Field Artillery

A Professional Bulletin for Redlegs

November-December 1996

AN ANNUAL REPORT

THE RED BOOK

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

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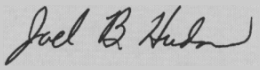

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Mapping the Future:

FA State of the Branch 1996

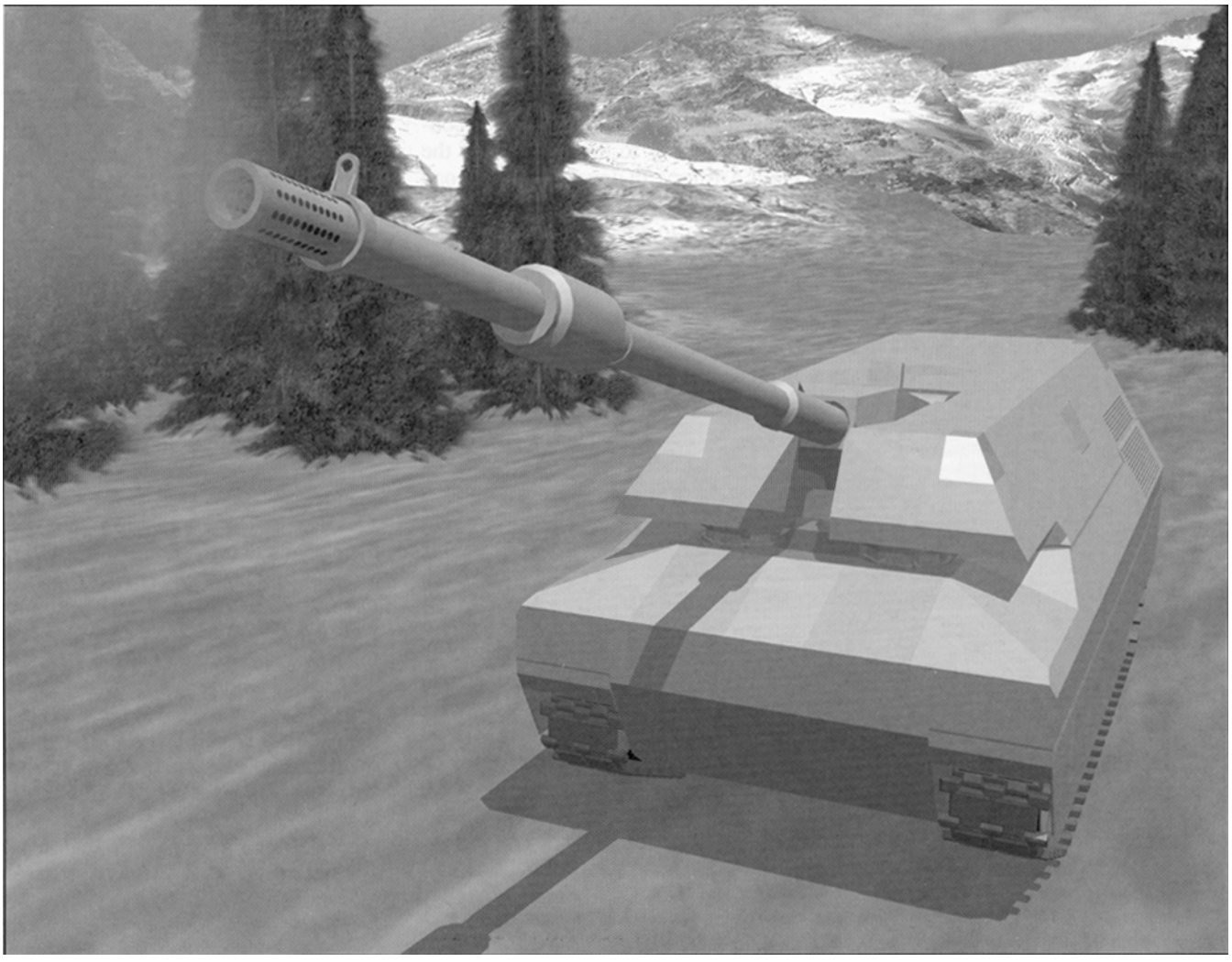
by Major General Randall L. Rigby, Chief of Field Artillery

America's Army is well on it's way toward realizing Army XXI. The high-technology weapons and digitized command and control systems that improve battlefield awareness envisioned only a few years ago are being fielded throughout the force. Our soldiers and units are constantly training, testing and validating new capabilities and identifying new requirements. As we move closer to the 21st century, we cannot rest on past accomplishments. Determining the future needs of the Army requires a hard look at where we are now.

As we move toward Army XXI and the Army After Next, it's safe to anticipate that the traditional roles of the Field Artillery will remain the same. Providing improved close support, battlefield interdiction and counterfire will continue to be our dominant missions. It isn't a question of whether or not the requirements for these missions will exist but rather of how we will accomplish them.

As always, our focus must be on meeting the fire support needs of the maneuver commander engaged with the enemy. Doing this requires an understanding of his needs before they occur and having mechanisms and systems in place that can respond rapidly and repeatedly. We must continue to push for access to intelligence assets that detect and track each threat and a communications system that will allow us to engage enemy systems across the battlefield—early and often.

Battlefield integration and coordination among the different battlefield operating systems (BOS) is difficult and complex. These tasks become even more difficult in joint and combined operations. Nevertheless, we must support



Crusader-Courtesy of United Defense, L.P.

the land component commander (LCC) and work with other component commanders (air and maritime) to accomplish the joint force commander's (JFC's) mission.

Tying this capability to other weapons systems on the battlefield requires constant, close coordination. We must work toward achieving a seamless integration of all direct and indirect fire systems. Through the devastating effects of fires, we protect the force's freedom of maneuver and facilitate decisive operations.

Today, the Field Artillery provides the JFC the Army's most responsive, all-weather, day-and-night attack means capable of achieving decisive fires throughout the depth of the battlefield. Our systems are a key component in the joint triad of attack capabilities—artillery and air and naval gunfire support.

The Field Artillery Road Map

The products and doctrine we associate with Force XXI continue to materialize and evolve. It's important to remember, however, that they did not do so overnight. Many of the innovations we currently train with or are developing now were conceived during the Cold War.

To maintain this dominance into the 21st century, we must accelerate the acquisition process, incorporate leap-ahead technology and have a vision for the Army After Next. Toward that end, we have developed an all-encompassing plan that charts our course to Force XXI and beyond, well into the 21st century. We call it the Field Artillery Road Map.

The concept of this Road Map was first introduced at the 1996 Senior Fire Support Conference at Fort Sill in March. It's a comprehensive strategy for modernizing and developing the FA through the first two decades of the 21st century. The map provides a thought-provoking look at what we know about the future in terms of the threat, future warfighting concepts, technology impacts and resource constraints.

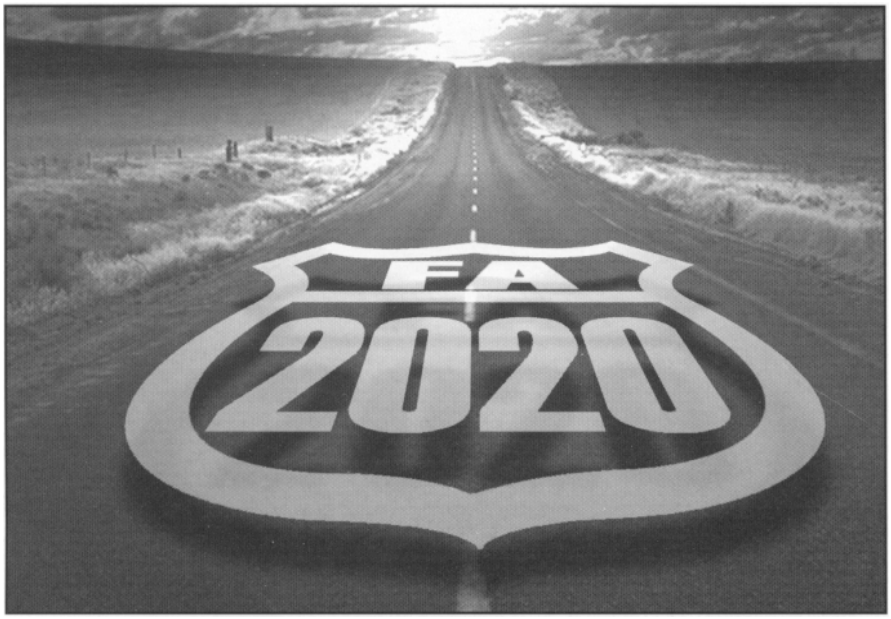
The Road Map will give leaders of today and tomorrow an invaluable tool for incisive planning and decision making, for checking our progress and, above all, for keeping the evolution of the FA on track. It charts the entire "Field Artillery system of systems" and integrates the development, modernization and acquisition strategies.

The Road Map starts with an appraisal of current FA capabilities. Previous assessments, such as the Legal Mix series of studies, the 1984 and 1988 Field Artillery azimuths, mission area analyses and the close support studies contributed greatly to the progress of the Field Artillery. In developing the Road Map, we remain mindful of past lessons as we look to the future. But unlike previous studies, the Road Map is more than an assessment—it's a living plan with time lines that offer developmental courses of action to achieve our vision.

The Road Map graphically compiles all we know about Field Artillery modernization and future developments into an electronic package that will be available on the Internet. The plan depicts critical programs and actions, each as a "thrust line" stretching 25 years into the future. These thrust lines will be incorporated into a data base that will enable executive decision makers to conduct preliminary "what if" drills and witness the effects their decisions will have on all programs.

Basically, the Road Map functions as a decision aid for evaluating and resolving conceptual issues and then determining required capabilities. In the future, the Road Map will be condensed onto a CD-ROM and incorporate a decision aid to assist users.

Potential users of the Road Map include members of integrated concept teams (ICTs) determining our future requirements and needs, members of the defense industry, Congressional staffers dealing with FA actions, senior Field Artillery commanders and selected other Redlegs. Literally anyone with a voice in determining the future of the Field Artillery will have access to the FA Road Map.



Lee Gibson, Fort Sill TSC

The concept of the FA Road Map was first introduced at the 1996 Senior Fire Support Conference at Fort Sill in March. It's a comprehensive strategy for modernizing and developing the FA through the first two decades of the 21st century.

Doctrine

Although our doctrine is sound and many of our tactics, techniques and procedures (TTP) are battle-tested, we have started revising our doctrinal manuals to reflect anticipated changes.

Currently, we are undergoing the most significant updating of Field Artillery doctrine and TTPs in a decade. The revision of our capstone doctrinal manual, *FM 6-20 Doctrine for Fire Support* is nearing completion. We also have begun to rewrite *FM 6-20-30 Fire Support for Corps and Division Operations*; *FM 6-20-2 Corps Artillery, Division Artillery and Field Artillery Brigade Operations*; and *FM 6-20-1 Field Artillery Cannon Battalion.*

In accordance with Training and Doctrine Command (TRADOC) goals, we're reducing duplication in our manuals wherever possible. We no longer have the luxury of being able to produce separate doctrinal manuals that cover similar topics. As an example, we plan to combine *FM 6-20-40 Fire Support for Brigade Operations (Heavy)* and *FM 6-20-50 Fire Support for Brigade*

Operations (Light) to cover all brigade operations in a single manual. This will reduce redundancy; however, we'll continue to identify the specific differences in supporting both types of units in the new manual.

