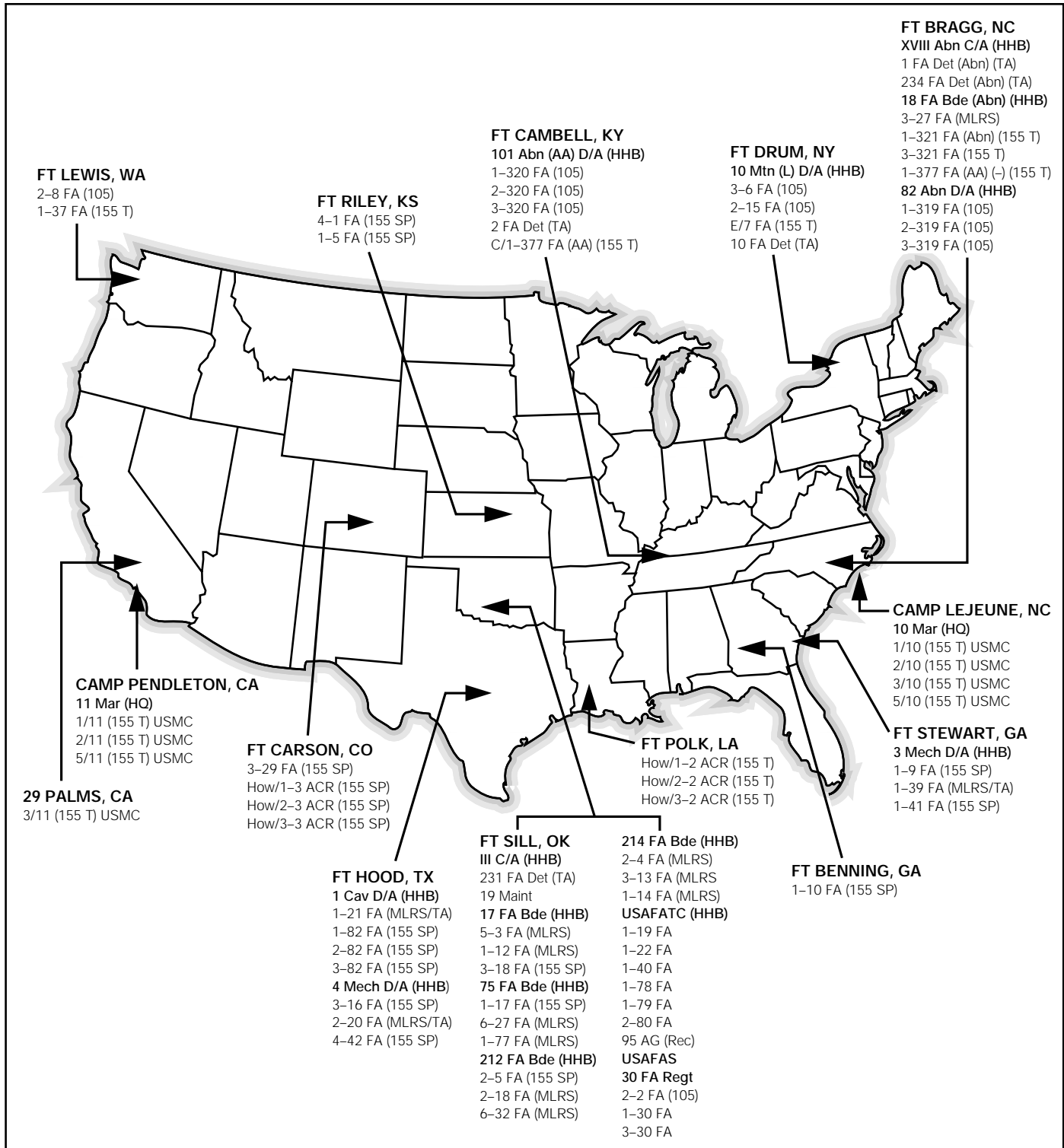
- View our home page at <http://sill-www.army.mil/famag>.

2001 <i>Field Artillery</i> Themes		
<i>Edition</i>	<i>Theme</i>	<i>Deadline</i>
<i>Jan-Feb</i>	<i>The FA Battery</i>	<i>1 Oct 2000</i>
<i>Mar-Apr</i>	<i>Supporting the Maneuver Commander</i>	<i>1 Dec</i>
<i>May-Jun</i>	<i>Targeting</i>	<i>1 Feb 2001</i>
<i>Jul-Aug</i>	<i>History</i>	<i>1 Feb: History Contest 1 Apr: Other</i>
<i>Sep-Oct</i>	<i>FA and Fire Support Doctrine</i>	<i>1 Jun</i>
<i>Nov-Dec</i>	<i>Transforming the Force</i>	<i>1 Aug</i>



# Active Army and Marine Units in CONUS

As of 1 November 2000





# Active Army and Marine Units in OCONUS

As of 1 November 2000

### Republic of Germany

- IDAR OBERSTEIN**  
1-94 FA (MLRS/TA)
- BAUMHOLDER**  
1st AR D/A (HHB)  
4-27 FA (155 SP)
- GIESSEN**  
2-3 FA (155 SP)
- SCHWEINFURT**  
1-7 FA (155 SP)
- BAMBERG**  
1 Mech D/A (HHB)  
1-6 FA (155 SP)  
1-33 FA (MLRS/TA)
- BABENHAUSEN**  
41 FA Bde (HHB)  
1-27 FA (MLRS)
- SCHWETZINGEN**  
V C/A (HHB)

### Italy

- VICENZA**  
D/319 FA (105)

### Okinawa

- CAMP HANSEN**  
12 Mar (HQ)  
3/12 (155 T) USMC

### Republic of Korea

- CAMP HOVEY**  
2-17 FA (155 SP)
- CAMP CASEY**  
1-15 FA (155 SP)
- CAMP STANLEY**  
2 IN D/A (HHB)  
6-37 FA (MLRS)  
F/26 FA (TA)  
A/38 FA (MLRS)

### Hawaii

- KANEOHE BAY**  
1/12 (155 T) USMC
- SCHOFIELD BARRACKS**  
25 IN (L) D/A (HHB)  
3-7 FA (105)  
2-11 FA (105)  
F/7 FA (155 T)  
25 FA Det (TA)

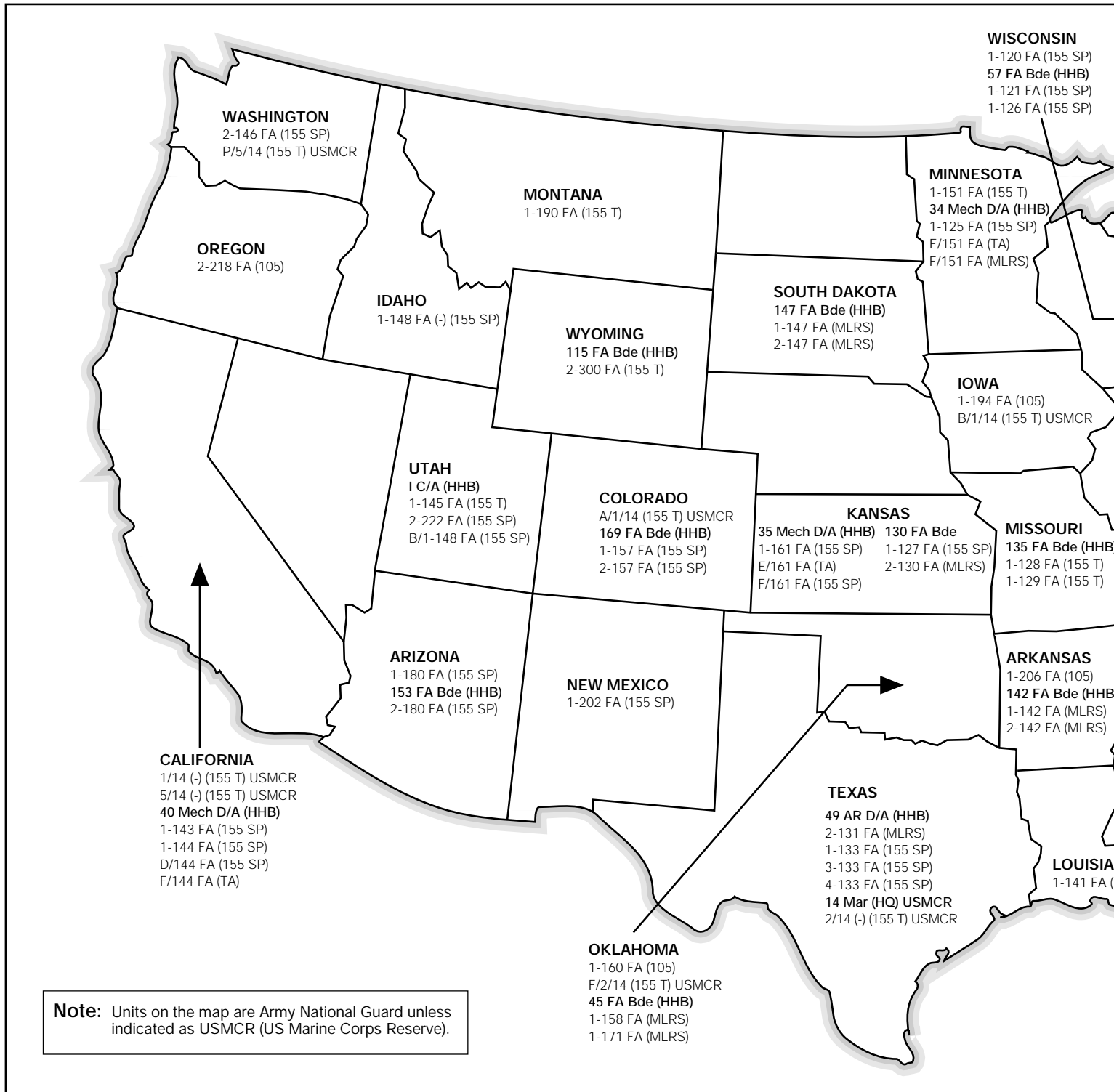
### Alaska

- FT WAINWRIGHT**  
4-11 FA (-) (105)
- FT RICHARDSON**  
C/4-11 FA (105)



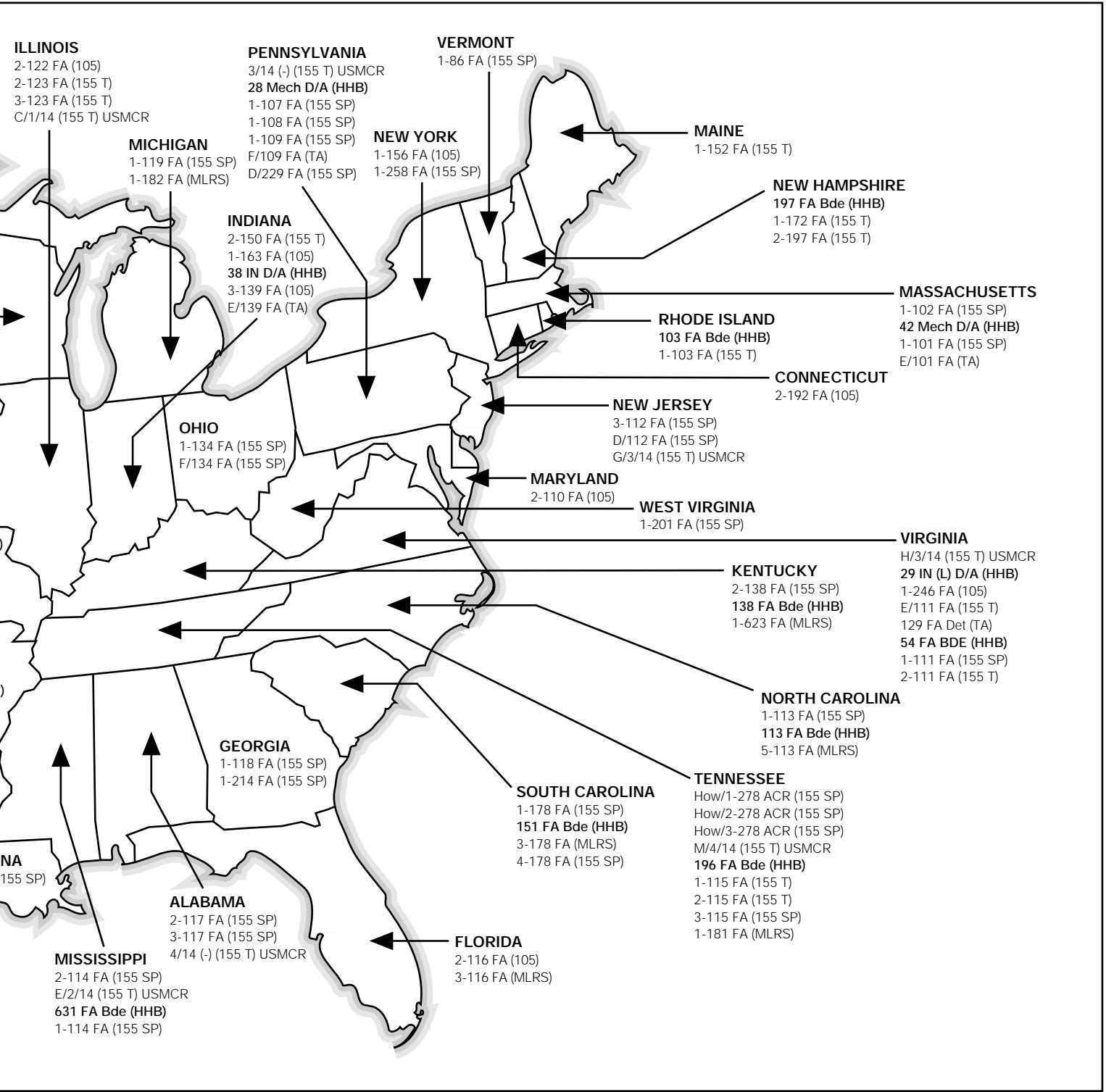
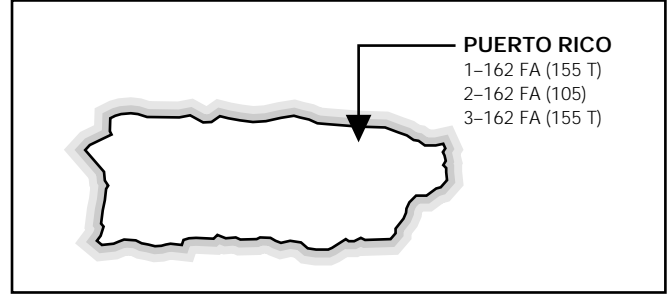
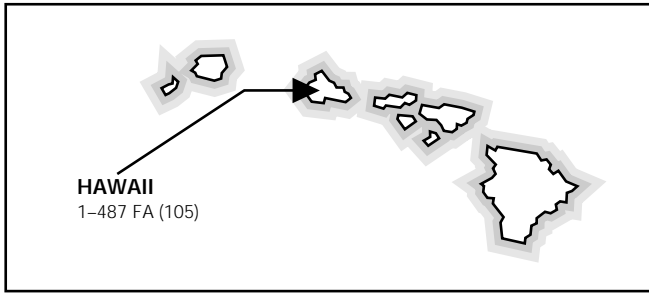
# Army National Guard and Marine Reserves

