Field Artillery

A Professional Bulletin for Redlegs

November-December 1998

THE RED BOOK

HQDA PB6-98-6

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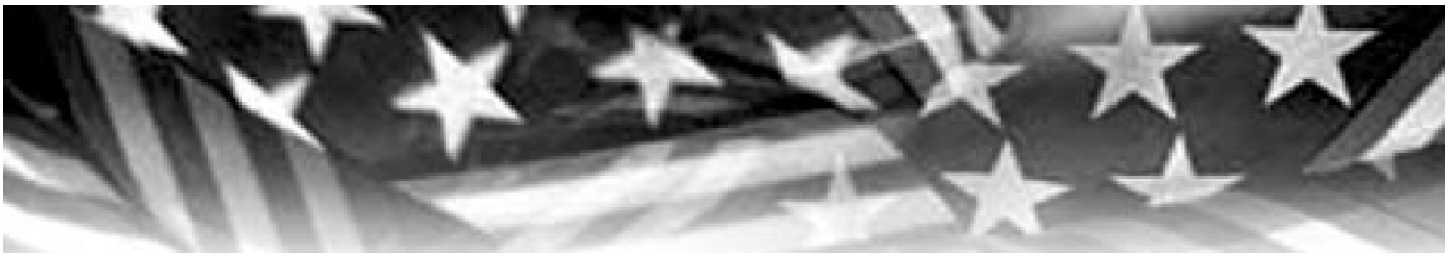
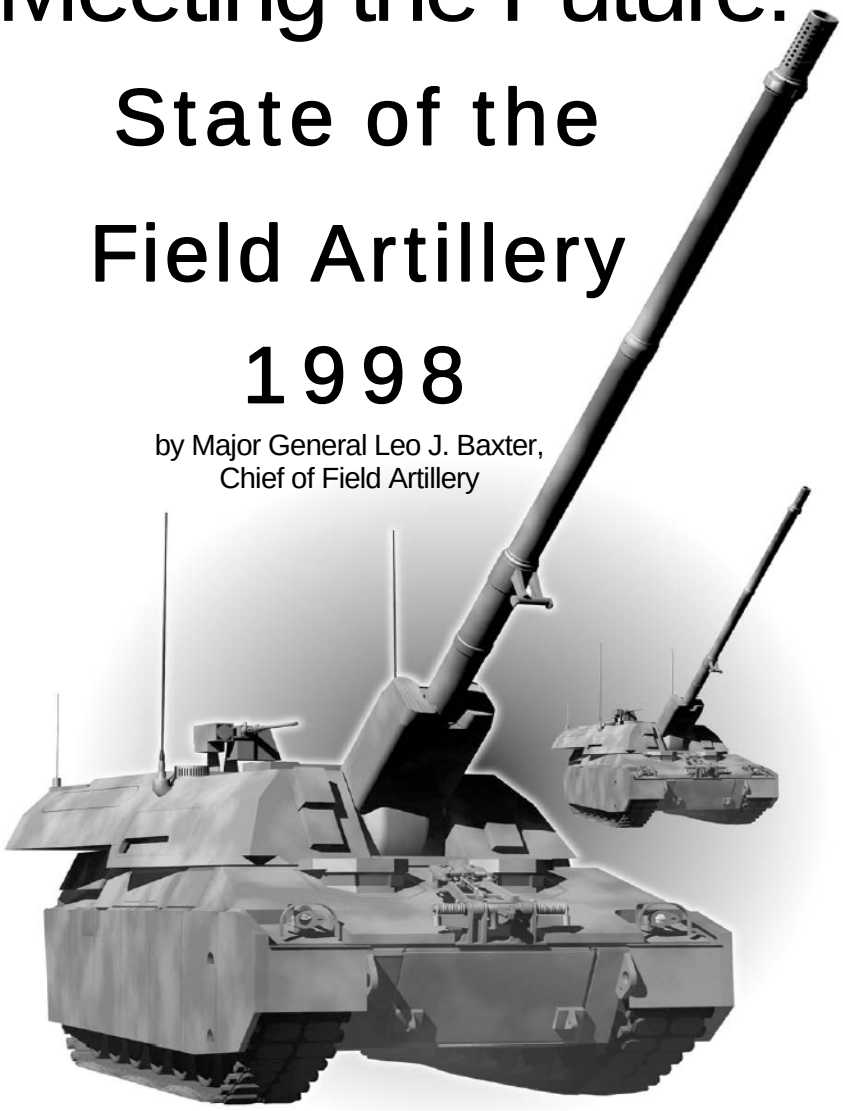


Meeting the Future:

State of the Field Artillery 1998

by Major General Leo J. Baxter,
Chief of Field Artillery



To remain a relevant force for our nation's continued well-being, the Field Artillery must be able to respond to any range of threats and our ever-changing geopolitical environment in the years to come. Our warfighting concepts must evolve to take advantage of new technologies as well as meet the challenges these new capabilities and procedures present. We, somehow, must look to the future, predict the unknown and prepare for it—a challenging task, to say the least.

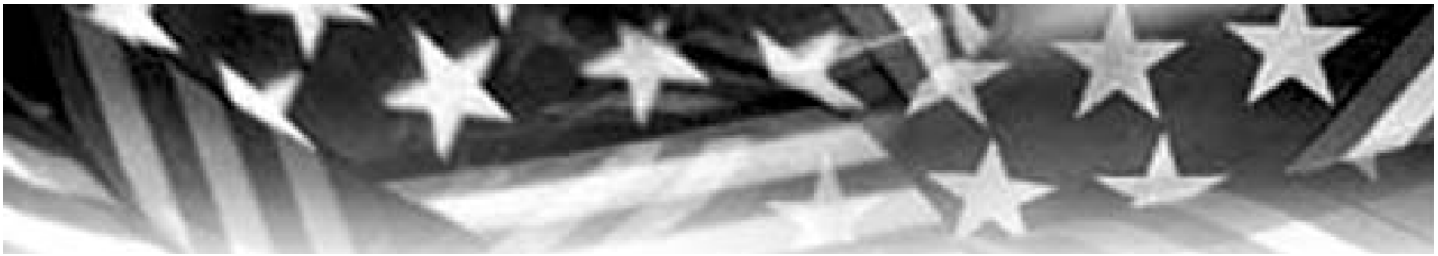
The Field Artillery vision encapsulated in this article shows how we best excel in the coming decades. (For more details of the vision, see the article "Fires: The Cutting Edge for the 21st Century" by Brigadier General Toney Stricklin in the May-June edition.) With the concepts of the vision in mind, a brief review of our progress over the past year shows the FA is robust, healthy and well on the way to realizing many of the goals set forth in that vision.

The FA Vision

The FA Vision is a set of concepts that helps us prepare for the future while giving us the agility to respond to the rapidly changing technological and political environments of today. We must prepare to deliver full spectrum effects—from massed area fires to precision strikes to disabling equipment with non-lethal fires—whatever the force commander requires. These effects will originate from many sources: joint, combined or any combination...and from numerous platforms: cannons, unmanned aerial vehicles (UAVs), Air Force fighters, satellites in low-earth orbit, etc. As we implement the vision and meet the future, the source or delivery platform will be much less important than the terminal effects they produce. This is the essence of cutting edge fires, the nearly instantaneous delivery of a wide variety of effects supporting the commander's intent anywhere in his battlespace. We have begun to think of this as a paradigm shift to effects-based fires.

To implement the vision, we must make fundamental changes in the Field Artillery. In summary, here are four of the most significant.

Manage Effects. We must shift from managing weapons systems to managing fires effects. Managed, controlled, and directed from a highly automated effects coordination cell (ECC), firing units will supply a panoply of effects. The ECC must have input from all available sensors—from the forward observer (FO) to space-based surveillance systems—and be able to establish, alter and terminate direct sensor-to-effects links in seconds. It must have visibility of and be able to bring to bear not only FA fires, but also those of other branches, services and our allies, as necessary. And we must be able to package combinations of effects to provide the commander tactically meaningful options—we must be able to distribute full spectrum effects throughout his battlespace on demand.



We also must be prepared to provide and manage effects from platforms mobile and agile enough to be widely dispersed on the battlefield. To take advantage of digital communications and enhance our survivability, we'll fight as modular units dispersed and non-contiguous across a nonlinear battlefield. We'll have neither the reason nor the resources to hold every square meter of our combat area.

Tailor the Force Dynamically. In the past, we positioned firing platforms close to supported maneuver units and used special command and support relationships to control fires centrally, called standard tactical missions: direct support, general support, reinforcing or general support reinforcing. With the increase in range, agility, lethality and sources of effects, these relationships become not only unnecessary, but also impractical.

Instead, we must tailor the force based on the effects needed to accomplish the mission—before deployment or at an intermediate staging base. For example, effects may originate from two Crusader howitzers, a high-mobility artillery rocket system (HIMARS) launcher and a battery of future light weapons—for at least part of the campaign. Our ability to tailor the force as needed must be dynamic.

Transform Organizationally. As we develop new systems with advanced technologies that operate with situational awareness at high tempos, we must relook our functions and the implications these changes have on our doctrine, organizational structure, training and soldier and leader development. For example, our effects delivery units will accomplish their missions autonomously while dispersed on the battlefield by executing altered functions. The commanders of these units will continue to be responsible for moving, positioning and resupplying their platforms, but fires employment and coordination may be the job of an effects coordinator in the ECC. The ECC will require fewer nodes to manage and coordinate pervasive effects, flattening our system of systems organizationally.

Move to Munitions Centrality. As FA munitions advance, we'll transition from platform to munitions centrality. Smart and brilliant munitions with increased range and lethality will give us precision and terminal effects on the target, even with inaccuracy in the firing platform's location. First-round target hits—even on moving vehicles—will become the standard. The specific weapons platform will be less important than the terminal effects of the munitions it can deliver. At the same time, we must ensure we have state-of-the-art platforms to deliver the effects.

1998 Vision Developments

Our progress this year attests to the effective state of the branch. Advances in munitions, platforms, digital connectivity, training and force structure are helping to implement our vision.

Cutting Edge Munitions. We are incorporating the latest technologies in our munitions today to produce the types and variety of effects that move us toward munitions centrality tomorrow.

Rockets and Missiles. The multiple-launch rocket system (MLRS) will continue to provide corps and division commanders the effects they need. The extended-range MLRS (ER-MLRS), already in production, will fire out to 45 kilometers while the guided MLRS (GMLRS) improves accuracy and extends our range to 60 kilometers. The MLRS smart tactical rocket (MSTAR) that truly was the star of the Division Advanced Warfighting Experiment (DAWE) at Fort Hood, Texas, will provide yet another munition capable of defeating armored vehicles and other high-payoff targets.

To support the corps deep attack, Army tactical missile system (ATACMS) munitions are also advancing in versatility, range and lethality. By reducing its load of antipersonnel-antimateriel (APAM) submunitions and adding global positioning system (GPS)-augmented guidance, ATACMS Block IA being fielded reaches out to 300 kilometers. ATACMS Block II armed with 13 BAT anti-armor submunitions will engage moving armored formations out to 140 kilometers. Block II will enter limited production in FY99, and we expect to see the first unit equipped with ATACMS Block II in FY01.

Armed with six improved BAT submunitions, ATACMS Block IIA will engage stationary or moving armored formations as well as stationary or moving rocket launchers and missile transporter-erector launchers out to 300 kilometers. Block IIA, truly a cutting edge, multipurpose munition, will begin limited production in FY04. Delivery to the first using unit is expected in FY06.

The extended-range MLRS (ER-MLRS), already in production, will fire out to 45 kilometers while the guided MLRS (GMLRS) improves accuracy and extends our range to 60 kilometers.

Cannon Munitions. Sense and destroy armor (SADARM), the Field Artillery's first fire-and-forget, multi-sensor, smart munition, underwent its initial operational test and evaluation at Fort Greeley, Alaska, this summer. It will take some time to analyze the data from these tests and adjust the munition, but we're confident that SADARM will enter the inventory in the near term.

A great leap forward into the world of munitions centrality will occur with the XM982 Field Artillery projectile. It will be compatible with all current and future 155-mm cannon systems and give us a vehicle to deliver an assortment of munitions. The DPICM model will incorporate the XM85 bomblet that will have an improved self-destruct capability to reduce dud hazards. We expect the DPICM variant to be in production by FY04. Two other proposed variants of the XM982 are on the horizon: a SADARM product improvement (SADARM PI) round with a more lethal footprint and a unitary round capable of penetrating hardened bunkers.

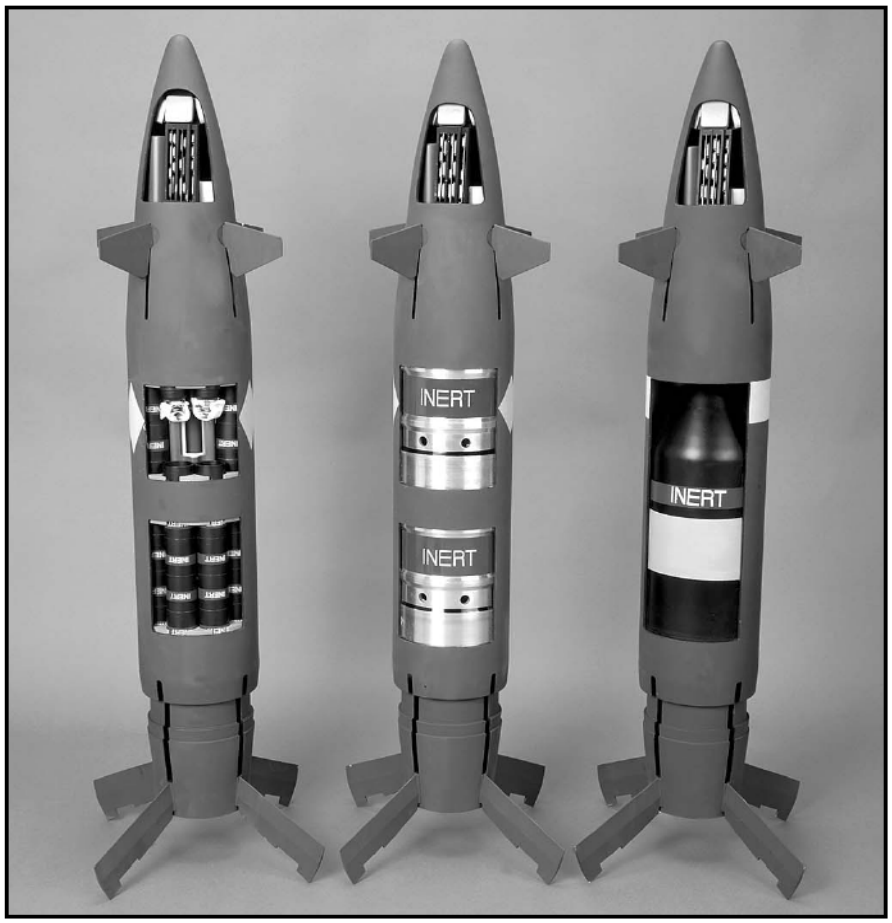
Munitions as Sensors. Currently we're looking at the Silent Eyes imaging artillery projectile that will give us the valuable capability of receiving real-time battle damage assessment (BDA) without using human collectors. This 155-mm projectile will carry an expendable imaging sensor and a data transmission link that will send color television imagery and GPS coordinates back to a ground station for dissemination. Launched from any 155-mm platform, Silent Eyes will employ a smokeless rocket booster that propels it along a typical ballistic trajectory to a GPS-guided search area. Once over the target area, Silent Eyes will begin a gliding, circular descent, sending back high-resolution video feed. Undoubtedly, such a BDA-gathering capability would be a great asset, should its funding be approved.

Other Munitions for a Future Force. There are other possibilities that we are just beginning to explore. In-flight maneuvering will give us the capability to alter the trajectory of a rocket, missile or projectile even as it travels to the target area. Non-lethal munitions may incorporate electronic or pyrotechnic devices that can stun personnel, disable vehicles and disrupt electronic and communications circuits, giving us dominance over potential adversaries without the loss of life on either side. Automatic target recognition might allow a munition to attack and destroy all the tanks traveling in a convoy, even though they are interspersed with non-targeted wheeled vehicles. Future munitions might have embedded identification-friend-or-foe (IFF) qualities that will greatly lessen the incident of friendly fire casualties.

All these innovations will propel us toward munitions centrality; however, we also must look at reducing the logistical impact on the force. Approximately half of the Army's current logistics traffic is artillery munitions—rockets, missiles and cannons projectiles and propellants. Improving the lethality of our munitions will lessen the need to shoot multiple volleys to bring the required effects to bear on the target. Adopting a common type and caliber of cannon round is another possibility that could lessen our logistics burden—if we can create a single, common caliber that fits our needs in all situations.

Fires Platforms for the Age of Effects. We are developing platforms to deliver distributed effects of our advanced munitions, platforms that are more mobile, agile and survivable for dynamic tailoring.

Cannon Systems. The premier Army XXI delivery system for cannon fires is Crusader, which will appear in Field Artillery battalions in about seven years. Designed to fully exploit technology that will give us information dominance, the 155-mm self-propelled Crusader employs



A great leap forward into the world of munitions centrality will occur with the XM982 Field Artillery projectile variants: (L to R) DPICM, SADARM PI and unitary round.

cutting edge advances such as composite armor, advanced robotics and laser ignition. It will provide the Total Force an unprecedented increase in effectiveness and survivability. Crusader will be deployable by all modes of transportation—road, rail, air and sea—to facilitate strategic flexibility. Because of its greater range, higher rate-of-fire and better survivability, a battery of Crusaders will provide effects similar to that of an entire Paladin battalion.

Fielded initially to all 22 heavy active duty battalions and the 9 National Guard battalions that will be among the first to fight, Crusader will give the Total Force a fires overmatch that will help ensure victory. Crusader will be the Army's workhorse cannon system for years to come.

We are now at a juncture where we must decide on an appropriate fire support weapons platform for early entry and forced entry contingency forces. The conceptual advanced technology light artillery system (ATLAS) will provide lethality equal to that of 155-mm cannons but retain the strategic deployability and tactical mobility of our current towed howitzers. To take advantage of emerging technologies and best suit the needs of future light and medium weight forces, we're designing a howitzer to be considerably lighter, more lethal and more versatile.

Rocket and Missile Platforms. HIMARS is a rapidly deployable rocket and missile platform for light and early entry forces. Mounted on a wheeled, medium tactical vehicle, HIMARS is fully transportable on a C-130 aircraft and can handle the entire MLRS family of munitions (MFOM). A platoon of three prototype launchers from the 3d Battalion, 27th Field Artillery, 18th Field Artillery Brigade, served as the standoff weapon system in the recent Rapid Force Projection Initiative (RFPI) Advanced Concept Technology Demonstration (ACTD) and proved to be extremely effective in shaping the battlespace. After a two-year user evaluation period that will allow design change suggestions from the soldiers who will fight this weapon system, HIMARS production is expected to begin in FY04.

For effects at operational depths, MLRS has always delivered large volumes of fires accurately and timely. The M270A1 improved MLRS launcher will reduce aiming time by 83 percent and reload time by 38 percent. Additionally, the M270A1 will accommodate the entire MFOM being developed. All 857 launchers in our inventory have been funded for this much-needed upgrade with fielding to the Total Force expected to begin in FY00 and be completed by FY11.

New Breed of Artillery. Even as we work to improve our tracked, wheeled and towed cannon and rocket and missile systems, we must search for the next stage of weapon system evolution. One system may be totally robotic: self-contained and remotely operated. Even now, work is progressing on the wide-area strike platform (WASP)—or as the developmental program is called: advanced fire support system (AFSS). The WASP is a crewless, remotely operated and containerized firing platform.

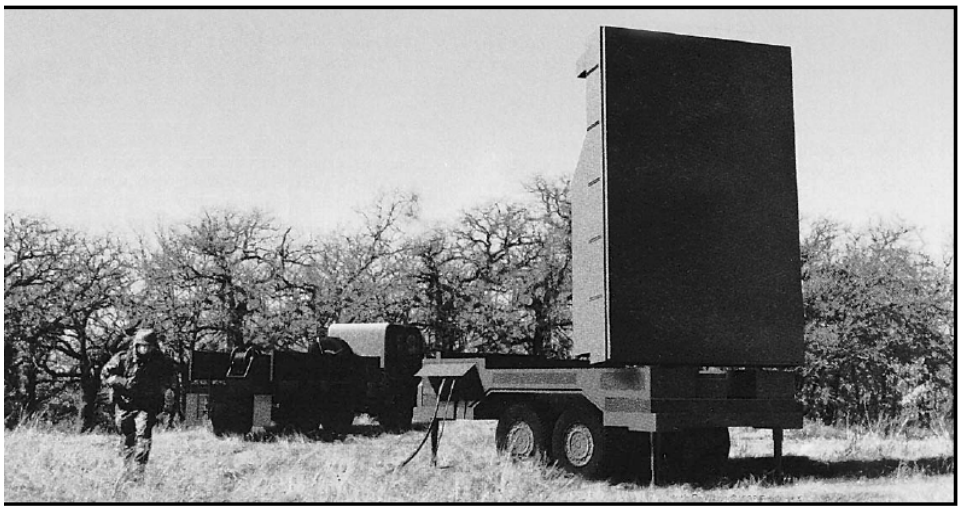
Analogous to an MLRS pod standing on end, WASP could be dropped off the back of a truck, set into place by a fork lift or airlifted to practically any site of our choosing—it might even be airdropped on a remotely steered parafoil and "flown" into position. With vertically launched, terminally guided rockets and missiles, there is no need to survey-in WASP.

When needed, an operator would launch WASP via remote control. For economy of force missions and for force protection, WASP may provide cutting edge capabilities we clearly do not have today...it's radical and experimental but clearly worth a look.

As futuristic as this may seem, perhaps something even more exciting is emerging just beyond today's horizon. In the not-so-distant future, high-density engines—power plants common to many types of vehicles and found in great numbers in the Army inventory—will streamline maintenance operations. Automated rearming and refueling procedures employing robotics will speed resupply operations and lift the physical burden off the backs of our soldiers. A hybrid fuel combustion-electric drive system will increase our vehicles' cruising ranges, and stealth technology in the form of thermal and radar suppression abilities will help hide our weapons platforms from the most sophisticated threat forces.

Future Eyes. Several developments this year have contributed to our ability to see farther and manage future effects.

Radar. One important Army sensor that will prove invaluable is the AN/TPQ-47 radar system. Projected to start replacing the AN/TPQ-37(V)8 in FY04, the Q-47 will double our detection range to 60 kilometers for cannon projectiles, 100 kilometers for rockets and out to 300 kilometers for missiles. Joint exercises have indicated a deficiency in acquiring



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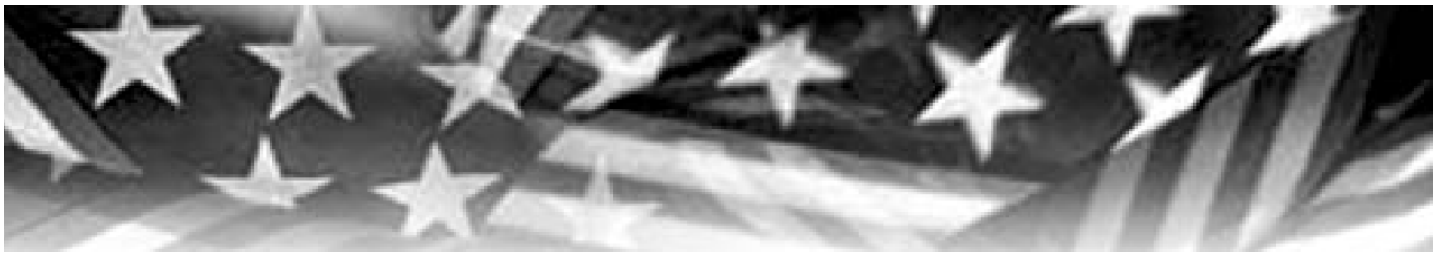

short-range ballistic missiles, and the Q-47 weapons locating radar system will help fill this critical gap. Requiring a crew of only eight (as compared to the Q-37 crew of 12), Q-47 also will increase survivability, transportability and maintainability. We expect to field 72 of these systems by FY08.

BFIST and Striker. Providing close fires for the ground fight will remain a critical task for us. Our challenge today is to provide tactical mobility for fire support teams (FISTs) on the battlefield. To that end, the Bradley FIST vehicle (BFIST) will be a tremendous improvement over our current, obsolete M981 fire support vehicle for mechanized and armored units. BFIST will provide the connectivity, survivability and mobility needed on the battlefield for Army XXI.

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Striker will have an entire suite of FA digital equipment on a HMMWV. Fielding for the Bradley FIST and Striker starts in 2000.

Striker will have an entire suite of FA digital equipment on a high-mobility multipurpose wheeled vehicle (HMMWV), the only digitized vehicle available for brigade-level reconnaissance operations. Its tremendous contribution to the brigade fight will be due to the irreplaceable advantage of having a skilled Redleg forward providing crucial data early in the fight.