You also will notice a cosmetic change to our Field Artillery manuals. The US Marine Corps has requested that all Field Artillery manuals be dual designated—that is, approved by both services. This action formalizes the longtime tacit understanding that the Army and Marine Corps Field Artillery would use the same doctrine. Field Artillery manuals will be dually identified as an Army publication and as either a Marine Corps Warfighting Publication (MCWP) or a Marine Corps Reference Publication (MCRP).

The first two dually designated manuals to appear were *FM 6-60/MCRP 3-1.6.24 Multiple Launch Rocket System (MLRS) Operations* (23 Apr 96) and *FM 6-20-10/MCRP 3-1.6.14 Targeting* (8 May 96). When the new FM 6-20 is printed in the fourth quarter of FY 97, it also will carry the number MCWP 3-1.6.1.

We're taking a hard look at leveraging technology to help us keep pace with the growing cost of developing, producing, updating and disseminating our manuals. Our new automation capabilities allow us to staff doctrinal manuals on-line, greatly reducing the amount of time necessary to revise doctrine and get it to users in the field. Technology will allow us to digitize and publish the manuals electronically, reducing resource requirements. We're exploring the use of the Internet to serve the entire Field Artillery community's need for accurate, up-to-date doctrinal materials that are readily accessible.

In true combined arms form, we've joined forces with other TRADOC schools to reduce our shared doctrine and TTP challenge. We've already integrated fire support TTP into some of the Armor School's supplemental training materials at Fort Knox, Kentucky.

Our doctrine must keep pace with our modernization efforts and organizational changes. We're intently watching the brigade-sized experimental force (EXFOR) at Fort Hood, Texas, and the various experiments it conducts. Its upcoming National Training Center (NTC) rotation at Fort Irwin, California, in March 1997 will give us a firsthand look of how well our efforts are progressing.

We're incorporating the lessons learned from various advanced war-fighting experiments (AWEs) and Combat Training Center (CTC) rotations that take place across the country. From each, doctrine writers and school instructors are addressing observed trends. As always, we continue to actively seek input from units and personnel in the field. Your contributions are highly valuable and ensure that our doctrine and TTP reflect how we're operating and how we collectively perceive we'll operate in the future.

Training and Leadership

The Field Artillery School is in the midst of implementing a number of institutional training initiatives designed to produce better soldiers, Marines and leaders for units in the field. Many of these innovations optimize information technologies and capitalize on state-of-the-art techniques and procedures to ensure we train smarter, not harder.

Classroom XXI. We recently equipped and began using modernized classrooms that bring together all the latest electronic media technology. This exciting effort, part of our Classroom XXI environment, is designed to make information technologies, simulations, interactive software and the latest automation capabilities available for student use.

Two of these classrooms exist now for our FA Officer Advanced Course (FAOAC) students, and eventually, we'll convert six more classrooms to meet Classroom XXI standards. Such facilities will have a long-term, wide-ranging impact on training.

We're installing a "fiber optic" backbone throughout the Field Artillery School that will provide connectivity between all academic classrooms as well as administrative offices. As a result, students and instructors will be able to access and retrieve information from multiple sources in many locations Army-wide.

A new automation capability soon will allow students to conduct research online and access digitized field manuals and training materials from the Center for Army Lessons Learned (CALL) at Fort Leavenworth, Kansas.

Our students will be able to access massive amounts of research and training information in CALL and many sources on the Internet, use CD-ROM interactive training modules in class and watch news breaking on CNN—all from these new classrooms.

Distance Learning. The use of the latest technology extends the reach of the schoolhouse to units in the field. A state-of-the-art teletraining facility and multimedia center provides opportunities to change the way the Field Artillery trains, optimizing our distance learning capability. This innovation allows us to deliver training materials responsively when and where they're needed through the use of CD-ROM instruction and two-way interactive video training. Distance learning reduces the administrative and logistical costs associated with sending soldiers on temporary duty status (TDY) for institutional training.

The FA School is currently integrating multimedia courseware into all FA courses. The distribution of Military Occupational Specialty (MOS) 13F Fire Support Specialist multimedia training materials is already underway. The MOS 13B Cannon Crewman and 13E Fire Direction Specialist multimedia courseware packages were recently completed. Distribution of materials for these two MOS is scheduled to begin in FY 97.

Course Improvements. Another initiative we're pursuing is the redesign of the Field Artillery Officer Basic Course (FAOBC) and FAOAC. FAOBC will take a more modular approach to officer instruction. These modules will train the future battery fire direction officer (FDO), company fire support officer (FSO) and platoon leader.

When combined with increased leader training in critical areas, such as training management and risk management, the modules will prepare junior officers for their first duty assignments. We're looking at implementing this training program in the second quarter of FY 97.

We established a new structure for FAOBC classes and tied the structure to a mentoring program that takes advantage of available leaders' experiences to help the new lieutenants transition into the Army. As a result, we're seeing a significant improvement in academic performance. Advanced course students and field grade officers from around Fort Sill work with the FAOBC students and play a key role in developing the lieutenants.

Advanced course students enjoy senior officer input and mentoring as well during their course through leadership symposiums and classroom involvement. Pre-command course (PCC) students also participate by interacting with

the students while they prepare for their own commands.

We're incorporating more Janus simulations into the FAOAC program of instruction. One of the premiere simulation programs, Janus gives students the opportunity to not only plan fire support, but also execute their plans and see the results.

Incorporating the NCO Academy (NCOA) into the Training Command with the FA School and FA Training Center has dramatically improved our NCO instruction. In October 96, Fort Sill became the Center for Field Artillery NCOES. Through the Primary Leadership Development Course (PLDC), Basic NCO Course (BNCOC) and Advanced NCO Course (ANCOC), we now train artillerymen throughout their careers. Ours is the only NCO Academy that teaches all nine CMF 13 MOS in both ANCOC and BNCOC.

To better prepare our Field Artillery NCO corps for its return to the field, we're focusing on training future responsibilities rather than concentrating on MOS refresher training.

Organization

Our Field Artillery force continues to undergo its metamorphosis from one that excelled in the 20th century to a dominating force of fires for the 21st century. The technology that allows us to modernize also is permitting us to reorganize into a smaller, more lethal force.

We are in the process of converting our self-propelled cannon force from

The new divisional general support MLRS battalion also will have a Q-36/Q-37 target acquisition battery.

the current three firing battery, eight cannons per battery (3x8) to a leaner three-battery, six-cannon (3x6) configuration. This conversion started with the 4th Infantry Division (Mechanized) at Fort Hood in the second quarter of FY 96 as the division fielded the Paladin howitzer. In FY 97, units that already have Paladin will convert to 3x6. Other Active Army units scheduled to receive the Paladin in FY 97 and FY 98 will convert from 3x8 to 3x6 during fielding.

The overall reduction of howitzers in the active force will allow Paladin fielding to cascade into Army National Guard units, giving them the more lethal, responsive M109A6s. Over time, the same 3x6 conversion going on in the Active Component will take place in the National Guard. A total of 14 Army National Guard battalions will receive Paladin and convert to 3x6 platoon operations.

Our self-propelled howitzer fleet will consist of 45 Active and National Guard Paladin battalions and 36 National Guard M109A5 battalions by FY 00.

To compensate for this loss of cannons, we'll double the number of MLRS launchers in each heavy division artillery. To do this, we'll create a divisional general support (GS) battalion consisting of two MLRS batteries with nine launchers each. The battalion also will also have a Q-36/Q-37 target acquisition battery. Details of the 2x9 transition are still being worked, but the Army Staff has programmed funds for one divisional battalion per year beginning in FY 00.

As we convert, we're trying to minimize personnel turbulence in each affected CMF 13 MOS. Qualified 13B Cannoneers are being reclassified and retrained in MOS 13M (MLRS Crewman) and 13P (MLRS Fire Direction Specialist). The FA Branch at the Total Army Personnel Command (PERSCOM) in Alexandria, Virginia, will target the heavy divisions for CMF 13 reclassifications to minimize turbulence and manpower army (MPA) costs. We're also renegotiating the contracts of 13B recruits, giving them the option of changing their career path. The goal is to take care of soldiers, maintain promotion and professional development opportunities, and improve the manning levels of 13 series MOS across the Army.

Overall with the 3x6 conversion associated with Paladin fielding and the new 2x9 MLRS divisional GS battalion, the firepower of the heavy division significantly increases.

To compensate for the reduction of cannons in 3x6 units, we'll double the number of MLRS launchers in each heavy division.

We're continuing to increase the percentage of our Total Field Artillery in the National Guard. In FY 90, more than half of our Army's artillery (52 percent) came from the National Guard with only 43 percent in the Active Component. The remaining five percent belonged to the Army Reserve. By FY 99, nearly two-thirds (62 percent) of our FA force will be in the National Guard with the remainder on Active duty. We have eliminated artillery in the Army Reserve. On the Army XXI battlefield, typically 50 percent or more of the FA force will be National Guard.

Materiel

The Field Artillery continues to lead our Army in developing and applying Force XXI technology. Fifty years ago, the need to compute artillery firing tables drove our development of the world's first fire direction computer—FADAC (FA digital analog computer), the precursor to today's digital systems. Today, we continue to pioneer advances and lead the Army in the area of command, control and communications (C^3) using digital processing.

Advanced FA Tactical Data System (AFATDS). This system is the fire support centerpiece of the Army's tactical command and control system (ATCCS). AFATDS provides integrated, automated support for planning, coordinating and controlling fire support assets and for executing counterfire, interdiction and suppression of enemy targets for close and deep operations. Quite

simply, this system increases the responsiveness, efficiency and effectiveness of the fire support system; it focuses fires for the digitized force.

AFATDS accomplishes all this by providing near real-time situational awareness, higher mission throughput and an enhanced ability to influence the action with the commander's guidance. With AFATDS, we have realized our goal of placing the power of our automated systems where it must be—in the hands of fire supporters working directly with maneuver commanders at every echelon.

The 1st Cavalry Division and 4th Infantry Division at Fort Hood already have received test versions of the system. Official fielding of AFATDS 96 begins in early 1997. Both Active and Reserve Components will continue to receive AFATDS through 2007.

Already we have identified the capabilities that future AFATDS software updates need to provide, but we'll continue to get field input as we develop these versions. AFATDS 97, the next release of software, concentrates on echelons above corps (EAC) functionality. AFATDS 98 incorporates USMC functionality and enhances joint interoperability through the implementation of the common operating environment (COE). Future enhancements in AFATDS will include new interfaces with weapons systems (AFATDS 99) and technical fire direction processing (AFATDS 00). AFATDS 00 is currently the final software release for the system and will include all required fire support functions.