As of 1 November 2000



**Note:** Units on the map are Army National Guard unless indicated as USMCR (US Marine Corps Reserve).







# Field Artillery Commanders and Command Sergeants Major COMMAND UPDATE

As of 1 November 2000

## Active Army

### Training and Doctrine Command

US Army Field Artillery School and Fort Sill

**MG Stricklin, Toney**  
Commandant/CG

**CSM Williams, Anthony J.**  
Fort Sill

**BG Engel, William F.**  
Asst Commandant

**CSM Hatcher, Ricky L.**  
Trng Cmd

**COL Madden, Michael T.**  
CSM Hatcher, Ricky L.  
30th FA Regiment

**LTC Raymond, William M., Jr.**  
CSM Walton, Larry  
2d Bn, 2d FA

**LTC Boyle, Brian T.**  
CSM Kelly, John E., Jr.  
1st Bn, 30th FA

**LTC Haithcock, John L., Jr.**  
SGM Rodriguez, Wilson E.  
3d Bn, 30th FA

**COL O'Donnell, Thomas J.**  
CSM Drummond, Walter L.  
FA Training Center

**LTC DuRant, Brian D.**  
CSM Moyer, Jeffrey L.  
1st Bn, 19th FA

**LTC Sheridan, Edward W.**  
CSM Rush, Gaylon C.  
1st Bn, 22d FA

**LTC Wreford, David V.**  
CSM Sandel, Joseph M.  
1st Bn, 40th FA

**LTC Puckett, Anthony J.**  
CSM Reed, Morgan B.  
1st Bn, 78th FA

**LTC Condry, Mark E.**  
CSM Cavis, Wes Z.  
1st Bn, 79th FA

**LTC Fulton, Christopher T.**  
CSM Vazquez, Enrique Rosario  
2d Bn, 80th FA

**LTC Henkel, Louis O.**  
CSM Mulvany, Ralph E.  
95th AG Bn (Rec)

## Forces Command

### III Corps

**BG Bourn, Guy M.**  
CSM Sturdivant, Lash L.  
III Corps Arty

**LTC Winnewisser, William T.**  
CSM Garcia, Luis A.  
19th Maint Bn

**COL Oaksmith, Sidney G.**  
CSM Byrd, Willie L.  
17th FA Bde

**LTC Snyder, John B.**  
CSM Ramirez, Armando  
5th Bn, 3d FA

**LTC Agron, Gary A.**  
CSM McPherson, Carl B.  
1st Bn, 12th FA

**LTC Lingenfelter, Michael D.**  
CSM Burks, William H., Jr.  
3d Bn, 18th FA

**COL Hampton, David R., Jr.**  
CSM Ashe, Robert T.  
75th FA Bde

**LTC Lull, Kenneth J.**  
CSM Pagan, Americo  
1st Bn, 17th FA

**LTC Davis, James L.**  
CSM Peterson, Willie L.  
6th Bn, 27th FA

**LTC Tillman, Mark E.**  
CSM Ousley, Allie R.  
1st Bn, 77th FA

**COL Blum, Robert M.**  
CSM Talley, Marty R.  
212th FA Bde

**LTC Crawford, Cardon B.**  
CSM Woods, Randall A.  
2d Bn, 5th FA

**LTC Ashworth, Eric L.**  
CSM Batts, Adner M.  
2d Bn, 18th FA

**LTC Smith, Stephen T.**  
CSM Wood, Eddie  
6th Bn, 32d FA

**COL Hall, Russell J.**  
CSM Collins, Joseph  
214th FA Bde

**LTC Haught, David D.**  
CSM Gosha, Lucius G.  
2d Bn, 4th FA

**LTC Laski, Paul A.**  
CSM Williams, Albert R.  
3d Bn, 13th FA

**LTC Baker, Peter R.**  
CSM Bushue, William P.  
1st Bn, 14th FA

### XVIII Airborne Corps

**BG Thrasher, Alan W.**  
CSM Shady, Robert C.  
XVIII Abn Corps Arty

**COL Vangjel, Peter M.**  
CSM King, Dennis M.  
18th FA Bde

**LTC Meyer, Calvin H.**  
SGM Kelly, Shelton J.  
3d Bn, 27th FAR

**LTC Mathis, James J.**  
CSM Parrish, George L.  
1st Bn (Abn), 321st FA

**LTC Carr, Damian P.**  
CSM Delaconcepcion, Melquiades  
3d Bn, 321st FAR

**LTC Harp, Glenn W.**  
CSM Friday, Ronald D.  
1st Bn, 377th FAR (AAslt)

### Division Artilleries

**COL Hammond, Jeffery W.**  
CSM Schindler, Gerald R.  
1st Cav Div Arty

**LTC Reid, Carlton B., Jr.**  
CSM Phipps, Marlon B.  
1st Bn, 21st FA

**LTC Bourque, Alan G.**  
CSM McMurtrie, Thomas O.  
1st Bn, 82d FA

**LTC Silvers, Jack D.**  
CSM Jones, Willie B.  
2d Bn, 82d FA

**LTC Batschelet, Allen W.**  
CSM Benedict, James A.  
3d Bn, 82d FA

**COL Bergner, Kevin J.**  
CSM Nelson, Jerry  
3d IN Div (Mech) Arty

**LTC Gilliam, Walter L.**  
CSM Zagara, Darius A.  
1st Bn, 9th FA

**LTC Herold, Ernest J., III**  
CSM Porter, Ronnie  
1st Bn, 10th FA

**LTC Anderson, David S.**  
CSM Torresleon, Jose C.  
1st Bn, 13th FA

**LTC Biehler, Mark A.**  
CSM Colbert, Chester, Jr.  
1st Bn, 39th FA

**COL Allen, Charles B.**  
CSM Shelly, Earl L.  
4th IN Div (Mech) Arty

**LTC Williams, Darryl A.**  
CSM Wyatt, Lazarus D.  
3d Bn, 16th FA

**LTC Bowers, Michael W.**  
CSM Garcia, Billy A.  
2d Bn, 20th FA

**LTC Langford, Gary D.**  
CSM Speed, Cornelius W.  
3d Bn, 29th FA

**LTC Francey, Richard M.**  
CSM Howell, James M.  
4th Bn, 42d FA

**COL Bartell, Arthur M.**  
CSM Beck, Rodney L.  
10th Mtn Div (L) Arty

**LTC Nannini, Vance J.**  
CSM Moore, William G.  
3d Bn, 6th FA

**LTC Johnson, Samuel H.**  
CSM Blessing, Raymond K.  
2d Bn, 15th FA

**COL Cerrone, James A.**  
CSM Amacker, Wilfried W.  
82d Abn Div Arty

**LTC Uberti, John**  
CSM Redmore, James W.  
1st Bn, 319th AFAR

**LTC Grymes, Robert D.**  
CSM Watson, Larry L.  
2d Bn, 319th AFAR

**LTC Petrenko, Victor**  
CSM Williams, Michael W.  
3d Bn, 319th AFAR

**COL Keefe, Daniel J.**  
CSM Shaw, Oscar  
101st Abn Div (AAslt) Arty

**LTC Crawford, Brian A.**  
CSM Dunham, Willie R.  
1st Bn, 320th FA

**LTC Worrell, Harold H., Jr.**  
CSM McLaurin, James S.  
2d Bn, 320th FA

**LTC Sweeney, Patrick J.**  
CSM Lewellen, Gary W.  
3d Bn, 320th FA

### Separate Units

LTC **Barry, Robert F., II**  
CSM Crawford, Arthur L.  
4th Bn, 1st FA  
(1st AR Div Arty)

LTC **Lanza, Stephen R.**  
CSM Mathurin, Winston E.  
1st Bn, 5th FA  
(1st IN Div (Mech) Arty)

LTC **Jaros, Dennis J.**  
CSM Roberts, Bruce D.  
2d Bn, 8th FA  
(25th IN Div (L) Arty)

LTC **Larsen, Henry S., III**  
CSM Sanders, Ronald H.  
1st Bn, 37th FA  
(Initial BCT)

### US Army Europe

#### V Corps

COL **Hayes, Michael T.**  
CSM Allen, John G.  
V Corps Arty

COL **Flake, Jackson L., III**  
CSM Ellenburg, William L., Jr.  
41st FA Bde

LTC **Doty, Joseph P.**  
CSM Cotham, John A.  
1st Bn, 27th FA

#### Division Artilleries

COL **Nolan, Daniel A., III**  
CSM Canuela, Gilbert L.  
1st AR Div Arty

LTC **McHugh, Stephen J.**  
CSM Dismuke, Thurman A.  
2d Bn, 3d FA

LTC **Hoy, James R., Jr.**  
CSM Delano, Douglas C.  
4th Bn, 27th FA

LTC **Cheshire, Walter R.**  
CSM Croley, Vernon  
1st Bn, 94th FA

COL **Morgan, John W., III**  
CSM Donohue, Thomas J.  
1st IN Div (Mech) Arty

LTC **Mueller, Mark R.**  
CSM Victorino, James P.  
1st Bn, 6th FA

LTC **Waring, James M.**  
CSM Cabrera, Charles  
1st Bn, 7th FA

LTC **Snyder, Robert D.**  
CSM Finkle, Timothy M.  
1st Bn, 33d FA

### US Army Pacific

COL **Halverson, David D.**  
CSM Warren, James R., Jr.  
2d IN Div Arty

LTC **Merrick, Matt R.**  
CSM Judie, Edward, Jr.  
1st Bn, 15th FA

LTC **Kinne, Gary S.**  
CSM Sherrill, James A.  
2d Bn, 17th FA

LTC **Shealy, Luther F.**  
CSM White, David A.  
6th Bn, 37th FA

COL **Anderson, Rodney O.**  
CSM Hopkins, Charles D.  
25th IN Div (L) Arty

LTC **Roper, Daniel S.**  
CSM Williams, Tommy A.  
3d Bn, 7th FA

LTC **Dahl, Kenneth R.**  
CSM Dunn, Gerald R.  
2d Bn, 11th FA

### Separate Unit

LTC **Travas, Todd J.**  
CSM Chaves, Manuel F., Jr.  
4th Bn, 11th FA  
(172d Sep IN Bde)