The 3d Infantry Division (Mechanized) Artillery at Fort Stewart, Georgia, will participate in the BFIST-Striker operational test and evaluation in early 2000. The fielding of both systems is projected to start in 2000 and end 2007.

Digital Connectivity. Our functional component of the Army battle command system (ABCS) is the advanced Field Artillery tactical data system (AFATDS). This system is currently in use in the 4th Infantry Division (Mechanized) and 1st Cavalry Division, both at Fort Hood; the 82d Airborne Division, Fort Bragg, North Carolina; the 101st Airborne Division (Air Assault) at Fort Campbell, Kentucky; and all four of our corps artilleries. In FY00, the 196th Field Artillery Brigade in Tennessee will become the first National Guard unit to receive AFATDS.

Although we have experienced some predictable growing pains with this system, it's a great leap forward in fire support battle command. For the first time, we are technically capable of fire control and fire coordination from the same location—not split between FA tactical operations centers (TOCs) and maneuver fire support elements (FSEs). As the system becomes more user-friendly and we incorporate changes and updates in both hardware and software, AFATDS will give us the means to control fires in all future operations. Every FA unit should have AFATDS by FY07.

The Marine Corps software version for AFATDS began limited-user testing in October at Camp Pendleton, California. Fielding of AFATDS to all Marine units should begin in FY99.

FOS. We must have complementary robustness in our FISTs' digital gear as found in systems like the FO system (FOS), our replacement for the obsolete forward-entry device (FED). The CHS2 hand-held terminal unit (HTU) component of FOS will permit much faster and more sophisticated computations and message traffic.

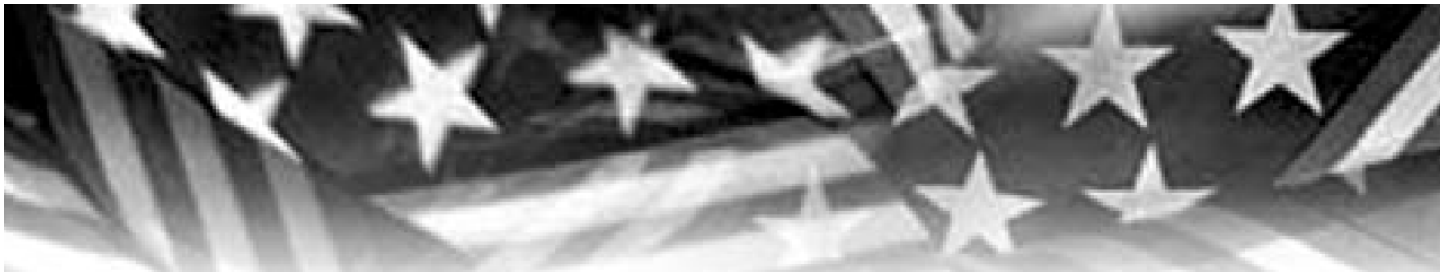
Technical testing for FOS began in October with AFATDS integration testing to follow. The system should begin fielding in July of next year.

In fact, we're already looking at technology insertions to make it better. One of those incorporates a voice-activated modem and voice recognition system that would allow an observer to call-for-fire and initiate other types of digital message traffic simply by speaking into a microphone. This type of hands-free technology can greatly reduce fire mission response times, help eliminate human keyboard-entry errors and give the FO greater freedom of movement.

The Power Behind the Edge. All the advances discussed would be useless if we did not have the highest quality Redlegs possible to employ and maintain those cutting edge platforms. Therefore, changes in the way we train our soldiers and leaders and how we build our warfighting organizations are inevitable and necessary.

Training. Beginning in FY99, the Field Artillery Training Center at Fort Sill will extend the length of initial entry training (IET) by one week to allow more time for two important facets of Redleg training: inculcating Army Values as a baseline for soldier conduct and increasing physical regimen to include road marches and field training exercises (FTXs).

Our increased use of senior NCOs as instructors during FTXs and command post exercises (CPXs) in the Field Artillery Officer Basic Course (FAOBC) at the Field Artillery School on Fort Sill has returned substantial dividends in imparting field skills and basic artillery knowledge to young lieutenants. As an indicator of young leader interest in the



cutting edge concepts of the FA, US Military Academy cadets have closed out the branch allocation with all 142 FA slots selected as the cadets' first or second choice.

Technology continues to make traditional classrooms and printed publications irrelevant, as training material and doctrinal publications are constantly posted and updated on the information super highway. For example, the Field Artillery School's Home Page is http://sill-www.army.mil/index.htm, which contains a wealth of information for Redlegs. The Gunnery Department site linked to the Home Page has the latest versions of firing tables, handbooks, lesson plans and some field manuals (FMs). The FA School Warfighting Integration and Development Directorate (WIDD) site has Total Army Training System courses, draft FMs, soldier training products (STPs) and other documents.

Other important sites are the Combined Arms Doctrine Directorate (CADD), Fort Leavenworth, Kansas, at http://www-cgsc.army.mil/cdd/index.htm and the Training and Doctrine Command (TRADOC) site, Fort Monroe, Virginia, at http://www-tradoc.army.mil. Redlegs can navigate to the Army Doctrine and Training Digital Library and the Center for Army Lessons Learned (CALL) from these sites.

Force Structure. Technology is evolving to give us greater range, deadlier munitions and precision accuracy. Consequently, we can reduce the number of weapons systems in our formations and actually increase our firepower. Crusader, the M270A1, and ATLAS—all future systems—will allow us to deploy fewer platforms but achieve equivalent or greater effects.

As a result, we're converting cannon and rocket battalions from a 3x9 configuration (three firing batteries with nine weapons each) to a 3x6 configuration in the Army Active and Reserve Components. (The divisional MLRS battalions are 2x9 converting to 3x6.) The conversion will make our units leaner and reduce our battlefield footprint and logistical requirements. The newer weapons platforms displaced in this conversion will cascade to units with older equipment, helping to modernize the Total Force.

After their deployments to Bosnia, both the 1st Infantry Division (Mechanized) and the 1st Armored Division in Germany have begun transforming their force structure to comply with the Division XXI design. The 4th Infantry Division has begun its alterations and will become the Army's first fully digitized force by FY00.

This conversion to a leaner, more effective fighting force emphasizes fires as the primary method of engaging an enemy. Although the number of companies in armor and mechanized infantry battalions in Division XXI will decrease from four to three, technology and superior agility will allow these heavy divisions to maintain battlefield dominance. Each will include the divisional MLRS battalion with three firing batteries and the division's target acquisition battery. Division XXI also will have Apache Longbow and Comanche attack helicopter battalions. Division XXI significantly increases Army firepower.

Fort Sill has undergone some significant changes with the creation of two important positions that will help us realize our vision. The Deputy Commanding General for the Army National Guard Field Artillery (DCG-ARNG) is a new brigadier general billet responsible for advising the Chief of Field Artillery on all matters that concern the FA National Guard. The second is the Deputy Assistant Commandant for Futures (DAC-F), a colonel position to integrate the activities of the Directorate of Combat Developments, the Depth and Simultaneous Attack Battle Lab and Task Force 2000 at the Field Artillery School.

The Future: Our Perpetual Target

One thing about the future is that we never get there. Clearly, fires are the ascending combat power on the battlefield. As we continue to develop the range, accuracy, deployability and reliability of our fires, maneuver units very well may have the task of seizing and defending key areas from which decisive effects can be delivered as a primary mission. At the same time, we are mindful of our responsibility to provide close fires to the combined arms commander on the ground—when and where he needs them.

The Senior Fire Support Conference at Fort Sill 12 to 16 April 1999 will continue our across-the-services quest for new solutions to the challenge of providing fires in an ever-changing world. At the conference, we will report out on efforts to implement the FA Vision in more detail.

Within the framework of our Field Artillery Vision and "adjusting fire" as we go, the Field Artillery must be armed with cutting edge fires to provide the effects US forces need for victory well into the next millennium.

Major General Leo J. Baxter has been Chief of Field Artillery and Commanding General of Fort Sill, Oklahoma, since June 1997. In his previous assignment, he commanded the Total Army Personnel Command in Alexandria, Virginia. He also commanded the 3d Infantry Division (Mechanized) Artillery in Germany and the 2d Battalion, 6th Field Artillery in the 3d Armored Division, also in Germany. As a Brigadier General, he was the Assistant Division Commander for Support in the 3d Infantry Division and the Assistant Commandant of the Field Artillery School and Deputy Commanding General for Training of Fort Sill. Also at Fort Sill, he was the post Chief of Staff. General Baxter has peacekeeping experience as a member of the United Nations Truce Supervision Organization in the Palestine, serving in Egypt, Israel and the Sinai Desert. He served as S3 of the 4th Infantry Division (Mechanized) Artillery and Battalion Executive Officer, also in the 4th Division at Fort Carson, Colorado. Major General Baxter holds a master's degree in Personnel Management from Central Michigan University and attended the Advanced Management College of Stanford University.

General Anthony C. Zinni, USMC, Commander-in-Chief of US Central Command

Joint Integration

The Key to Combat Effectiveness

Interview by Patrecia Slayden Hollis, Editor

The US Central Command (CENTCOM) at MacDill AFB, Florida, is a unified command with an area of responsibility (AOR) that includes 20 countries of diverse political, economic, cultural, religious and geographic make-up that encompasses the Middle East, Southwest Asia and Northeast Africa. Larger than the continental US, CENTCOM's AOR is 10.5 million square miles and contains more than 70 percent of the world's oil reserves and several major maritime trade routes. With a total of about 1,000 servicemen and civilians at its headquarters, CENTCOM is the only unified command headquarters with both geographic and warfighting responsibilities. It must be prepared to go into combat, ranging from providing the joint or coalition force command element down to civil-military teams.

Editor

Q *Recently you stood up JTF [Joint Task Force] Resolute Response in Africa in response to Osama bin Ladan's 7 August bombings of the American embassies in Nairobi, Kenya, and Dar es Salaam, Tanzania. How long did it take to stand up the JTF and what was its organization and purpose?*

A The JTF came together in pieces. As soon as we'd gotten the word about the explosions in Nairobi and Dar es Salaam—Nairobi is in our AOR and Dar es Salaam in EUCOM's [European Command's] area—I put our forces in the Gulf on alert. We decided our Naval Forces Central Command [NAVCENT, US Fifth Fleet, Bahrain] would have primary responsibility for military operations in Nairobi. (We offered EUCOM assistance with Dar es Salaam, but EUCOM had a handle on it, so we worked in coordination with EUCOM.)

I wanted to get a command element on top of the crisis in Nairobi very

rapidly—NAVCENT was operating in the same time zone, had resources there as our central link, had security and antiterrorist assets and logistical personnel already doing business there. I didn't want to draw upon our forces in Kuwait—for obvious reasons.

In less than 24 hours, we had JTF Resolute Response in the area and operating. Our Inspector General, Brigadier General Steve Johnson [USMC], was already in Oman, so he became the JTF commander using some of his IG staff augmented by NAVCENT and contracting personnel. We dispatched a security element—a Marine fleet antiterrorist security team out of NAVCENT. From JTF-Southwest Asia, part of our Air Component [CENTAF, Ninth Air Force, Shaw AFB, South Carolina], we dispatched C-130s with medical personnel and an Air Force security detachment. We also had Army Special Forces on an exercise in Kenya, so they provided immediate first aid and security. They're trained to assess situations and could give us feedback quickly.

For assistance in construction and security work and to support the disaster response team, we brought in Seabees. The first response team came from Israel because it could get there quickly—then our disaster response team arrived from Fairfax County, Virginia.

The initial JTF came together in a matter of hours. As a mix of forces from different services, JTF Resolute Response ended up working out very well—truly a joint effort.

The JTF's purpose was to provide command and control on the ground forward in Kenya, coordinating US and any coalition military activities in the region. Immediately, the JTF helped secure the embassy and assisted the ambassador—a very courageous lady who did a magnificent job while wounded. And at the same time, it assessed the situation and fed information on what was needed through NAVCENT back to us at CENTCOM. We had one organization on the ground controlling, managing and accounting for all our military resources and, in the midst of a very chaotic situation, pulling together the whole security effort. We had to consider the possibility of additional attacks in the same area.

Q *CENTCOM set up the Coalition Task Force [CTF] for Operation Desert Thunder, Kuwait, in February in response to Saddam Hussein's refusal to comply with UN inspection requirements. What was the organization and purpose of that task force?*

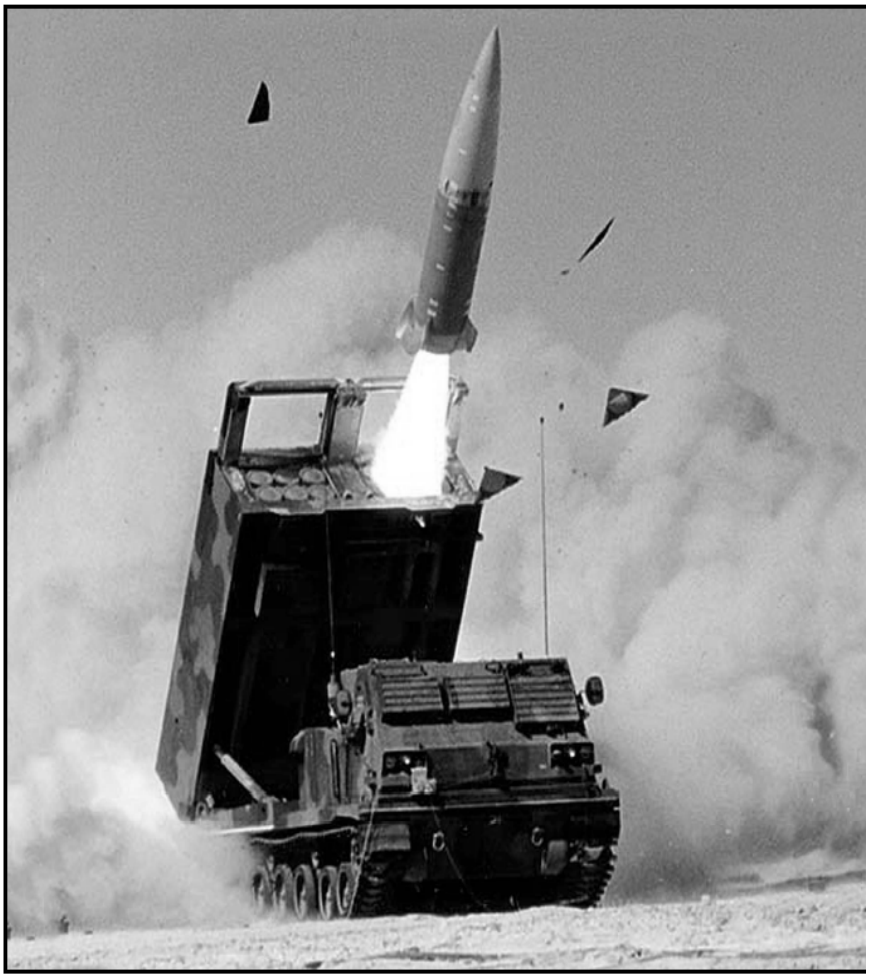
A This is a different set of circumstances—the defense of Kuwait—that we've had time to think about long before Desert Thunder. We've worked with ARCENT's [Army Forces Central Command's] Lieutenant General Tommy Franks, a Field Artilleryman of great repute [Commander of

Third Army at Fort McPherson, Georgia], in anticipation of needing ARCENT if such a crisis arose.

For CTF Kuwait, we needed a command and control element on the ground very rapidly to integrate our military planning with that of the Kuwaiti military. We also immediately increased our assets in the area—for example, at our airbases—so we could counter an Iraqi threat or strike in response, if we had to. So CTF Kuwait was responsible for preparing for the defense of Kuwait, providing force protection, integrating our joint forces, coordinating all possible coalition support and, eventually, evolving into the Land Component Command. ARCENT worked on RSOI [reception, staging, onward movement and integration] to pull together the afloat and ashore prepositioned equipment and prepare the way for the buildup of forces.

We keep a battalion task force in Kuwait and conduct CENTCOM Intrinsic Action joint exercises—at that time, the task force was from the 3d Infantry Division. For CTF Kuwait, we expanded the task force into a brigade augmented by a MEF [Marine expeditionary force]—the Marine Component [provided by MARCENT, Marine Forces Pacific, Hawaii] under General Franks. In addition to combat power enhancements, we basically brought in slice elements that would allow us to power up to a division or more very rapidly.

In the early stages, the key was going to be the deep fight. If Iraqi forces started moving on Kuwait, we would have to defeat, delay or disrupt those forces with our air power. Then as we built up our forces, we would need fire support control measures to allow General Franks to employ his assets, such as Apaches and ATACMS [Army tactical missile system], integrated with Air Force air operations.



ATACMS fires-Block IA that reaches out 300 kilometers is fielding now. CENTCOM is developing a guide for controlling and integrating land and air fires for forces in its AOR.

As you know, we didn't have to fire a shot in anger. But in terms of control measures and procedures for integrating land and air fires, we came out of Operation Desert Thunder with more questions than solutions. For example, how do we employ joint fires when we're building up the force? It's easy to employ joint fires in an exercise where the entire force is already in place—but when you're building up the joint force, how do you do that?

In the middle of a crisis, how do you shift joint fires control from the JTFs to the functional components? Do we need a JFE [joint fires element] as found in the new *Joint Pub 3.09 Doctrine for Joint Fires* or will the expanded operations of Central Command's Joint Targeting Coordination Board [JTCB] do the job?

We began looking for answers. We brought in observers from ACOM [US Atlantic Command, Norfolk, Virginia], the BCTP [Battle Command Training Program, Fort Leavenworth, Kansas], the NTC [National Training Center, Fort Irwin, California] and some "graybeards" from the various services. We did an after-action review with our Kuwaiti component commanders. We had a lot of expertise looking at control measures for the components' battle-space.

It struck me that we needed a primer like they have in Korea, one that outlines procedures in our theater. Doctrine is useful as a guide, but obviously it has to be shaped to fit the requirements in an AOR, each with unique challenges and procedures. For example, Korea has a lot of command and control in place; CENTCOM's AOR doesn't—we have to build it up rapidly in a crisis.

We formed a working group amongst our components to analyze our theater and threats and answer the joint fires questions for Central Command. The idea is to build a concept that's useable by any force in a CENTCOM fight and build the concept from the bottom up—not just implement one dictated by the unified command. We have a first draft, but the process is not complete yet.

Q*Do you foresee a rapidly deployable ARFOR [Army force] fires element to work with the early entry ground forces in coordinating joint fires? What capabilities would it require?*

A That might fit very well, especially in the JTF Kuwait context. It's probably what General Franks needs initially. Again, I'm going to wait and see what the components come up with as the model concept.

What we need going in is a capability to quickly integrate US and coalition fires, air and indirect fires. We're going to have a real hodgepodge of forces in the beginning. The first few days are going to be critical until we can build up to the point where we have the combat advantage over the enemy. So we must be very efficient in how we use what we have, most likely a disparate collection of weapons on the ground, at sea or in the air at any one time.

Q *In Operation Desert Thunder, the 3d Infantry Division Artillery deployed one cannon battalion, one MLRS [multiple-launch rocket system] battery, two radars, a meteorological station, slice elements and additional command and control assets to serve as the Force FA Headquarters for CTF Kuwait. The 3d Div Arty's mission was to plan and coordinate all coalition fires and execute the deep fight. How do we stand up a headquarters rapidly and effectively without reinventing the wheel for each operation?*

A We must learn lessons from each deployment—treat Operation Desert Thunder like we treat exercises and codify the results. One lesson is to ensure we've prepositioned the right equipment in the right numbers forward. Do we need radars and more communications assets forward?

Second, we need to reexamine our TPFDDs [time-phased force deployment data] so we flow the assets we need most into the theater early in the fight. With only a finite amount of lift and a finite number of assets we can move through the area of operations infrastructure at a time, everything competes with everything else for flow into theater.

Our war plan has to define the roles of the units going in and the requirements in Force Packages 1 and 2, the groups we deploy into theater in sequence. Force Package 2 is our backup, ready to go on a moment's notice.

Again, integration is critical. We have US military assets already on the ground in the area along with Kuwaiti military assets...we have US equipment prepositioned...joint equipment and forces flowing into the theater...allied assets and forces flowing into the theater—it all has to be integrated.

We captured a lot of valuable information in CTF Kuwait to refine our plans for future operations.

"[In early entry operations], we must be very efficient in how we use what we have, most likely a disparate collection of weapons on the ground, at sea or in the air at any one time."

Q *The ANGLICOs [air naval gunfire liaison companies] are gone. How will your ground forces tap into Marine and Navy CAS [close air support] and naval gunfire? Do we need standards and training for "universal forward observers" who can call in all joint ground, air and sea fires?*

A The force that provides the combat power will have to provide the ability to coordinate and control its combat assets. So without ANGLICOs, the Marines are going to have to provide the forward air controllers, the TACP [tactical air control parties], to give CENTCOM ground forces access to Marine and Naval CAS and naval gunfire.

Universal controllers? In principle, it's a good idea. But we've got a long way to go, and they'll have to be highly specialized in a dedicated joint effort. Universal controllers will have to have enough technical and service-specific knowledge for the pilots in the cockpits to have confidence in them. Until we get to that point, the provider must control its assets.

We'll never have a joint battlefield where a service strictly supports its own service. As the I MEF [Marine Expeditionary Force] commander, we had both CENTCOM and Korea in our AORs. Our MEF became a combined MEF with not only Army forces under our control but coalition forces as well. In some Korean scenarios, we had the 101st [Airborne Division (Air Assault)] under the MEF, and in some scenarios, Marine forces were under Army operational control. This meant that fire support—all the support—had to be integrated.

Q *In your career you've commanded or participated in stability and support operations in the Philippines, Turkey, Iraq, the former Soviet Union and Somalia. What fires or fire support lessons did you learn during these operations?*

A In these operations—especially in peacekeeping—you have to assume you'll face a threat and be prepared to rapidly gear up for combat operations. For several reasons, the forces on the ground in peacekeeping operations are minimal in relation to what's needed for a fight. One reason is not to create the wrong image—a warfighting vice peacekeeping image. You also don't want to interfere with ongoing humanitarian, nation building or other efforts. So the force must rely on a few assets to do a lot.

In northern Iraq, for example, we had eight battalions facing about 17 Iraqi divisions. This was after the Gulf War, and some of those divisions had been in the south and "gotten religion" and some had not. There were some tense moments. We relied heavily on air power that often was based a distance away, which could have been a problem in bad weather. We had some artillery, but very little for the size of the threat.

From the beginning, we cross-trained US, British, French and other artilleries and cross-attached a lot of coordinators—liaisions. We did a lot of planning and integrating to have some capability to mass fires rapidly if we needed to. Going into such operations, you have minimal capability that you must be prepared to maximize.

One of the first challenges is standardization. It's tough enough to integrate fire support operations with NATO countries, but in Somalia, we had the forces of 26 nations. Some countries use Soviet-based doctrine, some NATO doctrine. We had incompatible equipment—radios that wouldn't talk to each other—and used different procedures. So, the immediate challenge is interoperability—standardizing.

"The US military is most efficient and effective when the services totally integrate their capabilities in a noncompetitive way."

The commander of the JTF needs to address these challenges up front. In a Kuwaiti scenario, we pretty much know who the major players might be, so we can work on interoperability now. If the operation is in the middle of nowhere and pulls together a unique combination of coalition forces, the commander has to integrate his forces' operations on the ground and on the run.

Another lesson I learned was how well-suited artillery is for nontraditional missions. In Somalia, we brought artillery into the airfield at Mogadishu—just in case. The artillery commander ended up with responsibility for the airfield, its operation and security and defense—not a traditional mission.

Civil-military operations that call for coordination among a lot of agencies and NGOs [non-government organizations] is another nontraditional artillery mission. The artillery comes with a system of FSCCs [fire support coordination centers], FSOs [fire support officers] and FOs [forward observers] and a built-in communications hierarchy—the right infrastructure for such missions.

Q *How will the nature of conflict change over the next 20 years, and what kind of force do we need to be most effective?*

A Our primary mission always will be to fight the nation's wars. For that, we'll need a decisive force—not necessarily a "heavy" force. We'll also need a rapidly deployable crisis response force that's very very flexible in its organization and the kinds of missions it could take on. That doesn't mean we need to create two different forces; some elements could be designed to have overlapping roles. It may be more of a mindset than anything else.

We *must* understand the kinds of missions we may have to accept. The military, for example, is already involved in countering terrorism and counterdrug operations—part of the drug war. Policing international crime or helping failed or incapable states—the Somalias, the Bosnias, the Haitis of the world—we'll have more and more of these kinds of missions. We need the doctrine, TTP [tactics, techniques and procedures] and equipment plus the training and organizational flexibility to adapt to these missions while remaining warfighters. To ignore these missions is dangerous.

We're going to fight as one force—a joint force. We have too many commitments and not enough resources for every service to continue to go its own way. The US military is most efficient and effective when the services totally integrate their capabilities in a noncompetitive way.