AFATDS has attracted the attention and interest of our sister services, which only will improve our joint warfighting capabilities. The USMC is a full participant in the AFATDS development process and plans to field AFATDS 98. We're expediting the development of an interface between AFATDS and the Air Force's contingency theater automated planning system (CTAPS).

CTAPS is the Air Force's command and control "system of systems." Most important to the fire support community, it generates both the air tasking order (ATO) and airspace control order (ACO). Our linkage to CTAPS is via battlefield coordination detachments (BCDs). The initial automated BCD capability, including AFATDS and several other ATCCS systems, has been provided to the 1st BCD at Fort Bragg. North Carolina, for joint operational use and TPP development.

The AFATDS-CTAPS interface will improve the timeliness of air support and joint suppression of enemy air defense (JSEAD) requests and will deconflict our long-range weapons systems through automated processing.

The US Navy has experimented with AFATDS as well. We are moving closer to true joint fire support interoperability.

Light Force Automated Fire Control. As part of the Rapid Force Projection Initiative (RFPI) program, the 18th Field Artillery Brigade of Fort Bragg, supporting the 101st Airborne Division (Air Assault) Artillery of Fort Campbell, Kentucky, will test a prototype automated fire control system for the Army and Marine Corps at the end of FY 97. The automated fire control system is in the form of an applique on the M198 155-mm howitzer.

In FY 98, Paladin will be fielded in all Active Component battalions, and we'll begin the process of equipping the 14 National Guard battalions.

The RFPI program's goal is to increase the combat power of the light brigade package, enabling it to engage targets, including armored targets and multiple rocket launchers (MRLs)—farther and faster. Other FA weapons systems or munitions included in RFPI exercises and simulations are the high-mobility artillery rocket system (HIMARS), Army tactical missile system (ATACMS) Block I, the extended-range rocket, the MLRS smart tactical rocket (MSTAR) and our sense and destroy armor munition (SADARM).

Paladin M109A6 Howitzer. Paladin is a real Field Artillery success story. It's an example of our best use of employable technology, thus far. We've fielded Paladins to the 3d Infantry Division (Mechanized) Artillery, Fort Stewart, Georgia; the 3d Armored Cavalry Regiment (ACR). Fort Carson, Colorado; and the 4th Infantry Division and 1st Cavalry Division Artilleries at Fort Hood. The National Training Center at Fort Irwin also has a fleet of 27 Paladins.

In FY 97, all three 155-mm battalions at Fort Sill will be Paladin-equipped. Then in FY 98, we will complete the fielding of Paladin in all Active Component units and begin the process of equipping the 14 National Guard battalions.

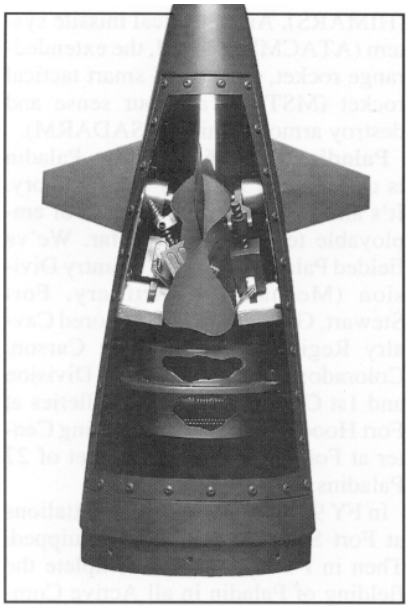
Crusader—the 21st Century Howitzer. Crusader with its resupply vehicle remains the priority program in the Field Artillery as the Army's most advanced land combat platform. Its information-age technologies and leap-ahead capabilities will usher in a new era in fire support, dramatically changing the way the digitized Army fights.

Crusader, with its XM982 extended-range dual-purpose improved conventional munition (ER-DPICM), will combine with the extended-range MLRS and ATACMS to provide simultaneous engagements throughout the battlefield. As Crusader deals with the close-in fight, MLRS and ATACMS will be free to engage targets at greater ranges, a combination that significantly increases our lethality.

Crusader will be able to execute a new type of artillery mission: the multiple-round simultaneous impact (MRSI), a one-gun time-on-target. Each Crusader howitzer will be able to fire four to eight rounds that will impact at the same time on a single target.

Crusader will have the mobility of an Abrams/Bradley-equipped maneuver force, allowing it to keep pace with armor and infantry. Crusader's mobility, rapid rate-of-fire and capability to operate in decentralized operations dramatically enhances its survivability.

The fully funded Crusader program is scheduled to begin production in the FY 04 to FY 05 time frame with the first unit fielded in FY 05.



The navigation guidance section for the extended-range *guided* rocket. The rocket will improve our accuracy and push our rocket range out to about 70 kilometers.

Joint Lightweight 155-mm Howitzer. We're continuing to develop a howitzer that will support our Army light forces and the Marine Corps. The goal is for this cannon system to have an onboard computer and state-of-the-art electronics that provide capabilities similar to Paladin's.

Together, the Marine Corps and Army are working with two prototypes of the lightweight 155-mm howitzer developed by two manufacturing teams. The XVIII Airborne Corps Artillery's 18th FA Brigade recently participated with the Marines in a joint operational assessment of the prototypes at Twenty-nine Palms and Camp Pendleton, California. After the test results are analyzed, the Marine Corps and Army's new lightweight howitzer will be selected.

Munitions: Precision and Range Improvements. We are continuing to upgrade and enhance our long-range cannon, rocket and missile capabilities as well as our precision munitions. With precision kill "smart" munitions, such as the SADARM 155-mm projectile and BAT, brilliant antitank submunitions for ATACMS, the Field Artillery will be able to overwhelm the opposing forces at great depths and shape the battlefield. With these munitions and their planned improvements, we'll be able to engage and disrupt enemy combat formations, command and control facilities, air defense assets and critical enemy mobile targets, such as surface-to-surface missile launchers.

Another benefit of these smart munitions is the reduction of the significant FA burden on the logistics system. Meeting our goal of developing a "one-round, one-kill" capability will eliminate the need to transport and deliver tons of artillery ammunition over great distances on a fast-moving battlefield.

The new MSTAR is in the concept phase. With this guided, programmable rocket carrying smart submunitions, we'll attack targets that are hard or soft, hot or cold, sitting or moving.

We are continuing to improve the range and accuracy of our rockets. The MLRS extended-range rocket will push our rocket range out to 45 kilometers with initial fielding in 1999. The extended-range *guided* rocket will follow and greatly improve our accuracy, pushing the range out farther to between 60 and 70 kilometers. Fielding is scheduled for 2002.

We just completed the operational test phase for the ATACMS Block IA precision-guided missile designed to engage soft targets at a range of from 100 to 300 kilometers. The test included firing two missiles at White Sands Missile Range, New Mexico, in September. Test crews from Fort Sill's III Corps Artillery also participated in two separate 96-hour field evaluation exercises, accepting digital fire missions at the battalion fire direction center (FDC) from a joint surveillance and target attack radar system (JSTARS) ground station module (GSM).

Initially, the ATACMS Block IA missiles will be fired from modified interim launchers that incorporate global positioning system (GPS) navigation—called improved position determining system (IPDS) launchers. New M270A1 launchers that can fire all fielded and developmental munitions will replace the IPDS launchers as they are fielded, starting in 2000.

The M270A1 launchers will be more responsive, survivable and maintainable. Operational testing of the new launchers—including improved electronics, an improved position/navigation (POS/NAV) capability augmented by GPS and an improved launcher mechanical system—takes place in FY 98.

ATACMS Block II will allow us to deliver devastating fires against moving armored formations out to 140 kilometers. This missile, currently in development with the BAT submunition, undergoes its operational test in FY 99 with fielding scheduled for 2001. Shortly thereafter, in FY 02/03, when the product improved BAT comes on board, the remaining Block II and all Block IIA missiles will have acoustic, infrared and millimeter-wave seekers to attack deep, high-payoff targets—moving or stationary, hard or soft, hot or cold.

We have begun work on ATACMS Block IB that will extend our reach out to 500 kilometers. This missile will be brought on board via an accelerated development and acquisition program with the goal of achieving an initial operational capability by the year 2002.

HIMARS. We continue work on HIMARS for the light divisions. Currently, four prototypes are being built that will be evaluated as part of the RFPI technology demonstration that begins in 1998. We're pushing for funding to allow us to field this capability in 2005.

Joint and combined arms warfare is the culmination of 20th century war-fighting. Fire support for these operations is the result of nearly 80 years of effort to coordinate and synchronize fire and maneuver through a host of doctrinal, training, organizational and materiel innovations. With the Field Artillery Road Map, we have a comprehensive plan to guide our development, modernization and acquisition strategies well into the future.

Today, the Field Artillery leads the Army in the number and diversity of developments. With only four years until the start of the 21st century, the Field Artillery is poised to lead our Army to the next level—and well beyond.

Major General Randall L. Rigby, Chief of Field Artillery, is the Commandant of the Field Artillery School and Commanding General of the Field Artillery Center and Fort Sill, Oklahoma. Other assignments include serving as Deputy Commandant of the Command and General Staff College at Fort Leavenworth, Kansas; Deputy Director for Assessment, J8 of the Joint Staff at the Pentagon; and Executive Officer to the Vice Chief of Staff of the Army, also at the Pentagon. He commanded the 6th Infantry Division (Light) Artillery in Alaska; the 4th Battalion, 4th Field Artillery, 75th Field Artillery Brigade of III Corps Artillery at Fort Sill; and two batteries: one in the 172d Infantry Brigade (Mechanized), also in Alaska, and one in the 1st Cavalry Division (Airmobile) in Vietnam. He holds a Master of Science in Experimental Psychology from the University of Oklahoma and a Master of Business Administration from Long Island University.

Colonel-General Nikolai M. Dimidyuk, Commander of Rocket Forces and Artillery Troops, Ground Forces, Federation of Russia

The Russian God of War in Transition—
From Quantity to Quality

by Patrecia Slayden Hollis, Editor

Q *You wrote the article, "The God of War—The Turning Point" for* Armeyskiy Sbornik [Army Digest], *Number 7 in 1995. What's the turning point for the Russian artillery?*

A The Russian artillery is turning from quantity to quality. We used to have a lot of artillery pieces to mass fires. Now we must use artillery applying a different principle: less quantity with the same effectiveness. We can achieve this effectiveness by using new equipment, ammunition and reconnaissance and automation means.

In terms of equipment, I can assure you the designs are up to the highest world standards. Let me give you an example. The entire world is interested in our new *Smerch* MLRS [multiple-launch rocket system]. Kuwait bought *Smerch* from us. It is a 300-mm caliber system with 12 rockets that can fire from 20 to 70 kilometers very precisely.