## Army National Guard

#### I Corps

BG **Johnson, J. D.**  
CSM Walbeck, William B.  
I Corps Arty

LTC **Liechty, Michael R.**  
CSM Stone, Steven T.  
1st Bn, 145th FA

LTC **Oyler, Francis G.**  
CSM Summers, Bruce D.  
2d Bn, 222d FA

#### Brigades

COL **Bray, Gary D.**  
CSM Bennett, Larry P.  
45th FA Bde

COL **Roshell, Robert W.**  
CSM Jouret, James V.  
1st Bn, 158th FA

LTC **Moore, Glen E.**  
CSM Dacus, Galen A.  
1st Bn, 171st FA

LTC(P) **Batts, Frank E.**  
CSM Halfacre, Howard E.  
54th FA Bde

LTC **Williams, Timothy P.**  
CSM Eacho, James E.  
1st Bn, 111th FA

LTC **Earhart, Douglas B.**  
CSM Frye, Zane D.  
2d Bn, 111th FA

COL **Schiller, James A.**  
CSM Shapiro, Marc O.  
57th FA Bde

LTC **Clark, Jeffrey J.**  
CSM Klug, Thomas D.  
1st Bn, 121st FA

LTC **Cariello, Dominic A.**  
CSM Gifford, James T.  
1st Bn, 126th FA

COL **Walsh, Charles F.**  
CSM McDonough, John J., IV  
103d FA Bde

LTC **Rooney, Joseph E.**  
CSM Pereira, Armand M.  
1st Bn, 103d FA

COL **Newton, Joel B.**  
CSM Ingram, Larry G.  
113th FA Bde

LTC **McCormack, Michael E., II**  
CSM Sampson, Richard M.  
1st Bn, 102d FA

LTC **Beard, Kenneth A.**  
CSM Daniels, Allen C., Jr.  
5th Bn, 113th FA

COL **Wright, Edward L.**  
CSM Russell, Dennis R.  
115th FA Bde

LTC **Patterson, John W.**  
CSM Varner, Marvin S.  
1st Bn, 190th FA

LTC **Luce, Gerald G.**  
CSM Willis, James L.  
2d Bn, 300th FA

COL **Stewart, James M.**  
CSM Putman, Dale L.  
130th FA Bde

LTC **Wiker, David A.**  
CSM Brown, Kenneth C.  
1st Bn, 127th FA

LTC **Duckworth, Alexander E.**  
CSM Bahr, Ronald E.  
2d Bn, 130th FA

COL **Heldenbrand, Dennis W.**  
CSM Rich, William B., II  
135th FA Bde

LTC **Kesterson, James C., Jr.**  
CSM McRoberts, Thomas R.  
1st Bn, 128th FA

LTC **Koons, Steven E.**  
CSM Estes, Danny R.  
1st Bn, 129th FA

COL **Nicholas, Robert M.**  
CSM Pendleton, Thomas D.  
138th FA Bde

LTC **Watson, Robert P.**  
CSM Hoffman, William F.  
1st Bn, 623d FA

COL **Ross, George M.**  
CSM Fagala, Robin F.  
142d FA Bde

LTC **Payne, Everett S.**  
CSM Kelly, Clarence H.  
1st Bn, 142d FA

LTC **Montgomery, Jeffrey W.**  
CSM Branch, Gary D.  
2d Bn, 142d FA

COL **Bray, Robert T.**  
CSM Leonard, Thomas D.  
147th FA Bde

LTC **Sewell, Stephen E.**  
CSM Bertsch, Gerald T.  
1st Bn, 147th FA

LTC **Michlitsch, Harvey A.**  
CSM Kotzea, Dale D.  
2d Bn, 147th FA

COL **Mabry, Buford S., Jr.**  
CSM Ward, Franklin P.  
151st FA Bde

LTC **Griese, James C.**  
CSM Mungo, Charles M.  
3d Bn, 178th FA

LTC **Pipkin, Roy P.**  
CSM Elliot, Eddie G.  
4th Bn, 178th FA

COL **Borrmann, Donald W.**  
CSM Lara, Ysabel S.  
153d FA Bde

LTC **Grayson, James E., Jr.**  
CSM Elifritz, James R.  
2d Bn, 180th FA

COL **O'Hara, Patrick M.**  
CSM Huskey, Rodney D.  
169th FA Bde

LTC **Bergquist, Marcelo R.**  
SGM(P) Summers, Thomas E.  
1st Bn, 157th FA

LTC **Giebel, Gary D.**  
CSM Collins, Richard M.  
2d Bn, 157th FA

COL **Greer, David E.**  
CSM McDaniel, John C., Jr.  
196th FA Bde

LTC **Guthrie, Michael J.**  
CSM Minter, Dwight F.  
1st Bn, 115th FA

LTC **Sipes, James T.**  
CSM Stevens, Barrett M.  
2d Bn, 115th FA

LTC **Geren, Joe C., Jr.**  
CSM Turner, William B., Jr.  
3d Bn, 115th FA

LTC **Quinn, Carl T.**  
CSM Gentry, Gary J.  
1st Bn, 181st FA

COL **Aubin, John P.**  
CSM Crotto, Gregory H.  
197th FA Bde

LTC **Duncan, Richard K.**  
CSM Gibbons, Christopher S.  
1st Bn, 172d FA

LTC **Lavertue, Daniel R.**  
CSM Starr, John D.  
2d Bn, 197th FA

COL **Pierce, Billy L.**  
CSM Cummins, Ancl W.  
631st FA Bde

LTC **Melton, Donald R.**  
CSM Williams, Johnny F.  
1st Bn, 114th FA

LTC **Andrews, Curtis W.**  
CSM Vacant  
2d Bn, 117th FA

LTC **Harmon, Blake L.**  
CSM Snyder, Pugh K.  
3d Bn, 117th FA

#### Division Artilleries

COL **Scott, Mark W.**  
CSM Buch, Howard W., Jr.  
28th IN Div (Mech) Arty

**LTC Leppo, Allen W.**  
CSM Winiiecki, Ronald E.  
1st Bn, 107th FA

**LTC Marchi, Randall R.**  
CSM Fonce, James J.  
1st Bn, 108th FA

**LTC Vonderheid, Gail V.**  
CSM Vonstein, Dale T.  
1st Bn, 109th FA

**LTC(P) Gilliam, Dabney T.P., Jr.**  
CSM Sparkman, Miles E., III  
29th IN Div (L) Arty

**MAJ(P) O'Neill, William J.**  
MSG(P) King, James E., Jr.  
2d Bn, 110th FA

**LTC Tucker, Robert L.**  
CSM Glazener, Edwin H.  
1st Bn, 246th FA

**LTC Vahle, Francis J., Jr.**  
CSM Smith, Todd R.  
2d Bn, 192d FA

**COL Zieska, Kenneth W., Jr.**  
CSM Wog, Richard H.  
34th IN Div (Mech) Arty

**MAJ Mathwig, Mark W.**  
CSM Venaas, Bradley O.  
1st Bn, 120th FA

**LTC Bertrang, Jeffrey E.**  
CSM Beranek, Steven W.  
1st Bn, 125th FA

**LTC Bargfrede, Craig A.**  
CSM Kulow, Steven J.  
1st Bn, 194th FA

**COL Johnson, Calvin S.**  
CSM Wright, David L.  
35th IN Div (Mech) Arty

**LTC Ayala, Milton R.**  
CSM Kolessar, Paul  
2d Bn, 122d FA

**LTC Richie, Joseph M.**  
CSM Leach, John H.  
2d Bn, 138th FA

**LTC Thornbro, Michael A.**  
CSM Stevens, George E.  
1st Bn, 161st FA

**COL Bucklew, Keith J.**  
CSM Shelton, Joseph D.  
38th IN Div Arty

**LTC Osburn, Wesley N.**  
CSM Lincoln, Daniel G.  
1st Bn, 119th FA

**LTC Looten, Philip C.**  
CSM Payne, Thomas B.  
1st Bn, 134th FA

**LTC Morrison, Michael E.**  
CSM Severe, Thomas A.  
3d Bn, 139th FA

**COL Landrith, Gary S.**  
CSM Baker, Michael E.  
40th IN Div (Mech) Arty

**LTC Sawyer, Michael J.**  
MSG(P) Shields, Burdette  
1st Bn, 143d FA

**LTC Smith, John F.**  
CSM Pointer, John W.  
1st Bn, 144th FA

**LTC(P) Delaney, Michael J.**  
CSM Blevins, Johnny L.  
42d IN Div (Mech) Arty

**LTC Dever, Chip A.**  
SGM(P) Davison, Robert S.  
1st Bn, 101st FA

**LTC Corrigan, James T.**  
CSM Crossley, Robert F.  
3d Bn, 112th FA

**LTC Candiano, Frank A.**  
CSM Bailey, Curtis  
1st Bn, 258th FA

**COL Villarreal, Pedro G.**  
CSM Riley, Robert I.  
49th AR Div Arty

**LTC Mendez, Jerry**  
SGM(P) McCool, Ronald B.  
2d Bn, 131st FA

**LTC Sailors, James R.**  
SGM(P) Reeves, David E.  
1st Bn, 133d FA

**LTC Tello, Selso**  
CSM Frag, Roberto  
3d Bn, 133d FA

**LTC Hoggard, James S.**  
CSM Tafolla, Alexander G.  
4th Bn, 133d FA

**Separate Units**

**LTC Procopio, David J.**  
CSM Campbell, Steven F.  
1st Bn, 86th FA

**LTC Funck, Bernard R.**  
CSM Graves, Robert W.  
1st Bn, 113th FA  
(30th Sep Mech Bde)

**LTC Davis, Walter F.**  
CSM Marlow, Johnny N.  
2d Bn, 114th FA  
(155th Sep AR Bde)

**LTC Vergopia, Anthony J.**  
CSM Postle, Gary A.  
2d Bn, 116th FA  
(53d Sep IN Bde)

**LTC Laudano, Francis**  
CSM Kinghorn, David A.H.  
3d Bn, 116th FA

**LTC Lee, Kenneth D.**  
CSM Ray, Claude E., III  
1st Bn, 118th FA  
(48th Sep Mech Bde)

**LTC Swanson, Daniel M.**  
CSM Sanders, Ralph A., Jr.  
2d Bn, 123d FA

**LTC Miller, Joseph B.**  
CSM Dagley, Joe P.  
3d Bn, 123d FA

**MAJ(P) Hooper, Russell L.**  
CSM Butler, Harold, Sr.  
1st Bn, 141st FA  
(256th Sep Mech Bde)

**LTC Kern, Daniel R.**  
CSM Culhane, Francis J.  
2d Bn, 146th FA  
(81st Sep Mech Bde)

**LTC Kuemin, Richard A.**  
CSM Autenrieth, Robert E.  
1st Bn, 148th FA  
(116th Sep AR Bde)

**LTC Hill, Wayne L.**  
CSM Parsons, Jackie P.  
2d Bn, 150th FA

**LTC Jorgenson, Brent R.**  
CSM Ninneman, Jonathan J.  
1st Bn, 151st FA

**LTC Umphrey, Fred E.**  
CSM Genz, Geane N., Jr.  
1st Bn, 152d FA

**LTC Balfé, Brian K.**  
CSM Wilson, Louis E.  
1st Bn, 156th FA  
(27th Sep IN Bde)

**LTC Seitz, Charles R.**  
CSM Crowder, Bradford D.  
1st Bn, 160th FA  
(45th Sep IN Bde)

**LTC Coreova, Gonzalo**  
CSM Latorre, Felix  
1st Bn, 162d FA

**LTC Ortega, Jose L.**  
CSM Soto, Juan A.  
2d Bn, 162d FA  
(92d Sep IN Bde)

**LTC Rodriguez, Ricardo**  
CSM Otero, David  
3d Bn, 162d FA

**LTC Smock, William D.**  
CSM Carlile, Daniel E.  
1st Bn, 163d FA  
(76th Sep IN Bde)

**LTC Fudger, Wesley J., Jr.**  
CSM Williams, James A.  
1st Bn, 178th FA  
(218th Sep Mech Bde)

**LTC Salazar, Hugo E.**  
CSM Butler, Max I.  
1st Bn, 180th FA  
(11th ACR)

**LTC Sigmon, James R.**  
CSM Young, Yacob  
1st Bn, 182d FA

**LTC Diehl, Glen R.**  
CSM St. Clair, Patrick S.  
1st Bn, 201st FA

**LTC Patton, Dwight C.**  
CSM Torres, John B.  
1st Bn, 202d FA

**LTC Westenhaver, Randall C.**  
CSM Powell, Larry N.  
1st Bn, 206th FA  
(39th Sep IN Bde)

**LTC Beckton, Timothy D.**  
CSM Hewell, Gerald M.  
1st Bn, 214th FA

**LTC Hussey, Benjamin T., Jr.**  
CSM Nodurft, Larry W.  
2d Bn, 218th FA  
(41st Sep IN Bde)

**MAJ Tamashiro, Keith Y.**  
(Acting Commander)  
CSM Abe, Steven R.  
1st Bn, 487th FA  
(29th Sep IN Bde)

## Marines

**Col Gobar, Henry T.**  
SgtMaj Slater, Ronald D.  
10th Marines

**LtCol Brilakis, Mark A.**  
SgtMaj Cerda, Hector R.  
1st Bn, 10th Mar

**LtCol Singleton, Mark A.**  
SgtMaj Crout, Andy P.  
2d Bn, 10th Mar

**LtCol Walker, Jay D.**  
SgtMaj Brown, Michael A., Sr.  
3d Bn, 10th Mar

**LtCol Leitheiser, William J.**  
SgtMaj Brill, Francis G.  
5th Bn, 10th Mar

**Col Saylor, Bennett W.**  
SgtMaj Green, Jeffery A.  
11th Marines

**LtCol Gillespie, William**  
SgtMaj Bradley, Robert L.  
1st Bn, 11th Mar

**LtCol Englander, Owen W.**  
SgtMaj Lewis, James A.  
2d Bn, 11th Mar

**LtCol Tabak, James J.**  
SgtMaj Lee, Charles D.  
3d Bn, 11th Mar

**LtCol Campbell, Scott T.**  
SgtMaj Ward, Bryan P.  
5th Bn, 11th Mar

**Col O'Brien, Daniel C.**  
SgtMaj Dixon, Robin W.  
12th Marines

**LtCol Swain, Calvin F., Jr.**  
SgtMaj Mendiola, John M., Jr.  
1st Bn, 12th Mar

**LtCol O'Hey, John H.**  
SgtMaj Scharnhorst, David J.  
3d Bn, 12th Mar

**Col Rudder, Philip C.**  
SgtMaj Blagg, Thomas J.  
14th Marines

**LtCol Bartch, Richard O.**  
SgtMaj Ryan, Oliver A.  
1st Bn, 14th Mar

**LtCol Hessler, Mark**  
SgtMaj White, Ralph G.  
2d Bn, 14th Mar

**LtCol Brier, Paul W.**  
SgtMaj Staut, Joseph  
3d Bn, 14th Mar

**LtCol Forsburg, Ron**  
SgtMaj Howington, Jimmy G.  
4th Bn, 14th Mar

**LtCol Brown, Ralph N.**  
SgtMaj Deglaube, Daniel H.  
5th Bn, 14th Mar





# US Total Army Personnel Command FIELD ARTILLERY ASSIGNMENT BRANCHES

*As of 1 November 2000*

## Officers

**Telephone Numbers:** DSN 221-XXXX  
or Commercial (703) 325-XXXX  
Fax DSN or Commercial 5463

### Field Artillery Branch Chief

LTC Ricki L. Sullivan, 5368  
Email: sullivar@hoffman.army.mil

### Colonels Division/ Colonel Assignment

LTC James L. Creighton, Jr., 5634  
Email: creightj@hoffman.army.mil  
Fax DSN or Commercial 2783

### Lieutenant Colonel Assignments

LTC Kevin M. Batule, 5374  
Email: batulek@hoffman.army.mil  
Janet M. Petties, 0806  
Email: pettiesj@hoffman.army.mil

### Major Assignments

MAJ Bradley A. Becker, 3056  
Email: beckerb@hoffman.army.mil  
MAJ Kenneth L. Kamper, 5375  
Email: kamperk@hoffman.army.mil  
Janet M. Petties, 0806  
Email: pettiesj@hoffman.army.mil

### Captain Assignments (Branch Qualified)

CPT Robert G. Picht, Jr., 5367  
Email: pichtr@hoffman.army.mil  
John J. Chisolm, 5370  
Email: chisolmj@hoffman.army.mil

### Captain Assignments/FACCC (Non-Branch Qualified)

CPT Warren Christopher, 5369  
Email: christow@hoffman.army.mil  
John J. Chisolm, 5370  
Email: chisolmj@hoffman.army.mil

### Pre-Command Course

Janet M. Petties, 0806  
Email: pettiesj@hoffman.army.mil

### Lieutenant Accessions/ Assignments/FAOBC

Mary E. Patrick, 5366  
Email: patrickm@hoffman.army.mil  
Grace M. Toler, 5372  
Email: tolerg@hoffman.army.mil

### Warrant Officer Career Manager/ Assignments

CW5 Ronnie R. Mathews, 5240/5241  
Email: mathewsr@hoffman.army.mil  
Fax DSN or Commercial 5232

### Addresses

#### Colonels

Commander, PERSCOM  
ATTN: TAPC OPC  
200 Stovall Street, Suite 6N59  
Alexandria, VA 22332-0412

#### Lieutenant Colonels to Lieutenants

Commander, PERSCOM  
ATTN: TAPC-OPE-F  
200 Stovall Street, Suite 4N51  
Alexandria, VA 22332-0414

#### Warrant Officers:

Commander, PERSCOM  
ATTN: TAPC-OPW-FA/AD/EN  
200 Stovall Street, Suite 6N07  
Alexandria, VA 22332-0420

### Officers' Microfiche Records

Request microfiche in writing; include name, rank, SSN and address and sign/mail to: Commander, PERSCOM, ATTN: TAPC-MSR-S, 200 Stovall Street, Alexandria, VA 22332-0444. Officer Microfiche Records telephone number is DSN 221-9426 or Commercial (703) 325-9426. Officers may download a microfiche request form from <http://www.perscom.army.mil/opod/fiche.htm> and email the completed form to [offrcds@hoffman.army.mil](mailto:offrcds@hoffman.army.mil) or Fax the form to DSN 221-5204 or Commercial (703) 325-5204.

## Enlisted

**Telephone Numbers:** DSN 221-XXXX  
or Commercial (703) 325-XXXX; Fax DSN  
or Commercial 4533

### Field Artillery Branch Chief

LTC William A. Rigby, 5559  
Email: rigbyw@hoffman.army.mil

### Branch Sergeant Major

SGM Keith W. Rowles, 8764  
Email: rowlesk@hoffman.army.mil

### 13Z Senior Career Advisor (SFC-MSG)

MSG Lynn M. Baker, 8886  
Email: bakerl@hoffman.army.mil  
Lucy Salley, 7873  
Email: salleyl@hoffman.army.mil

### 13B (PVT thru SSG)

SFC Robert A. Smedley, 8881  
Email: smedleyr@hoffman.army.mil  
Tina M. Jacobs, 7879  
Email: jacobst0@hoffman.army.mil

### 13C/13D/13E/13R/93F (PVT thru SFC)

SFC James D. Manning, 8882  
Email: manning0@hoffman.army.mil  
Beverly C. Younger, 7874  
Email: youngerb@hoffman.army.mil  
Lucy Salley (13R/93F), 7873  
Email: salleyl@hoffman.army.mil

### 13M/13P (PVT thru SFC)

SFC Kenneth L. Johnson, 8885  
Beverly C. Younger, 7874  
Email: youngerb@hoffman.army.mil

### 13F/82C (PVT thru SFC)

SFC Jean Yves R. Wood, 8887  
Email: woodj@hoffman.army.mil

Kimberly D. Stewart, 7712  
Email: stewartk@hoffman.army.mil

### ANCOC/BNCOC/Service Schools

MSG Lynn M. Baker, 8886  
Email: bakerl@hoffman.army.mil

### Mail and Email Addresses and Telephone Numbers

Commander, PERSCOM  
ATTN: TAPC-EPK-F  
2461 Eisenhower Avenue  
Alexandria, VA 22331-0452

Call FA Enlisted Branch at DSN 221-7549 or Commercial (703) 325-7549 or 1-800-394-3763 (1-800-FYI-EPMD), which has a Help Menu. Email the Enlisted FA Branch at [epfa@hoffman.army.mil](mailto:epfa@hoffman.army.mil).

### Enlisted Microfiche Records

To request microfiche, go to the OMPF (official military personnel file) section of the Enlisted Records Evaluation Center (EREC), Fort Benjamin Harrison, Indiana, web site: <http://www.perscom.army.mil/erec/ompf.htm>. The web site tells how to request your OMPF (takes two to three weeks), how to review records when you will be at EREC in Indiana, how to update your OMPF and other information.

# SILHOUETTES OF STEEL

## I Corps Artillery

I Corps Artillery, ARNG, headquartered in Salt Lake City, Utah, continues to provide Total Force fire support to I Corps—America's Corps. Readiness and a focus on realistic training were our goals for the year. I Corps Artillery remains battle-focused and continues to prepare to deploy and fight anywhere, in any contingency.

This year I Corps Artillery participated in four major exercises. First was Cascade Mist, a precursor exercise to the I Corps BCTP Warfighter that was held in September at Fort Lewis, Washington, with the corps' base units. In January, I Corps Artillery deployed to Japan for another successful Yama Sakura exercise supported by the 115th FA Brigade from the Wyoming Army National Guard, the 153d FA Brigade from the Arizona Army National Guard and the 135th FA Brigade from the Missouri Army National Guard. In May, I Corps Artillery deployed to Thailand to take part in Cobra Gold.

In June, we participated in the Global Patriot exercise with deployments to Dugway Proving Ground, Utah, and Fort Lewis, Washington. The 2-123 FA, Illinois Army National Guard, and 1-152 FA, Maine Army National Guard, deployed to train with our Utah FA battalions in a very successful operation that included live firing for a JAAT. A headquarters slice from I Corps also supported operations with the FSE in the deep operations coordination cell (DOCC) during the exercise. Global Patriot was a joint exercise held with the Air National Guard and Air Force with operations centered on Dugway Proving Ground; Fort Drum, New York; and Shaw Air Force Base, South Carolina. The exercise focused on deep operations, managing air assets and working sensor-to-shooter links in the corps area of operations. The distributed exercise was portrayed in the joint conflict model operated at the I Corps Simulation Center at Fort Lewis.