With no forces assigned to CENTCOM, we must rely on a minimal amount of forward-deployed forces, prepositioned equipment sets for servicemen to rapidly fall in on and highly ready, highly deployable forces that we can get to the fight quickly and efficiently, maximizing our strapped strategic lift. Your conceptual advanced light howitzer [the advanced technology light artillery system (ATLAS)] and your HIMARS [high-mobility artillery rocket system] that are deployable and lethal at increased ranges—this kind of thinking is ideal for our requirements in CENTCOM. I see a great role for those systems in meeting CENTCOM requirements.

My concerns today? Maximizing lift—getting the biggest punch for the pound. We also better get very serious about operating on a contaminated battlefield, including logistics—operating in a host nation's contaminated infrastructure.

We need a rapidly deployable and effective missile defense system, an integrated joint system. All the services have great ideas and they're going about it in their own ways, but we need to pull those efforts together.

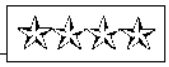
We need to learn to operate on a coalition battlefield with everything from Third World countries with little capability to NATO partners we're familiar with and be able to integrate them all.

We need to take a hard look at our staff structure. We still operate with a Napoleonic staff. Napoleon is the one who created administration, logistics and operations stovepipe wiring diagrams. It isn't a very efficient structure—we change it when we go into battle anyway. Look at a division in battle and then look at its structure in peacetime when it's back in garrison. They don't look the same—why revert back? After a couple of hundred years, its time to rethink our Napoleonic staff structure. In this Information Age, we must flatten our staffs and integrate them more.

The US military has come a long way since Desert Storm. We now talk about a single ground component command where we have one ground fight or one air fight—we couldn't have done that 10 years ago. But we still have a long way to go. We need to integrate joint abilities to bring the best to the fight.

Q *What message would you like to send Army and Marine Field Artillerymen stationed around the world?*

A You play a significant role on the battlefield. From our theater's perspective, it's crucial for you to be on the ground and in the fight early. And you're going to have to be prepared to provide fires rapidly while in a fur ball. Getting to the fight and integrating your fires with the mixed bag on the battlefield—they are going to be key.



General Anthony C. Zinni, US Marine Corps, is the Commander-in-Chief of the US Central Command (CENTCOM) at MacDill AFB, Florida, where he also served as Deputy Commander-in-Chief from September 1996 until August 1997. Prior to being assigned to CENTCOM, he was the Commanding General of the I Marine Expeditionary Force where he also served as the Commander of the Combined Task Force for Operation United Shield protecting the withdrawal of the UN forces from Somalia. In 1993, General Zinni was the Assistant to the US Special Envoy to Somalia during Operation Continue Hope and, earlier, Director for Operations for the Unified Task Force Somalia for Operation Restore Hope. He also served as Deputy Commanding General of Combined Task Force Provide Comfort during the Kurdish relief effort in Turkey and Iraq in 1991. General Zinni was Commanding Officer of the 35th Marine Expeditionary Unit in Okinawa that was twice deployed to the Philippines to conduct emergency security and disaster relief operations. Also in Okinawa, he commanded the 9th Marine Regiment.

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- TA Fire Support Model

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- FDS/BCS 6067
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- ACCP Technical Enquires

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Fire Support 5819/4557

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Fire Support Automation 3811/6385/ FAX 6526

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- Targeting 4925/2971/FAX 7861
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M119/M198 Maintenance (ASI U6) 4483

OBC Revision 6224/5409

Manual/Automated Gunnery 6224/5409

Unit-Level Logistics System (ULLS) 2323

MOS 13E Instruction 6803/5345

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Hazardous Material Handling Course
2111

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Adjutant/PAC/S1 5606/3466

Staff Duty NCO 5535

Operations (AIMS/ATARS) 2886/6449
FAX 4123

PLDC 4241/3562

BNCOC 6127/2097

ANCOC 2619/6970

Camp Eagle
- PLDC Operations 3648/2940
- STX TOC 2910

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S3 2011/6198/FAX 6118

Sr ARNG Liaison NCO 1146/1147/FAX
1279

Sr USAR NCO 4168/6107/FAX 3525

1-19 FA (BCT/OSUT) (ATSF-KF)
1401/1402/FAX 7601

1-22 FA (BCT/OSUT) (ATSF-KN)
2345/2541/FAX 7117

1-40 FA (BCT/OSUT) (ATSF-KI)
1200/1203/FAX 7120

1-78 FA (Training Committee) (ATSF-KT)
2611/5022/FAX 7907

1-79 FA (BCT/OSUT) (ATSF-KG)
1301/1302/FAX 7121

2-80 FA (AIT) (ATSF-KL) 5818/6272/FAX
7600

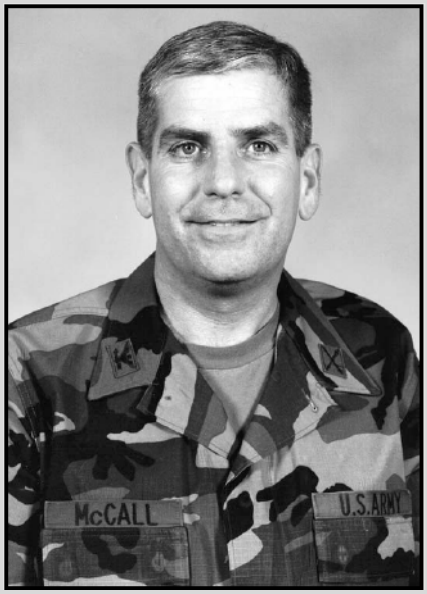
95th AG Battalion (Reception) (ATSF-KR)
3606/4576/FAX 7974

New Fort Sill Deputy Commanding General

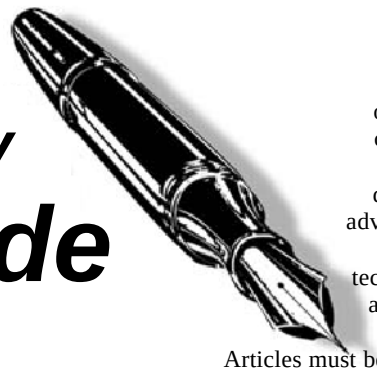
Colonel Daryl K. McCall, former commander of the 45th Field Artillery Brigade, Oklahoma ARNG, has been selected as the Deputy Commanding General for the Army National Guard Field Artillery, helping to make the Secretary of Defense's "Seamless Total Force" a reality. Fort Sill, Oklahoma—the Center for Fires—has created this new position directly under the Chief of Field Artillery in support of FA ARNG units, which will comprise 67 percent of the Total FA by 2000.

Colonel McCall serves as DCG-ARNG 139 days on active duty each year, starting 1 October. His responsibilities include advising the CG on training, doctrine and combat development applications to the ARNG and visiting ARNG and active units to identify issues and solve problems. In addition, he will advise the Chief of FA on the future of the FA ARNG.

Colonel McCall is a native of Lawton, Oklahoma, and holds a Master of Business Administration with a concentration in Management from the University of Central Oklahoma in Edmond. As a Title 10 officer, he served as Director of the Support Personnel Office for the Oklahoma State Area Command in Oklahoma City and Assistant Chief of Staff of the Combined Arms Center at Fort Leavenworth, Kansas. He also is a graduate of the National War College in Washington, DC.



1999 *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.

Two versions of the magazine are printed. *Field Artillery* is published by the Field Artillery School at Fort Sill, Oklahoma, for free distribution to Army and Marine Field Artillery units and DoD or other government agencies working with FA/fire support issues, organizations or materiel.

The *FA Journal* is printed by the US Field Artillery Association for subscribers—service members who wish to receive personal copies at their home addresses—and retirees, corporate members, allies and other interested parties. The *FA Journal* is a reprint of *Field Artillery* with color, advertising and some Association news items added.

An author will receive three copies of each edition in which his article is published.

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 only 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 for publication 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 fires 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 3,000 words with footnotes and bibliography, as appropriate. Send a PC text formatted disk with the hard copy of the manuscript. (We use MS Word 95.) Except in the case of Army-wide "news" items, *authors should not submit manuscripts to* Field Artillery *while the manuscripts are being considered elsewhere.*

•A comprehensive biography, highlighting experience, education and training relevant to the article's subject. Include E-mail 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 hard-copy photographs of any size, drawings, slides, maps, charts, unit crests, etc. We can accept electronic black and white figures, charts and art in PowerPoint, but not gray scale photographs. We accept photos electronically on CD or 100 MB zip disk in the following formats: PSD (Adobe Photoshop), JPG, EPS or TIF. Note: Photos must be saved at a *minimum* of 300 dpi.

The highest resolution setting on most digital cameras will give us the minimum clarity required for publication. However, the resolution must be set before the photo is taken; "enhancement" after the photo is shot will not provide the crispness necessary for magazine printing.

Field Artillery Themes for 1999

Edition	*Theme Deadline*	*Copy Deadline*
Jan-Feb	*Lightfighter Fires*	*1 Oct 98*
Mar-Apr	*Initial Entry Training*	*1 Dec 98*
May-Jun	*Leadership*	*1 Feb 99*
Jul-Aug	*History*	*1 Feb: History Contest* *1 Apr: Other*
Sep-Oct	*RC Redlegs*	*1 Jun*
Nov-Dec	*Red Book*	*1 Aug*

*Deadline for the US FA Association 1999 History Writing Contest.

Digital photographers should shoot the photos at the highest resolution and the largest size the camera will allow. Then they must save the photos as TIF or JPG, the latter with the "Setting" selected as "maximum" or "10" and "Format Options" selected as "baseline standard." Do not crop or resize the photo before saving it.

Mail all to:

Field Artillery
P.O. Box 33311
Fort Sill, Oklahoma 73503-0311
Email: famag@usafas.army.mil

The *Field Artillery* staff will edit all manuscripts and put them in the magazine's style and format. In addition, we'll staff selected articles to subject matter experts to check them for accuracy, safety and classified information. Authors will receive a "check copy" of the edited version before publication. If you have questions or would like to discuss the concept for an article, call the editor at DSN 639-5121 or 6806 or commercial (580) 442-5121 or 6806. To Fax, call DSN 639-7773 or commercial (580) 442-7773.

If you're on Fort Sill or need to FedEx a manuscript to us, the FA Bulletin staff is in Building 746 on Geronimo Road, Fort Sill, Oklahoma 73503.

1999 History Writing Contest Rules

The US Field Artillery Association is sponsoring its 14th annual History Writing Contest with the winners' articles to be published in *Field Artillery* and the Association subscribers' version of the magazine, *FA Journal.* To compete, submit an original, unpublished manuscript on any historical perspective of Field Artillery or fire support by 1 February 1999. The Association will award $300 for the First Place article, $150 for Second and $50 for Third. Selected Honorable Mention articles also may appear in *Field Artillery.* Civilians or military of all branches and services, including allies, are eligible to compete. You don't have to be a member of the Association.

Your submission should include (1) a double-spaced, typed manuscript of no more than 5,000 words with footnotes, (2) bibliography, (3) your comprehensive biography and (4) graphics (black and white or color photographs, maps, charts, etc.) to support your article. The article should include an analysis of lessons or concepts that apply to today's Redlegs—it should not *just* record history or document the details of an operation. Authors may draw from any historical period they choose.

A panel of three historians will judge the manuscripts without the authors' names. The panel will determine the winners based on the following criteria:

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

By 1 February 1999, mail the manuscript to:

US Field Artillery Association
ATTN: History Contest
P.O. Box 33027 Fort Sill, Oklahoma 73503-0027.

For more information, call the editor at DSN 639-5121/6806 or commercial (580) 442-5121/6806 or Email: famag@usafas.army.mil.

Senior Fire Support Conference

12-16 April 1999

The theme and specific days of the 1999 Senior Fire Support Conference at Fort Sill, Oklahoma, recently have been approved. This year's theme, *Fires!...Full Spectrum Effects for 21st Century Warfighting,* focuses heavily on fires for the light and medium forces and also emphasizes one Army, one Field Artillery.

The conference dates are 12-16 April 1999. The first two days, Monday and Tuesday, are for Active Component (AC) and Reserve Component (RC) Army and Marine division artillery, FA brigade and artillery regimental commanders and their command sergeants major (CSMs). Additionally, a General Officer session is scheduled for the afternoon of the 13th for Army FA active and National Guard general officers. The formal conference begins on Wednesday, 14 April, and will conclude mid-day on Friday, 16 April.

Other conference attendees include Army corps and Marine expeditionary force (MEF) commanders, AC and RC Army and Marine division commanders, Training and Doctrine Command school commandants, corps artillery commanders and their CSMs, other selected active and retired general officers 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 1999 edition of *Field Artillery.* By 1 December, the Field Artillery School will activate its 1999 Senior Fire Support Conference E-mail address to answer questions and provide additional information. The E-mail will be conf@doimex2.sill.army.mil. As they become available, details of the conference will be posted under the Training Command portion of the Fort Sill Home Page at Web site http://sill-www.army.mil/.

Strike Force
Fires for the Future

by Majors C. Christopher Mack and William M. Raymond, Jr.

The Division Ready Brigade secured the airfield and immediate perimeter as the day gradually turned to twilight. The first of many Air Force C-17s began touching down on the now secure airstrip. As the aircraft came to a halt, the cargo doors opened and medium armored vehicles (MAVs) rolled out. The Strike Force was incoming.

This scenario of a "medium-weight," brigade-sized force as a follow-on to early entry forces and precursor to the heavy forces—the Strike Force—illustrates only one role of an emerging concept. As envisioned, the Strike Force will be equipped and trained to deploy anywhere in the world in about 96 hours by air or sea in response to a wide spectrum of threats and contingencies, from early entry to peacekeeping operations. Its command and control plus security elements even could serve as an immediately deployable joint or coalition task force (JTF or CTF) headquarters.

The force will be C-130 transportable with most of the combat vehicles and troop carriers MAVs—modified versions of what the Marine Corps calls their light armored vehicles. The mobility of this all-terrain, all-weather vehicle will allow the maneuver forces to move at speeds of up to 100 kilometers per hour.

In this scenario, artillery fires for the Strike Force could be a composite artillery battalion containing high-mobility artillery rocket systems (HIMARS) that can shoot smart munitions out to 300 kilometers and the conceptual advanced technology light artillery systems (ATLAS) with 155-mm reach and lethality. The new effects coordination cell (ECC) could employ and coordinate the fires of not only the Strike Force, but also those of the joint early entry and incoming heavy forces to strike deep and hard and protect the force. The ECC will tap the fires of the FA, Army and joint sources with platforms on the ground, in the air, at sea and in space.

A reality today? No, the development of the Strike Force is ongoing with the force a reality on the ground, potentially, in four years.

This article briefly discusses the Strike Force concept and its potential organization and fires capabilities. We also highlight a few of the cutting edge equipment and concepts that will allow fires to add significantly to the Strike Force's lethality and effectiveness.

Capabilities and Roles

Currently in our force structure, a gap exists between light and heavy forces. The rapid deployable light force lacks the lethality required for defeating a significant armored threat. On the other hand, the heavy force is lethal, but lacks strategic and operational deployability.

The Strike Force's organization and capabilities will bridge the gap between the deployability of the light force and the lethality of the heavy force.

The air transportable Strike Force will be self-contained and capable of responding rapidly to a crisis situation anywhere in the world. This self-contained, combined arms force will have organic command, control, communications, computers and intelligence (C^4I) access to joint force enablers. The mission statement of the Strike Force states:

> The Strike Force is designed to rapidly deploy and close anywhere on the globe within four to seven days of Commencement Day (C-Day). It can conduct operations in a permissive, semi-permissive, and non-permissive environment with the primary aim of deterring or compelling threats and reassuring allies....[It] will execute continuous high-tempo combat operations, employing maneuver and operational fires, facilitated by its ability to gain superior situational awareness. It will defeat enemy forces by dislocating their operational situations, as well as seizing and holding key terrain. When suitably augmented, it can also conduct stability operations as a subordinate element of a joint, multinational, or combined command. (Quote taken from a slide in the Strike Force Briefing conducted at the Mounted Maneuver Battle Lab, Fort Knox, Kentucky, in August 1998).

Six underlying tenets govern the emerging design of the Strike Force. These tenets—lethality, C^4I, balanced emphasis on strategic deployability, mobility, protection, and sustainability—define how the Strike Force organization will function. The synergy of these combined tenets will produce an operationally significant unit with capabilities not possessed by any brigade-sized organization.

The Strike Force will deploy as rapidly as other early entry forces but be more maneuverable, lethal and survivable while presenting a smaller, more sustainable profile than current heavy force designs. The Strike Force will have unprecedented situational awareness with superior reconnaissance and surveillance capabilities. Its unmatched maneuverability will provide the JTF commander a force that can rapidly secure or seize key terrain while dislocating and (or) defeating enemy forces. The combination of rapid maneuver, asymmetrical

HIMARS would provide the Strike Force commander organic long-range artillery fires.

tactics (for example, surprise will be a matter of course), dominant information operations and precision fires will enable the Strike Force to attack and defeat the enemy at multiple decisive points simultaneously.

The Strike Force will be able to sustain itself for approximately 48 to 72 hours at distances ranging from 150 to 250 kilometers from its logistical support group by deploying with combat service support (CSS) packages tailored for specific operations. Situational awareness, accompanied by efficient supply and maintenance organizations, will enable the Strike Force to conduct operations at a higher tempo than its opponents.

The Strike Force design will fulfill a wide range of roles. It could be structured as a rapidly deployable JTF or CTF headquarters with dynamic tailoring of forces to augment its capabilities, as necessary.

In an early entry scenario, the Strike Force could expand a forcible entry lodgment by seizing or securing key terrain and attacking critical enemy systems. Timely and lethal fires provided by the HIMARS and ATLAS batteries would be a combat multiplier in any early entry contingency. These fires would prevent the enemy from massing forces against friendly lodgments before the arrival of heavy forces and begin to shape the battlefield.

In a reinforcement of forward deployed forces scenario, the Strike Force could, as the main effort of the corps or JTF, conduct offensive and defensive operations, to include mobile defense, exploitation, pursuit and raids. The lethality and mobility of the Strike Force will provide the corps or JTF commander the ability to position a force to confuse the enemy and destroy his center(s) of gravity.

In a stability operations scenario, the Strike Force will have the ability to conduct peacekeeping operations and the combat power to conduct peace enforcement operations if peacekeeping fails. The introduction of the Strike Force into a crisis situation—such as those we saw in Somalia, Haiti or Bosnia—provides an immediate viable, lethal and mobile presence that can deter, compel or enforce.

While this force will be highly deployable, lethal and versatile, it won't be the "be all, do all" force for every scenario. First, the Strike Force will have to maximize joint sensors and lethality—it won't have the organic assets to address every possible combination of threat, environment or situation.

Second, the Strike Force won't be designed to conduct a forcible entry, just provide the follow-on combat power. It will require a secure aerial port of debarkation (APOD) or seaport of debarkation (SPOD) and local air superiority before deploying into a semi-permissive or non-permissive environment.

Third, the Strike Force will be used very effectively to reinforce forward-deployed US forces during crisis and combat situations and conduct both decisive and shaping operations. However, the force is not intended to replace traditional heavy forces.

Fourth, the Strike Force won't be designed to conduct sustained combat operations without significant augmentation of additional logistics assets. Finally, when conducting stability operations, the Strike Force would require augmentation from civil affairs, psychological operations and the military police. By keeping the force structure lean, light and mean, the Strike Force will be inherently more versatile with force tailoring widening the range of its roles.

Evolution of the Strike Force

The final design of the Strike Force will be a product of a revolutionary design process. Different force structures were examined in a map terrain board exercise in June 1998. After analysis of the results of the map exercise, the force design for the Strike Force was reduced to several futuristic designs. During a simulation exercise in November, several Strike Force designs will be evaluated. When a decision on the final Strike Force design is made, the new force structure will participate in several limited objective experiments (LOEs) to prepare the new force for its graduation exercise called the Capstone Exercise. At that point, the Army will explore what the final Strike Force will look like when it's fielded.

One of several of the proposed force designs contains two combined arms maneuver battalions (CAMBs), a reconnaissance and surveillance (R&S) battalion, an infantry battalion with an organizational structure similar to our current air assault battalion, an attack helicopter battalion and a support regiment. Many options exist for the organization of the maneuver companies in the CAMBs. Under one option, each company in the CAMBs would consist of two armor platoons and a mechanized infantry platoon. Under another option, each company in the CAMBs would consist of three armor platoons.

Another unique aspect of the Strike Force design is the proposal of a composite artillery battalion. This proposed artillery battalion would contain a mix of HIMARS and ATLAS, a radar platoon, a terminal effects coordination platoon and an electronic attack platoon. HIMARS would provide the Strike Force commander organic long-range artillery fires. It can deliver the complete multiple-launch rocket system (MLRS) family of munitions, including the Army tactical missile system's (ATACMS') 300-kilometer missile, and

give the commander an unprecedented capability to conduct decisive shaping fires at the brigade level.

ATLAS will add indirect firepower clout to the Strike Force when conducting close operations. The MAV prime mover for ATLAS will allow the artillery to keep pace with maneuver formations. Additionally, the towed ATLAS will provide the artillery the flexibility to conduct air operations.

The Q-47 radar will provide improved ranges and accuracy for detecting enemy mortar, artillery and rocket fires. These new ranges are 60 kilometers for conventional artillery and 150 kilometers for rockets. Finally, the Q-47 system will drive on and off a C-130 and emplace in seven minutes.

The terminal effects coordination platoon consists of teams. Each will have a lieutenant who is an effects coordinator team chief, an effects coordinator team NCO, a ground terminal effects coordinator, an air terminal effects coordinator (USAF) and a systems operator-driver. These terminal effects teams will have the ability to coordinate all types of indirect fires—close air support (CAS), naval gunfire (NGF), cannon and rocket fires and space-based platforms as they are developed. The terminal effects teams employment will be modeled after the air and naval gunfire liaison company (ANGLICO).

The electronic attack platoon is another new concept in the composite artillery battalion. The electronic attack platoon would consist of several Marine electronic warfare systems (MEWS) and EH-60 advanced QuickFix platforms. However, the EH-60s would operate out of the attack aviation battalion for logistical purposes.

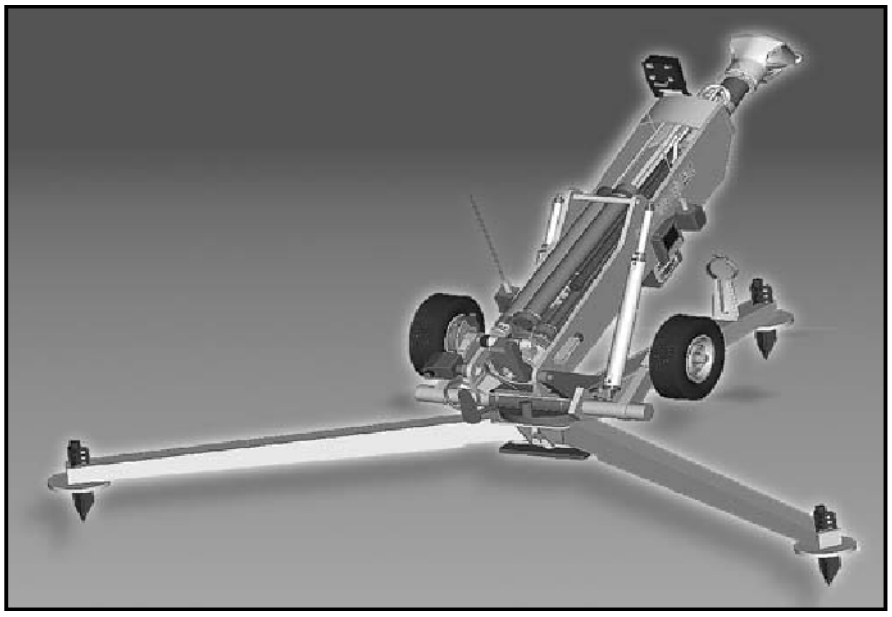
Another new concept associated with the Strike Force design is the ECC. (See the article "Fires: The Cutting edge for the 21st Century" by Brigadier General Toney Stricklin in the May-June edition for a discussion of the ECC.) The ECC will function as a part of the Strike Force command post. The personnel would be assigned to either the maneuver headquarters battalion or the composite artillery battalion.

The ECC will have state of the art communications and be able to plan, coordinate and synchronize the employment of lethal and non-lethal effects from space, sea, air, and ground-based delivery systems throughout the battlespace. Additionally, the ECC will have real-time visibility over effects platforms and provide request mechanisms over Army, joint, and national sensors. The Strike Force provides a venue to begin the process of developing and refining this cutting edge concept that will ensure efficient effects management in the 21st century.

While the Strike Force continues through its development, design and experimentation phases, three key points already have become evident. First, given the Army's current high operational tempo (OPTEMPO) and the numerous stability operations we have participated in over the past several years, a Strike Force would provide the National Command Authority (NCA) viable options. With the Strike Force, the NCA can deploy a highly lethal force capable of preempting or containing a threat, arresting escalation or quickly transitioning to combat operations at a fraction of the cost of the current options of electing to deploy a traditional heavy force or air or naval strike assets.