We have an excellent free rocket system that's called *Tochka* (Rocket Point) with a range of 120 kilometers. It was tested in the United Arab Emirates and deviated from the target by only eight meters. So you see, our standards are high.

Our ammunition has to be completely new. The rounds must be more lethal, more precise—for example, *Krasnopol-M* [a laser-guided, top-attack, antitank projectile similar to the American Copperhead round.]

I demonstrated the round in the United Arab Emirates at a military exhibition there. We fired *Krasnopol-M* projectiles at a range of 15 kilometers and hit tank turrets with 39 rounds of 40 rounds fired. That's a good indicator. Only its fire control system might be a little less capable than the American Copperhead.

This precision capability is the direction in which we must be going to develop our munitions. It must take fewer munitions to destroy targets.

In addition to precision munitions, we must have improved command and control systems. We are developing a system similar to your AFATDS [advanced Field Artillery tactical data system] with a certain amount of success. But any command and control system cannot stand alone; it needs to be matched with a reconnaissance system. The goal is to decrease the time from the moment the target is acquired until it's destroyed to no more than one minute—targets are mobile—with a 97 percent probability of kill. To do all that, it takes a combination of a system of systems: reconnaissance, command and control, and precision munitions.

I have looked thoroughly at the US reconnaissance capabilities and see some problems—universal problems, for example, in detecting firing batteries when you can't observe them, when you need to determine the coordinates of your target at a distance.

We use methods that the United States Army doesn't. For example, we use sound reconnaissance. Using sound, in one minute, we can detect many targets. We both use radars to detect rounds or rockets and missiles. An army needs an entire complex of reconnaissance means—ground and aerial observation—now TV observation via unmanned aerial vehicles is possible.

This turning point from quantity to quality means less artillery. For example, the task that required three artillery battalions will be done by one battalion using new technology. Officers will have to be more technically capable to fight on the future modern battlefield.

The *Smerch* 300-mm Multiple-Launch Rocket System. *Smerch* fires 12 rockets from 20 to 70 kilometers.

No country is standing still—all are trying to develop these technologies. Recently, I visited the military exhibition in Paris and saw the new German self-propelled howitzer—the PzH2000. It's very modern. Of course when the Germans designed it, they designed it for a purpose—not just because they didn't know what else to do with their money.

Q *Of the US systems you've seen this week while visiting Fort Sill, which one would you most like to have for the Russian Field Artillery?*

A Your command and control system—AFATDS. It would give us advantages—expedite the time it takes to fire. It also would allow us to be more aware of the situation on the battlefield. But with all its advantages, I'm a little critical about relying completely on any one system. You must have a backup system; you must have redundancy.

Let me give you an example of what I mean using GPS [global positioning system]. We use GPS systems. But we don't count only on GPS. We also use geodetic determination because, eventually, the enemy will knock out the satellites that support GPS. Soldiers must be ready to use both systems—to switch quickly from one to another.

Another example is we teach our artillerymen to use the pencil and calculator. We have computers and computer classes, but we also teach them manual calculations and not to depend only on computers.

Q *What has been your main purpose in coming to Fort Sill? What have you learned?*

A Our President has tasked us to switch to a professional, contractual, voluntary army by the year 2000—a volunteer army approximately like your army. In the process of downsizing the Russian Ground Forces, we have fewer divisions...but the organization of our battalions and regiments, including artillery units, is basically the same. So our goal is to have a smaller, well-trained army of volunteers by 2000. I came to Fort Sill to learn how you train your volunteer army at all levels—specifically, artillerymen. One thing I've learned is that you have a very expensive army.

I am particularly impressed with the attitude your soldiers have toward their profession. Your soldiers, sergeants and officers consistently drive to master their artillery profession.

In addition, I learned many interesting things about your system of training your volunteer army. First, your system emphasizes sergeants, something new to us.

We don't have that type of training because we have a compulsory draft. The drafted soldier goes immediately to the combat unit, not to a training center. Therefore, each military district has two separate training programs, one for new soldiers and one for soldiers in the unit at least six months.

We have training centers similar to your centers, but they are for sergeants and their scale is much smaller than yours. We train sergeants at two levels—I train the sergeants for the army and corps artillery for six months in my center. That's my job. The other level of training is for division and lower artillery conducted by the military districts' training units. After the sergeants get to their units, they receive reinforcement training one day a week.

Q *What about officer training?*

A You have a different system of training for officers also. In the beginning, your officers get general or basic training. Then you reinforce this training with various kinds of schools and experiences at the different levels.

Our system is somewhat different. In the beginning, our officers receive their fundamental training in one of the three artillery and one rocket training schools for five years. Each receives an engineering degree. After graduation, they don't need training for the next 10 years—except for leadership training. Two days per month, the regimental commander sponsors organized leadership training for his officers.

Once every two years, we determine the best artillery battalion commander and once a year the best battery commander. The commanders compete at the regimental and then the divisional levels. In competition, the battery commander must fire his artillery, solve probability problems and conduct a tactical meeting. He has to drive all his transport vehicles and achieve certain standards on his equipment. Only one battery commander goes to the finals from each military district.

Once we determine the best battery commander in the Russian Ground Forces, we put his picture on the cover of a military magazine and write an article about him—you could do that in your journal. The winning battery commander has an opportunity to enter the artillery academy. In our system, after five years of education in the military officers' school, some go to the artillery academy for three more years. The winner also is featured on Russian television, so it's a big honor to be the best battery commander in Russia.

Q *Now I want to shift the focus to military operations in Chechnya. How have you packaged artillery for fighting in Chechnya?*

A It depends on the situation. If we face a large guerilla force, we use more artillery. We really haven't "packaged" artillery—for example, the artillery may provide support for a smaller operation by firing as platoons, but it's still organized by batteries and battalions.

We have several artillery battalions in Chechnya, but in the Ground Forces, they are part of the task force organizations—a motorized rifle brigade still has one artillery battalion as part of its

combined arms force. [The Russian Ministry of Interior Forces fighting in Chechnya with the Russian Ground Forces have attached artillery.] We use both self-propelled and towed artillery in Chechnya, depending on the type of artillery in the combined arms force. Percentage-wise, the ratio is about 60 percent self-propelled to 40 percent towed.

I want to make a point here. Our artillery in Chechnya only fires on visible targets, observed targets. Sometimes we use direct fire because our targets are so close. When we discover a group of guerrillas, we fire at them. Direct firing doesn't take as much ammunition, and it guarantees the peaceful population won't be hit—reduces collateral damage.

When military operations in Chechnya started, the artillery was ordered not to fire on unobserved targets—that's to protect the peaceful population. If we have information about a certain target but we cannot observe it, we cannot fire on it.

The main fire support problem in Chechnya is that the situation is very complicated; we can't employ artillery to its full capacity. The Chechen population is mixed—guerrillas live next door to peaceful people. That's the only problem.

Q *How have operations in Chechnya affected Russian Field Artillery doctrine or procedures?*

A Affected doctrine? Not at all. You really can't change doctrine based on this operation. Maybe it has affected tactical methods of fires somewhat. For example, when we discover a guerrilla group, we encircle them with fires so they can't get outside the circle.

Another example of a new method is when our troops are attacked, we set up a wall of fire. If we are ambushed, we create a wall of fire 50 to 100 meters from our soldiers and use that wall of fire to push the guerrillas away.

Of course, we also fire illumination rockets at night to provide light for infantry or reconnaissance operations. Otherwise, our general tactical principles have not been affected.

As for procedures for fighting guerrillas, we've learned a lot. We've learned how to fight a large group of guerrillas in populated areas. In such a situation, you cannot employ fires according to the "rules." Sometimes you have to surprise the enemy.

You plan fires for certain directions—for example, along routes or between mountains to create fire traps. The fires start about 30 seconds after the guerrillas are in, say, the valley. At night, we surprise the guerrillas with illumination and then fire on them.

I want to say something to American artillerymen. You have to fight terrorists cruelly. Terrorism doesn't have a place on earth.

Recently in Paris, eight heads of states condemned terrorism—your President Clinton addressed this meeting. Russia completely supports their position on fighting terrorism.

You need to understand that Chechnya, if not stopped, could turn into a center for world terrorism. The Chechen Muslim regime gets help from Arab terrorists—Iran, Afghanistan. Chechnya uses some mercenaries. Can we forgive that? No—and we shouldn't.

The Chechens had plenty of warnings from our President Yeltsen to lay down their arms, that they would receive amnesty. We tried to find a peaceful solution. But they didn't lay down their arms, so we must deal with them cruelly.

Let me give you an analogy for the United States. Let's say a vigilante group decided to separate the State of Oklahoma from the Union to claim it as their territory...and they raped and killed the peaceful population. Do you think the United States would allow this to happen? No, of course not. Terrorism has to be stopped.

Q *Currently, you have a Russian airborne brigade with mortars working with the 1st Armored Division (US) in Task Force Eagle in Bosnia-Herzegovina. What have been the challenges of a Russian brigade working for an American commander?*

A There haven't been any difficulties because we had a good advance agreement. We all agreed that Task Force Eagle would be a US command but that all issues would be resolved together with the Russian command. Also, you must remember it's a peacekeeping mission—we're all working on one objective: to stop the war.

I think this first experience working together in Bosnia will produce results. So, to solve peacekeeping problems or fight terrorists, I think other joint operations are possible in the future.

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

A First, I wish to thank General Rigby, your Chief of Field Artillery, for the invitation to come to Fort Sill and the chance to see everything I wanted to see.

Then—I wish American artillerymen further successes in enhancing your combat skills.

★★★

Colonel-General [Lieutenant General] Nikolai Mikhailovich Dimidyuk has been Commander of the Rocket Troops and Artillery of the Ground Forces of the Russian Federation since 1992. In his previous assignment, he was the first Deputy Chief of Rocket Troops and Artillery for the Ground Forces of the United Soviet Socialist Republic (USSR). Also as a general officer, he served as the Chief of the Rocket Troops and Artillery for the Southwest (Strategic) Direction and the TransBaikal Military District, Deputy Commander of Rocket Troops and Artillery for the Far East (Strategic) Direction and Deputy Commander of Rocket Troops and Artillery of the North Caucasus Military District. As a colonel, he was the Deputy Chief of Rocket Troops and Artillery of the Motorized Rifle Division for the USSR's Central Group of Forces. General Dimidyuk also commanded the Guards Artillery Regiment of the Central Group of Forces (Czechoslovakia), an artillery battalion in the Guards Artillery Regiment of the Guards Tank Division in the Kiev Military District; a battery; and an artillery platoon. He is a 1957 graduate of the Sumy Artillery School; a 1974 graduate of the Artillery Academy, receiving a gold medal; and a 1986 graduate of the Military Academy for the General Staff. General Dimidyuk has been published in several military magazines, including the article "The God of War at the Turning Point," *Armeyskiy Sbornik* [*Army Digest*], Number 7, 1995, and the interview "Old Deformities and New Priorities," *Sovetskiy Patriot* [*Soviet Patriot*], Number 11, 1993.