In all these exercises, the corps artillery significantly influenced the battle by firing ATACMS at high-payoff targets deep in the corps and division zones and by planning, coordinating and executing all SEAD and joint SEAD missions in support of corps deep attacks. By employing advanced warfight-

ing techniques in the corps deep battle, we were instrumental in the OPFOR's overwhelming defeat.

I Corps Artillery has further enhanced its ability to command and control fires on the battlefield by successfully fielding Version 11 of AFATDS. Fielded in March, the new software will give I Corps Artillery the edge in fire support it needs to fight and win in any contingency.

I Corps Artillery has dedicated much of the year to prepare for I Corps' Warfighter to be held in the first part of the 2001 training year. We have participated in several DOCC exercises, to include Cascade Cudgel and Cascade Command at Fort Lewis. A major emphasis has been to develop a totally digital TOC.

**Utah ARNG.** I Corps Artillery plays an important and active role in the Utah Army National Guard in addition to its warfighting mission. Corps artillery provides administrative, logistical, operational and training support for two in-state battalions: the 1-145 FA (155-mm Towed) in Salt Lake City and 2-222 FA (Paladin) in Cedar City.

We also support a firing battery and FIST slice: B Battery, 1-148 FA (155-mm self-propelled) and Detachment 3, HHB, 1-148 FA, located in Logan and Salt Lake City, respectively. The latter units are part of the 1-148 FA headquartered in Boise, Idaho, which is DS to the 116th Armored Cavalry Brigade.

**RC FA Brigades.** I Corps Artillery continues to be a leader in providing training assistance, guidance and coordination for a major portion of the Reserve

Component Field Artillery brigades. These units and their associated Field Artillery battalions are located throughout the US.

Participation with these brigades during exercises and training conferences continues to be one of the highlights of I Corps Artillery's responsibilities. *America's Corps* Artillery is proud to be associated with these high-quality soldiers who are committed to the defense of our country.

January 2000 brought the I Corps fire support community together for the 18th Annual Fire Support conference at Salt Lake City. Brigadier General Stanley J. Gordon, I Corps Artillery Commander, hosted the conference and presented command guidance and direction for the corps fire support units. This guidance set the standards for the productive mission-oriented training for the upcoming year.

Conference attendees included LTG James T. Hill, Commander of I Corps; MG Roger C. Schultz, Director of the Army National Guard; BG Gordon, I Corps Artillery Commander; and a representative from the JRTC. Conference presentations covered a variety of fire support issues with presentations by the I Corps G2 and G3, Field Artillery School, I Corps Simulation Center, 311th Corps Support Command, as well as Training and Doctrine Command System Managers (TSMs).

Also in attendance were representatives from a large portion of the Field Artillery brigades, division artilleries, and separate Field Artillery battalions. The conference continues to provide an excellent opportunity for command interface in I Corps and the fire support community.

The conference concluded with a change of command ceremony. BG Gordon passed the colors to COL J.D. Johnson, who assumed command of I Corps Artillery, effective 8 January 2000.

The challenges of diminishing dollars, transitioning, restationing and new equipment findings are pressing, but all take a back seat to ensuring the nation has a viable fire support team ready to deploy worldwide. I Corps Artillery is committed to meeting the challenges and fusing the Total Force into one. We are truly ***America's Corps Artillery!***



A 2-222 FA Paladin roars down the road to the next firing point.

# SILHOUETTES OF STEEL

## III Corps Artillery

The IIIrd Armored Corps Artillery *Phantom Thunder* at Fort Sill, Oklahoma, is the Army's largest and most powerful concentration of artillery. This year, III Corps excelled in planning, training and executing potential contingency war plan operations.

**17th FA Brigade.** The *Thunderbolt* Brigade began the year by deploying 5-3 FA's O&I section to the NTC and welcoming back B/5-3 FA (TF Comanche Thunder) from Kuwait. The brigade headquarters provided command and control on many exercises, including a brigade FTX, culminating with an EXEVAL for 3-18 FA, Paladin, in June. In September, key leaders deployed to Korea for a combined counterfire exercise with the 2d Infantry Div Arty and ROK Corps Arty.

5-3 FA (MLRS) *First Round* deployed a battery to the NTC with the 1st Cavalry Division. It also redeployed the battery-sized TF Comanche Thunder from Southwest Asia with 1-10 Cav, 4th IN Division, in Operation Southern Watch.

The *Raider* 1-12 FA (MLRS) conducted many battalion and battery-level FTXs and EXEVALs at Fort Sill. 1-12 FA also deployed its O&I to Fort Stewart, Georgia, and the NTC for a successful rotation with the 3d BCT, 3d IN Division, in April.

3-18 FA (Paladin) *Steel Professionals* started the year with a battery EXEVAL and battalion LFX. In June, 3-18 FA excelled during a demanding EXEVAL, testing its ability to deploy, move, shoot, communicate and sustain.

**75th FA Brigade.** The *Diamond Brigade* had another superb year. The 75th conducted battalion-level and below training, validating its ability to move, shoot, communicate and sustain combat operations. Also the headquarters provided outstanding reinforcing fires for the 1st Cav Division Warfighter.

1-17 FA (Paladin) *Copperheads* deployed to Yuma Proving Ground for SADARM limited user tests. Battery A successfully engaged a threat array with 96 SADARM rounds, paving the way for the further development of SADARM.

In March, 6-27 FA (MLRS) *Proud Rockets* deployed to MCAGCC, providing timely and accurate fires for the 1st Marine Division. 6-27 FA conducted platoon and battery raids and live-fired SEAD and several preparatory fires. In May, the battalion participated in the future fires command and control (F<sup>2</sup>C<sup>2</sup>) concept experiment, testing TTP and automated fire support systems for a fires and effects coordination center (FECC).



B/1-14 FA fires a *Phantom Thunder* rocket.

1-77 FA (MLRS) *Falcons First* deployed its O&I to the NTC, providing reinforcing fires to the 3d BCT, 2d IN Division. After supporting the *Diamond Brigade* and Corps Artillery in the 1st Cav Warfighter, the *Falcons* excelled in challenging platoon and battery evaluations.

**212th FA Brigade.** The *Courage and Command* Brigade continues its mission-oriented, battle-focused training. This year, 2-5 FA (Paladin) *Rock Hard* executed a battery (plus) deployment to Kuwait, DS to the 3-7 Cav (TF Garry Owen), 3d IN Division, where 2-5 FA fired more than 1,700 projectiles.

Another deployment to Fort Knox, Kentucky, resulted in a second battery (plus) firing more than 1,650 projectiles for the USMA's mounted maneuver training. Three detachments deployed to Fort Hood, Texas, to support Ulchi Focus Lens and the 1st Cav Warfighter. At Fort Sill, 2-5 FA executed six battery ARTEPs, a battalion ARTEP and two Janus/fire simulation TOC exercises.

2-18 FA (MLRS-Improved Position Determining System) *Mission Ready* continues to prepare for worldwide deployments. 2-18 FA deployed its tracks by train to White Sands Missile Range (WSMR) and convoyed its wheeled vehicles 700 miles to Fort Bliss. 2-18 FA then concentrated on logistical and tactical METL tasks. In August, A Battery sent a section to fire a Block II ATACMS at WSMR.

6-32 FA (MLRS) *Proud Americans* began the year with a November-December NTC rotation with the 2d Brigade, 3d IN Division. The battalion completed a challenging EXEVAL in May, which included deploying one firing battery to Fort Riley, Kansas. The *Proud Americans* deployed a firing platoon to Fort Knox in July to support USMA summer

training. In August, key battalion leaders deployed to Grafenwoehr, Germany, to administer an EXEVAL to 1-27 FA (MLRS), 41st FA Brigade.

**214th FA Brigade.** The *Naturally We Lead* Brigade, the only MLRS-pure brigade in the US Army, deployed elements of its three battalions throughout CONUS and OCONUS.

The *Deep Attack* 2-4 FA deployed its O&I to the NTC in support of the 3d BCT, 1st Armored Division, Fort Riley. In August, 2-4 FA deployed A Battery and a force FA headquarters to Kuwait in support of Operation Desert Spring.

The 3-13 FA *Red Dragons* participated in the ATACMS Block II pilot and operational tests at Fort Sill and WSMR. 3-13 FA also received a rigorous EXEVAL, which certified its combat readiness and rapid deployability.

The *Steel Warriors* 1-14 FA deployed a leader-heavy O/C package to Korea to help administer 6-37 FA's EXEVAL. 1-14 FA deployed its O&I to the NTC with the 1st BCT, 4th IN Division. Additionally, 1-14 FA exchanged a battery with the 2d Royal Canadian Horse Artillery.

The brigade headquarters deployed twice to Fort Hood, first for Road Runner and then the 1st Cav Warfighter. During the exercise, the 214th FA Brigade reinforced the 4th Div Arty and delivered devastating fires on the OPFOR, enhancing the division's success.

The *More Than Expected* 19th Maintenance soldiers deployed to Southwest Asia, the NTC and JRTC, maintaining its high standards of support.

III Corps Arty's aggressive training and deployments keep the *Phantom Corps Artillery* battle-focused and ready to support the IIIrd Armored Corps anywhere, anytime—***Phantom Thunder!***



# SILHOUETTES OF STEEL

## V Corps Artillery

V Corps Artillery, with its new headquarters in Schwetzingen, Germany, continues its tradition of focusing on the fundamentals, providing fire support for all V Corps operations, conducting joint/multinational training and leading the way in deep strike operations. As the Army's only forward-deployed corps artillery, V Corps Artillery conducts tough, realistic training in an extremely high OPTEMPO environment.

This year, VCA completed high-intensity, battle-focused training that included several live-fire exercises in the Grafenwoehr Training Area, external evaluations for 1-27 FA (MLRS), a Corps BCTP Warfighter exercise and a deployment to Poland in support of Victory Strike with our NATO allies. Victory Strike is a V Corps aviation deep attack exercise that sets a new standard in Europe for realistic and challenging training.

**Joint/Combined Exercises.** During the past 12 months, V Corps Artillery focused on training activities that honed deep attack competencies and resolved issues inherent in joint operations. These include establishing a rapid joint target reference grid system (JTRGS) and developing TTP for focusing and massing CAS for the close fight. Also, in coordination with USAREUR's 4th Battlefield Coordination Detachment and USAFE's 32d Air Operations Group, the deep operations and coordination cell (DOCC) developed JTRGS TTP for rapidly coordinating restricted operating zones (ROZs), RFAs and ACAs to avoid fratricide throughout the joint AOR.

Shortly after fielding AFATDS Version 98 software and conducting an AFATDS interoperability exercise, V Corps Artillery participated in the multinational V Corps BCTP Warfighter at Grafenwoehr. The V Corps Main, which included the DOCC, deployed to Grafenwoehr in a tent-based configuration to test its ability to flex rapidly while continuing to fight deep. This configuration dramatically increased deployability by reducing reliance on strategic airlift with a C-130-

deployable CP and was based on the capabilities of current EUCOM airlift. Lastly, the increased space provided by the tents greatly enhanced communications and synergy within the DOCC and Corps Main, improving the rapid identification and destruction of the enemy.

The Warfighter provided an excellent opportunity to hone fire support skills. The Corps Artillery significantly influenced the battle by firing ATACMS at high-payoff targets deep in the Corps zone of attack. V Corps Artillery was also responsible for planning, coordinating and executing all SEAD missions in support of Corps deep attacks.

Additionally, the exercise was used as a training opportunity to refine TTP for employing FA brigades across the corps area of operations, coordinating and processing the attack of time-sensitive and time-critical targets in support of the joint force, improving the transmission of information between AFATDS and IFSAS, and expediting the coordination required for delivering joint fires rapidly. V Corps Artillery was instrumental in the Corps' overwhelming defeat of the world-class OPFOR. As part of the Victory Corps Fires Team, five National Guard FA brigades and two Div Artys produced magnificent results.

In October while deployed to Poland in support of Victory Strike, V Corps Artillery became the first US Army artillery unit in NATO to conduct live-fire operations on Polish soil. Victory Strike

offered superb training for the V Corps DOCC as well as the 41st FA Brigade Headquarters and 1-27 FA. V Corps artillerymen planned and executed live-fire deep operations in a joint/combined environment in support of Corps aviation deep attacks. They also further developed relationships with NATO's new ally as they coordinated and executed live-fire with the Polish A/2-2 FA (BM-21).

In November, elements of V Corps Artillery deployed to Fort Bragg, North Carolina, in support of Internal Look, a CENTCOM exercise with Third Army.

**41st FA Brigade.** The *Railgunners* had a tremendously successful year. In addition to the 41st Brigade's outstanding success in many joint exercises and the V Corps Warfighter, the brigade conducted external evaluations at the battery and battalion levels in a maneuver rights area as well as at Grafenwoehr Training Area that were vital in ensuring all units were fully trained. Additionally, the V Corps Artillery and 41st brigade TOCs used these evaluations for training command and control procedures between the two command posts, continuing to refine digital communications procedures between the fire control elements.

In July, V Corps Artillery headquarters moved from Wiesbaden to Schwetzingen, facilitating planning and operations by moving closer to V Corps headquarters in Heidelberg.

In preparation for Victory Strike and the upcoming Warfighter in April 2001, V Corps Artillery's TOC and DOCC conducted a command post exercise in September with the Corps Main. The CPX refined procedures and TOC drills in the Corps and V Corps Artillery tent-based TOC configuration, ensuring all new personnel were familiar with their duties.

V Corps Artillery continues to provide professional, flexible and agile fire support within any spectrum of conflict. As V Corps Artillery moves forward, some of the finest soldiers in the US Army — V Corps Redlegs — will remain ready to defend freedom throughout the world. **One Team-One Fight!**



In support of Victory Strike, 1-27 FA became the first US Army artillery unit in NATO to conduct live-fire operations on Polish soil.



# SILHOUETTES OF STEEL

## XVIII Airborne Corps Artillery

The XVIIIth Airborne Corps Artillery, *Dragonfire*, at Fort Bragg, North Carolina, continues to maintain a crisis response artillery force that is manned, equipped and trained to deploy by air, sea, land and parachute assault anywhere in the world within 18 hours of notification. The Corps Artillery headquarters with its 18th Field Artillery Brigade (Airborne)—the latter consisting of three M198 howitzer battalions, one MLRS battalion and two target acquisition detachments—provide cannon, rocket and missile fires while planning, coordinating and synchronizing joint fire support for the Army's strategic contingency force.

The XVIIIth Corps Artillery and the 18th FA Brigade soldiers superbly executed all training exercises and real-world missions throughout the past year. The Corps Artillery conducted two fire support conferences at Fort Bragg in an attempt to address issues in the light artillery community, both in the Active Component and Reserve Component.

In January, the Corps Artillery and the 18th FA Brigade supported the 82d Airborne Division's Warfighter, enduring two weeks of the coldest weather and snow in Fort Bragg's history. The brigade was charged with the counterfire fight for the division and was commended by O/Cs for the finest counterfire battle drill the O/Cs had ever seen.

**Contingency Force Training.** The XVIIIth Corps Artillery planned and executed Roving Sands 2000. This exercise provided a unique opportunity for the Corps to establish two major headquarters at the same time: the Joint Task Force (JTF) deployed to Virginia where the Corps Artillery manned the JTF cell; additionally Corps Artillery personnel deployed to Fort Bliss, Texas, to operate the Army forces deep operations coordination cell (DOCC). During the Joint Contingency Force (JCF)-Advanced Warfighter Exercise (AWE) in September at the JRTC with the 10th Mountain Division, the Corps Artillery again deployed the DOCC and JTF fires cell. The 18th FA Brigade provided 1-377 FA's TOC for training at Fort Drum, New York; the JRTC at Fort Polk, Louisiana; and Fort Bragg.



A C/3-27 FA HIMARS launcher live fires at the All American DZ, Fort Bragg, North Carolina.

To close the year, the Corps Artillery and the 18th FA Brigade began the road to a BCTP Warfighter for the 10th Mountain Division AWE and the XVIIIth Airborne Corps embedded Warfighter, which includes the 101st Airborne Division.