Second, maintaining a rapidly deployable, highly lethal and mobile force that has sufficient combat power to have a decisive impact is an essential component of the full spectrum dominance necessary for a credible US deterrent strategy in the 21st century.

Third, the cutting edge fires concepts and equipment the Strike Force could employ are already emerging and would ensure fires contribute significantly to force lethality.



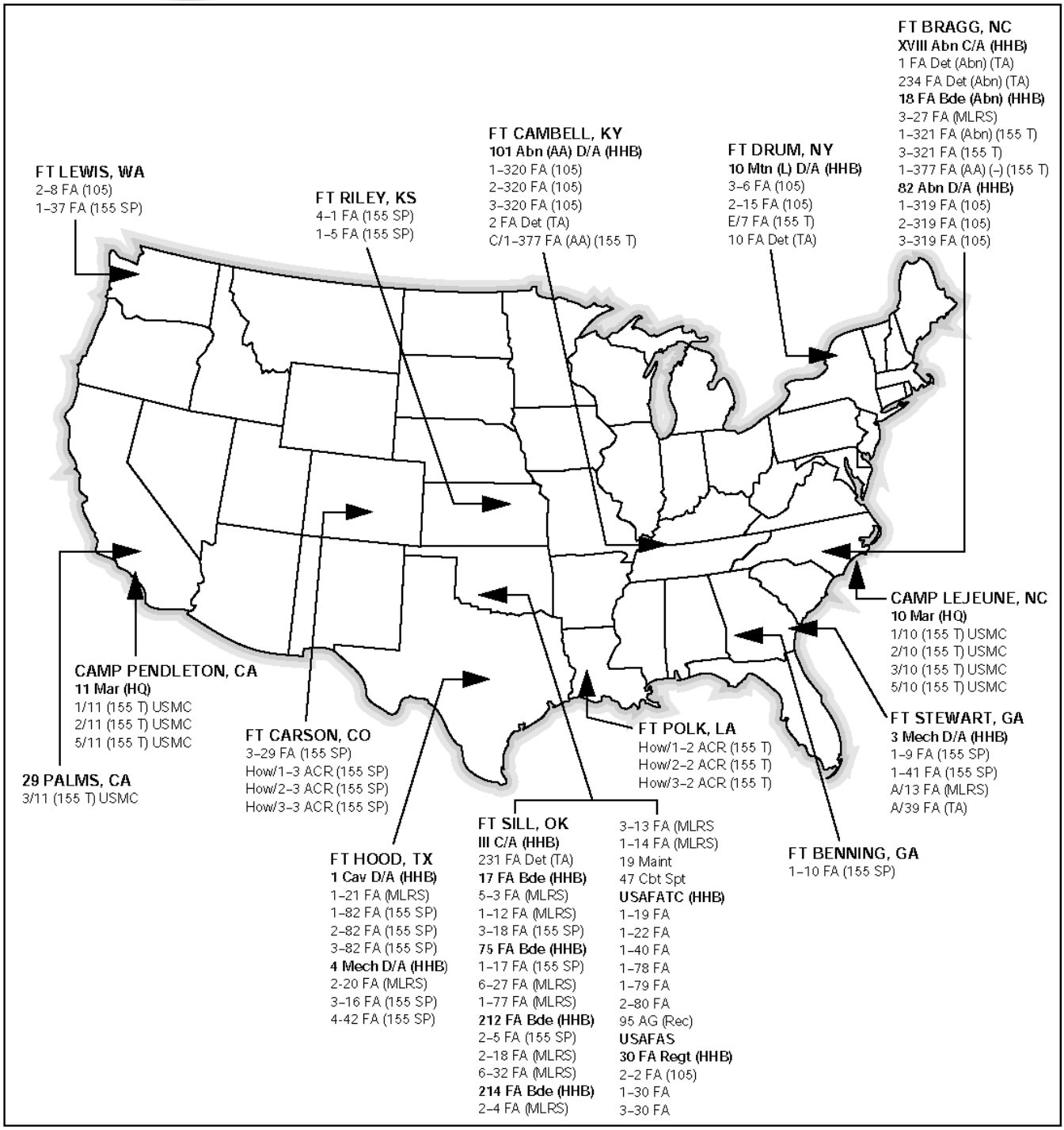
The conceptual ATLAS will add indirect firepower clout to the Strike Force when conducting close operations.

Major C. Christopher Mack is a Combat Development/Experimentation Staff Officer and Strike Force Project Officer in Task Force 2000 at the Field Artillery School, Fort Sill, Oklahoma. He recently graduated from Command and General Staff College (CGSC) at Fort Leavenworth, Kansas. He also served as an Exchange Instructor at the Royal Australian School of Artillery in Manly, New South Wales. Other assignments include serving as Commander of Service Battery in 1st Battalion, 82d Field Artillery; Commander of the Division Artillery Headquarters and Headquarters Battery; and Fire Support Officer for 3d Battalion, 32d Armor, all in the 1st Cavalry Division, Fort Hood, Texas. He holds a Master of Science in Administration from Central Michigan University.

Major William M. Raymond, Jr., is also a Combat Development/Experimentation Staff Officer in Task Force 2000. He recently served as the S3 and Executive Officer for 2d Battalion, 2d Field Artillery, 30th Field Artillery Regiment in the Training Command at Fort Sill. His previous assignments include serving as Assistant Professor in the Department of Social Sciences at the US Military Academy at West Point; S1, Assistant S3 and Commander of Headquarters and Headquarters Battery for 6th Battalion, 1st Field Artillery in the 1st Armored Division Artillery, Germany. He is a graduate of CGSC and holds a Master of Arts and Ph.D. in Politics from the University of Michigan.

Active Army and Marine Units in **CONUS**

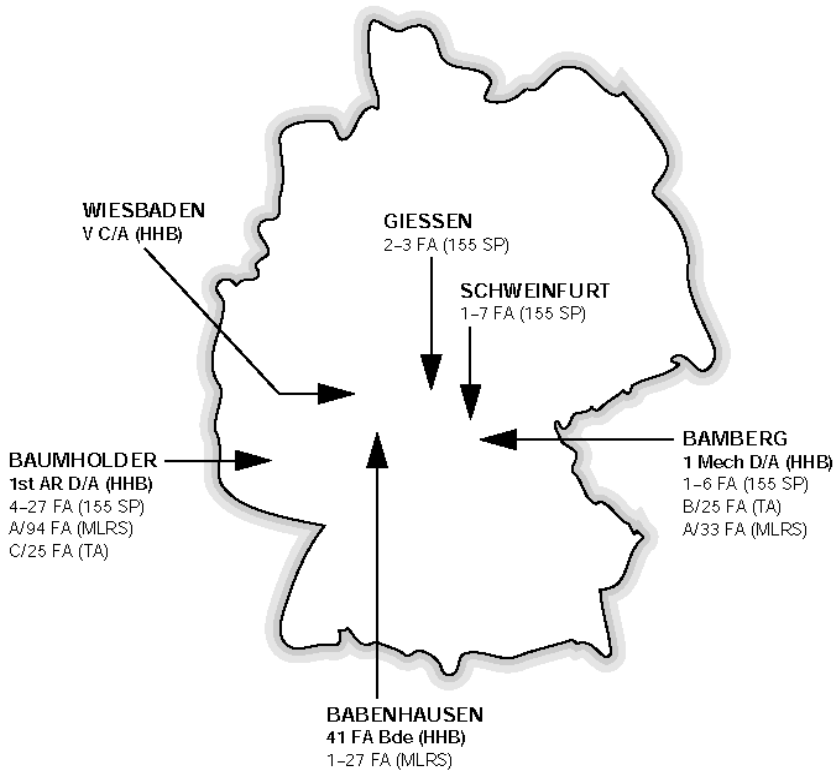
As of 1 November 1998



Active Army and Marine Units in **OCONUS**

As of 1 November 1998

Republic of Germany



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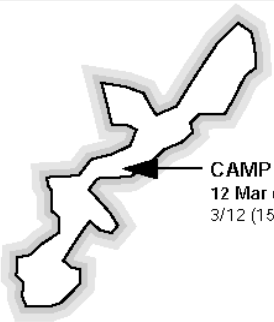

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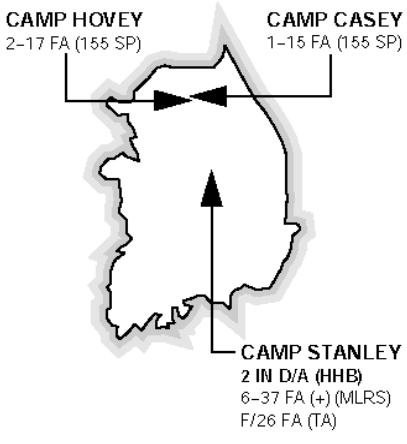
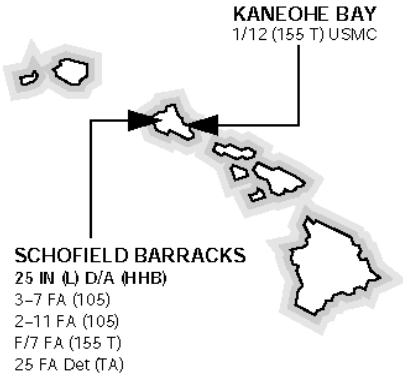
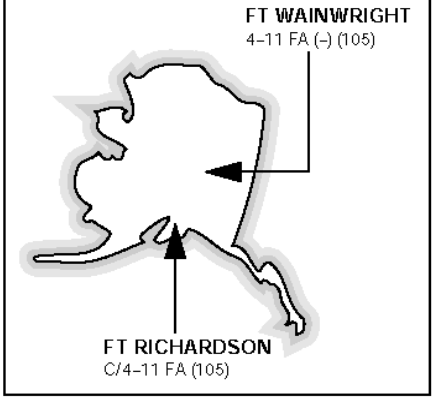


Hawaii

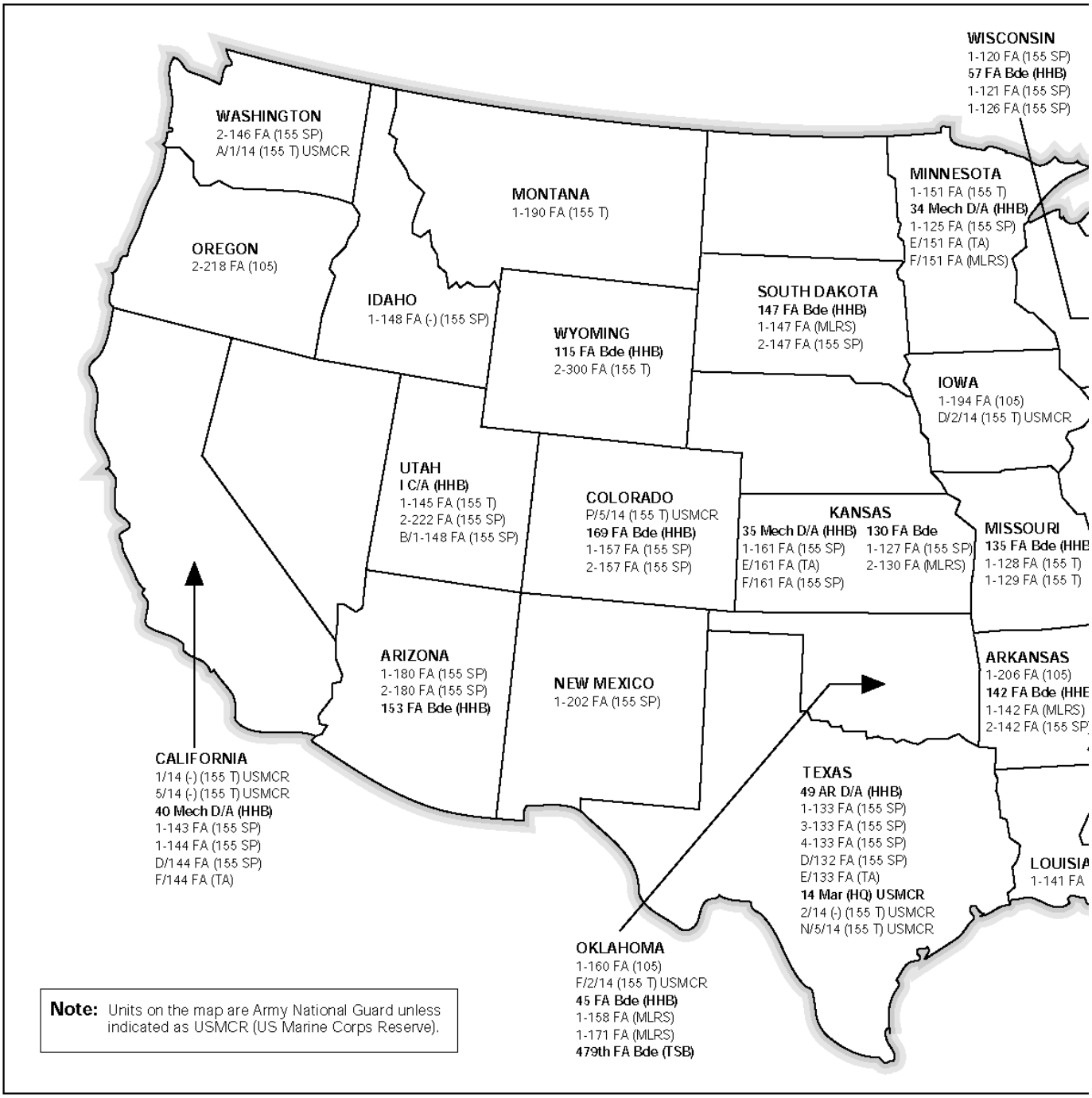


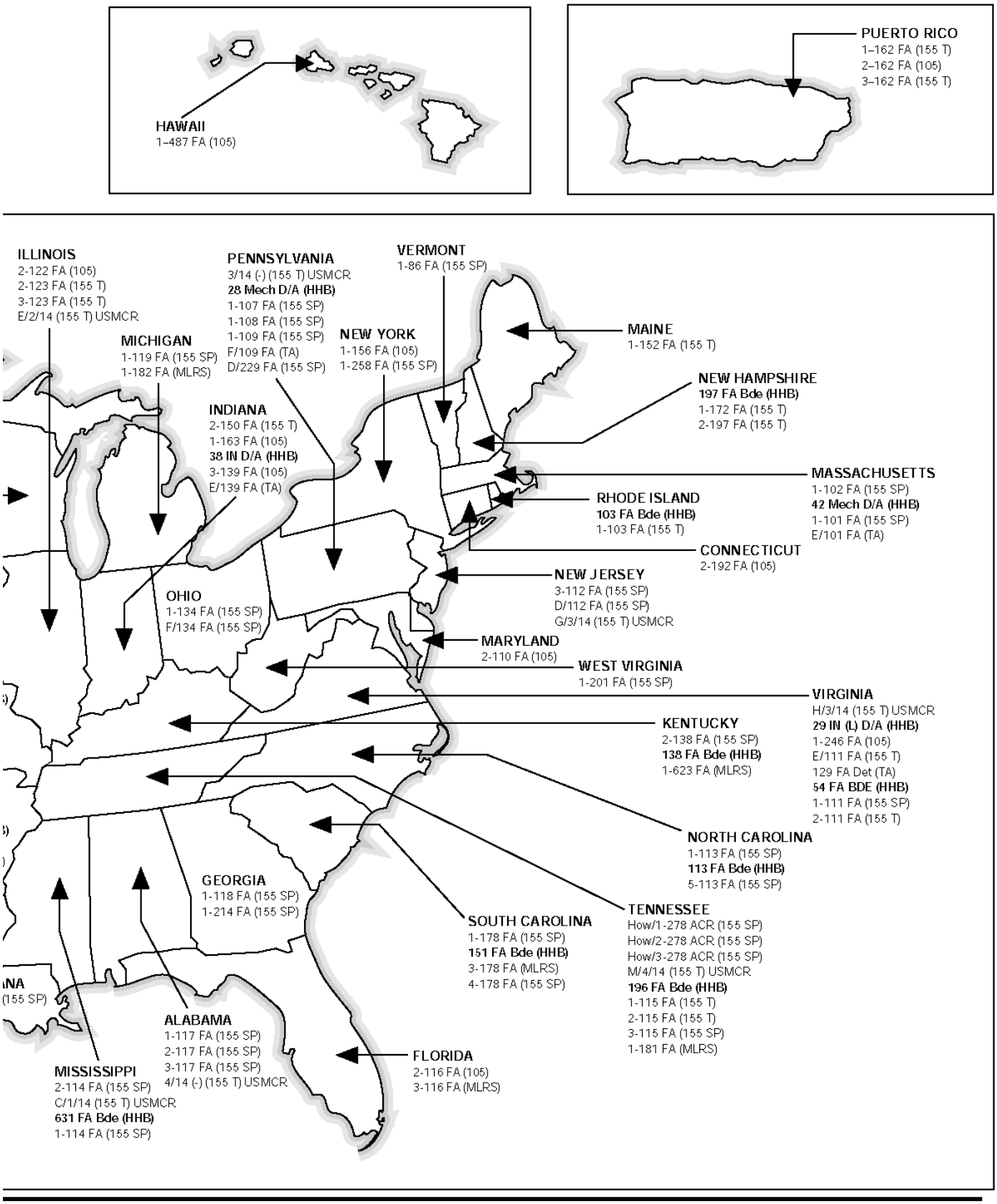
Alaska



Army National Guard and Marine Reserves

As of 1 November 1998




HAWAII
1–487 FA (105)
PUERTO RICO
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ILLINOIS
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E/2/14 (155 T) USMCR
MICHIGAN
1-119 FA (155 SP)
1-182 FA (MLRS)
PENNSYLVANIA
3/14 (-) (155 T) USMCR
28 Mech D/A (HHB)
1-107 FA (155 SP)
1-108 FA (155 SP)
1-109 FA (155 SP)
F/109 FA (TA)
D/229 FA (155 SP)
VERMONT
1-86 FA (155 SP)
NEW YORK
1-156 FA (105)
1-258 FA (155 SP)
MAINE
1-152 FA (155 T)
NEW HAMPSHIRE
197 FA Bde (HHB)
1-172 FA (155 T)
2-197 FA (155 T)
INDIANA
2-150 FA (155 T)
1-163 FA (105)
38 IN D/A (HHB)
3-139 FA (105)
E/139 FA (TA)
MASSACHUSETTS
1-102 FA (155 SP)
42 Mech D/A (HHB)
1-101 FA (155 SP)
E/101 FA (TA)
RHODE ISLAND
103 FA Bde (HHB)
1-103 FA (155 T)
CONNECTICUT
2-192 FA (105)
NEW JERSEY
3-112 FA (155 SP)
D/112 FA (155 SP)
G/3/14 (155 T) USMCR
OHIO
1-134 FA (155 SP)
F/134 FA (155 SP)
MARYLAND
2-110 FA (105)
WEST VIRGINIA
1-201 FA (155 SP)
VIRGINIA
H/3/14 (155 T) USMCR
29 IN (L) D/A (HHB)
1-246 FA (105)
E/111 FA (155 T)
129 FA Det (TA)
54 FA BDE (HHB)
1-111 FA (155 SP)
2-111 FA (155 T)
KENTUCKY
2-138 FA (155 SP)
138 FA Bde (HHB)
1-623 FA (MLRS)
NORTH CAROLINA
1-113 FA (155 SP)
113 FA Bde (HHB)
5-113 FA (155 SP)
GEORGIA
1-118 FA (155 SP)
1-214 FA (155 SP)
TENNESSEE
How/1-278 ACR (155 SP)
How/2-278 ACR (155 SP)
How/3-278 ACR (155 SP)
M/4/14 (155 T) USMCR
196 FA Bde (HHB)
1-115 FA (155 T)
2-115 FA (155 T)
3-115 FA (155 SP)
1-181 FA (MLRS)
SOUTH CAROLINA
1-178 FA (155 SP)
151 FA Bde (HHB)
3-178 FA (MLRS)
4-178 FA (155 SP)
ALABAMA
1-117 FA (155 SP)
2-117 FA (155 SP)
3-117 FA (155 SP)
4/14 (-) (155 T) USMCR
FLORIDA
2-116 FA (105)
3-116 FA (MLRS)
MISSISSIPPI
2-114 FA (155 SP)
C/1/14 (155 T) USMCR
631 FA Bde (HHB)
1-114 FA (155 SP)

Field Artillery Commanders and Command Sergeants Major

COMMAND UPDATE

As of 1 November 1998

Active Army

Training and Doctrine Command

US Army Field Artillery School and Fort Sill

MG Baxter, Leo J.
Commandant/CG

CSM Kermode, William L., Jr.
Fort Sill

BG Adair, Lawrence R.
Asst. Commandant
CSM Roberts, Perry L.

COL Janosko, Theodore J.
CSM Roberts, Perry L.
30th FA Regiment

LTC Enneking, David M.
CSM Ashe, Robert T.
2d Bn, 2d FA

LTC Beaty, Reginal B.
CSM Kelly, John E., Jr.
1st Bn, 30th FA

LTC Bray, Britt E.
1SG Turner, Hershel L.
3d Bn, 30th FA

COL Walsh, Gerard M.
CSM Drummond, Walter L.
FA Training Center

LTC Steuber, George W.
CSM Hall, Steven A.
1st Bn, 19th FA

LTC Meyer, Jeffrey C.
1SG Luke, Willie I.
1st Bn, 22d FA

LTC Alicea, Francisco, Jr.
CSM Hatcher, Ricky L.
1st Bn, 40th FA

LTC Ewing, Jefferson G.
CSM Thompson, Donald W.
1st Bn, 78th FA

LTC Byrd, Michael A.
CSM Adams, Ronnie E.
1st Bn, 79th FA

LTC Horner, Ann L.
CSM Ellenburg, William L.
2d Bn, 80th FA

LTC Pedone, Joseph E., III, AG
CSM Daliz, Rosa S.
95th AG Bn (Rec)

Forces Command

III Corps

BG Hartsell, Lynn
CSM Williams, Anthony J.
III Corps Arty

COL Wynarsky, Andrew E.
CSM Shady, Robert C.
17th FA Bde

LTC Sullivan, Ricki L.
CSM Porter, Raymond L.
5th Bn, 3d FA

LTC Kaiser, William E., Jr.
CSM Walker, Michael L.
1st Bn, 12th FA

LTC Slate, Nathan K.
CSM Byrd, Willie L.
3d Bn, 18th FA

COL Combest, Michael L.
CSM Sturdivant, Lash L.
75th FA Bde

LTC Walker, Michael T.
CSM Woods, Randall A.
1st Bn, 17th FA

LTC Bonsell, John A.
CSM Howard, Glenn, Sr.
6th Bn, 27th FA

LTC Boozer, James C., Sr.
CSM Rosales, Luis E.
1st Bn, 77th FA

COL Willis, Colen K.
CSM Talley, Marty R.
212th FA Bde

LTC McMillian, Donald G.
CSM Dismuke, Thurman A.
2d Bn, 5th FA

LTC Schneider, David A.
CSM Reed, Morgan B.
2d Bn, 18th FA

LTC Otterstedt, Charles C.
CSM Wood, Eddie
6th Bn, 32d FA

COL Brant, Bruce A.
CSM Wood, Jerry L.
214th FA Bde

LTC Spellissy, Thomas F.
CSM Stanley, Joseph W.
2d Bn, 4th FA

LTC Freund, John R.
CSM Finkle, Timothy M.
3d Bn, 13th FA

LTC Longo, Richard C.
CSM Bushue, William P.
1st Bn, 14th FA

LTC Clark, Mary Jo, OD
CSM Talley, Ricky J.
19th Maint Bn

LTC Hightower, Joseph C., MS
1SG Magee, Curtis, Jr.
47th Cbt Spt Bn

XVIII Airborne Corps

BG Gottardi, Larry D.
CSM Thompson, Ronald
XVIII Abn Corps Arty

COL Lewis, Dennis R.
CSM Hand, Norris A.
18th FA Bde

LTC Gentry, Donald E.
CSM Stewart, Quenten M.
3d Bn, 27th FAR

LTC Hickey, James R.
CSM Towery, Ronald L.
1st Bn (Abn), 321st FA

LTC Yuengert, Louis G.
CSM Dixon, Donald L.
3d Bn, 321st FAR

LTC Schneider, Michael W.
CSM Taylor, Larry E.
1st Bn, 377th FAR (AAslt)