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- Instructor Certification
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- Army Performance Improvement Criteria (APIC) 2021
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- FA Doctrine and TTP Development
- FA Field Manuals
- Joint Fires Issues
- CTC Trend Analysis

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- ATRRS
- Total Army Training System Courses 5903
- VTT Training on Demand, 4325
- Classroom XXI 3611
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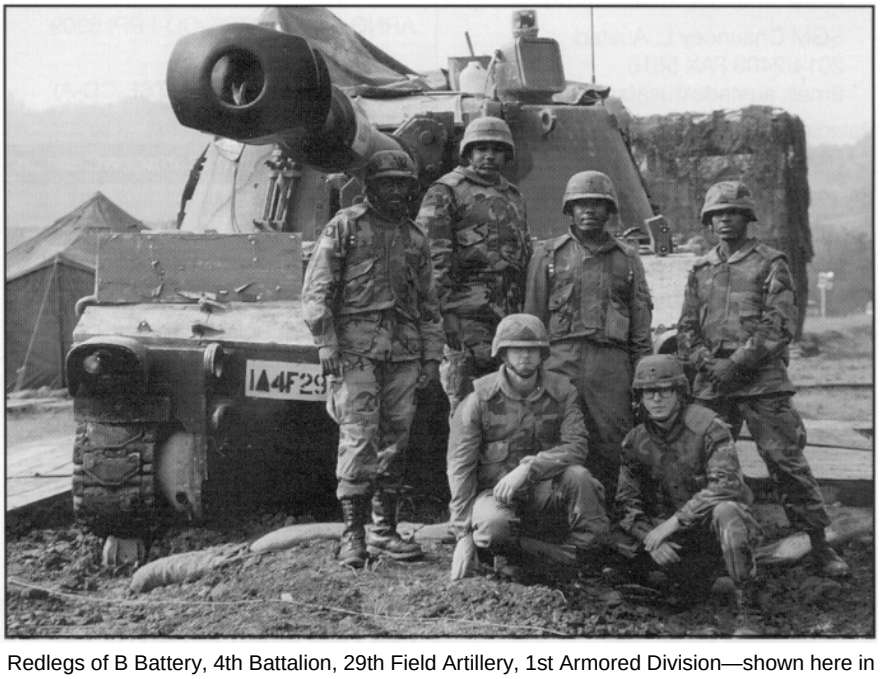

SGT Nicole Smith, 135th PAD, Steel Castle Base, Bosnia

Redlegs of B Battery, 4th Battalion, 29th Field Artillery, 1st Armored Division—shown here in Bosnia as part of Task Force Eagle in Operation Joint Endeavor—send you best wishes for a Great Turkey Day, Merry Christmas and Happy New Year.

1997 *Field Artillery* Author's Guide

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

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

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

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

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

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

When writing, think like the Redleg in the field—what is it, what will it do for me and how do I implement it (or when will I get it). When using an acronym, spell it out the first time you use it. When mentioning a new or rare concept, system or technique, briefly explain it, even if it isn't your main point.

Submissions. Include—

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

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

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

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

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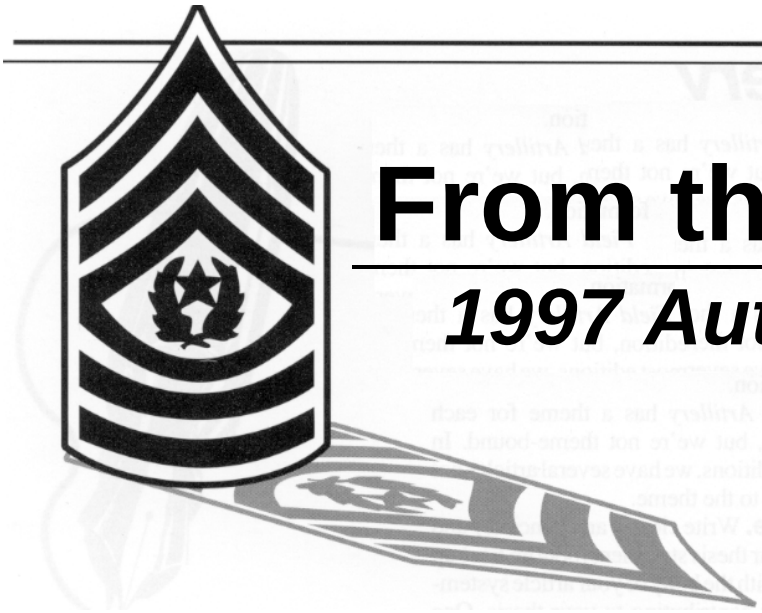
Fort Sill, Oklahoma 73503-0311

The *Field Artillery* staff will edit all manuscripts and put them in the magazine's style and format. In addition, we'll staff selected articles to subject matter experts to check them for accuracy, safety and classified information. Authors will receive a "check copy" of the edited version before publication. If you have questions, feel free to call the Editor at DSN 639-5121 or 6806 or commercial (405) 442-5121 or 6806. To FAX, call DSN 639-5127 or commercial (405) 442-5127. E-Mail: famag@ionet.net

Field Artillery Themes for 1997

Month	Theme	Copy Deadline
Jan-Feb	Target Acquisition	16 Sep 96
Mar-Apr	Precision Technology	18 Nov
May-Jun	Forward Observation	21 Jan 97
Jul-Aug	Training	3 Feb (History Contest)* 17 Mar (Other)
Sep-Oct	Force Projection	19 May
Nov-Dec	Red Book: Annual Report	14 Jul

*1997 US FA Association History Writing Contest rules were printed in the July-August 1996 edition.



From the Gun Line

1997 Author's Guide

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

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

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Submission. Please send—

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

• A biography, highlighting your experience, training and education. Include your full name, current job, address and telephone and FAX numbers.

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

Please send your column, biography and graphic to—

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Crusader Resupply Vehicle
A Combat Multiplier

by Major Peter R. Ostrom

Crusader Resupply Vehicle–Courtesy of United Defense, L.P.

Editor's Note: This article is based on the preliminary Crusader/resupply vehicle (RSV) designs and emerging operational concepts. The description of the system's capabilities is accurate and technically feasible. However, the actual subsystems have not yet been selected, so some of the capabilities described could be altered or enhanced by the time Crusader/RSV is fielded.

0210, 12 March 2006... Somewhere in Harm's Way

Sergeant Mallory, the RSV Team Chief for 1st Platoon, A Battery of 1st Battalion, 22d Field Artillery (Crusader), glanced at his vehicle's status on his command display. His automated diagnostic checks show his vehicle is a "Go," so he hits the transmit button, automatically sending a digital update to the platoon operations center (POC). Because his vehicle has been waiting in a hide/overwatch position, Sergeant Mallory let his Resupply Operator, Specialist Romero, get some much-needed rest while he monitored the system.

His driver, Private First Class Jackson, was checking local security using the top-mounted video camera to do a 360-degree scan of the area. With the camera linked to the RSV's remotely operated 40-mm grenade launcher, Private Jackson was confident he could take care of most threats he might encounter.

Meanwhile, the POC had received a rearm request from a Crusader self-propelled howitzer. An alert from the POC pops up on Sergeant Mallory's RSV crew displays. He scans the message and then hits the "execute" button to process the resupply mission. Seconds later, the RSV's computerized decision aids show the expected resupply point, the recommended route and a start point time from the RSV's current position to make the resupply rendezvous.

Sergeant Mallory wakes Specialist Romero while Private Jackson eases the 55-ton armored ammunition vehicle forward. It took Jackson a while to get used to "drive by wire," but the ease of maneuvering the big vehicle in tight spots and during docking with the howitzer convinced him of its worth.

Although it had been raining off and on for several days, the RSV's computer accessed information in its digital map data to come up with the best route; the unimproved trail the RSV was moving on easily supported its 35-kilometers-per-hour speed. Built on the same chassis as the howitzer and with a power pack capable of delivering 1.500 horsepower, the RSV had no problem keeping up with the pace of battle.

Jackson had learned the term "situational awareness," which to him means the RSV computer always knows what's happening around him. This keeps him from blundering into friendly positions in the dark or using a road that won't

support his vehicle. While driving, he keeps one eye on the road ahead and one on the computer display that shows his vehicle moving along its trail.

As he closes in on the howitzer shown on the display, he guides the RSV to within eight feet of the mud-splattered howitzer. A green light on his display shows that docking can be done from this position.

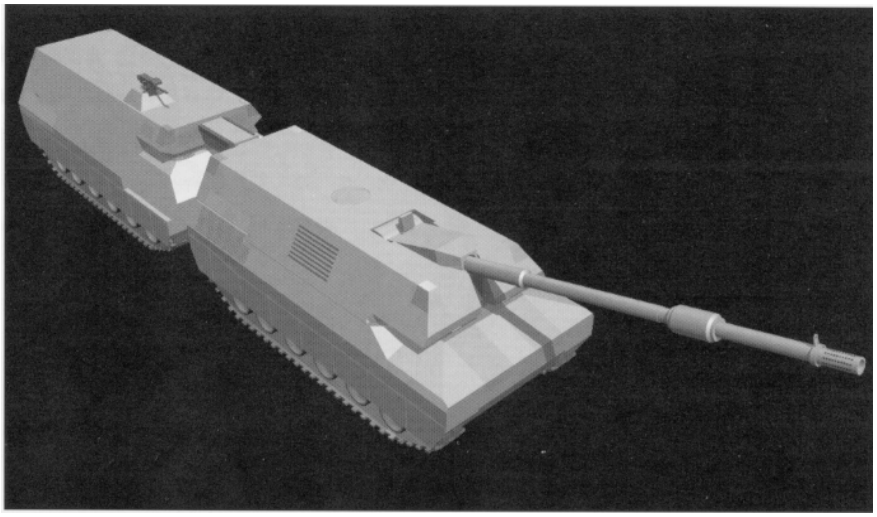
With the two vehicles in position, it's time for Specialist Romero to go to work. Because there have been reports of chemical attacks in the area, Romero is thankful the resupply operation is totally automated. With no need to dismount to manually "hump joes," both the howitzer and RSV crews can stay safely buttoned up under their protective armor during resupply.

Watching from the forward-mounted camera, Romero uses his joy-stick to extend the RSV resupply boom forward from the front of his vehicle. The howitzer is in a slight depression to his right front. He slowly snakes the boom forward and mates with the receptacle on the rear of the howitzer. His docking "Christmas Tree" turns completely green as the ammunition, fuel and communications connections are sealed. He glances over at Sergeant Mallory, who gives him a thumbs up. Considering the time of the morning and the rain, the docking time of one minute, 46 seconds was pretty good.

The computer then starts the automated transfer of ammunition based on the howitzer's order. At the same time, the howitzer is topped off with fuel. Because the division has a big operation planned for the next day, the details of the plan are being transferred electronically from the RSV to the howitzer via the direct communications hookup. This saves trying to transmit the data over the single-channel ground and airborne radio system (SINCGARS).