**18th Field Artillery Brigade (Airborne).** The brigade once again lived up to its motto of *Steel Soldiers* by completing many off-post deployments in support of the 82d, 101st and 3d Infantry Divisions. The brigade completed an NTC rotation and four JRTC rotations. It accomplished these tasks while simultaneously fielding AFATDS and remaining focused on contingency mission readiness.

The 1-377 FA *Warriors* deployed to the NTC in support of the 2d Armored Cavalry Regiment (ACR). This successful rotation identified the requirements for a dedicated battalion trained to support cavalry operations.

The battalion also participated in the JCF-AWE at Forts Drum and Polk, testing the fire support task force concept in simulation. This task force was designed to integrate general support/reinforcing fires into a medium brigade early entry force. 1-377 FA also spearheaded the effort to upgrade the M198 howitzers with a remote power source.

This year found the brigade assuming the mission of providing direct support to the 2d ACR. 3-321 FA *The Thunderbolts* entered into a productive relationship with the regiment. The brigade's affiliation with the 2d ACR provided second command opportunities for the howitzer batteries of the regiment. From base-piece LFXs to seminars, the 18th FA Brigade-2d ACR relationship flourished.

The brigade conducted EXEVALs of 3-321 FA and 3-27 FA (MLRS). 3-321 FA focused on developing the direct support mission with the 2d ACR. 3-27 FA focused on the evaluation of deploying its prototype high-mobility artillery rocket system (HIMARS), validating the battalion's ability to supply deep fires in support of the XVIIIth Airborne Corps.

In July, a corps emergency deployment exercise, once again, highlighted the brigade's ability to deploy and rapidly deliver fires. A fire support task force—comprised of an M198 battery, the HIMARS

platoon, a Q-37 Firefinder counterfire radar and a battalion command and control (C<sup>2</sup>) element—deployed to Camp Lejeune, North Carolina, on 12 C-141 sorties. The unit conducted a live-fire exercise and a joint air assault operation using Marine Corps CH-53 helicopters. The task force fired live as part of a joint SEAD operation with Cobra helicopters and FA-18s.

The 18th FA Brigade also participated in the joint exercise Purple Dragon with 1-321 FA (Airborne) parachuting into Camp Lejeune and Fort Bragg in support of this exercise. The battalion also conducted a Reciprocal Unit Exchange with French Paratroopers. C Battery, 1-321 FA deployed to France to train with the French Artillery while French gunners deployed to Fort Bragg for an action-packed three-week event.

The Brigade Master Gunner conducted and taught the brigade's inaugural Master Gunner's Course during August of this year. The course taught skill-level 4 tasks and unit standards to 11 senior NCOs from nearly every battery in the brigade.

Also in August, the brigade deployed TF Warrior with more than 550 soldiers to Montana to support national fire fighting efforts. This mission provided another opportunity to validate the brigade's ability to deploy with little or no notice.

**Conclusion.** The XVIIIth Airborne Corps Artillery and 18th Field Artillery Brigade (Airborne) continue to prepare to respond to worldwide crisis, both present and future. The year ended with 3-27 FA (MLRS) and 1-377 FA (Air Assault) prepping for off-post deployments to the NTC and 3-321 FA sending one battery to the JRTC. **Thunderbolts! Air Assault! Steel Rain! Warrior! Dragonfire!**

# SILHOUETTES OF STEEL

## Field Artillery Training Command

The FA Training Command at Fort Sill, Oklahoma—home of the “King of Battle”—heads into the 21st century on target. We continue to prepare leaders, soldiers and Marines to be the best in providing fire support.

Our vision of “Cutting Edge Fires for the 21st Century” is fast becoming a reality as we make technological advances in digital fire support, cannon and MLRS weapons systems. With the advent of HIMARS, Crusader, and AFATDS, we have positioned ourselves to provide more rapid and lethal fire support to our maneuver brethren.

**Training and Doctrine Developments.** The FA Training Center (FATC) will train over 16,000 soldiers this year. FATC also is making changes for the 21st century as it prepares to transition from a mix of basic combat training (BCT) and advanced individual training (AIT) units into all one-station unit training (OSUT) battalions.

FAOBC continues to provide first-class training and mentoring for lieutenants entering the artillery. Training Command has an excellent senior mentors program where lieutenants and captains interact with senior officers on their experiences and FA expectations of junior officers.

In conjunction with the Lawton-Fort Sill Chapter of AUSA, the school also

sponsors a quarterly guest speaker series called “Leader’s Edge,” a brown-bag lunch program for the professional development of our junior and mid-level military leaders.

FACCC is graduating officers trained and ready to assume command or fill a myriad of staff positions. Each course is taught in a small group format with a dedicated instructor, who also mentors and guides the group throughout its stay at Fort Sill.

The NCO Academy remains the pillar of knowledge for the artillery NCO, training more than 2,400 students this past FY and completing its tri-yearly accreditation with no shortcomings noted. Our Academy provides quality instruction in the classroom and via distance learning. In addition to the First Sergeant and Battle Staff NCO distance learning courses, we have added BNCOC and ANCOG.

The Warfighting Integration and Development Directorate (WIDD) made great strides in training and doctrine developments during FY00. *FM 6-300 Army Ephemeris* and *FM 6-70 TTP for M109A6 (Paladin) Operations* were completed while seven other FMs were revised. The seven FMs will be published this FY under the new numbering system. *Experimental Force Special Text (XST) 6-20-10 TTP for Targeting for Army XXI* and *XST 6-70 TTP for Paladin*

*Operations in Army XXI* along with *ST 6-3-1 AFATDS Digital Leader Guide* were developed for the 4th Infantry Division Artillery, Fort Hood, Texas. Also developed was the *Brigade Special Text (BST) 6-20-40 Fires and Effects for the Brigade Combat Team* in support of Army transformation efforts at Fort Lewis, Washington.

We enhanced unit training support by developing 10 training support packages (TSPs), including operations orders (OPORDs), map data, scenarios and task data, that is deliverable via the WIDD home page. Several of these TSPs include drivers to run the digital systems test and training simulator (DSTATS), enabling IFSAS and AFATDS training with little overhead and preparation.

The WIDD home page includes total Army training system (TATS) courses, TSPs, doctrinal publications and revised MTPs: <http://155.219.39.98/widd>.

**Fire Support Innovations.** Crusader, ATACMS, HIMARS and SADARM are still at the forefront of our new fire support systems. Although prototypes for Crusader have been built and delivered, discussion is still ongoing concerning fielding.

A highly successful ATACMS Block II/BAT development test flight was conducted at White Sands Missile Range in August against a moving armored column. The 13 BATs delivered by the ATACMS Block II missile hit eight armored targets, greatly surpassing the test’s operational requirements. Five of the BATs contained live warheads; the remainder had flight data recorders in lieu of warheads.

The HIMARS platoon from the XVIII Airborne Corps Artillery participated in a joint exercise with the 2d MEF at Camp Lejeune, North Carolina, in July. This marked the first time HIMARS launchers were transported by C-141 aircraft. A live fire took place on the last day.

The Marines will field two Army HIMARS launchers for user experimentation and evaluation in FY02 before they begin fielding HIMARS in two battalions of the 14th Marine Regiment, Fort Worth, Texas.

As the Army wrestles with transformation, so does the institutional training base. We are analyzing critical tasks, revising courses, streamlining the way we do business and improving our digital and technological capabilities, all to ensure.... ***Fires-On Target for the 21st Century!***



A drill sergeant at the Field Artillery Training Center works with a basic trainee on the rifle range. (Photo by CPT Roland Miraco, 1-40 FA)

# SILHOUETTES OF STEEL

## 1st Armored Division Artillery

Entering a new millennium, the *Iron Steel* Redlegs of the 1st Armored Div Arty, headquartered in Germany, continue to serve on point for the nation with elements deployed in support of missions in Kosovo and Kuwait. In addition, the Div Arty stood-up an MLRS battalion, fought the OPFOR at the NTC and CMTC and participated in a corps-level BCTP Warfighter.

The year began with the gunners of 2-3 FA moving through individual readiness training (IRT) in preparation for replacing the 1st Infantry Division in Kosovo, while the *Thunder Battalion* of 4-27 FA faced a challenging winter CMTC rotation. 4-1 FA at Fort Riley, Kansas, prepared for its NTC rotation. The Div Arty began meeting the challenges of standing-up *Deep Steel* 1-94 FA, a divisional MLRS/TA battalion, that was activated 15 September.

In March, 2-3 FA conducted semi-annual gunnery at Grafenwoehr and



1-94 FA MLRS/TA fires its "deadly message" down range at Grafenwoehr.

executed an FCX for its maneuver brigade. It also integrated with TF Falcon for a Kosovo mission rehearsal exercise at the CMTC.

4-27 FA completed a rotation to the CMTC, incorporating a reinforcing MLRS battery. The *Thunder Battalion* demonstrated its tactical prowess by destroying the OPFOR artillery in unprecedented numbers. Stateside, 4-1 FA fired over 5,000 rounds in support of 3d Brigade's NTC rotation, earning the distinction of having completed one of

the best Paladin rotations in recent years.

With the year barely started, the *Iron Steel* Div Arty executed a highly successful V Corps Warfighter, fielded new fire control software and Paladin upgrades and, on 20 June, transferred authority for 2-3 FA's operations in Kosovo.

4-27 FA conducted gunnery, a CMTC LFX, an FCX for 2d Brigade and demonstration shoots for the German Artillery School and will assume peace support

operations in Kosovo on 20 December. In August, 4-1 FA landed a battery in Kuwait to support Operation Desert Spring with the battery to return in December.

Woven together into a seamless tapestry of soldiers' dignity, professional respect, tough training and operational deployments, the Redlegs of the 1st Armored Division Artillery, once again, answer America's call, prepared to provide devastating fire support to the soldiers of *America's Tank Division. Iron Steel!*

## 1st Cavalry Division Artillery

The 1st Cavalry Division Artillery *Red Team* located at Fort Hood, Texas, completed another fast-paced and exciting year with many of our Redlegs participating in division and corps-level Warfighters, assuming the Forces Command (FORSCOM) division ready brigade (DRB) mission and deploying to the NTC and Kuwait.

The *Dragons* of 1-82 FA kicked off the year with an outstanding NTC rotation

in support of 1st Brigade Combat Team (BCT) in January. Upon their return, they quickly prepared to assume the FORSCOM DRB mission. The *Dragons* ended the year by deploying a battery and a FIST section to Kuwait for Operation Desert Spring.

The *Steel Dragons* of 2-82 FA began the year by participating in the division Warfighter exercise. Following the Warfighter, they deployed a battery with

TF 1-9 Infantry to Operation Desert Spring in Kuwait. The remainder of the year, the *Steel Dragons* continued to hone their warfighting skills through many exercises and a train-up for an NTC rotation with the 3d BCT in January 2001.

The *Red Dragons* of 3-82 FA started 2000 by participating in the division Warfighter as well. Concurrently, 3-82 FA trained with the 2d BCT in preparation for its NTC rotation in May. Immediately upon the battalion's return from Fort Irwin, California, the *Red Dragons* prepared to assume the FORSCOM DRB mission in September.

The *First Strike* battalion, 1-21 FA, also began 2000 with the division Warfighter. After the exercise, the battalion quickly transitioned to the FORSCOM DRB mission in April. Simultaneously, soldiers of the *First Strike* battalion participated in the 2d BCT's NTC rotation in May. Finally, the battalion participated in the III Corps Warfighter in December.

The *Red Team* continues to look forward to the challenges of the 21st century by continuing the cavalry's proud heritage and tradition. *Red Team!*



A *Red Dragons* Paladin from C/3-82 FA fires at Fort Hood.



# SILHOUETTES OF STEEL

## 1st Infantry Division (Mechanized) Artillery

From freedom's forward boundary in Kosovo, to the mud of Hohenfels, to the wheat fields of Fort Riley, Kansas, the nation's oldest Div Arty, *Drumfire Artillery*, with its headquarters in Germany, spent the year providing accurate and timely fires to the 1st Infantry Division and the Multi-National Brigade (East).

The year began with the 1-6 FA *Centaurs* assuming authority to conduct fires in Kosovo from 1-7 FA *First Lightning*. TF Centaur continued to rewrite artillery TTP in peace support operations, firing in excess of 1,300 illumination rounds in support of the 3d Brigade Combat Team (BCT) and each multinational element of TF Falcon. After redeploying from Kosovo, the *Centaurs* completed a highly successful Paladin Table XVIII and a BCT rotation at the CMTC.

Upon returning from the Balkans in December 1999, the *First Lightning* battalion took a well-deserved break and then executed a demanding reintegration plan, including platoon lane training, evaluations and Paladin Table XVIII in a Grafenwoehr gunnery rotation. 1-7 FA then validated its fire support skills

in an intense 40-day BCT CMTC density.

Our sister battalion, 1-5 FA *Hamilton's Own* at Fort Riley, supported operations around the globe, including Stability Force 6 in Bosnia-Herzegovina and the III Corps and Eighth Army's reception, staging, onward movement and integration (RSOI) exercise in Korea. At home, 1-5 FA conducted demanding section evaluations and platoon STXs, culminating the year by validating its first round fire-for-effect capabilities in a battalion gunnery evaluation. On the cutting edge of Division XXI, *Hamilton's Own* became the first unit in the Army to fully integrate its Striker platoon into the brigade reconnaissance troop.

Our newest battalion, 1-33 FA *Golden Lions* completed a rigorous year leading the division's transition to Limited Conversion Division XXI (LCD XXI), ex-

panding to 18 launchers and enhancing the division's deep fires capability. In September, the *Golden Lions* fired their first mass mission as the division MLRS battalion (DMB). 1-33 FA completed its transition in the Victory Interdiction Counterfire Exercise (ICE), which validated the *Big Red One's* enhanced ability to strike deep.

The *Big Red One Artillery* is already adding a new chapter to the proud legacy established during the last century. **Drumfire!**



A 1st Infantry Div Arty Kosovo Force Paladin fires.

## 2d Infantry Division Artillery

The 2d Infantry Div Arty remains the US Army's most forward-deployed, protecting Freedom's Frontier with our South Korean allies. As the ground component commander's counterfire headquarters, the 2d Div Arty synchronizes the fires of a coalition TF of many US and Republic of Korea (ROK) artillery battalions, an engineer battalion (+), an ROK infantry battalion and a forward support battalion.



2-17 FA Redlegs on Freedom's Frontier in Korea stand ready to fight and win if deterrence fails.

Training this year featured Warstrike in which the Div Arty HQ integrated a division cavalry squadron, a combat engineer battalion, ROK infantry and a forward support battalion into the counterfire TF, exercised our wartime C<sup>4</sup>I and validated our general defense plan. During our BCTP Warfighter, the Div Arty delivered artillery and Air Force fires supporting maneuver in a constricted battlespace. The Warfighter also trained headquarters on coordinating for ROK fires.

1-15 FA, the *Guns Battalion*, Camp Casey, continues support of 1st Iron BCT. 1-15 FA executed theater- and division-level CPXs, conducted CALFEXs supporting maneuver gunneries and integrated fire support into force-on-force Warsteed exercises.

2-17 FA, the *Steel Battalion*, on Camp Hovey, honed its skills through many LFXs and CPXs, and through executing its

DS mission to 2d BCT *Strike Force*. Most notable were three iterations of the brigade Triple Threat exercise, a CALFEX for the mechanized and air assault battalions of the Army's only combined brigade. 2-17 FA also underwent a thorough Div Arty EXEVAL and maintained liaison with our ROK Army partners.

6-37 FA (+), the *Rocket Battalion*, Camp Stanley, completed many live fires and challenging training exercises this year. Its 36 MLRS launchers, with an active target list, ensure the Redlegs on Freedom's Frontier stand as a deterrent to the North Korean threat.