Division Artilleries

COL Ralston, David C.
CSM Schindler, Gerald R.
1st Cav Div Arty

LTC Cunningham, Robert A.
CSM Ingram, Larry W.
1st Bn, 21st FA

LTC Johnson, Albert, Jr.
CSM McMurtrie, Thomas O.
1st Bn, 82d FA

LTC Mitchell, Stephen D.
CSM Parker, Larry D.M.
2d Bn, 82d FA

LTC West, Stephen K.
CSM Sherman, Earnest, Jr.
3d Bn, 82d FA

COL Formica, Richard P.
CSM Nelson, Jerry
3d IN Div (Mech) Arty

LTC Cheek, Gary H.
CSM Bryant, James A.
1st Bn, 9th FA

LTC Torrance, Thomas G.
CSM Porter, Ronnie
1st Bn, 10th FA

LTC Ramirez, Joe E., Jr.
CSM Canuela, Gilbert L.
1st Bn, 41st FA

COL Hernandez, Rhett A.
CSM Shelly, Earl L.
4th IN Div (Mech) Arty

LTC Quigley, Brian F.
CSM Schindler, Gerald R.
3d Bn, 16th FA

LTC Herring, Gregory K.
CSM Sherrill, James A.
2d Bn, 20th FA

LTC Kelliher, Michael P.
CSM Williams, Tommy A.
3d Bn, 29th FA

LTC Beckinger, Robert C.
CSM Howell, James M.
4th Bn, 42d FA

COL Reese, Robert J.
CSM Grainger, James A.
10th Mtn Div (L) Arty

LTC Martino, David
CSM Warren, James
3d Bn, 6th FA

LTC Roth, Jerry H.
CSM Beck, Rodney L.
2d Bn, 15th FA

COL Hood, Jay W.
CSM Taylor, Michael R.
82d Abn Div Arty

LTC Keegan, William T.
CSM Thompson, Alex G.
1st Bn, 319th AFAR

LTC Thein, Scott E.
CSM Amacker, Wilfried W.
2d Bn, 319th AFAR

LTC Cannon, Michael M.
CSM Beason, Dwayne D.
3d Bn, 319th AFAR

COL Bagby, Byron S.
CSM Wong, Derrick G.
101st Abn Div (AAslt) Arty

LTC Evans, Philip M.
CSM Dunham, Willie R.
1st Bn, 320th FA

LTC Hale, Matthew T.
CSM Ross, Howard M.
2d Bn, 320th FA

LTC Creighton, James L.
CSM Lewellen, Gary W.
3d Bn, 320th FA

Separate Units

COL **Annen, David M.**
CSM Raper, Charles L., Jr.
479th FA Bde (TSB)
(Fifth Army)

LTC **Moosmann, Christopher P.**
CSM Wilson, Donald M.
4th Bn, 1st FA
(1st AR Div Arty)

LTC **Rozell, David A.**
CSM Jackson, George R.
1st Bn, 5th FA
(1st IN Div (Mech) Arty)

LTC **Ridge, Ross E.**
CSM Dunn, Gerald R.
2d Bn, 8th FA
(25th IN Div (L) Arty)

LTC **Vandal, Thomas S.**
CSM Sanders, Ronald H.
1st Bn, 37th FA
(2d IN Div Arty)

US Army Europe

V Corps

COL **Hahn, Daniel A.**
CSM Allen, John G.
V Corps Arty

COL **Hayes, Michael T.**
CSM Ostos, Joseph M.
41st FA Bde

LTC **Hennes, Mark M.**
CSM King, Dennis M.
1st Bn, 27th FA

Division Artilleries

COL **Kimmitt, Mark T.**
CSM Nelson, George H.
1st AR Div Arty

LTC **Brockman, Jonathan B.**
CSM Phipps, Marlon B.
2d Bn, 3d FA

LTC **Heverin, James M., III**
CSM Bean, Walter L.
4th Bn, 27th FA

COL **Hunzeker, Kenneth W.**
CSM Castillo, Ivan A.
1st IN Div (Mech) Arty

LTC **Stramara, Kevin P.**
CSM Victorino, James P.
1st Bn, 6th FA

LTC **Teague, George E.**
CSM McPherson, Carl B.
1st Bn, 7th FA

US Army Pacific

COL **Church, James W.**
CSM Wilson, Donald M.
2d IN Div Arty

LTC **Robards, James A.**
CSM Collins, Joseph
1st Bn, 15th FA

LTC **Kolditz, Thomas A.**
CSM Cabrera, Charles A.
2d Bn, 17th FA

LTC **Perkins, Alvin A.**
CSM Moyer, Jeffrey L.
6th Bn, 37th FA

COL **Riojas, Jose D.**
CSM Hopkins, Charles D.
25th IN Div (L) Arty

LTC **Johnson, Robert C.**
CSM Lanier, Mark K.
3d Bn, 7th FA

LTC **Defferding, Michael S.**
CSM Shaw, Oscar, Jr.
2d Bn, 11th FA

Separate Unit

LTC **Saul, Lawrence H.**
CSM Chaves, Manuel F., Jr.
4th Bn, 11th FA
(172d Sep IN Bde)

Army National Guard

I Corps

BG **Gordon, Stanley J.**
CSM Walbeck, William B.
I Corps Arty

LTC **Fotheringham, David B.**
CSM Stone, Steven T.
1st Bn, 145th FA

LTC **Christensen, Thomas R.**
CSM Alger, Don R.
2d Bn, 222d FA

Brigades

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

LTC **Doyle, James L.**
CSM Lynn, William R., Jr.
1st Bn, 158th FA

LTC **Adams, Ricky G.**
CSM Dacus, Galen A.
1st Bn, 171st FA

COL **Dunn, David N.**
CSM Halfacre, Howard E.
54th FA Bde

MAJ **Batts, Frank E.**
CSM Eacho, James E.
1st Bn, 111th FA

LTC **Coleman, Michael J.**
CSM Frye, Zane D.
2d Bn, 111th FA

COL **Luebke, Ronald A.**
CSM Shapiro, Marc O.
57th FA Bde

MAJ(P) **Beyer, Steve A.**
CSM Weller, Gary P.
1st Bn, 121st FA

LTC **Much, Bryan T.**
CSM Hannah, Bruce J.
1st Bn, 126th FA

COL **Nuttall, James W.**
CSM Iannelli, Paul A.
103d FA Bde

LTC **Walsh, Charles F.**
CSM McDonough, John J., IV
1st Bn, 103d FA

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

LTC **Sawyer, Linwood M.**
CSM Daniels, Allen C., Jr.
5th Bn, 113th FA

COL **Dunn, Gary J.**
CSM Russell, Dennis R.
115th FA Bde

LTC **Jackson, Jonathan R.**
CSM Varner, Marvin S.
1st Bn, 190th FA

LTC **Wright, Edward L.**
CSM Willis, James L.
2d Bn, 300th FA

COL **Vonderschmidt, William W.**
CSM Putman, Dale L.
130th FA Bde

LTC **Wiker, David A.**
CSM Althouse, Michael D.
1st Bn, 127th FA

LTC **Johnson, Calvin S.**
CSM Bahr, Ronald E.
2d Bn, 130th FA

COL **Wilson, George W.**
CSM Rich, William B., II
135th FA Bde

LTC **Polles, Timothy D.**
1SG Carney, William J.
1st Bn, 128th FA

LTC **Irwin, David F.**
MSG Estes, Danny R.
1st Bn, 129th FA

COL **Curtin, Michael J.**
CSM Pendleton, Thomas D.
138th FA Bde

LTC **Wright, Barry G.**
CSM Hoffman, William F.
1st Bn, 623d FA

COL **Kimmey, Kim**
CSM Fagala, Robin F.
142d FA Bde

LTC **Hughes, Gerald S.**
CSM Kelly, Clarence H.
1st Bn, 142d FA

LTC **Graves, Russell D.**
CSM Branch, Gary D.
2d Bn, 142d FA

COL **Davies, James R.**
CSM Hurney, Richard J.
147th FA Bde

LTC **Bray, Robert T.**
CSM Aiken, Robert J.
1st Bn, 147th FA

LTC **Hawley, Spencer L.**
CSM Leonard, Thomas D.
2d Bn, 147th FA

COL **Richardson, Henry B., Jr.**
CSM Ward, Franklin P.
151st FA Bde

MAJ(P) **Griese, James E.**
CSM Herndon, Charles R.
3d Bn, 178th FA

LTC **McCoy, John W., Jr.**
CSM Elliot, Eddie G.
4th Bn, 178th FA

COL **Germain, David K.**
CSM Lara, Ysabel S.
153d FA Bde

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

LTC **Beers, John K.**
CSM Keppel, Kenton E.
1st Bn, 157th FA

LTC **Loftus, Cory L.**
SGM Collins, Richard M.
2d Bn, 157th FA

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

LTC **Harris, Robert A.**
CSM Minter, Dwight F.
1st Bn, 115th FA

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

LTC **Armour, Michael D.**
CSM Turner, William B., Jr.
3d Bn, 115th FA

LTC **Wallace, C. Doug**
CSM Gentry, Gary J.
1st Bn, 181st FA

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

LTC **Madison, Michael J.**
SGM Canavan, Michael J.
1st Bn, 172d FA

LTC **Dupuis, Donald R.**
CSM Starr, John D.
2d Bn, 197th FA

COL **Pierce, Billy L.**
CSM Cowley, Gerald R.
631st FA Bde

LTC **May, William R.**
CSM Cummins, Ancle W.
1st Bn, 114th FA

LTC **Chandler, Robert J., Jr.**
CSM Pike, Eddie W.
2d Bn, 117th FA

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

Division Artilleries

COL **Fry, Alan K.**
CSM Nett, David L.
28th IN Div (Mech) Arty

LTC **Golden, Paul D.**
CSM Winiecki, Ronald E.
1st Bn, 107th FA

LTC **Walker, Martin H.**
CSM Buch, Howard W., Jr.
1st Bn, 108th FA

LTC **Scott, Mark W.**
CSM Vonstein, Dale T.
1st Bn, 109th FA

COL Stevens, Wayne S.
CSM Sparkman, Miles E., III
29th IN Div (L) Arty

MAJ Schieman, Kenneth G.
CSM Rosier, William C.
2d Bn, 110th FA

LTC Gilliam, Dabney T., Jr.
CSM Glazener, Edwin H.
1st Bn, 246th FA

LTC Caporizo, James P., III
CSM Duddie, Joseph, Jr.
2d Bn, 192d FA

COL Trost, Jon L.
CSM Wog, Richard H.
34th IN Div (Mech) Arty

LTC Anderson, Mark E.
CSM Venaas, Bradley O.
1st Bn, 120th FA

LTC Kreye, John R.
CSM Beranek, Steven W.
1st Bn, 125th FA

LTC Bargfrede, Craig A.
CSM Peters, David B.
1st Bn, 194th FA

COL Tritsch, Thomas M.
CSM Wright, David L.
35th IN Div (Mech) Arty

LTC Kelly, Kenneth E.
CSM Kolessar, Paul
2d Bn, 122d FA

MAJ(P) Wagoner, Freddie R.
CSM Honeycutt, Billy J.
2d Bn, 138th FA

LTC Stewart, James M.
CSM Stevens, George E.
1st Bn, 161st FA

COL Montgomery, Michael B.
CSM Shelton, Joseph D.
38th IN Div Arty

LTC Purtee, David E.
CSM Wierman, Michael L.
1st Bn, 119th FA

MAJ(P) Lootens, Philip
CSM Payne, Thomas B.
1st Bn, 134th FA

LTC White, James R.
CSM Nicholson, Jerry D.
3d Bn, 139th FA

COL Graham, Mark A.
CSM Andrews, Gary W.
40th IN Div (Mech) Arty

LTC Bungarden, John R.
CSM Duran, Jesse
1st Bn, 143d FA

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

LTC Soden, Rodger R.
CSM Elifritz, James R.
2d Bn, 180th FA

COL Pappas, Gary A.
CSM Blevins, Johnny L.
42d IN Div (Mech) Arty

LTC Sammartano, Gaetano V.
CSM Engler, Paul D.
1st Bn, 101st FA

LTC Overton, Clyde L., Jr.
CSM Bailey, Curtis
1st Bn, 258th FA

LTC Watson, Robert E.
MSG Crossley, Robert F.
3d Bn, 112th FA

COL Ortiz, Victor M., Jr.
CSM Dean, Herbert D.
49th AR Div Arty

LTC Hawkinson, David D.
CSM Rigsby, Hulen T., III
1st Bn, 133d FA

LTC Kohlhoff, Kris F.
CSM Peterson, John J.
3d Bn, 133d FA

LTC Beam, Michael A.
CSM Benner, Gerald E.
4th Bn, 133d FA

Separate Units

All battalions in this category are corps-level assets or, as annotated, DS to 16 separate brigades or the 11th ACR, the latter at the NTC.

LTC McCoy, Matthew A.
CSM Campbell, Steven F.
1st Bn, 86th FA

LTC Fitzpatrick, William F.
CSM Sampson, Richard M.
1st Bn, 102d FA

LTC Garren, Terrell N.
CSM Graves, Robert W.
1st Bn, 113th FA
(30th Sep Mech Bde)

LTC Bailey, Larry J.
CSM Marlow, Johnny N.
2d Bn, 114th FA
(155th Sep AR Bde)

LTC Hetherington, Jeffrey W.
CSM Bateman, James M.
2d Bn, 116th FA
(53d Sep IN Bde)

LTC Thornhill, Columbus L.
CSM Danley, Dwight L.
3d Bn, 116th FA

LTC Pyron, Walter L.
CSM Jackson, Charles R.
1st Bn, 117th FA
(31st Sep AR Bde)

LTC Dudney, Lawrence E., Jr.
CSM Ray, Claude E., III
1st Bn, 118th FA
(48th Sep Mech Bde)

LTC Kemp, Neal W.
CSM Sanders, Ralph A., Jr.
2d Bn, 123d FA

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

MAJ Hooper, Russell L.
CSM Wellmeyer, Henry P.
1st Bn, 141st FA
(256th Sep Mech Bde)

LTC Wright, James A.
CSM Culhane, Francis J.
2d Bn, 146th FA
(81st Sep Mech Bde)

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

LTC Weissinger, Jerrold D.
CSM Parsons, Jackie P.
2d Bn, 150th FA

LTC Hayes, Wayne M.
CSM Ninneman, Jonathan J.
1st Bn, 151st FA

LTC Boyles, Brent M.
CSM Small, Gregory R.
1st Bn, 152d FA

LTC Giacumo, Robert L.
CSM Brown, L. David
1st Bn, 156th FA
(27th Sep IN Bde)

LTC Anderson, Clifton K.
CSM Langley, Alvin D.
1st Bn, 160th FA
(45th Sep IN Bde)

LTC Santoni, Luis G.
CSM Latorre, Felix
1st Bn, 162d FA

LTC Oferrall, Rafael
CSM Soto, Juan A.
2d Bn, 162d FA
(92d Sep IN Bde)

LTC Alfonso, Ivan
CSM Arocho, Hector
3d Bn, 162d FA

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

LTC Fudger, Wesley J.
CSM Harbin, Billy D.
1st Bn, 178th FA
(218th Sep Mech Bde)

MAJ(P) Wodash, Donald L.
CSM Gates, James A.
1st Bn, 180th FA
(11th ACR)

MAJ(P) Sigmon, James R.
CSM Young, Yacob
1st Bn, 182d FA

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

LTC Walker, Donald P.
1SG Looker, Edward L. (Acting)
1st Bn, 202d FA

LTC Duncan, David S., III
CSM Powell, Larry N.
1st Bn, 206th FA
(39th Sep IN Bde)

LTC Williams, Francis B., III
CSM Hewell, Gerald M.
1st Bn, 214th FA

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

LTC Keolanui, Stanley R., Jr.
CSM Inouye, Robert N.
1st Bn, 487th FA
(29th Sep IN Bde)

Marines

Col Click, Robert L.
SgtMaj Siverson, Paul W.
10th Marines

LtCol Camarena, Carlos J.
SgtMaj Adams, Charles E., Jr.
1st Bn, 10th Mar

LtCol Christie, Richard A.
SgtMaj Morris, Charles R.
2d Bn, 10th Mar

LtCol Hughes, William D., III
SgtMaj Swencki, Thaddeus M.
3d Bn, 10th Mar

LtCol Cariker, Thomas L.
SgtMaj Gunn, Christopher C.
5th Bn, 10th Mar

Col Lesnowicz, Edward J.
SgtMaj Towry, Robert L.
11th Marines

LtCol Fondaw, Jeffery E.
SgtMaj Lange, Daniel J.
1st Bn, 11th Mar

LtCol Kowalski, Bruce T.
SgtMaj Rollins, David S.
2d Bn, 11th Mar

LtCol Shupe, Daniel W.
SgtMaj Guerra, Dennis
3d Bn, 11th Mar

LtCol Caspers, Jeffrey L.
SgtMaj Anderson, Charles D.
5th Bn, 11th Mar

Col Kelly, Thomas R.
SgtMaj Smith, Charles R.
12th Marines

LtCol Lance, Joseph M.
SgtMaj Mendiola, John M.
1st Bn, 12th Mar

LtCol Kelley, David A.
SgtMaj Pulley, Frankie E.
3d Bn, 12th Mar

Col Garner, John M.
SgtMaj Bricca, Anthony J.
14th Marines

LtCol Giron, Bruce
SgtMaj Ryan, Oliver A.
1st Bn, 14th Mar

LtCol Deotte, James E.
SgtMaj Martin, Marvin E.
2d Bn, 14th Mar

LtCol Gunter, Frank R.
SgtMaj Cianchetta M.
3d Bn, 14th Mar

LtCol Hughes, Nathaniel F.
SgtMaj Howington, Jimmy G.
4th Bn, 14th Mar

LtCol Metroka, Gordon S.
SgtMaj Plymale, Dennis J.
5th Bn, 14th Mar

US Total Army Personnel Command
FIELD ARTILLERY ASSIGNMENT BRANCHES

As of 1 November 1998

Officers

Field Artillery Branch Chief
LTC Thomas J. O'Donnell
odonnelt@hoffman.army.mil

Colonels Division/Colonel Assignments
LTC Leo S. Peterson
petersl0@hoffman.army.mil

Janet M. Petties
pettiesj@hoffman.army.mil

Lieutenant Colonel Assignments
MAJ(P) Ronald G. Costella
costella@hoffman.army.mil

Janet M. Petties
pettiesj@hoffman.army.mil

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Silhouettes of Steel

I Corps Artillery

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

Utah ARNG. As well as its warfighting mission for the Corps, I Corps Artillery assumes an important and active role in the Utah Army National Guard (UTARNG). Serving as a major subordinate command, we provide administrative, logistical, operational and training support for two in-state battalions: the 1-145 FA (155 towed) in Salt Lake City and 2-222 FA (155 Paladin) in Cedar City. We also support a firing battery and FIST slice—B/1-148 FA (155 SP) and Det 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 Idaho, which is DS to the 116th Armored Cavalry Brigade, Boise.

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.

I Corps Fire Support Conference. January 1998 brought the I Corps fire support community together for the 16th 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 and its fire support units. This guidance set the standards for productive mission-oriented training for the upcoming year.

2-222 FA fires at Dugway Proving Ground during Global Patriot 98.

1-145 FA fires RAP at Dugway Proving Ground.

Conference presentations covered a variety of fire support subjects and were given by the I Corps Simulation Center out of Fort Lewis, Washington; the US Field Artillery School, Fort Sill, Oklahoma; Fifth Army's Training Support Brigade, Fort Carson, Colorado; Army Automation, Fort Hood, Texas; and our I Corps G3, G2 and I Corps Artillery Deputy Commander.

In attendance were representatives from a large portion of the Field artillery brigades, division artilleries, our Corps Support Command (COSCOM) and many Field Artillery battalions. The conference continues to provide an excellent opportunity for command interface in I Corps and the fire support community.

Training Corps Artillery. I Corps Artillery began the training year in October by successfully fielding the advanced Field Artillery tactical data system (AFATDS), further enhancing our ability to command and control fires on the battlefield. I Corps Artillery is leaning forward and ready to field and train on the new, improved AFATDS during the next training year.

In January, I Corps Artillery deployed to Japan and Fort Lewis for another successful Yama Sakura Exercise supported by the 115th FA Brigade (WYARNG), 153d FA Brigade (AZARNG) and 169th FA Brigade (COARNG). 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 techniques for fighting the corps deep battle, we were instrumental in the OPFOR's overwhelming defeat.

With summer came the exercise Global Patriot with deployments to Dugway Proving Ground and Fort Lewis. The 45th FA Brigade (OKARNG) deployed elements of its headquarters to train with our Utah FA battalions in a very successful operation that included live firing for JAAT. A headquarters slice from I Corps also supported operations with the FSE in the deep operations coordination cell (DOCC) training in 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 the sensor-to-shooter links in the corps area of operations. The distributed exercise was portrayed in the Joint Conflict Model (JCM) operated at the I Corps Simulation Center at Fort Lewis.

I Corps Artillery supported the 40th Infantry Division (Mechanized) Warfighter, the CAARNG's Battle Command Training Program (BCTP) exercise, which was conducted at Fort Leavenworth, Kansas. The Warfighter provided another excellent opportunity to hone our skills in fire support.

Our Utah elements of the 1-148 Field Artillery Battalion deployed with the battalion in its DS role with the 116th Armored Cavalry Brigade to the National Training Center at Fort Irwin, California. Tough, realistic training helped hone their combat skills in a very successful training rotation.

America's Corps Artillery actively supported brigade/battalion battle simulation (BBS) exercises with its FA brigades. These were distributed exercises with the simulations operated from Fort Lewis and the brigades at home station or supported at brigade locations by the 91st Division (Exercise). The exercises provided very valuable training at reduced costs.

Supporting the Total Force. The challenges of diminishing dollars, downsizing, restationing and new equipment fielding 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 ***America's Corps Artillery!***

Silhouettes of Steel

III Corps Artillery

The IIId Armored Corps Artillery at Fort Sill, Oklahoma, is the Army's largest and the world's most powerful concentration of artillery: four FA brigades with nine MLRS battalions, three Paladin battalions, a maintenance battalion and a TA detachment. Our progressive, sequential training strategy includes off-post deployments after rigorous home-station training to focus on power projection and readiness.

17th FA Brigade. The *Thunderbolt Brigade* completed a series of exercises in Korea that included Korea's Gateway Exercise and Ulchi Focus Lens 97 and shifted its focus to battalion-level training. 5-3 FA (MLRS) supported the 4th Infantry Division's Advanced Warfighting Experiment (AWE) in October 1997 at Fort Hood and deployed to the Marine Corps Air/Ground Combat Center at Twentynine Palms to support the 1st Marine Division in April. 1-12 FA (MLRS) participated in a fire support conference at Fort Hood in February and reconnoitered its AO for its wartime mission. 1-12 FA (MLRS) sent an operations and intelligence section to the NTC in May and underwent a brigade-administered EXEVAL in July. 3-18 FA (Paladin) conducted a very successful rotation at the NTC in the fall of 1997 and completed Paladin retrofit in July.

The brigade implemented force modernization programs with internal simulations and digital sustainment training exercises and fielded SINCGARS, the materiel tracking system and M249 squad automatic weapon (SAW).

75th FA Brigade. 1998 was another good year for the *Diamond Brigade.* In its annual Taut Lanyards CPX, the 75th realistically rehearsed a major contingency plan followed by support for the 1st Cavalry Division Warfighter ramp-up, Ulchi Focus Lens, and CPX Diamond Thunder, the latter with the Corps Headquarters and FSE and the 45th FA Brigade, OKARNG. The brigade also conducted an EDRE. In addition, key leaders participated in the Gateway 98 and reception, staging and onward integration (RSOI) exercises in Korea.

1-17 FA (Paladin) began the year with several challenging field exercises, training new Paladin tactics with observers from 5-87 Infantry, Panama. It also deployed batteries nearly simultaneously to Darwin, Australia, and Fort Chaffee, Arkansas, the former to demonstrate Paladin and the palletized loading system (PLS) to the Australian Army.

The 6-27 FA (MLRS) battalion TOC went to Fort Hood for three weeks for CPXs and FTXs with 3-16 FA, 4th Infantry Division. Its NTC rotation was another "First" for 6-27 FA—the first to have an MLRS battery live fire in support of a maneuver unit, the 4th Division's 2d Brigade Combat Team.

1-77 FA (MLRS) exchanged batteries with the 39th Regiment Royal Artillery in Albermarle Barracks, England. Soldiers formed international friendships while learning different approaches to MLRS operations.

A III Corps MLRS crew fires for certification.

212th FA Brigade. The *Courage and Command Brigade* again had a rewarding year. The brigade delivered effective fires and verified MLRS and Paladin employment TTP while supporting the 1st Infantry Division/V Corps Warfighter exercise in Germany. The brigade also forged bonds with the ARARNG 142d FA Brigade supporting its Training Assistance Model (TAM). In addition, the 212th participated in the XVIII Airborne Corps Warfighter at Fort Bragg, North Carolina. The brigade also is the primary response team for the Wildland Firefighting Contingency Mission.

6-32 FA (MLRS) met all the challenges during a rigorous battalion Army external evaluation (AEE) and deployed off post for battery AEEs. The battalion also deployed an O/C package to Germany to evaluate 1-27 FA (MLRS), 41st FA Brigade. 2-18 FA (MLRS) upgraded its launchers to fire the ATACMS Block IA, the only CONUS MLRS battalion with this capability. The battalion refined its skills through battery AEEs this year. 2-5 FA (Paladin) also has been busy conducting live-fire exercises and focusing on METL tasks through section and battery AEEs. It has been working with the 3d ACR at Fort Carson, Colorado, to refine battle drills. The battalion's training program proved itself when it tied for first place in the Corps Artillery's NBC lane stakes.