Sergeant Mallory keeps a close eye on his status boards as he monitors the resupply effort. He's particularly concerned about enemy artillery—he doesn't need an enemy dual-purpose improved conventional munition (DPICM) round to catch him in this vulnerable position. If necessary, Sergeant Mallory can abort the resupply mission at any time and quick-disconnect from the howitzer in ten seconds. The RSV's powerful engine then can move the vehicle 750 meters in 90 seconds, far enough and fast enough to get out of the way of enemy counterfire.

Nine minutes after docking, having transferred 50 rounds of DPICM, six rounds of sense and destroy armor munition (SADARM), four rounds of illumination, an appropriate amount of propellant and 140 gallons of fuel, Specialist Romero signals the mission is complete. Sergeant Mallory is pleased with his crew's performance; the resupply



Courtesy of United Defense, L.P.

With no need to dismount to manually "hump joes," both the howitzer and RSV crews can stay safely buttoned up under their protective armor during resupply.

Courtesy of United Defense, L.P.

Minutes after docking, having uploaded all the required fuel and ammo, the Crusader howitzer is ready for another mission.

mission was well within the standard of 12 minutes.

Having started the mission with a full load of 130 complete rounds on board, the RSV still has plenty of ammo available to resupply another howitzer. Because no other resupply orders have come in, Sergeant Mallory gives Private Jackson the go ahead to ease the RSV away from the howitzer and head for a hide/overwatch position. If the RSV had had less ammunition on board, the POC might have ordered it to rendezvous with another RSV to transfer the remaining ammunition and fuel. The RSV then would have moved to the logistics resupply point (LRP) for a complete ammunition/fuel upload.

About 1,500 meters up the road from the howitzer resupply point, the RSV computer alerts the crew to a minefield reported recently by a friendly unit and recommends the RSV detour to the south to miss it. Without missing a beat, Jackson steers the RSV off the trail and begins to travel cross-country.

Even in the fast-paced, 24-hour operations of this high-tech war, Sergeant Mallory has confidence in his Crusader RSV's ability to keep him out of trouble and get him to the right place at the right time with the right ammo. His confidence is well-placed.

The Army's effort to digitize the battlefield has moved command and control capabilities down to individual combat vehicles. In effect, these vehicles will be smart—they'll know what's happening around them (situational awareness); they'll interact with other systems, vehicles and sensors; and they'll react to changes on the battlefield before soldiers are even aware of the changes.

The combat vehicles will be linked through the tactical internet (a virtual combat database) that will allow them to see a common picture of the combat situation. Combat information will be broadcasted on this tactical internet; if crew members need the information, they will pull it off the air. The smart vehicle then will be able to process the information locally and determine if it needs to react.

The Crusader howitzer will have these digital capabilities. It also will have a high rate of fire, significantly increased mobility and range, survivability and a one-howitzer time-on-target capability (fire up to eight rounds in sequence timed to land on one target simultaneously), all of which has been covered several times in this magazine.

The other half of the Crusader system, the RSV, also will be smart and have digital situational awareness and other technological leap-ahead capabilities that, paired with the Crusader howitzer, will give the force commander tremendous advantages. This article describes the RSV as a force multiplier on the battlefield when employed in concert with its Crusader howitzer.

Revolutionary Resupply

The Crusader RSV will be a quantum leap ahead of current ammo vehicles in terms of digitization. The RSV will know the locations of all howitzers, other RSVs and the LRP; analyze the terrain for trafficability; know the locations of all friendly and enemy hazards; and recommend a route to get from the LRP to the particular howitzer it will resupply. By combining reported information on enemy actions with real-time information from its own on-board sensors, the RSV will be able to alert the crew to potential threats in a timely manner and recommend alternate courses of action.

The resupply concepts being developed for Crusader will have impact on future resupply operations of tanks, mortar crews and air defense systems.

• *Mission Planning*. Crusader will use a combination of centralized planning and decentralized execution. The requesting howitzer will constantly know what ammo/fuel it has on board and generate a rearm/refuel request when its count hits predesignated trigger points.

In the scenario case, the howitzer sent the POC a resupply request for 50 rounds of DPICM, six rounds of SADARM and four rounds of illumination. Because RSVs will be operated using the pool concept rather than habitual association with specific howitzers, each RSV will be able to link up with any howitzer on the battlefield for resupply operations.

Under the pool concept, the POC will know what each RSV is carrying in its ammo magazines. If none of the RSVs can fill the order, the POC will recommend transloading the required ammunition from one RSV to another to accomplish the resupply.

In the scenario, the POC sent Sergeant Mallory's RSV the resupply order, and Sergeant Mallory took control of the mission. He used the system's decision aids to plan his route and time his move to meet up with the howitzer at the right time and place.

• *Status Reporting*. Each RSV will keep track of what ammunition and fuel it has on board. The RSV also will constantly analyze its own maintenance status. This status information will be shown on each of the three crewmembers' displays as color coded systems. The display will show the three RSVs in the platoon as brightly colored icons on the tactical map. Other RSVs in the battery will appear as gray icons (see Figure 1).

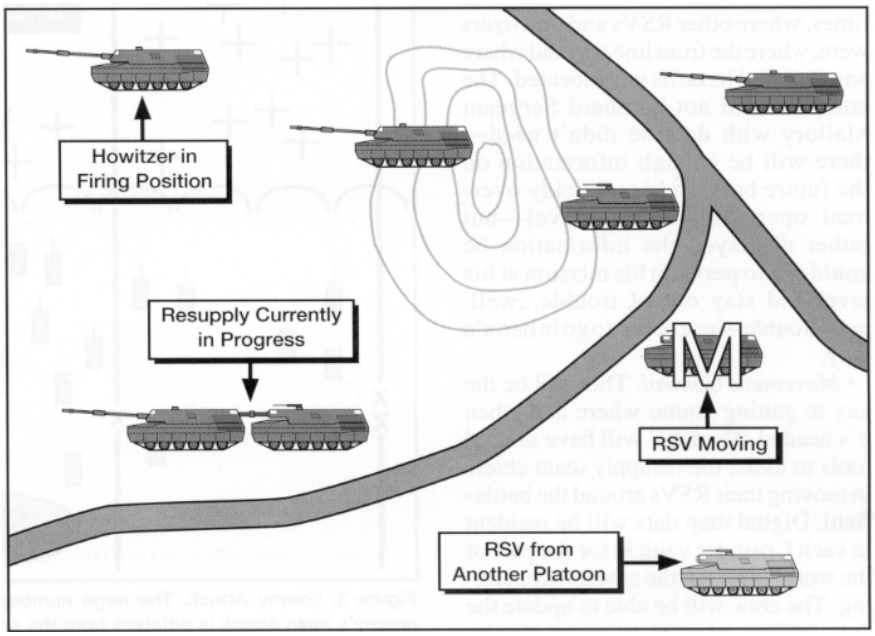


Figure 1: Conceptual Rendition of the Resupply Vehicle's Status Display

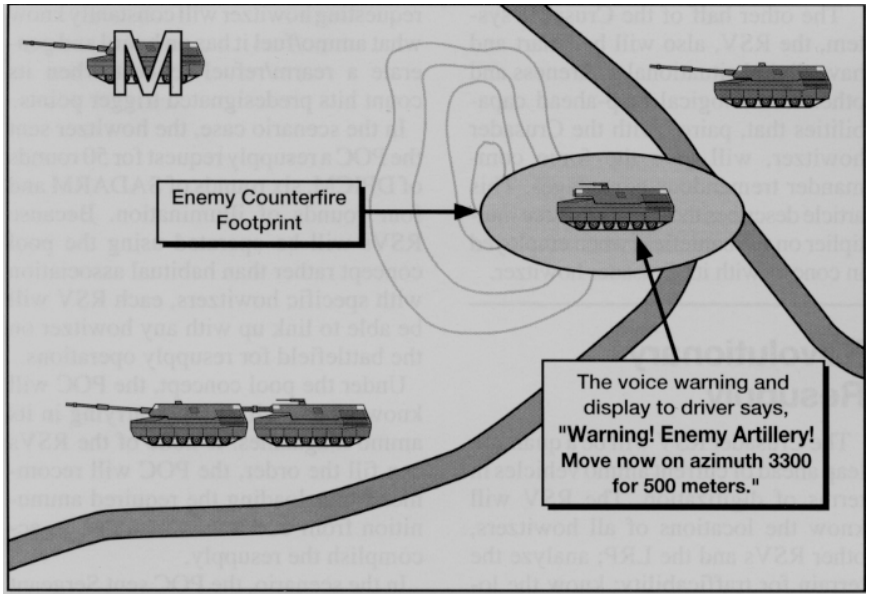
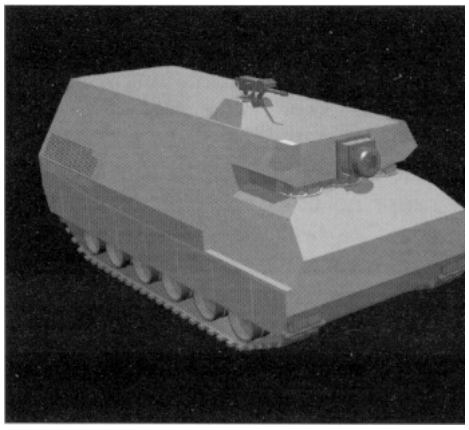


Figure 2: Conceptual Computer Display Warning of an Enemy Artillery Counterfire Footprint



Each combat vehicle will have a battlefield combat identification system (BCIS) that will identify other vehicles as either friend or foe.

• *Situational Awareness.* Combat information constantly will be broadcasted by multiple sources as friendly units move around the digital battlefield. Each combat vehicle will have a global positioning system (GPS) embedded in its computer and transmit its exact location according to thresholds (every "x" minutes or after moving "y" distance). Each combat vehicle will have a battlefield combat identification system (BCIS) that will identify other vehicles as either friend or foe.

Changes to battlefield graphics will be displayed on all vehicles. Sergeant Mallory's RSV knew where it was at all times, where other RSVs and howitzers were, where the front line was and where any reported hazards were located. The computer did not bombard Sergeant Mallory with data he didn't need—there will be enough information on the future battlefield to quickly overload operations at any level—but rather displayed the information he could use to perform his mission at his level and stay out of trouble...well, most trouble, since he has to go in harm's way.

• *Movement Control.* This will be the key to getting ammo where and when it's needed. The RSV will have several tools to assist the resupply team chiefs in moving their RSVs around the battlefield. Digital map data will be resident in each Crusader vehicle for the part of the world in which the system is operating. The crew will be able to update the data within minutes to meet contingency missions.

The movement control software will interact with the map data to plan the best route, considering road types, bridges, soil trafficability, slopes, vegetation, etc. The software also will display the recommended route, showing the destination (a howitzer to resupply or another RSV or LRP for uploading) and hazards if any in the vicinity, and give a start time for the RSV to be able to make the rendezvous.