The CINC's most critical assets, the Q-36 and Q-37 radars of F/26 FA (TA), provided a complete digital link from sensor to shooter during all major Div Arty exercises. The Div Arty is acquiring two additional Q-37s to supplement 6-37 FA, as F/26 will be absorbed by 1-38 FA, the MLRS battalion due to stand up in FY 02.

As we reflect back on the 50th anniversary of the start of the Korean War, Redlegs on Freedom's Frontier stand ready to fight and win if deterrence fails. **Warrior Thunder!**



# SILHOUETTES OF STEEL

## 3d Infantry Division (Mechanized) Artillery

The 3d Infantry Division (Mechanized) Artillery, Fort Stewart, Georgia, started the year focused on training more than 4,500 soldiers for Stabilization Force (SFOR) 8 and 9 Bosnia rotations, while simultaneously maintaining its warfighting focus. The Div Arty also participated in multi-echeloned exercises that demonstrated our readiness to deploy worldwide as the Iron Fist of the XVIII Airborne Corps. Force modernization became a focus as the Div Arty fielded the first Bradley fire support vehicles (BFISTs) in the Army. Next year will see the conclusion of the BFIST fielding and the beginning of AFATDS fielding.

The Div Arty expanded to four battalions when the *Speed in Action* 1-39 FA (MLRS/TA) was officially activated on 14 June. 1-39 FA is a multi-component unit with D Battery coming from the SCARNG in Sumter, South Carolina. This further enhances our already close



A BFIST from 1-41 FA, Fort Stewart, is scheduled for its debut at the NTC in November.

relationship with the 151st FA Brigade *Gamecock Artillery*, SCARNG.

The *Battlekings* of 1-9 FA demonstrated their flexibility by providing the collective training for more than 4,500 soldiers deploying to Bosnia as part of SFOR 8. 1-9 FA will continue to provide training for the SFOR 9 mission into next year and simultaneously sustain its DS warfighting skills to support the 2d Brigade Combat Team (BCT).

The *Rock Support* of 1-10 FA completed a heavy-light rotation at the NTC this summer. Once again, it distinguished itself with timely, accurate and well-synchronized fire support. The battalion also continued to provide world-class fire support to the 3d BCT as well as the Infantry School at Fort Benning. 1-10 FA is preparing for BFIST fielding and another rotation at the NTC next summer.

*Glory's Guns* of 1-41 FA started the year supporting the 82d Airborne Division Warfighter. During the summer, 1-41 FA became the first in the Army to field BFIST. It then employed BFIST at the NTC in October, further refining BFIST TTP. After *Glory's Guns* returned from the NTC, it began training for the KFOR mission and deployment to Kosovo in late spring.

The 3d Div Arty stands ready to provide devastating fires for the *Rock of the Marne* and is fully engaged supporting real-world deployments across the spectrum of conflict. **Marne Thunder!**

## 4th Infantry Division (Mechanized) Artillery

The *Iron Gunners* of the 4th Infantry Div Arty, Fort Hood, Texas, maintained another fast-paced, exciting year as we led the FA and Army into the 21st century. This year, we participated in two Warfighter exercises, Ulchi Focus Lens 2000 and three rotations to the NTC. Additionally, we became the first digitized Div Arty in Force XXI, incorporating cutting-edge technology.

*Rolling Thunder* 3-16 FA started the year with two EDREs to prepare for the division ready brigade mission, performing magnificently. In August, 3-16 FA deployed to Idaho to battle wildfires. The battalion then shifted gears as it fielded the Paladin enhanced display system (EDS), AFATDS A99 software and Force XXI battle command brigade and below (FBCB<sup>2</sup>). It closed the year with a rigorous train-up for the division capstone exercise (DCX) scheduled for spring 2001.

*Deep Strike* 2-20 FA, the Army's first divisional MLRS battalion, demonstrated its versatility this year. In March, it provided reinforcing fires to the 2d BCT and deep SEAD fires to the 4th Aviation Brigade at the NTC. In July, the

battalion integrated its third firing battery, B/2-131 FA (TXARNG), into a demanding MLRS table with live fires. In the fall, 2-20 FA continued Force XXI fieldings while participating in Ulchi Focus Lens and the division Warfighter.

*Pacesetters* of 3-29 FA, Fort Carson, Colorado, participated in two demanding rotations to the NTC within six months. In March and October, the entire battalion provided lethal DS fires to the 3d BCT. It then deployed to Pinon Canyon, Colorado, and performed superbly on a Paladin Table XVIII EXEVAL. 3-29 FA also deployed to Fort Hood for the division Warfighter.

The *Straight Arrows* of 4-42 FA, the Army's first FA battalion to field the FBCB<sup>2</sup>, demonstrated their exceptional capabilities with the system. The Div Arty administered a tough, challenging Paladin Table XVIII EXEVAL in May in which the battalion provided accurate,



A Paladin from B/4-42 FA makes a survivability move during the FBCB<sup>2</sup> customer test at Fort Hood, Texas.

timely fires. In August, the battalion deployed to the NTC and provided devastating fires in support of the 1st BCT. The battalion also upgraded its Paladin fleet with the EDS and fielded AFATDS A99 technical fire direction software.

The 4th Div Arty remains combat ready. We're proud to be leading Army fires into the 21st century while providing deadly fires in support of the *Ironhorse Division*. **Iron Gunners!**

# SILHOUETTES OF STEEL

## 10th Mountain Division (Light Infantry) Artillery

The *Mountain Thunder* Redlegs of the 10th Mountain Division Artillery at Fort Drum, New York, completed an exciting and rewarding year of training. Our focus on task force training paid tremendous dividends in maintaining our warfighting capability and deploying the *Commando* Brigade TF to Bosnia for the Stability Force (SFOR) 6 mission, as well as preparing the *Warrior* Brigade TF for its JRTC rotation. As we move into the next millennium, our focus remains on training and deploying to maintain our ability to fight and win when called upon to do so. Demanding, rigorous training under realistic conditions is the best preparation for any contingency, a motto we followed this year.

The Div Arty was on a split course for the year, sending part of the Div Arty to Bosnia for SFOR 6 and the other toward the execution of the Joint Contingency Force-Advanced Warfighting Experiment (JCF-AWE) at the JRTC in September. For the first six months of the year, 2-15 FA (-) and elements from HHB Div Arty were deployed to Bosnia with the division forward and the *Commando* Brigade TF while 3-6 FA and the



The 10th TAD's Q-37 radar "watches" quietly in the snow at Fort Drum for enemy fire.

remainder of the Div Arty prepared for the JCF-AWE. With the return of SFOR 6 to Fort Drum, we shifted emphasis to rebuilding and retraining 2-15 FA and preparing the battalion for the West Point cadet training mission.

3-6 FA and elements of HHB Div Arty charted the course for the future development of fire support systems and doctrine for the light force during the JCF-AWE. They tested several core systems and trained on and tested several fire support AWE systems, including

improved PADS and the digitized M119.

In the coming year, we look forward to reintegrating all our subordinate elements into a single location with a common direction. A division Warfighter exercise in January 2001 will set the pace for year.

The 10th Mountain Div Arty looks forward to another challenging year as it continues to lead the light force into the future while providing outstanding fire support to the 10th Mountain Division. ***Mountain Thunder!***

## 25th Infantry Division (Light) Artillery

The 25th Infantry Division (Light) Artillery, Schofield Barracks, Hawaii, executed a wide variety of challenging training in diverse environments with excellence. *Tropic Lightning* Redlegs safely and accurately delivered over 14,000 rounds in support of soldiers throughout the Pacific Rim. During the year, the Div Arty executed many off-island deployments, including to Cobra Gold (Thailand); Tandem Thrust, Orient Shield and Northern Edge (Japan); Ulchi Focus Lens and Foal Eagle (Korea); and the JRTC and NTC.

2-11 FA *On Time* synchronized fire support to the 2d Brigade Combat Team (BCT) at Pohakuloa Training Area (PTA) in February and March, firing danger-close missions as lightfighters maneuvered. Additionally, 2-11 FA refined counterfire TTP, decreasing response times while increasing accuracy with the Version 8 Q-36 radar. 2-11 FA also provided O/Cs for Lightning Thrust Bronco, preparing 3-7 FA for its fall JRTC rotation.

3-7 FA *Never Broken* fire supporters fielded the HTU in a combined light



3-7 FA conducts an air assault on Oahu during Lightning Thrust Bronco.

TACFIRE/IFSAS software version upgrade. 3-7 FA quickly mastered and employed the new systems during a PTA rotation and a multi-echeloned exercise in preparation for the 3d BCT's JRTC rotation in October. 3-7 FA also trained on Oahu in Lightning Thrust Bronco, managing fire support assets

tactically deployed across the island.

2-8 FA *Automatic* at Fort Lewis, Washington, continued its dedicated support for the Army ROTC Advanced Camp, providing fires for the Fire Support Committee and conducting OPFOR missions. During its fall FTX, 2-8 FA conducted battery EXEVALs to maintain its professional excellence.

F/7 FA (GS) deployed with the 3d BCT to the JRTC. Soldiers of *Foxtrot Never Stops* fired over 1,100 rounds during the Div Arty Thunderex at PTA before deploying to Lightning Thrust Bronco. HHB Div Arty *Tropic Thunder* Redlegs supported the Div Arty magnificently throughout the training year and logged one PTA rotation before focusing on the highly successful I Corps Warfighter in the fall. The 25th FA Detachment *Eyes for Thunder* received an upgrade to its Q-37 Firefinder, refined air assault techniques and supported off-island LFXs with excellence.

The 25th Div Arty provides deadly fire support to the *Tropic Lightning Division* as its ***Tropic Thunder!***

# SILHOUETTES OF STEEL

## 28th Infantry Division (Mechanized) Artillery

This year's most dynamic training exercise for the 28th Div Arty, PAARNG, was the V Corps Warfighter at Grafenwoehr, Germany. This exercise provided the opportunity to train with USAREUR units and control the fires of two reinforcing FA brigades and associated Firefinders. With this firepower added to the 28th's organic assets, the Div Arty out-fired every other division artillery participating in the exercise and completed this notable accomplishment without the Red Force's acquiring or engaging a single assigned radar. Also this year, all three direct support battalions received the howitzer crew trainer. This fire support combined arms tactical trainer (FSCATT) system will enable units to hone their gunnery and crew skills.

The 1-107 FA completed one of the most aggressive and successful training years in recent history. It attended AT at Fort Pickett, Virginia, and conducted a formal Army training assessment model

(TAM). The unit's many accomplishments included participating on an M109A5 howitzer direct-fire range and, in a Div Arty first, using engineer-prepared, dug-in, hardened positions for the howitzer and FDC crews in the battery defense.

The 1-108 FA conducted AT at Fort Indiantown Gap, Pennsylvania. AT focused on the execution of the Field Artillery tables through battery qualifi-

cations and then continuing on to battalion missions. A schedule of fires was executed that totaled 195 rounds from call-for-fire to end-of-mission. The FSEs conducted joint operations with the Air Force (A-10s and F-16s), using the M981 FIST-V and G/VLLD to execute CAS missions.

1-109 FA supported the 55th Brigade with live fire and ended its AT with a 72-hour combined arms multi-echeloned exercise. Two soldiers from the battalion received Soldier's Medals. Sergeant John Karpovich, HHB, rescued a family from a burning house, and Specialist John Orsos, C Battery, pulled an unconscious driver from a burning car. In continuing its long tradition of service, the 1-109 FA observed its 225th anniversary on 17 October.

The 28th Div Arty enters the coming year with a new commander and three new battalion commanders who are eager to build the future of this proud unit and remain **Charged to Excellence!**



1-108 FA prepares to fire in AT 2000 at Fort Indiantown Gap, Pennsylvania.

## 29th Infantry Division (Light) Artillery

The 29th Division (Light) Artillery with its headquarters part of the VAARNG, consists of units located in three states: 1-246 FA, E/111 FA and the 129th FAD in Virginia; 2-110 FA in Maryland; and 2-192 FA in Connecticut. The Div Arty maintained a high OPTEMPO and executed all its missions in an outstanding manner this year.

The 29th Div Arty's training program was focused on improving gunnery skills while maintaining fire support coordination skills learned from the previous year's BCTP Warfighter exercise. To accomplish these two objectives, the Div Arty's subordinate units concentrated on artillery gunnery tables from the beginning of the year through the summer.

Throughout this time, the Div Arty participated in two additional Warfighter exercises. The first required a deployment to Fort Hood, Texas, in support of the 1st Cavalry Division Warfighter. This was accomplished by 1-246 FA, which provided direct support fires for the 1st Brigade, 29th Infantry Division. The second exercise was the V Corps Warfighter, during which the Div Arty deployed to Germany, operated as an FA brigade

and worked hand-in-hand with the 1st Armored Division.

This summer, all elements deployed to Fort Pickett, Virginia. This was the first time in several years the entire Div Arty had been on one installation at the same time. This proved to be a great training event.

The deployment began with a four-day fire support exercise and incorporated all the Div Arty's digital equipment. At the conclusion of the exercise, all units moved on to battalion- and Div Arty-level missions. During the course of the five-day FTX, units fired more than 5,400 rounds, and the Div Arty was able to mass fires effectively. The Div Arty demonstrated this capability in 15 live "Stonewall Thunder" (division mass) missions.

The Div Arty will apply the excellent lessons learned this year in the coming year as the division FSE prepares for the Stabilization Force (SFOR)

10 mission and the division's deployment to Bosnia. **We Stand Ready-Stonewall Thunder!**



Members of HHB conduct repelling operations at Fort Pickett, Virginia.



# SILHOUETTES OF STEEL

## 34th Infantry Division (Mechanized) Artillery

The 34th *Red Bull* Div Arty—Minnesota, Iowa and Wisconsin ARNG—continues to strive to be the best Div Arty in the ARNG. Unit readiness, challenging training, external battery qualification lanes and the deployment of E/151 FA (TA) to Kosovo in early December were the focus of TY00. Forty-five soldiers from E/151 TAB were the first ARNG TA soldiers to deploy in Operation Joint Guardian—*Storm Artillery Leads the Way!*

1-120 FA *Red Fox* (WIARNG), DS to the 32d Brigade, trained with the 34th Div Arty in AT at Camp Ripley, Minnesota. 1-120 FA conducted lane training, culminating with a Table VIII qualification and an FA raid. The battalion was the first to fire Copperhead at Camp Ripley, one round per battery. The battalion also hosted 20 engineers from the Crusader design team, giving the architects of our future howitzer first-hand FA experience.

1-151 FA (MNARNG), a corps battalion, went through a challenging firebase lane at AT 2000. Each battery maintained continuous 6,400-mils and cross-trained with the 682d Engineers to fortify positions with six-foot perimeter berms. 1-151 FA also conducted FA table tasks and a LFX from the hardened positions.

Our air assault 1-194 FA (IARNG), DS to the 2d Brigade, executed a challenging AT period at Camp Guernsey, Wyoming, in June. After completing the Div Arty firing battery lanes qualification, 1-194 FA swiftly moved into a battalion-level air assault—the unit's first—and a continuous 72-hour lane training. The *When Ready* battalion lived up to the challenge.

F/151 FA (MNARNG), our GS firing battery, culminated TY00 with a successful Table VIII lane qualification at Camp Ripley. *Fox* Battery achieved the highest percentage of "GOs" in the 34th Div Arty on the TSBn-evaluated lanes.

The units, soldiers and families of the 34th Div Arty are and always will be committed to excellence. The Div Arty is a relevant partner in America's Army—**Attack! Attack! Attack!**



1-194 FA (IARNG) conducts a battalion air assault at Camp Guernsey, Wyoming.

TY00 was exciting for the 1-125 FA (MNARNG), DS to the 1st Brigade. As members of the NATO Composite Force, the staff conducted a tactical CPX in Norway in Joint Winter 2000. During June AT, 1-125 FA successfully executed FA Table VIII lanes while also participating in the 1st Brigade Warfighter.