214th FA Brigade. Deployed from Argentina to Tuzla, the *Naturally We Lead Brigade* maintained its multi-missioned, fast pace in 98. The largest, most diversified brigade-sized unit in the Field Artillery, it includes three MLRS battalions, a maintenance battalion and a combat support battalion (CSB) with a field hospital; engineer, transportation and ordnance companies; and personnel services and finance detachments. The variety of units allows for training opportunities ranging from firing rockets at Fort Chaffee to building schools in Haiti.

2-4 FA (MLRS) received an EDRE/EXEVAL deploying to Arkansas via a 300-mile road march, rail and C-5A. The AEE integrated Canadian forces and 1-142 FA (MLRS), ARARNG. The brigade gave EXEVALS to 1-14 FA (MLRS), 19 Maintenance and B/62 Engineer and 15 Transportation Companies simultaneously. More than 1,500 soldiers took part in the exercise using resources normally not available for artillery unit training.

The brigade participated in several BCTP Warfighters with the 101st Airborne Division, Fort Campbell, Kentucky; and the 4th Infantry Division and the Corps at Fort Hood. NTC rotations included 3-13 FA (MLRS) supporting the 1st Armored Division and 2-4 FA with the 4th Infantry Division. 19 Maintenance supported Corps Artillery deployments including Twentynine Palms, California, and White Sands, New Mexico. 47 CSB conducted many exercises worldwide, including explosive ordnance support for the White House, engineer support to Haiti and finance detachment support to Bosnia.

The IIId Armored Corps Artillery stands ready to deploy today, trained and prepared to accomplish missions around the world—***Phantom Thunder!***

V Corps Artillery

V Corps Artillery (VCA) with its headquarters in Wiesbaden, Germany—the only forward deployed corps artillery in the US Army—continues its tradition of providing fire support for contingency operations; conducting joint, multinational training; and setting the standard for deep operations in the artillery community.

Joint/Combined Exercises. VCA started the year with two exercises: Trailblazer and an AFATDS interoperability exercise. This set the pace for the remainder of the year. VCA found its calendar full with many joint exercises, a Corps Warfighter, a Partnership for Peace exercise—along with supporting Operations Joint Endeavor and Joint Guard in Bosnia-Herzegovina. In addition to these requirements, all three senior commanders in VCA changed within a month of each other. There was no rest for the *Steadfast and Strong* soldiers of VCA.

Early in the year, Exercise Trailblazer gave VCA soldiers a unique chance to work with USAREUR's battlefield coordination detachment (BCD) and the Air Force. This US Air Force in Europe (USAFE)-led Joint Task Force (JTF) Exercise gave VCA and the BCD the opportunity to learn valuable lessons from the Air Force as it conducted simulated noncombatant evacuation operations (NEO).

After Trailblazer, VCA soldiers deployed to Idar Oberstein for the AFATDS interoperability exercise. Joining them were soldiers from other NATO countries, including British and French. The exercise digitally linked all the participants' systems and ended with a completely automated live-fire exercise.

B/1-27 FA MLRS prepares to fire during a training exercise.

During Agile Lion, a joint exercise led by the Southern European Task Force (SETAF), VCA focused on humanitarian assistance and disaster relief. VCA was joined by non-governmental organizations (NGOs) and US and foreign diplomats to form a cohesive team and ensure a smooth operation.

Training from Exercise Agile Lion helped prepare VCA for the USAFE-led combined exercise, Union Flash. Union Flash trained participants in NEO. Such stability and support operations allowed VCA soldiers to, once again, work with the BCD and USAFE, strengthening VCA's relationships with elements it will work with extensively in time of war.

The next major training event was Victory Focus, the Corps Warfighter ramp-up exercise. The exercise enabled the VCA TOC and deep operations coordination cell (DOCC) to validate lessons learned from the last Warfighter.

Two months later, it was obvious that Victory Focus paid big dividends as VCA moved into Danger Storm and Swift Victory, a V Corps and 1st Infantry Division BCTP Warfighter exercise. The exercises brought the DOCC and associated Reserve Components together to coordinate and execute the Corps deep fight. Swift Victory also marked the first time the 41st FA Brigade worked directly with the 1st Infantry Division to provide counterfire support.

During the BCTP Warfighter, VCA fire supporters worked through coordination and fire support issues with ease. This demonstration of professionalism and competence earned the FSE an outstanding commendation from the BCTP Observation Group D.

The 41st FA Brigade performed splendidly in many joint exercises and in the Corps Warfighter. In addition, it executed several joint training events, including a German Artillery seminar and a training exercise with its Italian partner unit in Sardinia.

The 41st FA Brigade and 1-27 FA (MLRS) conducted two internal exercises that were vital in maintaining VCA's ability to strike deep. Railgunner X was an intense exercise in Grafenwoehr to evaluate the MLRS batteries. Five months later, the 41st FA Brigade and 1-27 FA were back in Grafenwoehr for Railgunner XI, a rigorous exercise to evaluate 1-27 FA. The VCA and brigade TOCs used this evaluation as training for command, control and coordination of deep operations.

Between the two Railgunner exercises, 1-27 FA executed an internal "Best by Test" competition among all its sections. The competition pitted the MLRS sections, battery operations centers (BOCs), platoon operations centers (POCs) and ammunition sections against each other in their respective categories. This gave battery commanders an evaluation of how well their sections were trained and gave soldiers the opportunity to practice their MOS skills and learn new ideas from their sister sections.

Support for Operations Joint Endeavor/Guard. VCA participated in Mountain Eagle VI, a pre-deployment mission rehearsal for the 11th Aviation Brigade. The exercise involved multiple JAAT operations to validate the brigade's ability to synchronize firepower prior to its deployment to Bosnia. VCA then deployed its exportable FSE with the 11th Aviation Brigade to provide fire support planning and coordination for weapons storage site inspections and other critical operations in Bosnia.

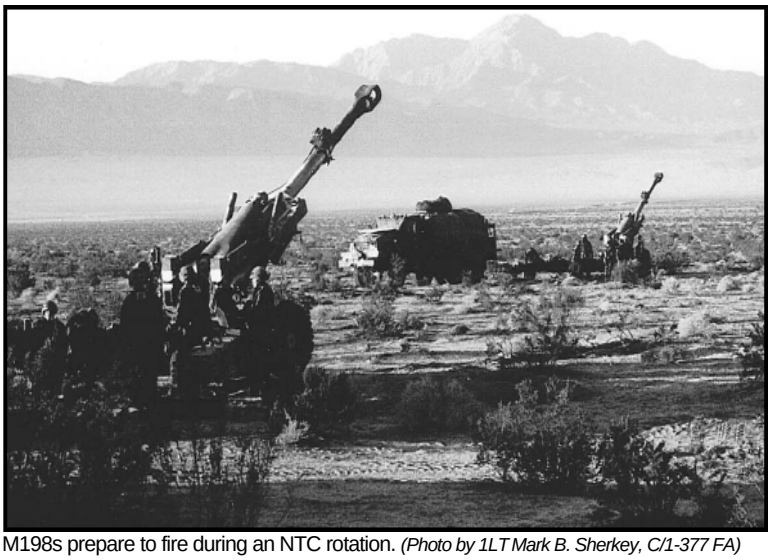
Other VCA Events. VCA saw many changes this year, starting with the turn-in of the Strategic Theater Army Command System (STACS) and fielding of the Army Global Command and Control System (AGCCS). This new system allows for planning, coordination and execution of the Corps deep fight with higher headquarters and the supporting Air Force element. Over the summer, VCA saw an even bigger change as it said farewell to our three senior commanders and hailed new ones.

The soldiers of VCA helped strengthen ties with the European community when they sent a contingent to France for a Memorial Day ceremony honoring allied soldiers who liberated France more than 50 years ago. The Corps Artillery participated in a second memorial ceremony in July to commemorate the 80th anniversary of World War I.

VCA continues to provide professional and flexible fire support coordination with lethal and non-lethal fires to accomplish all missions. V Corps Artillery is ***Steadfast and Strong*!**

XVIII Airborne Corps Artillery

The XVIII Airborne Corps Artillery at Fort Bragg, North Carolina, continues to maintain a crisis response artillery force that is manned, equipped and trained to deploy by air, sea and land anywhere in the world within 18 hours of notification. The Corps Artillery headquarters and its 18th Field Artillery Brigade (Airborne)-three M198 battalions, one MLRS battalion and two Field Artillery target acquisition detachments—provide cannon, rocket and missile fires and plan, coordinate and synchronize joint fire support for the Army's strategic contingency force.



M198s prepare to fire during an NTC rotation. *(Photo by 1LT Mark B. Sherkey, C/1-377 FA)*

XVIII Airborne Corps Artillery. Our units superbly executed all training exercises and real-world missions throughout the past year. The XVIII Airborne Corps Artillery participated in JTFEX 97-3, a US Atlantic Command (USACOM)-sponsored FTX in which the 2d Fleet was the joint task force (JTF) headquarters. Our FSE served as the joint fires element (JFE), planning, coordinating and synchronizing all joint fires for the JTF commander.

The Corps Artillery also performed the duties of the joint exercise control group during JTFEX 98-1, which was conducted at sea, at Camp Lejeune, North Carolina, and at Fort Bragg. This was a standard JTFEX training scenario with force deployment options: fleet exercise (FLEETEX), a special operations command exercise (SOCEX) and a large-scale land exercise (airborne, air assault and amphibious operations).

The Corps Artillery expanded with the addition of A Company, 511th Parachute Infantry Regiment. The company was activated on 11 October 1997 and will serve as the Army's test bed for the enhanced fiber-optic guided missile (EFOGM). Additionally, 3-27 FAR (MLRS) added a platoon of high-mobility artillery rocket systems (HIMARS) prototypes. This platoon, which is MLRS mounted on the long wheel-based chassis of the family of medium tactical vehicles (FMTVs), is the first of its kind in the Army. Also, C/1-377 FA at Fort Campbell, Kentucky, tested pre-planned product improvements to the M198 howitzer; the improved howitzer is designated the Advanced Howitzer AH-155. All systems are part of the Rapid Force Projection Initiative (RFPI) that includes the 101st Airborne Division (Air Assault) at Fort Campbell.

The Advanced Concept Technology Demonstration-Field Experiment (ACTD-FE) for these systems was conducted at Fort Benning, Georgia. Upon completion of the FE in August, these systems began a two-year residual test and evaluation period and will remain in the testing units for the duration.

Two of the major training exercises this year were the 82d Airborne Division's BCTP Warfighter exercise in April at Fort Bragg and the 101st Airborne Division's Warfighter in June at Fort Campbell. During both exercises, the Corps Artillery significantly influenced the battle by firing ATACMS at high-payoff targets deep into the corps and division zones in addition to planning, coordinating and executing all SEAD and JSEAD missions in support of corps deep operations. Both the 197th (New Hampshire ARNG) and 196th (Tennessee ARNG) FA Brigades set the standard in executing their GS missions in support of the Corps during each of the respective Warfighters, allowing the divisions to focus on the close battle.

This year, the Corps Artillery also provided personnel and equipment to support deployed forces in Kuwait to deter outside aggression and reassure the host nation of US commitment and resolve in the region.

18th FA Brigade (Airborne). The 18th FA Brigade, also located at Fort Bragg, had a tremendously successful training year. The brigade and its battalions participated in several key Corps and division exercises, including multiple NTC and JRTC rotations, the 82d Airborne Division Warfighter, two battalion EXEVALs, a unit exchange with a French airborne artillery platoon and many airborne, air assault and airland operations.

While participating in joint exercise Purple Dragon, elements of the brigade executed the largest mass tactical parachute assault of the M198 howitzer in the history of Fort Bragg and deployed a battery by sea to Puerto Rico in support of the 26th MEU. During the Corps' sea emergency deployment readiness exercise (SEDRE), the brigade validated its contingency deployment status by deploying and uploading on ship a force package consisting of a battalion O&I section, howitzer platoon, MLRS platoon, radar section and meteorological section. The SEDRE was conducted at the Military Ocean Terminal at Sunny Point, North Carolina.

The brigade also deployed an MLRS battery and a Q-37 radar section from 3-27 FA to Kuwait for 180 days in support of Intrinsic Action with the 3d Infantry Division (Mechanized). In addition, the battalion fielded and trained the Army's only HIMARS platoon and deployed it to White Sands Missile Range, New Mexico, for live-fire certification.

In the area of force modernization, the brigade has been on the cutting edge of the RFPI with HIMARS and the Advanced Howitzer AH-155 platoon in 1-377 FA (Air Assault). These units trained extensively for proof-of-product testing at Fort Benning. The brigade also deployed a battery to Alaska for eight weeks to test the new SADARM munition.

The tough, proud and disciplined soldiers of the XVIII Airborne Corps Artillery continue to excel and look forward to accepting the challenges of the future***—Thunderbolt, Air Assault, Steel Rain, Airborne!***

Field Artillery Training Command

The Training Command at Fort Sill, Oklahoma, the core of America's Firebase, had a dynamic year. With a collective effort from the FA Training Center, the NCO Academy and the FA School, we have transformed recruits to soldiers and Marines and developed doctrine and leaders. We've also integrated emerging technologies into the classroom, both near and far from the Firebase, and into future systems.

FAOBC students-future 82d Div Arty Lieutenants-in the new Lightfighter Lane Training. *(Photo by Linda Young, Fort Sill TSC)*

In the last year, we reorganized the Training Command slightly with the creation of Deputy Assistant Commandant for Futures (DAC-F). The DAC-F integrates the cutting edge operations of the Combat Developments Directorate, the Depth and Simultaneous Attack Battle Lab and Task Force 2000. This position aligns the Training Command futures efforts more closely with the futures development and procurement efforts of Headquarters, Training and Doctrine Command.

Training and Developments. Starting in FY99, the Training Center extended its initial entry training (IET) by a week to increase the physical rigor and formalize the structure for inculcating Army values in each new soldier. Mandatory training requirements, road marches and FTXs have been expanded in all programs, pushing our soldiers to their physical and mental limits as a prerequisite to graduation and assignment to their first unit.

The FA Officer Basic Course (FAOBC) curriculum implemented last year has met with great success. The increased use of senior NCO instructors in the FTXs and CPXs has been one of the key contributors.

We also have made our teaching materials more accessible by transforming them into an electronic format and posting them on the Gunnery Department Home Page (linked to the Fort Sill Home Page: http://sill-www.army.mil/.) Now units with Internet capability can access gunnery information on topics such as propellant efficiencies, firing tables, field manuals, lesson plans with slide presentations and other general gunnery information.

Our FA Advanced Course (FAOAC) students participated in a military decision-making process exercise with their counterparts in the Armor OAC at Fort Knox, Kentucky, via a video teletraining network. This innovative training opportunity required FAOAC students to realistically play the roles of FSCOORD and brigade FSO in an Armor brigade battlestaff exercise.

We also have compiled the FAOAC presentations, tactical orders, white papers and fire support TTP and placed them on the Fire Support and Combined Arms Operations Department site that's linked to the Fort Sill Home Page.

We recently used distance learning to assist instructors with Paladin new equipment training (NET) in Germany and Fort Riley, Kansas. We further are maximizing the cost effectiveness of distance learning with the development of multimedia courseware modules for most FA MOS.

Cutting Edge Systems. The future is alive and well with Crusader and AFATDS leading the Army as the premier weapon and digital system for Army XXI. Crusader is completing the development of prototype propellant and projectile magazines. The power pack-drive train test has begun, and fabricating a prototype resupply vehicle (RSV) is well underway. The RSV will be completed and tested in April 1999.

The AFATDS program is right on schedule with this year's fielding completed to the XVIII Airborne Corps Artillery and the 82d Airborne Division, both at Fort Bragg, North Carolina, and the 101st Airborne Division (Air Assault) at Fort Campbell, Kentucky.

As part of our commitment to the joint force, the Marine Corps also is conducting an AFATDS limited user test with the I Marine Expeditionary Force and the 11th Marine Regiment at Camp Pendleton, California. The Marine Corps will start fielding AFATDS in FY99.

AFATDS will complement the Marine Corps' new light-weight 155-mm howitzer, called the XM777, scheduled for fielding in FY03. The XM777 is 7,000 pounds lighter than the current M198 and will provide a 25 percent smaller footprint.

To enable advances in missile technology using current launchers, 29 MLRS launchers at Fort Sill and Korea were equipped with the improved position determining system (IPDS). IPDS provides the an interim global positioning system-aided firing platform for the ATACMS Block IA missile until the M270A1 is fielded in FY 00.

Wheeled prototypes of MLRS, the high-mobility artillery rocket system (HIMARS), were delivered to the XVIII Airborne Corps to conduct two-year extended user testing and provide insights for the maturation phase of development beginning in FY 00. MLRS munitions continue to expand with fielding of the extended-range MLRS (ER-MLRS) to US Forces in Korea and the development of guided MLRS rockets (GMLRS) and the ATACMS Block II missile with BAT submunitions.

The new smart, antiarmor munition SADARM underwent operational testing in July and August at Fort Greely, Alaska. The testing was supported by 4-11 FA in Alaska with the player unit A/1-377 FA, part of the 18th FA Brigade at Fort Bragg. The Training Command is committed to producing soldiers and Marines trained to dominate the battlefield with emerging systems and to developing leaders who can harness the dynamic digital technology—forever retaining the mantle of the ***King of Battle!***

Silhouettes of Steel

1st Armored Division Artillery

This has been an exciting year for the Redlegs of the 1st Armored Division Artillery, Germany, marked by three significant milestones: redeployment of units from Bosnia-Herzegovina, fielding of the M109A6 Paladin and participation in Operation Rolling Steel, the largest maneuver rights exercise in Germany in eight years.

From September 1997 through October 1998, elements of the Div Arty were deployed to Bosnia-Herzegovina in support of Operations Joint Guard and Forge and had operational control for fire support in the Multinational Division (North). The Div Arty headquarters (-), two brigade fire support packages and one firing battery took control of two firing batteries from the 2d ACR, a TAB from MAARNG and then CAARNG, a brigade fire support package from the TXARNG as well as many metro sections from across the ARNG. These elements supported stability operations through June. The mission continued through October with our C/25 FA (TA), the 2d Brigade FSE and the division FSE remaining in Bosnia. The last element, C/25 FA (TAB), returned home 7 October.

Paladin fielding was a primary training focus for the Div Arty in the spring. Both battalions fielded the new M109A6 howitzers and began Paladin training at Grafenwoehr Training Area. 4-27 FA completed its fielding in May and 2-3 FA in July. Paladin has added tremendous maneuverability and lethality to the 1st Armored Division.

August saw a shift in our focus from peace enforcement to high-intensity conventional missions—training in Operation Rolling Steel throughout an extended maneuver rights area in Saarland and Rhineland-Pfalz. This exercise had three phases: six days of offensive operations, two days of live-fire gunnery and five days of defensive operations. Rolling Steel was designed to reestablish Div Arty competencies in conventional high-intensity operations and synchronize Div Arty systems in combat operations over an extended battle-space.

1st Armored Div Arty in Operation Rolling Steel-the largest maneuver rights area exercise in Germany in eight years.

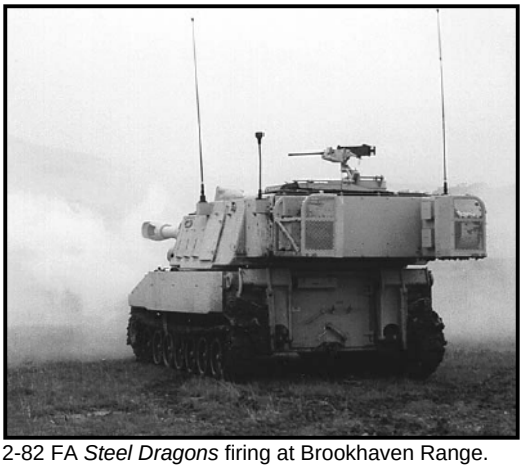
SFOR redeployments, Paladin fielding and high-intensity combat training in 1998 ensure the 1st Armored Division Artillery can provide versatile and lethal fires for America's Tank Division for years to come—***Iron Steel!***

1st Cavalry Division Artillery

The past 12 months have been fast-paced for the 1st Cavalry Division Artillery *Red Team,* Fort Hood, Texas. Many deployments combined with home-station training and modernization efforts made 1998 a busy year for our Redlegs.

Two of our DS battalions deployed to the NTC to wage war on the Krasnovians. Using the maneuverability and firepower of the M109A6 Paladin and the "deep eyes" of the brigade COLT platoon, the 2-82 FA *Steel Dragons* and 3-82 FA *Red Dragons* provided hard-hitting fire support for their maneuver elements. 1-21 FA (MLRS), the Army's first divisional MLRS battalion, also deployed elements of its TOC and TAB as part of these rotations. An example of the 1st Cavalry Division's worldwide mission is C/2-82 FA's joining Task Force 2-7 Cav in the deserts of Kuwait as part of the ongoing Central Command exercises.

As the division ramped up for a BCTP Warfighter exercise, we received orders for the *First Team* to deploy to Bosnia in support of the Stabilization Force (SFOR) mission. 1-82 FA, joined by the radar and counterfire sections of C/1-21 FA and elements of the division FSE, made preparations for the September 1998 deployment. While 2-82 FA took charge of preparing over 6,000 troopers with individual readiness training, the Div Arty TOC joined the *Steel Dragons* in planning local collective training and assisting in a mission readiness exercise at Fort Polk, Louisiana.



2-82 FA *Steel Dragons* firing at Brookhaven Range.

Recent Div Arty modernization efforts ensured that all our soldiers deployed to Bosnia and other theaters with the Army's most up-to-date equipment. Our goal of improving digital training and maintenance procedures was enhanced by the fielding of AFATDS 97 software and the next generation of common hardware system (CHS-2) computers. Combined with the hand-held terminal unit (HTU) and upgraded Paladin and meteorological measuring set (MMS) software, the *Red Team* remains on the cutting edge of fire support.

The future appears every bit as challenging as the past. While 3-82 FA prepares for its Bosnian deployment with the 2d Brigade, 2-82 FA and the 3d Brigade will conduct another phase of the Crusader Concept Experimentation Program III to lead the FA community into the next century. Planning and fighting tomorrow's battles while deployed on today's missions***—Red Team!***

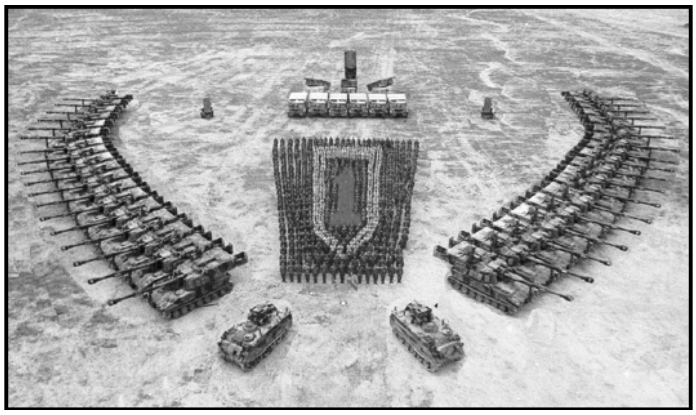
Silhouettes of Steel

1st Infantry Division (Mechanized) Artillery

Drumfire Artillery with its headquarters in Bamberg, Germany, spent the year successfully transitioning from peacekeeping operations in Bosnia-Herzegovina to providing lethal fire support for the Big Red One. The year opened with the Div Arty headquarters performing as the intermediate staging base (ISB) C^2 element and completing the Division's redeployment through the ISB in Taszar, Hungary, to Germany. Included was 1-6 FA *(Swift and Bold)* that had acted as the Force FA Headquarters for the Multi-National Division (MND) North the majority of 1997.

After washing the Bosnian mud off, 1-6 FA and 1-7 FA (*First Lightning*) turned in their M109A3 howitzers and fielded Paladins. 1-5 FA (*Hamilton's Own*), *Drumfire's* sister battalion at Fort Riley, Kansas, also upgraded to Paladins. Bottom line: the three *Drumfire* cannon battalions executed a flawless Paladin fielding.

Simultaneously, the Div Arty focused intensely on the 1st Infantry Division Warfighter exercise. The Div Arty integrated two FA brigades and developed and executed non-standard TTP for FA brigade operations. All participating FA units "massed fires" to win the counterfire fight against the world-class OPFOR.



1998 Redlegs and their equipment recreate a Div Arty *Big Red One* photo taken in 1919. (Photo by CPT Roland Miraco)

Eager to test the Div Arty's METL with Paladin, the Div Arty transitioned again from the Warfighter's computer battlefield to doing what cannon crewmembers love doing the most: putting live rounds downrange. The Div Arty deployed to the Grafenwoehr Training Area with 1-6 FA, 1-7 FA, A/33 FA MLRS (*Arapaho*) and B/25 FA TAB (*WolfPack*) in April. In addition to solidifying Paladin operations standards, *Drumfire* fired its first combined JAAT and mass fire since Operation Joint Guard. Additionally, A/33 fired the first MLRS battery mass fire in USAREUR. This April Grafenwoehr density culminated with a celebration of 1-6 FA's 200-year regimental birthday and a recreation of a Div Arty Big Red One photo taken in 1919, just after World War I.