When determining whether or not a resupply mission is do-able, the computer will consider time-distance factors. But even if the howitzer's requested resupply is 1000 at grid 23654698 and the RSV computes that it can't get there until 1002, the computer won't automatically reject the mission. It will just display the mission parameters and let the human make the decision.

On the battlefield, howitzers will be making frequent survivability moves—not a problem for resupply. Within a unit, every RSV will know where every howitzer is, all the time. If the LRP has to displace—no problem. The logistics officer in charge of the LRP can disseminate the new location digitally, and every RSV will know the new location.

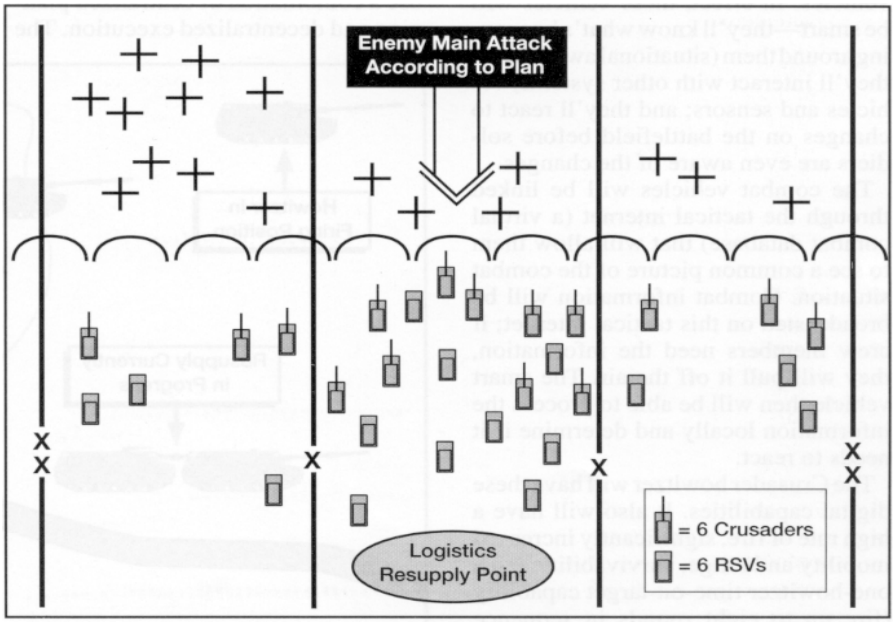


Figure 3: Enemy Attack. The large number of targets in the sector on the left show the enemy's main attack is different from the predicted attack in the center sector. This leaves one DS battalion in the left sector firing for the main attack.

• *Survivability.* The Crusader survivability suite will make the RSV the most survivable resupply vehicle ever. For example, if the RSV is in a reported hazardous area or threat counterfire foot-print, its computer will recommend it move in a direction that will get the vehicle out of danger in the least time (see Figure 2).

With the power of the Crusader computer and situational awareness, RSVs will be able to move out and in the safest direction. If a Crusader RSV is moving and its computer predicts it will drive into a firing position from which a Crusader howitzer just made a survivability move-a potential threat counterfire foot-print-it will alert the driver and recommend a route around the footprint.

Other Crusader survivability features will include DPICM-proof armor and a remotely controlled grenade launcher to counter ground threats.

• *Digital Data Transfer.* The RSV will carry "bulk" digital information between the battery and the howitzer or vice versa-data that would otherwise tie up critical SINCGARS bandwidths. Map data, plans information, maintenance and other logistical data are some examples of data that could be exchanged using this "sneaker transfer" methodology. In addition, the RSV will carry digital information about less-urgent maintenance or personnel issues back from the howitzer to the battery.

Because the RSV will use the same software as the Crusader howitzer (minus some applications, such as ballistics), it will be able to restore howitzer databases, as necessary.

• *Ammunition Movement.* The RSV will be able to weight the battlefield toward friendly force victory. If a battle doesn't unfold as predicted, the commander might find the enemy attacking in a sector that has only one direct support (DS) battalion—as opposed to several in the predicted avenue of attack. (See Figure 3.)

Because the Crusader howitzer will have such a high rate of fire—10 to 12 rounds per minute—the real challenge for the Crusader DS battalion in the sector being attacked will be getting enough ammunition. Given enough ammo, the battalion will be able to hold off an attack by a significant force until reinforcements arrive.

As a smart vehicle, the RSV can react quickly if the commander decides to move ammunition to the endangered sector. In the case depicted in Figure 3, the division commander orders a nearby reinforcing battalion to transfer operational control of half its RSVs and 900 rounds of DPICM to the left sector within 20 minutes. He also calls for Crusader howitzers in the center sector to support the left sector in the general support reinforcing (GSR) role (see Figure 4). The division artillery S3 then can reallocate the remaining vehicles to meet the longer range implications of the commander's order and move division ammunition assets to help.

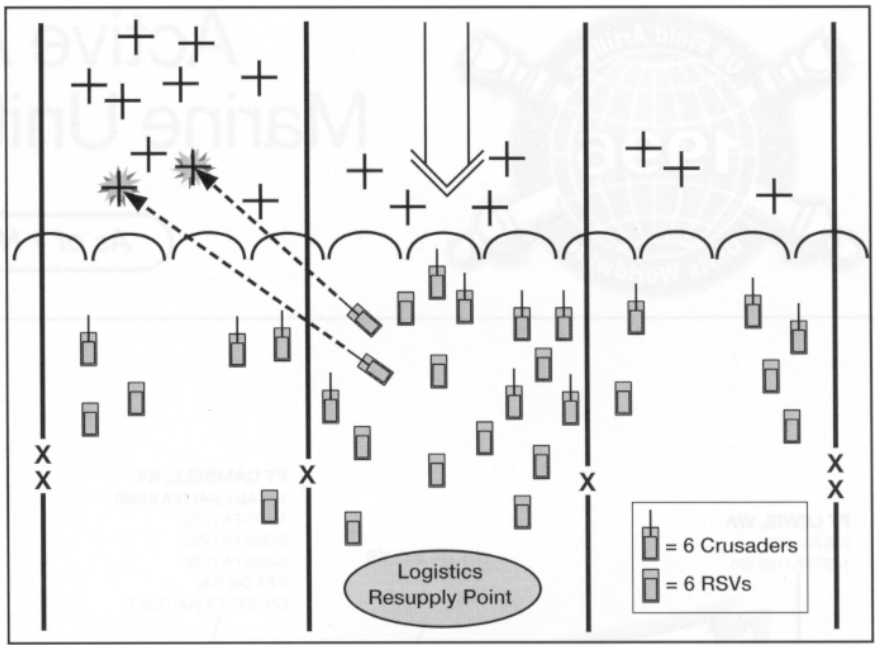


Figure 4: Friendly Force Reaction. The division commander quickly starts moving RSVs to the left sector. With Crusader's high rate of fire, RSVs carrying enough ammo can weight the battlefield. Meanwhile, the commander has Crusaders in the middle sector fire in the general support reinforcing (GSR) role until the RSVs arrive, allowing the one DS battalion to hold off the attack until reinforcements arrive.

Crusader will revolutionize artillery operations and change the face of battle. As a part of those operations, the unique Crusader RSV will revolutionize the way we rearm/refuel on the 21st century battlefield.

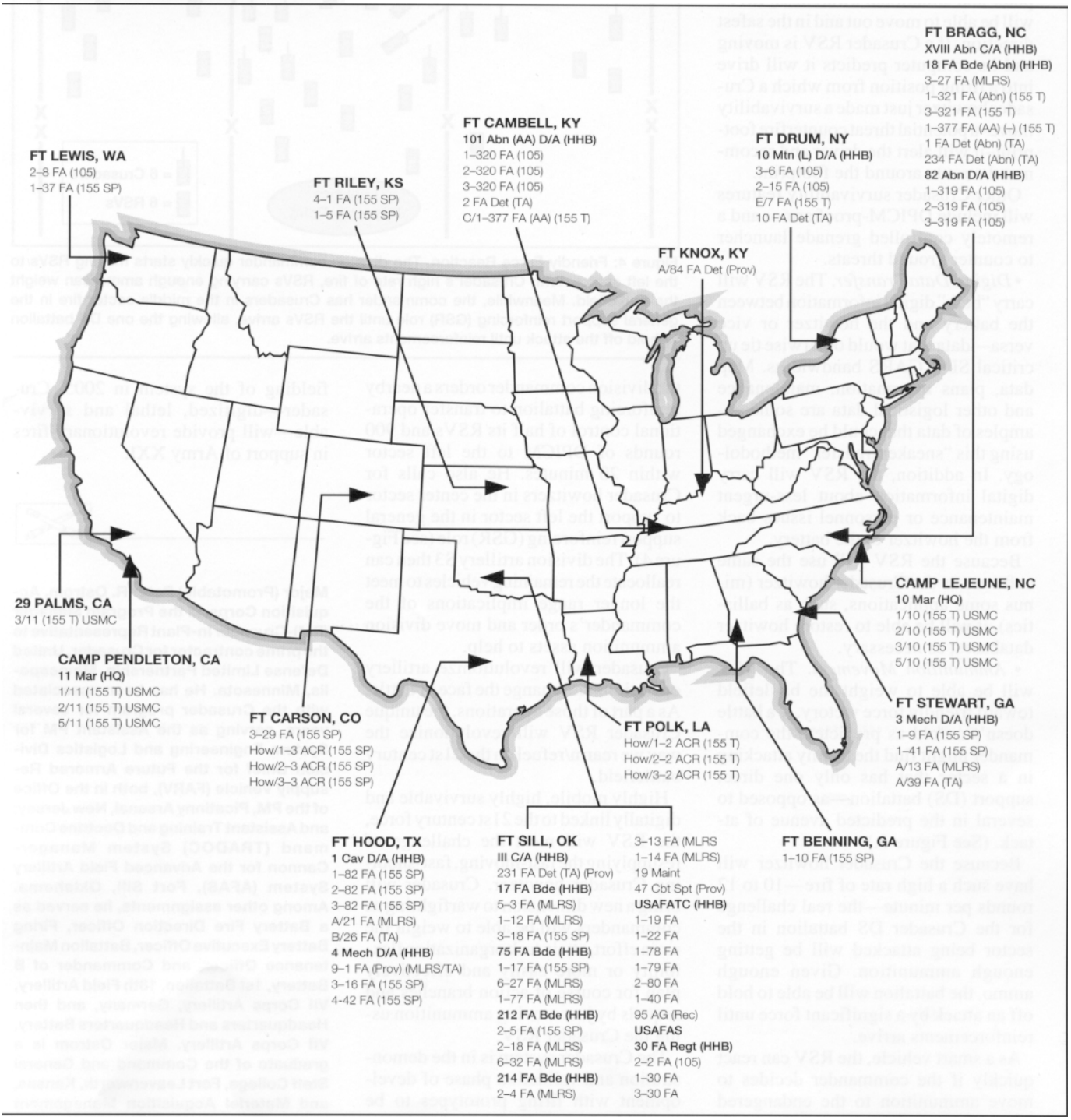
Highly mobile, highly survivable and digitally linked to the 21st century force, the RSV will meet the challenge of resupplying the fast-moving, fast-shooting Crusader howitzer. Crusader will bring a new dimension to warfighting as commanders will be able to weight the main effort, attain task organization flexibility or more easily and effectively plan for course of action branches and sequels by just moving ammunition using the Crusader RSV.