## 35th Infantry Division (Mechanized) Artillery

The 35th Infantry Division (Mechanized) Artillery, the *Santa Fe Division Artillery* (Kansas, Illinois and Kentucky Army National Guard) had an extremely busy year. The Div Arty conducted multiple ATs, supported the 35th Infantry Division Warfighter and mobilized Detachment 1, E/161 FA (TA) in support of Operation Joint Guardian in Kosovo. Soldiers from every unit in the *Santa Fe Division Artillery* answered the call to serve their country as part of the mobilization.

The year began with a consolidated fire support conference with the 130th FA Brigade (Topeka, Kansas). E/161 FA (TA) conducted its annual training in April at Fort Riley, Kansas, as part of its mobilization train-up while simultaneously fielding Version 7 of the Q-36 Firefinder radar and SINCGARS. 1-161 FA and F/161 FA (Kansas ARNG) con-

ducted annual training at Camp Guernsey, Wyoming, in conjunction with the 130th FA Brigade AT.

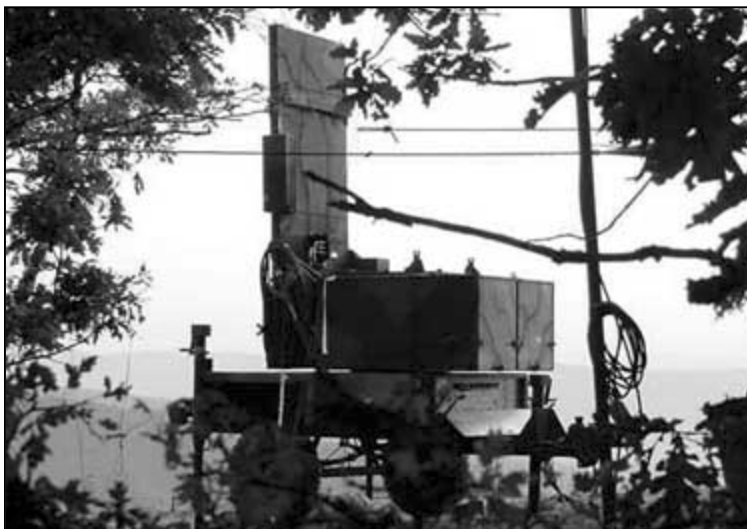
2-138 FA (Kentucky ARNG) conducted AT at Fort Campbell, Kentucky, in June. Fort McCoy, Wisconsin, was the site of the 2-122 FA (Illinois ARNG) annual training in July.

All units of the Div Arty focused on section-level training, digital proficiency and massing fires digitally. The summer culminated with the 35th Infantry Division Warfighter at Fort Leavenworth, Kansas, in July. Div Arty units massed fires digitally with IFSAS Version 11 that was fielded less than six months prior

to the Warfighter. The Div Arty honed its digital warfighting skills throughout the year by participating in exercises Unified Spirit, Blue Flag and Lucky Warrior.

While making training more challenging for the Redlegs of the *Santa Fe Division*, the Div Arty continued to work on its number one priority: strength management.

The 35th Infantry Div Arty stands trained and ready to meet the challenges of the future and to provide unparalleled worldwide fire support to the *Santa Fe Division* and the US Army!



Detachment 1 of E/161 FA (TA) supports Operation Joint Guardian. The radar detected small arms fire between ethnic groups in Kosovo.



# SILHOUETTES OF STEEL

## 38th Infantry Division (Mechanized) Artillery

The 38th Div Arty, with its headquarters in the Indiana National Guard, conducted decentralized training during the year.

3-139 FA, headquartered in Crawfordsville, Indiana, conducted section lane training during AT at Camp Atterbury, Indiana. Many personnel from 3-139 FA were attached to 1-163 FA, a sister FA battalion in the INARNG that is part of the 76th Separate Infantry Brigade, during its May JRTC rotation.

2-150 FA (-), headquartered in Bloomington, Indiana, conducted battery lane training during its AT at Camp Atterbury in June. B and C Batteries underwent three separate training lanes covering offense, defense and gunnery. The lanes were evaluated by personnel from Fort Jackson, South Carolina, and produced positive results. Battery A, 2-150 FA, trained with the 1-163 FA throughout the year and during 1-163 FA's JRTC rotation. Battery A upheld the proud tradition of the 38th Division Artillery and completed its missions with great success.

1-119 FA, headquartered in Lansing, Michigan, conducted AT at Camp Grayling, Michigan, in August. Its training sup-



*Cyclone's Thunder* 3-139 FA direct fires and places steel on target.

ported the 46th Infantry Brigade. 1-119 FA also completed gunnery lanes during AT.

1-134 FA, headquartered in Columbus, Ohio, completed a successful AT period in July at Camp Grayling. The battalion conducted section-level training.

Headquarters and Headquarters Battery, 38th Div Arty, supported all four AT periods with personnel and equipment. In late June, the Div Arty fielded Version 11 software for AFATDS. Personnel from each battalion completed

the "train the trainer" program and now are training their battalions.

Throughout the year, E/139 FA (TA) provided the battalions radar support for live-fire exercises at Camp Atterbury and Camp Grayling.

Redlegs of the 38th Div Arty are honing their skills for the challenges of the up coming year to support the 38th Infantry Division (Mechanized) during its BCTP Warfighter exercise in July of 2001. *Cyclone's Thunder* placing steel on target!

## 40th Infantry Division (Mechanized) Artillery

It was another challenging and exciting year for the artillery of the *Sunburst Division*—40th Infantry Division (Mechanized), California Army National Guard. The focus this year was on improving section- and battery-level proficiency while at the same time supporting division operations. Div Arty soldiers deployed worldwide to such diverse locations as Japan; the Ukraine; Fort Irwin, California; Fort Carson, Colorado; Fort Lewis, Washington; and Twentynine Palms, California.

The NTC was again a highlight for the Div Arty. Both 1-143 FA (DS) and D Battery, 144 FA (GS) trained with the OPFOR during four rotations in the spring. The firing batteries improved section-level proficiency while they conducted extensive maneuver training with the 11th Armored Cavalry Regiment. 1-143 FA ended the training year by deploying its TOC to Fort Carson and Fort Irwin to train for and participate in



B/1-144 FA (DS) fires during AT at the Marine Corps Air Ground Combat Center at Twentynine Palms in May.

NTC rotation 01-01 as the reinforcing FA battalion for 4-29 FA, its "teamed" battalion from the 4th Infantry Div Arty out of Fort Hood, Texas.

1-144 FA (DS) conducted annual training at the Marine Corps Air Ground Combat Center at Twentynine Palms in May. The battalion fired over 2,000 rounds, including the first firing of the M549 RAP projectile by any Div Arty unit. The battalion fired into and maneuvered through a 50-kilometer corri-

dor. Additionally, it conducted joint training with the 3d Battalion, 7th Marines and the 4th Marine Tank Battalion.

F Battery, 144 FA (TA) was notified this spring that it would deploy with 3d Brigade, 1st Armored Division in Germany, as part of Kosovo Force (KFOR) 2B. The battery conducted annual training at Twentynine Palms with 1-144 FA and then a pre-mobilization AT in September. The battery also fielded Version 7 of the Q-36 Firefinder radar.

The Div Arty Headquarters and the division FSE participated in many exercises this year, including Yama Sukura in Japan and PeaceShield 2000 in the Ukraine. Additionally, it supported the 35th Infantry Division's Warfighter as part of the corps response cell and finished the year out at the I Corps Warfighter at Fort Lewis.

The talented citizen soldiers of the 40th Div Arty will continue to meet every challenge—*Steel Lightning!*

# SILHOUETTES OF STEEL

## 42d Infantry Division (Mechanized) Artillery

The Redlegs of the 42d Infantry Division (Mechanized), headquartered out of Rehoboth, Massachusetts, started the new millennium with an exciting training year.

Throughout the year, 1-101 FA (155-mm self propelled) out of New Bedford, Massachusetts, continued to master the art of digital Field Artillery operations. The batteries successfully integrated IFSAS, BCS and G/VLLD into training, resulting in faster, more accurate fires for our DS units.

This year, 3-112 FA (155-mm self propelled) out of Morristown, New Jersey,

used a new simulation device, the howitzer crew trainer, to conduct a series of live-fire exercises. The exercises set the tone for executing events throughout the training year. The battalion's training culminated in its AT at Fort Drum, New York. The period featured training on special munitions, to include Copperhead and rocket-assisted projectiles (RAP). The battalion also conducted a formal training assessment model evaluation.

1-258 FA (155-mm self propelled), headquartered out of Jamaica, New York, assisted the division's 3d Brigade in the

V Corps Warfighter in Grafenwoehr, Germany. The battalion received a howitzer crew trainer and fielded Version 11 software for IFSAS. This training, along with another battle simulation at Fort Leavenworth, Kansas, is preparing 1-258 FA's batteries for an upcoming NTC OPFOR rotation.

The 1-102 FA (155-mm self propelled) in Quincy, Massachusetts (a sister FA battalion in the MAARNG and part of the 133d FA Brigade of the North Carolina National Guard), fielded SINGARS, IFSAS Version 11 and the HTU during the past year. The unit successfully integrated the SINGARS and IFSAS Version 11 training across the battalion, enabling it to fire in a secure digital, frequency-hopping mode during AT at Fort Drum. The battalion also participated in several howitzer salutes in conjunction with Boston's Tall Ships parade, dubbed Operation Sail Boston 2000.

All these accomplishments increased the ability of the 42d Div Arty to perform critical missions and continue to develop our ability to fight and win on the battlefield. We remain more than ready to support any mission with **Rainbow Thunder!**



The 42d Infantry Division Salute Battery fires a volley in preparation for Operation Sail Boston 2000.

## 49th Armored Division Artillery

TY00 was the year for the 49th Armored Div Arty of the TXARNG to mass fires. This year all cannon batteries deployed to Fort Bliss for AT at Dona Ana in New Mexico. Our multi-component 2-131 FA (MLRS) had a challenging year, integrating B Battery with 2-20 FA (MLRS/TA) of the 4th Infantry Division (Mechanized) of Fort Hood, Texas. The 49th Div Arty also deployed the division fire support section to Bosnia-Herzegovina in support of the 49th Division Stabilization Force 7—the first ARNG division to head an overseas mission since the Korean War.

Throughout the year, our DS battalions conducted LFX and RSOPs at Forts Hood and Bliss, Texas. This was the first time in years that the 49th Division deployed a brigade-sized element as far as 800 miles from the training site. This year our artillerymen trained their mobilization readiness skills and coordinated with the USAF Reserve C-5A (433d Airlift Wing), which supported the brigade-sized movement.

AT was a great opportunity to integrate all fire support systems at one time in one location. Our DS battalions fired all missions of the artillery tables in

a digital mode from the FISTs' FEDs or digitally from the Firefinders down to the gun display units (GDUs). It was also an opportunity to complete the NET training of Version 11 IFSAS software. All together, the 49th Div Arty delivered fast, responsive and accurate fires, culminating AT with a Div Arty TOT.

2-131 FA completed AT with 2-20 FA. The 2-20 FA commander awarded B Battery soldiers with three impact Army Achievement Medals, four battalion certificates of achievement and many battalion coins after the integrated FTX. The

battery received a unit safety streamer for 7,000-plus hours of accident-free training.

2-131 FA's C Battery began its MLRS NET conversion training to be completed during AT in TY01. The unit is performing outstandingly and should reach all training goals as planned.

As the Texas Artillery, with full confidence in the professionalism and competence of our Redlegs, we are ready to provide fire support for the 49th Armored and 4th Infantry Divisions. **Always Forward!**



As shown here, 2-131 FA's rockets are **Always Forward!**

# SILHOUETTES OF STEEL

## 82d Airborne Division Artillery

The 82d Div Arty, Fort Bragg, North Carolina, maintains its ability to deploy with no notice worldwide and synchronize lethal and nonlethal fires in support of the 82d Airborne Division.

The Div Arty Headquarters demonstrated its warfighting skills during two major exercises: the 82d Division Warfighter in January and Roving Sands/Purple Dragon in June. During the Warfighter, the Div Arty served as the force FA headquarters that included one active FA brigade and one National Guard FA brigade. In Roving Sands/Purple Dragon 2000, a Joint Forces Command exercise, the Div Arty integrated and synchronized fire support with the 10th Marines. Throughout the year, the 319th AFAR fired over 30,000 rounds. The Div Arty conducted three battalion and five battery EXEVALs, many battalion and battery FTXs and five CALFEXs.

1-319 AFAR, the *Loyalty Battalion*, completed a highly successful JRTC



82d Redlegs fire a drop-zone mission during an exercise in June.

rotation, redeployed C Battery from Kosovo in October, demonstrated its danger-close firing ability during a CALFEX for the Chief of Staff of the Army and executed many DZ fire missions and air assault raids. 1-319 AFAR stands ready for no-notice deployment.

Paratroopers of 2-319 AFAR, *Falcon's Fury*, continued their tradition of excellence. The unit completed a successful JRTC rotation in October and then en-

tered the annual regimental competition, winning best FIST, FDC and howitzer section. 2-319 conducted a series of company-level CALFEXs, integrating Army attack aviation, CAS, mortars and GS artillery firing in close proximity to maneuver forces at night and in extreme weather.

3-319 AFAR, the *Gun Devils*, began the year with C Battery deploying to Kosovo as a part of Operation Noble Anvil, supporting TF Falcon, 3-504th PIR. During C/3-319 AFAR's six-month deployment, the

unit conducted live fire in support of the 3-504th cordon and search missions and a 100-mile air assault into Macedonia. The battalion honed its METL throughout the year by conducting several CALFEXs, DZ missions and air assaults.

The 319th AFAR is fully prepared to execute a no-notice worldwide deployment in support of the *All American Division. Airborne-All the Way!*

## 101st Airborne Division (Air Assault) Artillery

The 101st Airborne Division (Air Assault) Artillery, Fort Campbell, Kentucky, trained under demanding and realistic conditions at every opportunity this year. Soldiers of the Div Arty supported several operational contingencies, including in Kosovo; participated in Ulchi Focus Lens in Korea and many JRTC and NTC rotations; and conducted many brigade and battalion FTXs.

The 1-320 FA *Top Guns* started the year with a successful JRTC rotation in February. After an extensive train up at Fort Campbell, the battalion deployed to the NTC in November where it played a key role in the 2d Brigade's successful fight with the OPFOR.

The 2-320 FA *Balls of the Eagle* demonstrated its combat readiness during two no-notice emergency deployment readiness exercises and a successful JRTC rotation in October 1999. A/2-320 FA and task force fire supporters provided responsive and devastating fires in support of 3-327 IN during an April NTC rotation. In late summer, 2-320 FA displayed its versatility with the preparation and deployment of B Battery and FSE soldiers to Kosovo with 2-327 IN.

The 3-320 FA *Red Knights* met every challenge this year. In February, C Battery and several fire support soldiers deployed to Kosovo with 1-187 IN. They returned six months later after helping to keep the peace. In March, the battalion joined the 3d Brigade at Fort Campbell in the largest air assault since Desert Storm. The battalion also conducted many other air assault operations and fired over 20,000 rounds in support of 3d Brigade.

C/1-377 FA *Crusaders* (155-mm towed, attached from the 18th FA Brigade) joined its parent battalion at Fort Bragg, North Carolina, for an FTX in January. In March, the battery supported 3-320 FA and the

3d Brigade with reinforcing fires. The battery also continued testing the 155-mm automated howitzer as part of the Rapid Force Projection Initiative.

The 2d FA Detachment *Guardians* training highlights included two C-130 air-land missions and two air assault missions. The *Guardians* also integrated new AFATDS software, radar software and the advanced system improvement program (ASIP).

The 101st Airborne Div Arty (Air Assault) is trained and ready to deploy anywhere, anytime, and provide fire support for the *Screaming Eagles*—prepared for our next rendezvous with destiny. **Air Assault!**



Redlegs of 1-320 FA fire in support of the annual 4th of July ceremony at Fort Campbell.



# SILHOUETTES OF STEEL

## 10th Marine Regiment

As the 2d Marine Division's *Arm of Decision*, the 10th Marines, Camp Lejeune, North Carolina, achieve excellence in tactical proficiency and operational readiness. This year, elements of the regiment were forward deployed around the world, from the coral shores of the western Pacific to the desert sands of Africa, to the rugged terrain of the Balkans and the shores of the Mediterranean.