Focused, combat-ready, professional—the Redlegs of the Big Red One can reflect on this past year with extreme pride and confidence. ***Drumfire!***

2d Infantry Division Artillery

The Ground Component Commander's (GCC's) Counterfire Headquarters, *Warrior Thunder,* the 2d Infantry Division Artillery in the Republic of Korea (ROK), takes the coalition lead in the US/ROK counterfire fight. Our counterfire fight is designed to destroy North Korean artillery systems just kilometers away from our installations. Key to execution is the Counterfire Simulation Center, a state-of-the-art training facility that allows us to exercise radars and delivery systems and focus them against a realistic enemy target array.

6-37 FA (MLRS), *On the Minute,* provides the destructive punch for the counterfire battle. Combined with the nine launchers of the divisional MLRS battery (A/38 FA), the 36 launchers of Task Force Rocket have spent the year sharpening skills and refining sensor-to-shooter TTP.

Locating enemy weapon systems is the mission of F/26 FA (TA), *Wolfpack.* The battery participated in every Div Arty simulation and live-fire exercise using innovative radar management zones to identify the most lethal enemy artillery systems.

The first Paladin battalion on the Korean Peninsula, 1-15 FA, *Guns,* spent the year conducting many live-fire exercises for the 1st Brigade and cavalry squadron. In August, 1-15 FA played a key role in the Korean Battle Simulation Center executing the theater's premier training event: Ulchi Focus Lens.

The Paladins of 2-17 FA, *Steel,* are DS to the Army's only light/heavy brigade, Strike Force. *Steel* soldiers spent the year honing their skills by synchronizing live prep and SEAD fires, conducting more than 30 CALFEXs and shooting live Copperhead with both ground and aerial observers.

Our coalition partner, 665 (ROK) FA, *Phoenix,* DS to the 5th (ROK) Armored Brigade, participated in many multinational training events this year, including Exercise Foal Eagle with elements of *Warrior Thunder.*

Our soldiers look ahead with pride and determination, knowing they are deterring war, preserving peace and holding the line in defense of freedom and democracy—***Warrior Thunder!***

A launcher from Task Force Rocket live fires in Korea, practicing its counterfire punch.

Silhouettes of Steel

3d Infantry Division (Mechanized) Artillery

In February 1998, the 3d Div Arty, Fort Stewart, Georgia, deployed in Operation Desert Thunder to Southwest Asia to serve the Iraqis notice of US resolve and Marne Thunder lethality. As the force FA headquarters for the Army's only rapid deployment heavy division, the Div Arty was tested during a real-world deployment to defend Kuwait. Our force FA headquarters consisted of one MLRS battery, a TAB and a command and control element prepared to control the Kuwaiti and other coalition artillery, as necessary.

A/13 FA (MLRS) live fires in the sands of Kuwait during Desert Thunder.

The past year has seen a continued emphasis on enhancing the Div Arty's ability to execute its mission on the combat-like battlefield of the NTC and on the simulated battlefield. Participation in a division Interdiction and Counter-fire Exercise (ICE) as well as many other CPXs and FTXs honed our warfighting and deployment capabilities.

1-9 FA's significant events included deploying over 630 soldiers for a January NTC rotation and firing an astounding 3900 rounds. The *Battlekings* also deployed one battery to Intrinsic Action 98-03 in Kuwait and one battery to Fort Knox, Kentucky, to train future leaders from the US Military Academy, West Point.

1-10 FA at Fort Benning, Georgia, continued its support of the Infantry School by participating in many CALFEXs and field problems. The *Steel Battalion* deployed one battery to Intrinsic Action 98-01, which eventually joined our forces in Operation Desert Thunder. The battalion capped this year with an October NTC deployment for Rotation 99-02.

1-41 FA deployed as part of the artillery team to Kuwait for Desert Thunder. The battalion also continued to train as the DS battalion, executing NTC-like training in Marne Lanes.

A/13 FA (MLRS) finished an EXEVAL and received the call to action in the sands of the Kuwaiti desert for Desert Thunder. A/39 FA (TA) conducted train-ups for two National Guard TABs for deployments to Bosnia and Operation Joint Endeavor. More importantly, during Desert Thunder, CW2 Randell Richmond's Q-37 radar tracked a 9A52 Smerch rocket—a first.

You can't have Desert Thunder without ***Marne Thunder!***

4th Infantry Division (Mechanized) Artillery

Iron Gunners remained on the cutting edge in 1998 and continued to lead fires into the 21st century. This year we conducted more Force XXI experimentation, moving closer to becoming the Army's first digitized division; stood up the Army's newest divisional MLRS battalion, 2-20 FA; and trained to maintain lethal combat readiness.

In June, Force XXI experimentation continued with the Div Arty TOC and division FSE playing critical roles in completing the maneuver control system's (MCS') initial operational testing. *Iron Gunners* increased productivity and digital connectivity by experimenting with AFATDS software. We also combined headquarters and headquarters and service batteries into HHS and formalized the Striker Platoon.

After assuming responsibility for an OCONUS contingency mission, the Div Arty continued to increase deployment readiness and hone our warfighting skills. *Iron Gunners* prepared to complete the year with total OPFOR destruction during the III Corps/4th Division Warfighter.

9-1 FA (Provisional) furled its colors in September and became 2-20 FA (MLRS) *Deep Strike.* This fall, 2-20 FA trained in preparation for NTC Rotation 99-05 as the reinforcing fires unit for 4-42 FA, further illustrating the rocketeers' flexibility.

3-16 FA *Rolling Thunder* deployed in February to the NTC. August found the battalion in the "hot seat" as the Army's Wildland Firefighting Contingency Force. Throughout this period, *Rolling Thunder* executed two division-level combat simulations during MCS testing and Ulchi Focus Lens 98.

3-29 FA *Pacesetters* began a busy year recovering from its intensive Intrinsic Action deployment to Kuwait. The pace continued with platoon lanes and battery EXEVALs to refine gunnery skills. NTC preparation culminated in August with a rigorous combined arms train-up at Pinion Canyon. As a result, the battalion was successful at the NTC in October.

Pacesetters hone their warfighting skills.

4-42 FA *Straight Arrows* executed a tough, demanding train-up for its August NTC rotation, culminating in an EXEVAL. Teaming a composite cannon battalion, two Paladin batteries and one MLRS battery with an aviation brigade proved very effective and provided insights for potential early entry organizations.

Iron Gunners stand trained and ready to execute our wartime mission while leading fires into the 21st century. ***Iron Gunners!***

Silhouettes of Steel

10th Mountain Division (Light Infantry) Artillery

The Redlegs of the 10th Mountain Division Artillery, Fort Drum, New York, continued their aggressive training program and operational schedule in 1998. They deployed as individuals and units across the US and to many countries, exploited tremendous training opportunities throughout CONUS and came to the aid of their "North Country" neighbors during Ice Storm 98. This environment provided challenging and dynamic opportunities for our young, highly professional leaders.

2-15 FA executes the 2d Brigade's heavy PZ during the Commando Peak exercise.

Members of the *Mountain Thunder* team deployed worldwide on a broad range of operational and training missions during the past year: Panama, Kazakhstan, Saudi Arabia, Bosnia, Pakistan and Germany. The 10th Div Arty also performed wartime missions during highly challenging training at Fort Drum and across CONUS. They continued to strengthen the light infantry task force concept with 2-15 FA and 3-6 FA operating almost exclusively as part of the Commando and Warrior Brigade task forces and in rigorous field training exercises and realistic CALFEXs. These teams demonstrated their preparedness in two JRTC rotations, two deployments to Fort Bragg, North Carolina, and one joint force-on-force exercise.

Soldiers of the 10th Mountain Division provided world-class community support during Ice Storm 98 in January. The once-in-100-year storm devastated power distribution systems and threatened the lives of soldiers and civilians. 10th Mountain soldiers, NYARNG and emergency assistance personnel worked together to restore critical services, feed those without power and care for families forced from their homes.

The division's rigorous training program and focus on small unit operations afforded ample opportunities for junior officers and NCOs to exercise and refine their leadership skills. Leaders who sought responsibilities normally reserved for more senior officers and NCOs received greater authority and responsibility that they discharged during the many deployments worldwide. They continue to serve as the foundation of the 10th Division Artillery's outstanding performance. ***Mountain Thunder!***

25th Infantry Division (Light) Artillery

The *Tropic Thunder* Redlegs spent another busy year demonstrating their ability to provide timely, accurate and lethal fire support to the 25th Infantry Division (Light). While Schofield Barracks is home, our soldiers proved their combat readiness in 16 deployments in 1998 in five Pacific Rim countries, Alaska and CONUS as well as here in Hawaii.

The *Never Broken* soldiers of 3-7 FA (105) began the year with outstanding performance during an EXEVAL at the Pohakuloa Training Area (PTA) on the big island of Hawaii. Next, they provided O/Cs to help prepare their sister battalion for the JRTC during Lightning Thrust Warrior. 3-7 FA performed flawlessly in Singapore, Australia and Korea and then capped the year with an intensive train-up for the JRTC.

The highlight of the year for the *On Time* soldiers of 2-11 FA (105) was a superb rotation to the JRTC in August. In addition, the *On Timers* honed their skills during two battery deployments to the NTC and two battalion deployments to PTA. While at PTA, 2-11 FA FSE soldiers planned, resourced and executed the first-ever "walking shoot" in Hawaii—an aggressive use of fires in the close fight. The year closed for 2-11 FA by using its JRTC experience to O/C 3-7 FA as it prepared for battle in Cortina.

Silhouetted against the Mauna Kea Volcano, F/7 FA completes a deliberate occupation at Pohakuloa Training Area.

Our separate units were equally busy during 1998. The 25th FA Detachment *Eyes of Thunder* underwent a highly successful EXEVAL, twice deployed to PTA and performed flawlessly on several command inspections. F/7 FA (155 T), our GS battery, perfected split-battery operations as one platoon conducted the cold weather iteration of SADARM testing in Alaska. Simultaneously, the other platoon deployed with 2-11 FA to the JRTC. Two deployments to PTA and two JRTC prep exercises filled out a busy year for *Foxtrot Never Stops*. Headquarters and Headquarters Battery, Div Arty, maintained its outstanding proficiency attained during last year's Warfighter through multi-echelon training events such as Div Arty-level base-piece FTXs, division CPXs and LTACFIRE training.

The 25th Div Arty stands ready to perform its wartime mission and provide quality fire support to the *Tropic Lightning Division* as its ***Tropic Thunder***!

Silhouettes of Steel

28th Infantry Division (Mechanized) Artillery

The 28th Infantry Division's *Keystone Redlegs,* Pennsylvania Army National Guard, had yet another year of opportunities to excel.

The Div Arty and all fire support elements (FSEs) down to the brigade level successfully executed a 28th Infantry Division-wide battle-focused exercise Steel Revenge. During the exercise, *Keystone* soldiers used both our initial fire support automation system (IFSAS) and tactical local area network (TACLAN) to plan and execute the fires battle.

Our counterparts, the *Rock of the Marne* 3d Infantry Division (Mechanized), Fort Stewart, Georgia, contributed to making this year's training better. The 3d Div Arty provided helpful insights and assistance as we honed our warfighting skills during this year's externally evaluated AT.

Our 1-109 FA, 1-108 FA, 1-107 FA and D/229 FA all successfully completed crew certification and live-fire training with their habitually supporting radar sections from F/109 FA (TA). This year, 1-107 FA executed a successful external evaluation of all its batteries with the assistance of evaluators provided by the 10th Mountain Division (Light Infantry), Fort Drum, New York. The 1-108 FA live fired six Copperhead rounds in addition to executing all other fire support tasks in an outstanding manner during its AT period.

The 28th Division Artillery prepares for deadly action. *(Photo by SFC Galanski, 1-107 FA)*

Our Redlegs have continued in the finest traditions of citizen-soldiers by providing excellent support to their local communities. In preparation for our important state emergency mission, we successfully executed a statewide command and control exercise using a civil disturbance scenario.

The 28th Div Arty modernization effort this year was highlighted by the deployment of the reserve component automated system (RCAS) to support the division's sustaining and training base.

Our ongoing training, sustaining and maintaining programs this year have made the *Keystone Redlegs*—yet again—***Charged to Excellence!***

29th Infantry Division (Light) Artillery

1998 has been a challenging, productive year for the 29th Div Arty, VAARNG (Headquarters in Sandston), despite major funding shortfalls. The overseas deployments, unit realignments, new equipment fieldings, Warfighter train-up, standardization and continued emphasis on family readiness activities were the highlights of this year of our "Journey Into Excellence."

2-110 FA (Pikesville, Maryland) focused on command and control, leader training, fire support planning and strength maintenance. The results were evident as the battalion progressed from individual and collective training to participate in combined arms exercises at the National Guard Maneuver Training Center, Fort Pickett, Virginia, during AT in July.

1-246 FA (Danville, Virginia) has enjoyed an excellent year of growing in strength and developing individual junior leaders through their attendance at leadership schools. This battalion also completed Artillery Tables 1 through 8 during AT while participating in the 29th Division Mobilization Exercise CHINDIT at Fort Pickett.

2-192 FA (Westbrook, Connecticut) continued to transition to the DS mission for the Division's 26th Infantry Brigade. Individual-and section-level training and certification were the focus. During AT in June, certifications were completed with live-fire exercises the highlight of the training year.

E/111 FA (Sandston) spent the year using Artillery Tables 1 through 8 to qualify and certify 13B and 13E skills following its reconstitution in 1996. The battery completed a highly successful FTX and live-fire exercise during AT in July with the 29th Div Arty.

129 FA Det (TA) (Sandston) returned in May from a very successful deployment to Bosnia. During its deployment, the detachment developed into a proficient unit providing target acquisition support for active duty forces.

With reorganizations and transfer of units, the Div Arty now has units in three states providing fire support coordination and Field Artillery fires to the 29th Infantry Division (Light) Artillery. We are meeting the challenge along our Journey Into Excellence to Warfighter '99 for which ***We Stand Ready*!**

Preparing to send rounds downrange, soldiers of B/2-192 FA, Connecticut Army National Guard, take part in annual training at Fort Dix, New Jersey.

Preparing to send rounds downrange, soldiers of B/2-192 FA, Connecticut Army National Guard, take part in annual training at Fort Dix, New Jersey.

Silhouettes of Steel

34th Infantry Division (Mechanized) Artillery

The 34th *Red Bull* Div Arty (Minnesota, Iowa, and Wisconsin ARNG) has demonstrated our relevance to the Total Force during TY-98. Completing a successful Warfighter in August 1997, we continue to fulfill our NATO responsibilities with overseas deployments to Norway and sustain the readiness levels of our force support package (FSP) battalion and other wartime priority units. TY-98 culminated in August 1998 when the entire 34th Div Arty—plus 1-151 FA FSP (MNARNG), a corps asset—deployed to Camp Ripley for AT. AT 98 focused on battery and CSS lane training, battalion/brigade fire support training and the digital synchronization of fire support systems to execute battalion- and Div Arty-level mass fire missions.

The Small Unit Support Vehicle (SUSV) was a critical winter operations vehicle to the 1-125 FA during their deployment to Norway.

The OPTEMPO of the 1-125 FA (M109), DS to the 1st Brigade in Minnesota, continues to race forward as it planned and executed two separate AT periods—one for a winter deployment to Norway in March for the NATO exercise Operation Strong Resolve and the other to Camp Ripley, Minnesota, in August. The battalion is proud of its mission in the NATO Composite Force (NCF) and conducts regular planning events with its higher headquarters in Europe. This dual-mission status provides excellent training opportunities and unique challenges.

The 1-51 FA (M198), the MNARNG's only FSP battalion, is implementing aggressive lane training to prepare for its new wartime mission requirements. It upgraded its readiness levels and fielded SINCGARS in TY-98.

The *Red Fox* 1-120 FA (M109), DS to the 32d Brigade in Wisconsin, is the newest member of the 34th Div Arty. It's a well-trained unit that was fully integrated into the Div Arty lane training program during AT 1998.

The 1-194 FA, DS to the 2d Brigade in Iowa, continues to gain proficiency in performing air assault operations. It has successfully integrated air assault operations into its lane training program.

The 34th *Red Bull* Division Artillery is a proud and relevant partner in America's Army—ready to ***Attack! Attack! Attack!***

35th Infantry Division (Mechanized) Artillery

The *Santa Fe* Division Artillery (Kansas, Illinois and Kentucky Army National Guard) had an excellent training year conducting digital training and supporting two Battle Command Training Program (BCTP) exercises. The Div Arty and its DS and GS units support the 66th Infantry Brigade and 67th Infantry Brigade command battle staff training (BCBST) and brigade/battalion stimulation staff (BBS) training exercises.

1-161 FA (DS) of Kansas conducted section validation and battery qualification training at Fort Carson, Colorado, during AT. 2-138 FA (DS) of Kentucky conducted section- and battery-level lane training at Camp Atterberry, Indiana, during AT. Also during AT 98, 2-122 FA (DS) of Illinois conducted section- and battery-level lane training at Fort McCoy, Wisconsin.

The 35th Div Arty continues to apply the lessons learned from our two elements deployed to Operations Joint Endeavor and Joint Shield in Bosnia to improve training events. With an emphasis on strength improvement, training events continue to be more challenging to the soldiers of the 35th Div Arty.

Members of 1-161 FA, KSARNG, training at Fort Carson, Colorado, during AT 98.

The Div Arty is also working diligently with our sister unit, the 130th FA Brigade (Topeka, Kansas) to hone its warfighting skills in preparation for the 130th's BBS. Furthermore, the Div Arty is planning to host the second annual 35th Div Arty/130th FA Brigade Fire Support Conference in January. This event will update battery- and battalion-level leaders across the Div Arty and 130th FA Brigade on current and future FA plans, equipment and fire support tactics, techniques and procedures (TTP).

The 35th Div Arty is planning a consolidated AT in 1999 at Fort Riley, Kansas. The Div Arty staff will execute an aggressive training plan to include Div Arty mass missions, 100 percent digital fire missions, airmobile artillery raids and deploying the 2-122 FA and 2-128 FA to Fort Riley.

The Div Arty stands trained and ready to meet the challenges of the future and provide unparalleled fire support to the ***Santa Fe Division!***

Silhouettes of Steel

38th Infantry Division (Mechanized) Artillery

The guns and eyes of *Cyclone's Thunder,* the 38th Div Arty, with its INARNG headquarters, continued to set the division standard for tough, realistic training. This included the Adjutant General's tasking to challenge our light DS battalion, 3-139 FA (Crawfordsville), in a Table 11 evaluated lane exercise—with the battalion's meeting the challenge.

After an intense train-up emphasizing digital fire support, communication skills, radar rehabilitation, gunnery skills and scenario development, 1-119 FA (155 SP) from Lansing, Michigan, opened the artillery AT season at Camp Grayling in June. The battalion was followed by the 1-134 FA and F/134 FA (155 SP) from Columbus, Ohio, in July. Both the "heavies" dedicated their efforts toward battery-level qualifications and live fires in preparation for a Div Arty-level AT-99.

1-119 FA supported the 46th Mech Brigade during AT and participated in a concurrent brigade/battalion simulation (BBS) exercise. Planning for an upcoming battalion reorganization, the battalion devoted the end of AT to a "walking MTOE" to plan the batteries' manning. 1-134 FA split its training efforts between soldier skills at the section and platoon levels and gunnery in a series of alternating skills lanes and FA tables.

HHB Div Arty, E/139 FA (TA), 3-139 FA (105) and 2-150 FA (155 T), the latter also part of the INARNG, conducted AT-98 at Camp Atterbury at the end of July. 3-139 FA kicked off its evaluation with a deployment to its mobilization station for post-deployment training leading to a Table 11 evaluation. During this period, 2-150 FA completed Table 8 and reinforced 3-139 FA while the TAB radars observed or controlled fires. With support from the 122d Tactical Fighter Wing F-16s, the Div Arty conducted a JAAT and then movement-to-contact, a "hip shoot" direct fire and massed fires to show our skills for our VIP day exercise. All in all, the 38th Div Arty had a very intense training year.

Cannoneers of 3-139 FA live fire during AT-98.

The coming year promises to be equally as challenging with our commitment to support the 76th Separate Infantry Brigade's train-up for the JRTC and the addition of 1-182 FA (MLRS), MIARNG, for a five-battalion fire support AT—***Cyclone's Thunder!***

40th Infantry Division (Mechanized) Artillery

The Sunburst Redlegs of the 40th Infantry Division (Mechanized) Artillery, California Army National Guard, completed a dynamic year, ranging from deploying elements to Bosnia to participating in our Battle Command Training Program Warfighter exercise. Headquartered in Los Angeles, the 40th Div Arty has units located throughout California with 500 miles separating the northernmost and southernmost batteries: 1-143 FA (M109A5), Walnut Creek; 1-144 FA (M109A5), Burbank; D/144 FA, our GS battery, Ventura; and F/144 FA, the target acquisition battery, also in Los Angeles. Our third DS battalion, 2-180 FA (M109A5) is in Phoenix, Arizona.

B/1-143 FA fires during Annual Training 98 at Camp Roberts, California.

In a significant realignment, the 40th Division recently was teamed with the 4th Infantry Division (Mechanized), Fort Hood, Texas, under the Chief of Staff of the Army's new AC/RC Teaming Concept. In September, the 40th Div Arty became the first brigade-level command in the Total Army to be commanded by a Title 10 Army officer.

Training Year 1998 was marked with many events. Our F/144 FA deployed and completed a rotation to Bosnia-Herzegovina as part of Operation Joint Guard. The division FSE, the Div Arty TOC and the battalion TOCs and FSEs participated in the 40th Division's Warfighter at Leavenworth, Kansas. During our year-long train-up for the BCTP, the 40th Div Arty successfully exercised IFSAS digital communications and fire control and validated our SOPs.

Also, Redlegs from the 1-143 FA and 1-144 FA participated in the 116th Armor Brigade's NTC rotation by providing howitzer sections and integrating individual soldiers. Members of the Div Arty also participated in the Yama Sakura XXXIII exercise at Camp Higashi-Chitose, Japan, and Operation Peace Shield in California and the Ukraine.

Our 2-180 FA, AZARNG, participated in a two-part AT 98: a live-fire exercise at its range in Florence and safety certification and common task training at Fort Huachuca. The battalion also participated in the 40th Division Warfighter at Fort Leavenworth.

The Sunburst Redlegs are trained and ready to provide timely and accurate fires for the Sunburst Division—***Steel Magic!***

Silhouettes of Steel

42d Infantry Division (Mechanized) Artillery

The Redlegs of the 42d Infantry Rainbow Division (Mechanized) Artillery, MAARNG, headquartered in Rehoboth, continued their relentless pursuit of excellence in FY 98.

The 86 soldiers of Battery E/101 FA (TA) returned from a nine-month deployment to Bosnia in support of Operation Joint Guard. While overseas, E/101 FA provided force protection through radar support for over 15,000 NATO troops that made up the Multinational Division North.

A/4-133 FA occupies a firing position during annual training at Fort Hood, Texas.

The Div Arty supported the reactivation of the 1-102 FA on 1 October 1997. The unit was formed from the remnants of the 126th Signal Battalion and the 110th Cavalry Squadron. The 1-102 FA is now part of the 113th FA Brigade, NCARNG. With our assistance, the unit underwent rigorous training throughout the year that resulted in over 80 percent MOS qualifications.

Throughout TY 98, our DS battalions—1-101 FA in Massachusetts, 1-258 FA in New York and 3-112 in New Jersey—continued to master the art of digital FA operations. The units successfully integrated IFSAS, the battery computer system (BCS) and ground/vehicular laser locator designator (G/VLLD) into their training that resulted in faster, more accurate fires. Also during the training year, due to limited training space in New England, we airlifted elements of the 1-101 FA and the 1-102 FA to Fort Drum, New York, to conduct live-fire exercises during inactive duty training (IDT) weekends. During AT 98, the Div Arty logged its first-ever anti-tank mission when the 1-101 FA successfully fired 18 Copperhead rounds.

Another training highlight for this organization was the successful completion of the 42d Division Warfighter exercise at Fort Leavenworth, Kansas, in July. This battle simulation was excellent training for the staff of the 42d Div Arty that destroyed the automated OPFOR.

The Div Arty met its most important goal of maintaining readiness through continuous training on our mission-essential tasks, rifle marksmanship, physical training and equipment maintenance. We remain more than ready to meet the ever-increasing global mission challenges that the 21st century is certain to offer with ***Redleg Thunder!***

49th Armored Division Artillery

Training Year 98 proved to be a challenging and rewarding year for the 49th Armored Division Artillery, Texas Army National Guard.

"Deployment" was the watchword for the Texas Redlegs. The composite fire support element (FSE) and detachments from E/133d FA, our target acquisition battery, completed their missions in Bosnia-Herzegovina and returned home in July. January saw the deployment of the Div Arty commander to South America. He served as the Commander of the US Contingent Military Observer Mission in Ecuador and Peru.