The 10th Marines, the centerpiece of the MAGTF's fire support capability, focused on warfighting this year. We maintain the ability to task organize for the division and MEU (SOC) operations. Elements of the 10th Marines were forward deployed with the 22d, 24th and 26th MEU (SOC), demonstrating the concept of operational maneuver from the sea. Additionally, we supported the 3d Marine Division in Okinawa, Japan, in the UDP.

In FY00, B/1/10 deployed with the 22d MEU (SOC) for exercise Infinite Moonlight with Jordanian forces in Al Quatran, Jordan. Headquarters Battery, 10th Marines, participated in Operation Concrete Warrior, a two-day MOUT exercise. 1/10 took part in exercise Purple

Dragon, a combined arms staff exercise with the 82d Airborne Division's command element and the 82d's 2d Brigade, as well as the newly formed 2d MEB.

2/10 deployed with the 6th Marines to Camp Sparta, Greece, for two weeks in Operation Dynamic Mix 2000. 5/10 took part in the type commander's amphibious training (TCAT), continuing to hone its skills in power projection from the sea in support of the MAGTF. Elements of 2/10 and 3/10 joined the rigorous, demanding MAGTF CAX.

The 10th Marines deployed twice to Fort Bragg, North Carolina, for Express Sword. These LFXs used our METL as the foundation and training to standards as the objective.

We also extensively incorporated aviation assets into training. UAVs conducted reconnaissance while EA-6Bs provided electronic attack to challenge our counterbattery radar and communication assets. We also conducted heliborne operations to increase the MAGTF's fire support flexibility.

The 10th Marines, the oldest artillery regiment in the Marine Corps, stands ready to provide devastating fires as the 2d Marine Division's *Arm of Decision!*



A CH-53E approaches a gun position during Operation Express Sword.

## 11th Marine Regiment

The 11th Marines *Cannon Cockers*, 1st Marine Division, Camp Pendleton, California, (1/11, 2/11 and 5/11) and one battalion (3/11) at Twentynine Palms, California, supported many deployments, exercises, technological demonstrations and contingency requirements over the past year. The 11th Marines deployed five times to the western Pacific with the 11th, 13th, 15th and 31st MEU (SOC) and twice in the UDP to support the 3d Marine Division. While deployed, 11th Marines batteries conducted LFXs in Kuwait and Jordan and participated in exercises in Oman, Singapore, Okinawa and Hawaii.

The regiment also pursued METL excellence with a series of LFXs. Four CAXs conducted at the MCAGCC refined digital sensor-to-shooter procedures with FA live fire close to maneuver units. Exercise Steel Knight tested maritime prepositioning operations in a national regional contingency.

The entire regiment deployed to two DESFIREXs. In con-

junction with DESFIREX 1-00, 5-11 participated in limited objective exercise (LOE)-6 for the Marine Corps Warfighting Lab. As adjunct to DESFIREX, the regiment provided accurate fires for the 1st Marine Division in Desert Scimitar. In the CINC-level Ulchi Focus Lens, the regiment perfected its staff planning skills and relationships with maneuver units and higher, as well as adjacent headquarters. The 11th Marines also provided fires for seven TACP courses, two weapons training instructor courses



1/11 Marines fire while training at MCAGCC, 29 Palms, California.

and many Fallbrook and Barstow testing and evaluation shoots.

This year, the 11th Marines were instrumental in testing new systems for the artillery and fire support community, leading the way in digital C<sup>4</sup>I system integration. The 11th Marines tested the 120-mm mobile fire support system and 120-mm light armored vehicle mounted 2R2M mortar at Twentynine Palms.

11th Marines were instrumental in evaluating the new C<sup>4</sup>ISR battlespace visualization terminal (BVT). During LOE-6, 5/11 not only tested this new equipment, but also tested and developed TTP for many targeting systems, communication assets and a variety of 120-mm mortars in conjunction with existing weapons and C<sup>4</sup>I systems. The 11th Marines were the first USMC artillery regiment to complete the fielding of AFATDS.

This year, the 11th Marines delivered fires on time, on target for the 1st Marine Division. *Cannon Cockers!*



# SILHOUETTES OF STEEL

## 12th Marine Regiment

The 12th Marine Regiment, the Marine Corps' forward-deployed artillery regiment, is headquartered on Okinawa, Japan, with one battalion in Okinawa and one in Hawaii. This year, elements of the 12th Marines trained on mainland Japan, in Okinawa, Hawaii, South Korea and Thailand.

In January, the 12th Marines participated in Pacific Impact 2000, a division-level command post field exercise in Okinawa's Central Training Area. During this exercise, the 12th Marines' combat operations center (COC) practiced its role as the alternate division command post.

Both 1/12 and 3/12 were found to be mission capable and combat ready as each battalion underwent a Marine Corps combat readiness evaluation (MCCRE). In addition to the MCCRE, 1/12 participated in two battalion-level operations in Hawaii as part of the 3d Marines during combined arms operations in January and October. The battalion also conducted a DESFIREX at Twentynine



Marines of Lima 3/12 prepare to fire an M198 howitzer at Yausubetsu Maneuver Area in Hokkaido.

Palms in April. The 12th Marines' COC, 1/12's FDC and 3/12 deployed to the Fuji Maneuver Area in September for an artillery live-fire exercise, and 3/12 deployed earlier to Camp Fuji in April as part of a combined live-fire exercise in support of the 4th Marines.

In 1997, all artillery live-fire training was relocated from Okinawa to mainland Japan. The Government of Japan finances four annual artillery relocation exercises. The 3d Marine Division pays for additional training. This year, Okinawa-based batteries assigned to the 12th Marines deployed to mainland Japan eight times for live-fire training, and a battery deployed to Thailand to participate in exercise Cobra Gold 2000. This was the second time that Marine artillery fired in Thailand in several years.

All counterbattery radars are now consolidated with the regimental headquarters on Okinawa. AN/TPQ-46 Firefinder Version 8 was fielded throughout the regiment to enhance its counterfire capability. At least one radar section is deployed in every mainland Japan live-fire exercise.

Forward deployed and on the go in the Pacific Theater, the 12th Marines remain America's *Thunder and Steel!*

## 14th Marine Regiment

The 14th Marines, with its headquarters at Naval Air Station, Joint Reserve Base, Fort Worth, Texas, is the Marine Corps' largest regiment and the only Marine Reserve artillery regiment. Widely dispersed over 19 sites in 13 states, the Regiment's five battalions have overcome substantial challenges of time and distance to remain mobilization-ready and mission-capable.

During the first part of the year, 14th Marine units focused on battery-level operations. Training was conducted in a multitude of locations: Fort Dix, New Jersey; Fort AP Hill, Virginia; Fort McCoy, Wisconsin; and Camp Pendleton, California, just to name a few. Designated units also received the mobilization deployment readiness test.

In March, 5/14 was the first 14th Marines unit to participate in DESFIREX with the 11th Marines at MCAGCC, Twentynine Palms, California. Then elements of Headquarters Battery, 14th Marines, linked up with 5/14 and the 1st Marine Division at MCAGCC for Desert Scimitar. The battery refined TTP for serving as the force artillery during major theater wars.

The combined arms exercise conducted in June at Twentynine Palms allowed 1/14 and 2/14 to hone their combat skills in support of the 23d Marine Regiment.

The largest 14th Marines exercise of the year and one of the largest conducted in the 4th Marine Division, Maximum Force 00, was held at Fort Sill, Oklahoma, in July. During the exercise, Headquarters, 14th Marines; 3/14 Marines; 4/14 Marines; 3-13 FA (MLRS), part of the Army's 214th FA Brigade; and CSSD-44 conducted battery, battalion, regimental and force artillery operations.

Concurrently, I MEF conducted a MEFEX at Camp Pendleton. The 14th Marines regimental liaison team participated to prepare for Ulchi Focus Lens in Korea where the 14th Marines will serve as the I MEF's force artillery.

The 14th Marine Regiment is reorganizing to train its units more efficiently, lower travel costs and prepare for the conversion of two M198 battalions to high-mobility artillery rocket system (HIMARS) battalions. The talented, dedicated *Devil Dogs* of the 14th Marines will continue to live up to our motto—*At the Ready!*



14th Marine M198s fire during exercise Maximum Force 00 at Fort Sill.



# Redleg Reference

The following is a list of articles and selected items from "From the Firebase" (FF), "Incoming" (INC) and "Redleg Review" (RR) appearing in Field Artillery during calendar year 2000. The entries are categorized by subject and listed chronologically by title and edition.

## Unit Reports

- "FA Battalion C<sup>2</sup> in Albania and Kosovo" (1-27 FA, V Corps Arty), Jan-Feb
- "ATO Team: Connectivity for the Deep Fight" (40th IN Div Arty, CAARNG), Jan-Feb
- "FSST Training to Win the Counterfire Fight" (2d IN Div Arty), Mar-Apr
- "A Digital Training Strategy for the 21st Century" (4th IN Div Arty), Mar-Apr
- "ARNG Fire Support NTC Ramp-Up" (1-148 FA, 116 Sep AR Bde), Mar-Apr
- "Stop Selling Wolf-Tickets: An Objective Way of Accomplishing EFATs" (6-27 FA, 75th FA Bde, III Corps Arty), May-Jun
- "Role and Mission of the FA in TF Falcon, Kosovo" (1-7 FA, 1st IN Div Arty), May-Jun
- "3x6 Divisional MLRS Battalion Capabilities and Constraints" (2-20 FA, 4th IN Div Arty), May-Jun
- "Proud and Disciplined: 2-15 FA in Bosnia" (2-15 FA, 10th Mtn Div Arty), Jul-Aug
- "Silhouettes of Steel" (Reports by Total Army Corps Artys, Div Artys and Marine Regiments), Nov-Dec

## Targeting/TA

- "ATO Team: Connectivity for the Deep Fight," Jan-Feb
- "BCD Targeting for Operation Allied Force," Jan-Feb
- "Lessons Learned from Operation Allied Force in Kosovo," Jan-Feb
- "DOCC Operations in JTF-Kuwait," Jan-Feb
- "Suppressing the Objective: Echeloning Fires in the Attack," May-Jun
- "Leading the Radar Section in Battle—What 'Right' Looks Like," Sep-Oct

## Doctrine and TTP

- "World Fires for the 21st Century" (FF), Jan-Feb
- "Three Responses—'Is the FA Walking Away from the Close Fight?'" (INC), Jan-Feb
- "Responsive Fires for the Maneuver Commander" (Interview with LTG Kevin P. Byrnes, former Commanding General, 1st Cavalry Division), Jan-Feb
- "FA Battalion C<sup>2</sup> in Albania and Kosovo," Jan-Feb
- "Cannon TTP for MLRS in Albania," Jan-Feb
- "Linear Sweep—Paladin Prep in Korea," Jan-Feb
- "Pharaoh's Battery," Jan-Feb

- "Digital Interoperability between AFATDS and IFSAS," Jan-Feb
- "Response to 'Is the FA Walking Away from the Close Fight'" (INC), Mar-Apr
- "Safety—Reduced Crew Procedures for MLRS" (INC), Mar-Apr
- "Communications on the Battlefield: Key to Combat Success" (Interview with BG(R) Samuel S. Thompson III, former Commanding General, Joint Readiness Training Center), Mar-Apr
- "Training the Force for the NTC," Mar-Apr
- "Fire Support for the Brigade and Below" White Paper" (INC), May-Jun
- "Stop Selling Wolf-Tickets: An Objective Way of Accomplishing EFATs," May-Jun
- "A Day in the Life of a Brigade FSO at the NTC," May-Jun
- "The Battalion/Task Force FSNCO and the MDMP," May-Jun
- "Role and Mission of the FA in TF Falcon, Kosovo," May-Jun
- "Report to the Field: Tactical/Operational Fire Support Conference," May-Jun
- "The Company FSO TLP and Briefing," May-Jun
- "Hasty Astro: Taking the Needle Out of the Equation," May-Jun
- "Suppressing the Objective: Echeloning Fires in the Attack," May-Jun
- "Seven Steps to Managing FSCMs," May-Jun
- "Brant's Ten Commandments of Fire Support," Jul-Aug
- "Paladin as a Maneuver Element—Keep the Thunder Rolling," Jul-Aug
- "SADARM Deadly Against Armor in Testing," Jul-Aug
- "AFATDS—Kiowa Warrior: A Deadly Digital Interface," Jul-Aug
- "Leading the Radar Section in Battle—What 'Right' Looks Like," Sep-Oct

## Personnel/Force Structure

- "ATO Teams: Connectivity for the Deep Fight," Jan-Feb
- "Transforming the FA and Force" (FF), Mar-Apr
- "The Newest Field Artilleryman: 13D FATDS Specialist," Mar-Apr
- "Response to 'Walk a Mile in My Shoes: AC-RC Team Building'" (INC), May-Jun

- "3x6 Divisional MLRS Battalion Capabilities and Constraints," May-Jun
- "Army in Transition: Keep Your Eye on the Ball" (Interview with GEN(R) John M.D. Shalikashvili, former Chairman of the Joint Chiefs of Staff), Jul-Aug
- "The Field Artillery in Transformation" (FF), Sep-Oct
- "First ARNG Officer Commands AC FA Battalion: AC-RC Exchange," Sep-Oct
- "Fixing the Marine Artillery" (Interview with Gen James L. Jones, Commandant of the Marine Corps), Sep-Oct
- "First Lieutenant to Korea," Sep-Oct
- "A Day in the Life of a BCT First Sergeant," Sep-Oct
- "US FA Commanders and CSMs" (Battalion and Above), Nov-Dec
- "Field Artillery Training Command Directory," Nov-Dec
- "US Total Army Personnel Command Field Artillery Assignment Branches," Nov-Dec
- "Effects-Based Fires—The Future of Fire Support Coordination and Execution," Nov-Dec

## Leadership

- "Building Our Intellectual Capital: the Need for Adaptive Leaders in Today's Army," Sep-Oct
- "Leadership Development for the IBCT," Sep-Oct
- "Training Adaptive Leaders—Are We Ready?" Sep-Oct
- "The Practical Application of Army Values," Sep-Oct
- "Developing the Adaptive Leader," Sep-Oct
- "Decision Making in the Information Age: Moving Beyond the MDMP," Sep-Oct
- "A Day in the Life of a BCT First Sergeant," Sep-Oct
- "Honor: Strict Conformity to What's Right," Sep-Oct

## History

- "'Close' Means 50 Meters" (INC), Jan-Feb
- "Response to 'From Horses to Tractors: Implications for Army XXI'" (INC), Jan-Feb
- "Learning from the Past to Prepare for the Future" (FF), Jul-Aug
- "Fire Support at the Battle of Kursk," Jul-Aug
- "No Master Plan: The Employment of Artillery in the Indian Wars, 1860—1890," Jul-Aug

- "Cannons Under Canopy: American Parachute Field Artillery in Operation Market-Garden," Jul-Aug
- "2001 History Writing Contest Rules," Jul-Aug
- "Do Preparation Fires Work? A Historical Perspective," Jul-Aug
- "After D-Day: Operation Cobra and the Normandy Breakout" (RR), Jul-Aug
- "50-Year Commemoration: Marine Artillery in Korea" (Reprint from the *Marine Corps Gazette*, Nov 1952), Nov-Dec

### Equipment and Technology

- "AFATDS Update" (INC), Jan-Feb
- "Pharaoh's Battery," Jan-Feb
- "Digital Interoperability Between AFATDS and IFSAS," Jan-Feb
- "ICDB Number for SATCOM Access," Jan-Feb
- "Joint Tactical Radio System—Volume, Distance and Speed," Jan-Feb
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Publication Title: Field Artillery

Issue Date: 21 Aug 00

Number of Copies: 1000

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Signature: Alexander S. Hollis, Editor, Field Artillery, P.O. Box 32311, Fort Rix, IL 62432-0311

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