The 49th Armored Artillery's direct support (DS) battalions actively supported their respective maneuver brigades' Battle Command Training Program (BCTP) Warfighter exercises. This involvement led to a training focus shift to individual and crew training on combat and sustainment skills. The Div Arty (-) used its AT period at Fort Hood, Texas, to hone its command and control operations.

During July and August, the Div Arty turned its attention to state missions. An extremely dry summer brought the threat of wild fires, and guardsmen were placed on duty to assist the US Forestry Service in containment operations. Hurricane season sent Tropical Storm Charlie up the Rio Grande watershed, causing devastating flooding in the border cites of Del Rio, Eagle Pass and Laredo. Once again, the Redlegs of the 49th Armored Division were called to provide support, protection and relief to the citizens of the affected areas.

An E/133 FA Q-36 radar radiates across a Sarajevo valley in Bosnia.

Training Year 99 promises to be every bit as challenging at TY 98. The Div Arty headquarters is preparing to support the 49th Division during its upcoming Warfighter. The battalions will continue to hone their warfighting skills during scheduled drills and AT. Simultaneously, all members of the Texas 49th Div Arty stand ready to deploy in support of both national and state requirements—***Balls of Fire!***

Silhouettes of Steel

82d Airborne Division Artillery

The paratroopers of the 82d Airborne Division Artillery, Fort Bragg, North Carolina, stand ready to execute their primary mission: Deploy on no-notice anywhere in the world and provide the best fire support to America's *Guard of Honor.* This past year was marked by many achievements that highlight our commitment to that mission and our troopers.

In the past year, challenging training exercises and deployments provided the paratroopers of the 319th Airborne Field Artillery Regiment (AFAR) many opportunities to hone their warfighting skills. These include deployments to the JRTC by our FA battalions; participation in XVIII Airborne Corps Exercise Purple Dragon, in which 28 howitzers were delivered to the battlefield via airborne assault; and the 82d's Warfighter exercise, during which the world-class OPFOR was decisively defeated. On every occasion, Redleg paratroopers demonstrated they are the ultimate combat multipliers of the 82d Airborne Division.

Trained and tested howitzer crews, FDC sections and FISTs remain the bedrock of our training effort; tough, realistic, danger-close, live-fire exercises are the capstone events of the Div Arty's training strategy. This year, we fired over 35,000 rounds in many platoon and company CALFEXs—often at minimum safe distances of maneuvering infantry. The extensive system of unit evaluations from the section to battalion levels consistently demonstrates our troopers' preparedness to execute their wartime missions.

Best Howitzer Section Competition-82d Airborne Division Artillery's best gunners demonstrate their skills.

In June, the Div Arty became the first light artillery unit in the Army equipped with AFATDS. After six weeks of fielding, the entire Div Arty conducted an AFATDS live-fire exercise, validating our ability to coordinate and deliver lethal fires digitally. The fielding of the Q-36 Fire-finder Version 8 radar and the gun laying and positioning system (GLPS) during the next year will further improve the Div Arty's ability to win on any future battlefield.

The 82d Airborne Division Artillery has courageous young American paratroopers who "hook-up" and live up to the long-standing legacy of excellence established by Redleg troopers of the past. ***Airborne-Loyaute—All the Way!***

101st Airborne Division (Air Assault) Artillery

The 101st Div Arty, Fort Campbell, Kentucky, trained under demanding, realistic warfighting conditions at every opportunity this year. In October 1997, the Div Arty sent soldiers from 1-320 FA, Metro and the 101st Aviation Brigade FSE to participate in NTC Rotation 98-02. From March through August 1998, the Div Arty participated in the Rapid Force Projection Initiative (RFPI). In May and June, the Div Arty participated in the division Warfighter exercise. Upon completion of the Warfighter, the senior BCTP O/C said this was the best division performance he had ever seen.

1-320 FA, *Top Guns,* endured a very demanding NTC rotation in October 1997. The battalion's primary focus then shifted to integrating and synchronizing fires using Force XXI automation systems for the RFPI, culminating with a highly successful FTX at Fort Benning, Georgia.

2-320 FA, *Balls of the Eagle,* fired close to 6,000 rounds in various gunnery exercises, including a rigorous EXEVAL in October 1997. The battalion conducted three brigade-level air assaults in conjunction with JRTC 98-04. It participated in the division BCTP spring train-ups and then the actual Warfighter.

3-320 FA, *Red Knights,* conducted a deliberate air assault to Fort Knox, Kentucky, in December 1997, using digital calls-for-fire with OH-58Ds and AH-64s. In January and February, the *Red Knights* participated in Joint Task Force Exercise Purple Dragon at Fort Bragg, North Carolina, air assaulting from Myrtle Beach, South Carolina. In March, the battalion conducted a sea emergency deployment readiness exercise (SEDRE) in conjunction with a deployment to JRTC where it supported TF Rakkasan in a brigade air assault and missions that culminated in the defeat of the OPFOR in the defense.

C/1-377 FA, *Crusaders,* deployed to the NTC and demonstrated the M198's pinpoint accuracy and then participated in the RFPI at Fort Benning. 2 FA Det, *Guardians,* continues to increase its proficiency in sling loading the Q-37, and for the first time, passed digital Q-37 communications to the Kiowa Warrior.

Redlegs of the 101st Div Arty are trained and ready to deploy anywhere, anytime—to provide fire support for the *Screaming Eagles.* ***Air Assault!***

C/1-320 FA air assaults the M-119 with an A-22 bag.

Silhouettes of Steel

10th Marine Regiment

The Second Marine Division's Artillery Regiment, the 10th Marines, Camp Lejeune, North Carolina, continued high-tempo operations in deployments to the Mediterranean Sea and Unit Deployment Program in the Western Pacific while training to remain the division's *Arm of Decision.*

Training and operations focused on METL and mission performance standards. In four combined arms exercises at the Marine Corps Air/Ground Combat Center (MCAGCC), Twentynine Palms, California, and two deployments to Fort Bragg, North Carolina, we refined fire support planning, coordination and execution techniques. This included cannon battalion and battery operations integrated with maneuver.

10th Marine Cannoneers support maneuver during a combined arms exercise at Twenty-nine Palms, California. *(Photo courtsey of the 2d Marine Division Combat Camera Unit)*

Worldwide service included NATO Exercise Dynamic Mix, a maritime prepositioning force operation in Southeast Turkey, and Unified Spirit/Marcot, an amphibious exercise in Canada. In Panama, we reinforced our credo that "every Marine is a rifleman" by providing "infantry" for security operations.

At Camp Lejeune, the Partnership for Peace Exercise Cooperative Osprey provided a chance to work closely with soldiers from the former Soviet Bloc nations. The Fifth Battalion supported Urban Warrior's Limited Objective Experiment III by helping to define fire support roles in future conflict.

The regiment conducted amphibious training in May. Designated as MAGTF-10, the 10th Marine headquarters took control of ground, CSS and aviation combat elements to plan, embark and conduct an amphibious assault and then command and control sustained operations ashore. This demanding exercise validated our headquarters' ability to function as a MAGTF command element. The experience proved valuable when serving as II MEF's ground combat element in Fuerzas Defensas 98/99, a joint task force exercise.

The regiment's Marines and sailors met the year's challenges with professional determination. Fire support to the Second Marine Division is the 10th Marines' business—our ability to provide timely, accurate and lethal fires will only strengthen in 1999 as we field newer technologies. The Marines and sailors—and soldier—of the *Rolling Rifles* eagerly await the tests of 1999 as Major General "Buck" Bedard's ***Arm of Decision!***

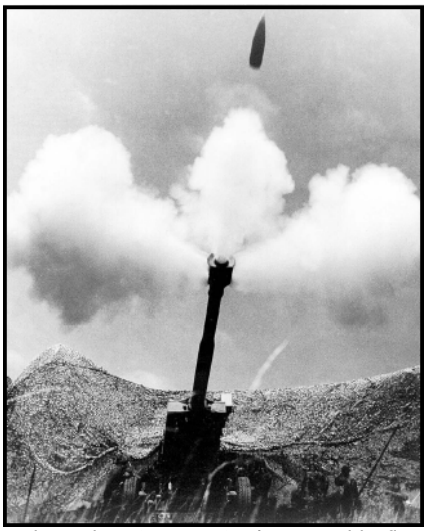
11th Marine Regiment

In 1998, the 11th Marine *Cannon Cockers* based at Camp Pendleton and Twentynine Palms, California, continued their dedicated pursuit of excellence amidst a multitude of diverse operations and training in support of the 1st Marine Division.

11th Marines trained and sourced combat-ready firing batteries for the BLTs of four deploying MEUs—11th, 13th, 15th and 31st MEU (SOC). They participated in operations, exercises and training in Japan, Okinawa, Korea, Australia, Kuwait, Jakarta, Jordan and the United Arab Emirates. Predeployment workups included a rigorous non-lethal weapons training package.

The *Cannon Cockers* remain the Marine test bed for AFATDS. 11th Marines conducted a limited-users test in October to validate the software version to be fielded next summer.

With combat readiness the priority, the 11th Marines conducted two regimental artillery exercises (DESFIREXs) this year at the Marine Corps Air/Ground Combat Center (MCAGCC), Twentynine Palms. These exercises enhanced basic artillery proficiency at the battalion and regimental levels. During these exercises, III Corps Artillery provided an MLRS battalion from Fort Sill, Oklahoma—an integral part of DESFIREX for training and interoperability. We also integrated Reserve artillery units from 14th Marines, Fort Worth, Texas. The spring DESFIREX culminated in the 1st Marine Division exercise Desert Scimitar, which incorporated elements of the MEF in CALFEXs and maneuver.



11th Marine *Cannon Cockers* provide fires for the 1st Marine Division.

Our battalions supported four separate CAXs at MCAGCC and Steel Knight, an I MEF (Forward) maritime propositioning force employment exercise. This year we also exchanged batteries with the 2d Regiment of the Royal Horse Artillery in Petawawa, Ontario, which could become an annual exchange.

11th Marines attended tactical air control party courses (TACP shoots) to train forward air controllers (FACs) in the art of integrating artillery and air support, and weapons instructor courses (WTI shoots) to hone our rotary and fixed wing brethren's fire support coordination skills. Batteries from 3/11 were integrated into the unit deployment program cycle.

As it has throughout its proud history, the 1st Marine Division continues to receive fire support on time and on target from its ***Cannon Cockers!***

Silhouettes of Steel

12th Marine Regiment

The halt of artillery firing on Okinawa in April 1997 has not quieted the *Thunder and Steel* of the 12th Marines, headquartered on Okinawa, Japan. All US artillery firing on Okinawa has been relocated to five training sites on Japan's main islands. Increased scrutiny by Japanese government officials and local media, extremely small target areas (160 meters x 200 meters, in one case) and an increase of 120 or more days deployed each year all contribute to the challenges facing the 12th Marines.

In January, the 12th Marines, as part of a 3d Marine Division initiative, began directing operational readiness inspections of newly joined artillery batteries. In February, Battery L, 3/12 joined the unit deployment program (UDP) and was reassigned to 3/11 in Twentynine Palms, California, marking the departure of Okinawa's last permanently assigned firing battery.

In May, 3/12 underwent a biennial Marine Corps combat readiness evaluation (MCCRE) while deployed to Camp Fuji, Japan, and was mission capable in all areas up to 749 standards. This year, elements of the 12th Marines deployed eight times to mainland Japan and three as participants in division-directed combined arms operations involving simulated close air support (SIMCAS), 81-mm mortars and various maneuver units. Additionally, the regiment supported several Joint Chiefs of Staff/Marine expeditionary force (JCS/MEF)-level exercises, to include Foal Eagle, Northern Edge, Cobra Gold and Ulchi Focus Lens.

Thunder and Steel making steel rain at Camp Fuji.

In November 1997, 1/12 received the first two AN/TPQ-46 (Q-36 Version 7) Firefinder radars of the regiment. 1/12 also deployed two firing batteries and their headquarters aboard the *USS Frederick* to Twentynine Palms for the 11th Marines DESFIREX 97. The *USS Frederick* (LST 1184), now home-ported in Hawaii, has dramatically increased the availability of lift for 1/12 training opportunities. Finally, the 12th Marine Regiment moved north from Camp Foster to Camp Hansen, improving our accessibility to on-island training opportunities.

Whether on Okinawa or abroad, the 12th Marines is ***Thunder and Steel!***

14th Marine Regiment

The 14th Marines, with its new headquarters at Naval Air Station, Joint Reserve Base, Fort Worth, Texas, is the Marine Corps' largest artillery regiment and only Marine Reserve artillery. Widely disbursed over 19 cities in 13 states, the regiment's five battalions have overcome the substantial challenges of time and distance, standing *At the Ready* to augment and reinforce the active Marine Corps.

14th Marine gunners- *At the Ready.*

During the first part of the year, 3/14 augmented the 10th Marines during a live-fire regimental exercise—Express Sword 1-98—at Fort Bragg, North Carolina. The battalion, reinforced by Battery L, 4/14, also conducted live-fire exercises and cold weather training in Exercise Strong Resolve in Northern Norway.

In March, elements of our Headquarters Battery linked up with 1/14 and 5/14 at Camp Pendleton, California, for a live-fire shoot to refine our capabilities and serve as the Force Artillery Headquarters in support of I MEF during major theater war.

2/14 and 4/14 honed their combat skills during rotations to the Marine Air/Ground Combat Center at Twentynine Palms, California. Refining their combined arms fire support tactics in support of the 24th Marines was the key area of emphasis.

The largest 14th Marines exercise of the year, Rolling Thunder 98, was conducted at Fort Carson, Colorado, in August. During the exercise, 1/14, 3/14, 5/14 and 14th Headquarters conducted battery, battalion, regimental and Force Artillery operations. This exercise tested and refined the full spectrum of joint planning and execution from mobilization and deployment to employment, sustainment and redeployment activities. Rolling Thunder was a unique logistical challenge: 610 pieces of rolling stock moved from nine different geographical locations on 146 rail cars to Fort Carson. CSS Detachment-44 provided all logistical support. Air support included battlefield illumination by Marine C-130s, air reconnaissance by Army UH-1s and CAS by Marine F/A-18s.

The division commander's emphasis on combat readiness is practiced on a daily basis throughout the 14th Marine Regiment as we train continually to deploy anywhere and provide FA fires anytime, keeping us ***At the Ready!***

The following is a list of articles and pieces from "From the Firebase" (FF), "View from the Blockhouse" (VB) and "Incoming" (INC) appearing in *Field Artillery* during calendar year 1998. The entries are categorized by subject and listed chronologically by title and edition.

Unit Reports

"Firefinder Radars: Eliminating Unwanted Targets in Low-Intensity Conflict" (C/333 FA (TA), 1st AR Div Arty), Jan-Feb
"Air Assaulting the Q-37" (25 FAD, 25th IN Div Arty), Jan-Feb
"Protecting the Q-37 Firefinder" (25 FAD, 25th IN Div Arty), Jan-Feb
"TTP for Fire Support from an Airborne CP" (XVIII Airborne Corps), Mar-Apr
"Deep Strike MLRS DS to the Light Division Aviation Brigade" (3-27 FA (MLRS) with 101st Abn Div), Mar-Apr
"Centaur Outpost: Training the SFOR Artillery in Bosnia" (1-6 FA, 1st IN Div Arty), Mar-Apr
"The Counterfire Battle in the DAWE" (214th FA Bde, III Corps Arty), May-Jun
"The Divisional MLRS Battalion in the DAWE" (1-21 FA, 1st Cav Div Arty), May-Jun
"Force XXI Victory—More Than Just Gizmos and Digits" (4th IN Div Arty), May-Jun
"Fighting with Force XXI Fires: A Brigade FSCOORD's Perspective at the DAWE" (4th IN Div Arty), May-Jun
"Leading the National Guard into the 21st Century" (138th FA Bde, KYARNG), May-Jun
"Fire Support in Bosnia-Herzegovina: An Overview" (1st AR Div Arty), Jul-Aug
"Integrating Targeting and Information Operations in Bosnia" (1st AR Div Arty), Jul-Aug
"M198 Platoon Autonomy in Multinational Operations" (H/3-2 ACR), Sep-Oct
"Integrating Fire Support into Devil Brigade Training" (1st BCT, 1st IN Div), Sep-Oct
"Silhouettes of Steel" (Reports by Total Army Corps and Division Artilleries and Marine Field Artillery Regiments), Nov-Dec
"US FA Units Worldwide" (Maps of Army and Marine FA AC and RC Units, Separate Batteries and Above), Nov-Dec

Targeting/TA

"The Artillery S2 and Interpretive Counterfire BDA," Jan-Feb
"Firefinder Radars: Eliminating Unwanted Targets in Low-Intensity Conflict," Jan-Feb
"Air Assaulting the Q-37," Jan-Feb
"Protecting the Q-37 Firefinder," Jan-Feb
"TOC Counterfire Battle Drill," Jan-Feb
"Response to 'Eliminating Unwanted Targets,'" (INC) Jan-Feb
"The Counterfire Battle in the DAWE," May-Jun
"Integrating Targeting and Information Operations in Bosnia," Jul-Aug

Training

"The BOC—The Battery's Command Post," Jan-Feb
"The BOC at the NTC," Jan-Feb
"Centaur Outpost: Training the SFOR Artillery in Bosnia," Mar-Apr
"NTC Wits and Wags," Mar-Apr
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"Integrating Fire Support into Devil Brigade Training," Sep-Oct
"CTC Challenges—Enhancing Fires for the BCT," Sep-Oct
"Battalion TOC Certification," Sep-Oct
"Meeting the Future: State of the Branch 1998," Nov-Dec

Doctrine and TTP

"Deep Battle and Interdiction—Twin Sons of Different Mothers," Jan-Feb
"Firefinder Radars: Eliminating Unwanted Targets in Low-Intensity Conflict," Jan-Feb
"Air Assaulting the Q-37," Jan-Feb
"Protecting the Q-37 Firefinder," Jan-Feb
"Planning and Computing FASCAM," Jan-Feb
"FASCAM—An UNconventional Munition?" Jan-Feb
"TOC Counterfire Battle Drill," Jan-Feb
"The BOC—The Battery's Command Post," Jan-Feb
"The BOC at the NTC," Jan-Feb
"The Marine BOC on the Mechanized Battlefield," Jan-Feb
"Copperhead Strike," Jan-Feb
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"Protecting SF Teams in the Deep Fight," Mar-Apr
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"Read to Succeed," Mar-Apr
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"Response to "Protecting SF Teams in the Deep Fight," (INC) Sep-Oct
"Integrating Fires into the Brigade Battle Plan," Sep-Oct
"TTP for 3x6 Paladin Operations," Sep-Oct
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"How to Meet the Five Requirements for Accurate, Predicted Fire (And What to Do If You Can't)," Sep-Oct
"Fires in Support of Obstacles: Matching the Fires Intent with the Obstacle Intent," Sep-Oct
"The FSNCO—Fire Support for an EA," Sep-Oct
"On the Gun Line—Firing First-Round FFE," Sep-Oct
"M198 Platoon Autonomy in Multinational Operations," Sep-Oct
"Strike Force Fires for the Future," Nov-Dec
"Meeting the Future: State of the Branch 1998," Nov-Dec
"Joint Integration—The Key to Combat Effectiveness" (Interview with GEN Anthony C. Zinni, CINC CENTCOM), Nov-Dec

Personnel/Force Structure/Leadership

"Cutting Edge Options for the Commander's Kit Bag," (FF) Jan-Feb
"Fires of the Future—In the Blink of an Eye," (FF) Mar-Apr
"Fires for Lean, Mean, Maneuverable Marines," (Interview with GEN Richard I. Neal, AC of Marine Corps) Mar-Apr
"1997 MAGTF Fire Support Conference," Mar-Apr
"Read to Succeed," Mar-Apr
"First AC Commander of ARNG Battalion," Mar-Apr
"Challenges for Army Leaders in an Age of Rapid Change," May-Jun
"Force XXI Victory—More Than just Gizmos and Digits," May-Jun
"Fighting with Force XXI Fires: A Brigade FSCOORD's Perspective at the DAWE," May-Jun

"Fires: The Cutting Edge for the 21st Century," May-Jun
"Leading the National Guard into the 21st Century," May-Jun
"The Divisional MLRS Battalion in the DAWE," May-Jun
"AC/ARNG Integrated Division for the 21st Century," May-Jun
"Fire Support Battle Command—The Dual Role of the DS Battalion Commander," Sep-Oct
"DAC-Futures Formed at the FA School," Sep-Oct
"So...Where on the Battlefield Should the Company FSO Be?" Sep Oct
"Field Artillery Commanders and Command Sergeants Major," Nov-Dec
US Total Army Personnel Command: FA Assignments Branches, Nov-Dec
"Field Artillery Training Command Directory," Nov-Dec
"US FA Units Worldwide," (Maps of Army and Marine FA AC and RC Units, Separate Batteries and Above) Nov-Dec
"Strike Force Fires for the Future," Nov-Dec

History

"Response to 'WW II Artillery at Sea,'" (INC) Jan-Feb
"Looking Through History to the Future," (FF) Jul-Aug
"History—The Context for Change in the Army," (Interview with BG John W. Mountcastle, Chief of Military History) Jul-Aug
"Staying on the Cutting Edge: Military Professionalism and the Mexican War," Jul-Aug
"From the Parade Ground to the Battlefield: Henry Knox and the Battle of Monmouth," Jul-Aug
"Steel Curtain—The Guns on the la Drang," Jul-Aug
"Deep Battle 1914-1941: The Birth of the Modern Style of Warfare," Jul-Aug
"Thunder in the Ozarks: The Battles of Wilson's Creek and Pea Ridge," Jul-Aug
"Big Gun Vignettes: Fun and Games in WW II," Jul-Aug

Equipment and Technology

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"Response to 'Eliminating Unwanted Targets,'" (INC) Jan-Feb
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"The Scud Battery—An Inside Look at the Threat," Jan-Feb
"Copperhead Strike," Jan-Feb
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"Digitizing BCDs," Mar-Apr
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"Force XXI Victory—More Than Just Gizmos and Digits," May-Jun
"AFATDS Update: AFATDS A97 Software Enhancements," May-Jun
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"Fires: The Cutting Edge for the 21st Century," May-Jun
"HIMARS for Deployable 'Heavyweight' Fires," May-Jun
"Leading the National Guard into the 21st Century," May-Jun
"Crusader Update: Prototype Delivered," May-Jun
"New USMC Towed Howitzer in 2001," (VB) Jul-Aug
"ATLAS: Close Support for Future Light Forces?" (FF) Sep-Oct
"Digital Out-Brief—Leaving My OP," (INC) Sep-Oct
"AFATDS Update: Plan for AFATDS NET," Sep-Oct
"Strike Force Fires for the Future," Nov-Dec
"Meeting the Future: State of the Branch 1998," Nov-Dec

Joint/Combined and Contingency Operations

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"Ukraine's Shield of Fire," Mar-Apr
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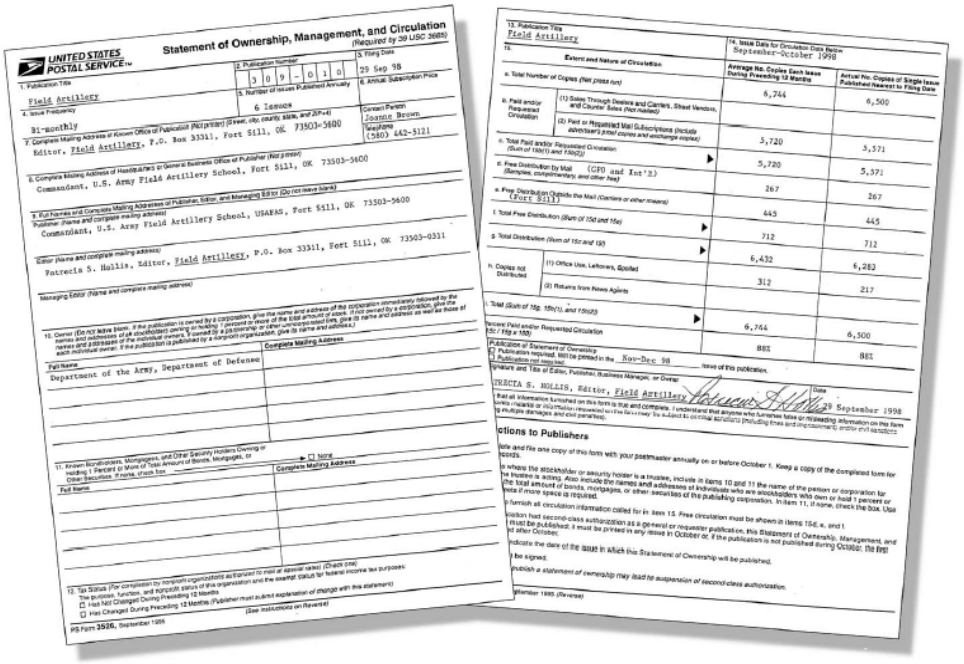
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