The Crusader system is in the demonstration and validation phase of development with firing prototypes to be available in late 1998 to support the fielding of the system in 2005. Crusader—digitized, lethal and survivable—will provide revolutionary fires in support of Army XXI.

Major (Promotable) Peter R. Ostrom, Acquisition Corps, is the Program Manager (PM)-Crusader In-Plant Representative to the prime contractor for Crusader, United Defense Limited Partnership, Minneapolis, Minnesota. He has been associated with the Crusader program for several years, serving as the Assistant PM for System Engineering and Logistics Division Chief for the Future Armored Resupply Vehicle (FARV), both in the Office of the PM, Picatinny Arsenal, New Jersey; and Assistant Training and Doctrine Command (TRADOC) System Manager-Cannon for the Advanced Field Artillery System (AFAS), Fort Sill, Oklahoma. Among other assignments, he served as a Battery Fire Direction Officer, Firing Battery Executive Officer, Battalion Maintenance Officer, and Commander of B Battery, 1st Battalion, 18th Field Artillery, VII Corps Artillery, Germany, and then Headquarters and Headquarters Battery, VII Corps Artillery. Major Ostrom is a graduate of the Command and General Staff College, Fort Leavenworth, Kansas, and Materiel Acquisition Management Course, Fort Lee, Virginia.

Active Army and Marine Units in **CONUS**

As of 1 November 1996



Active Army and Marine Units in **OCONUS**

As of 1 November 1996

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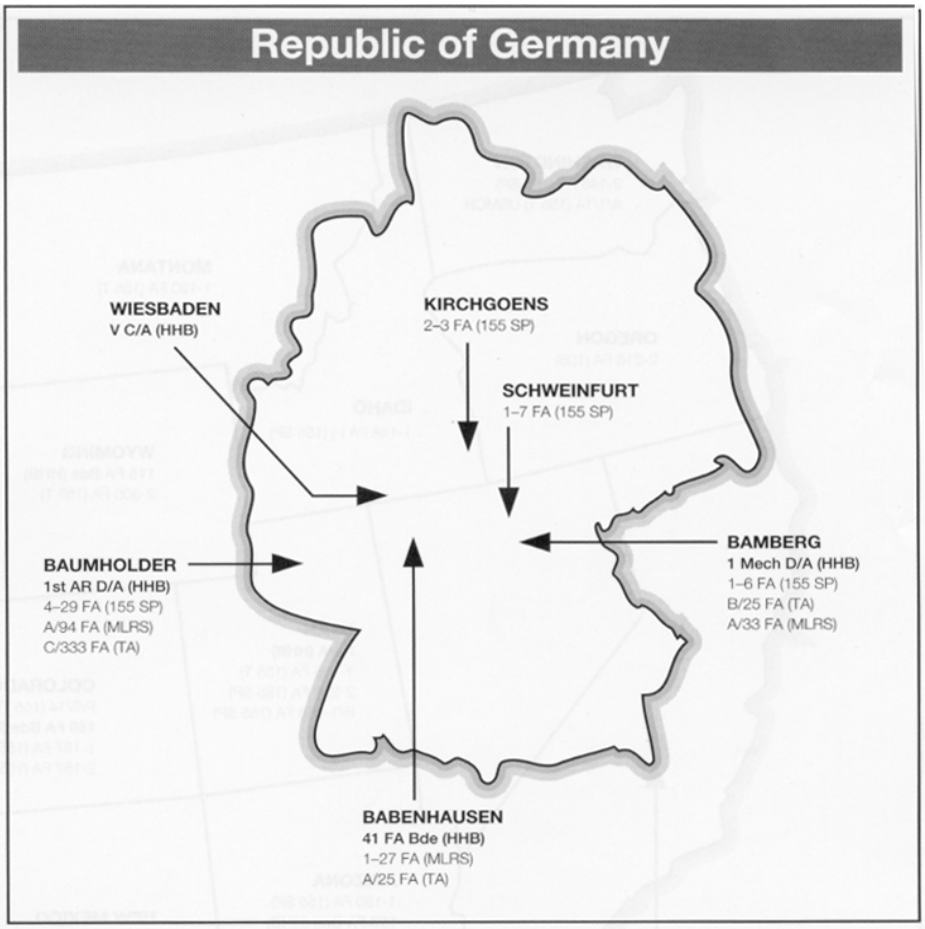
Republic of Germany



Okinawa

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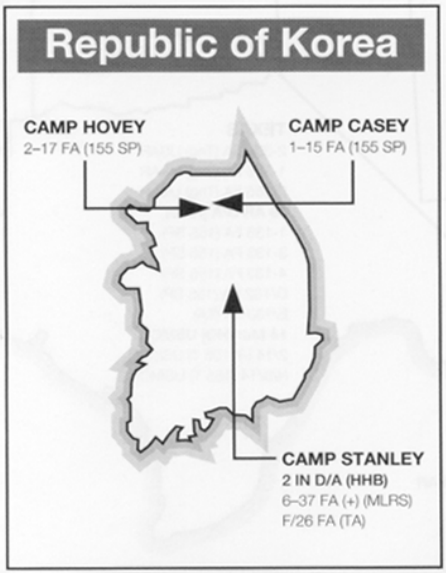

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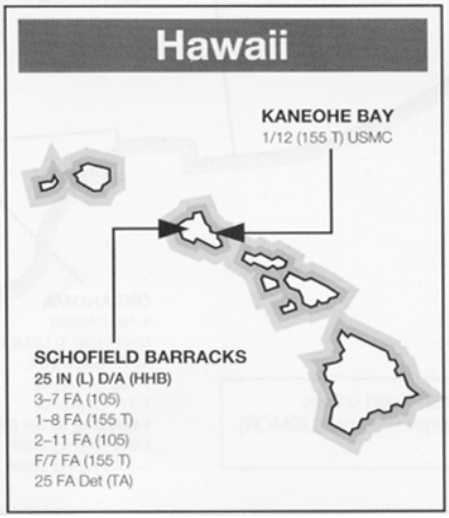
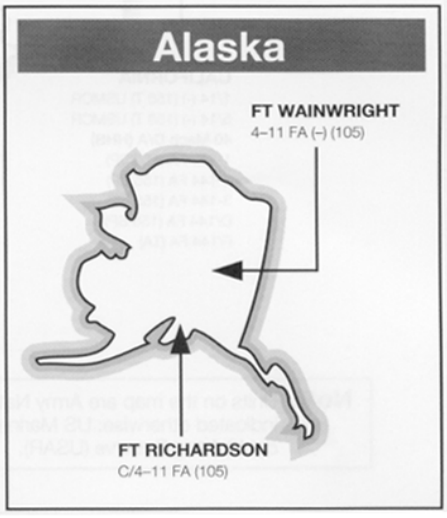
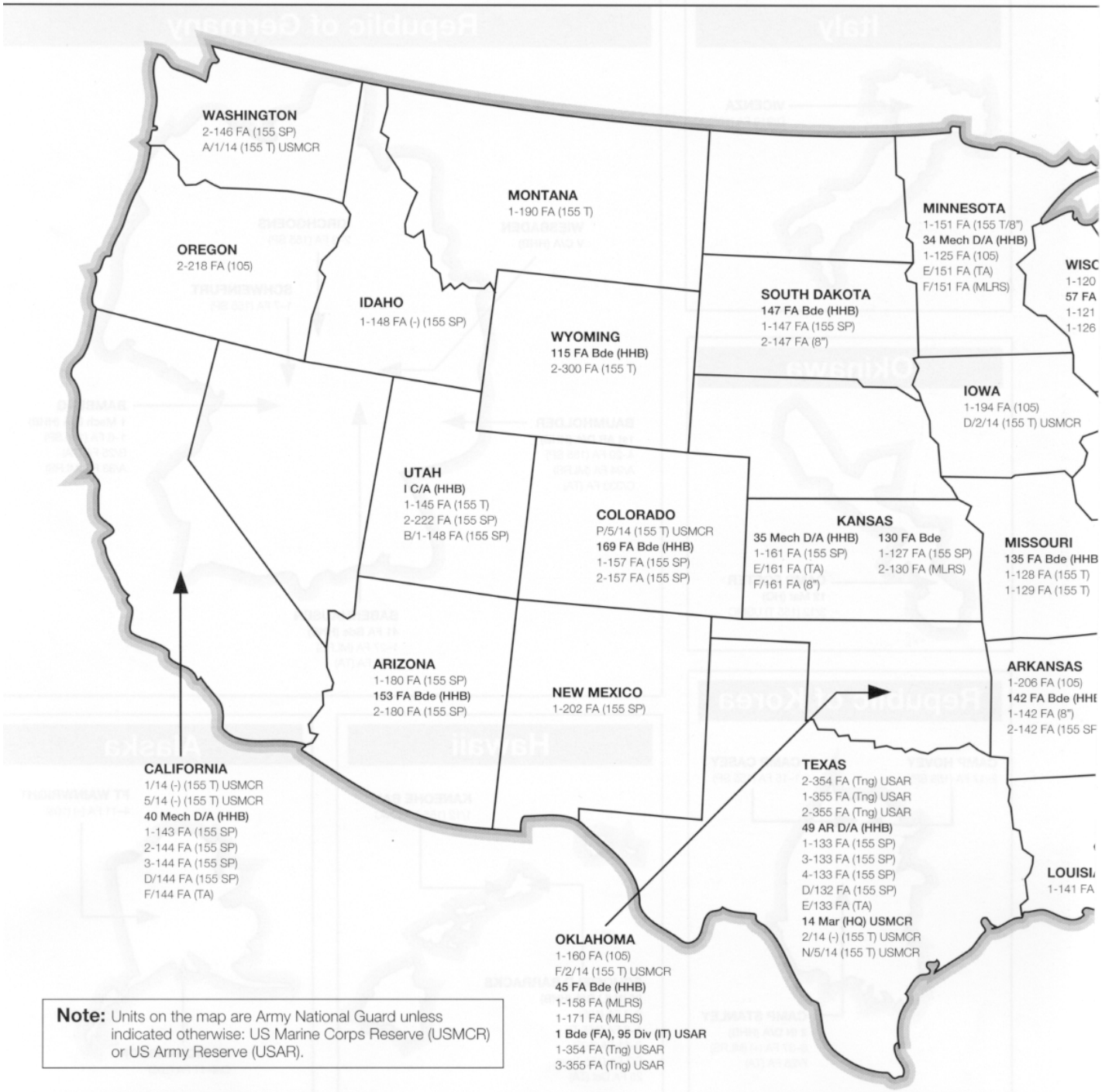


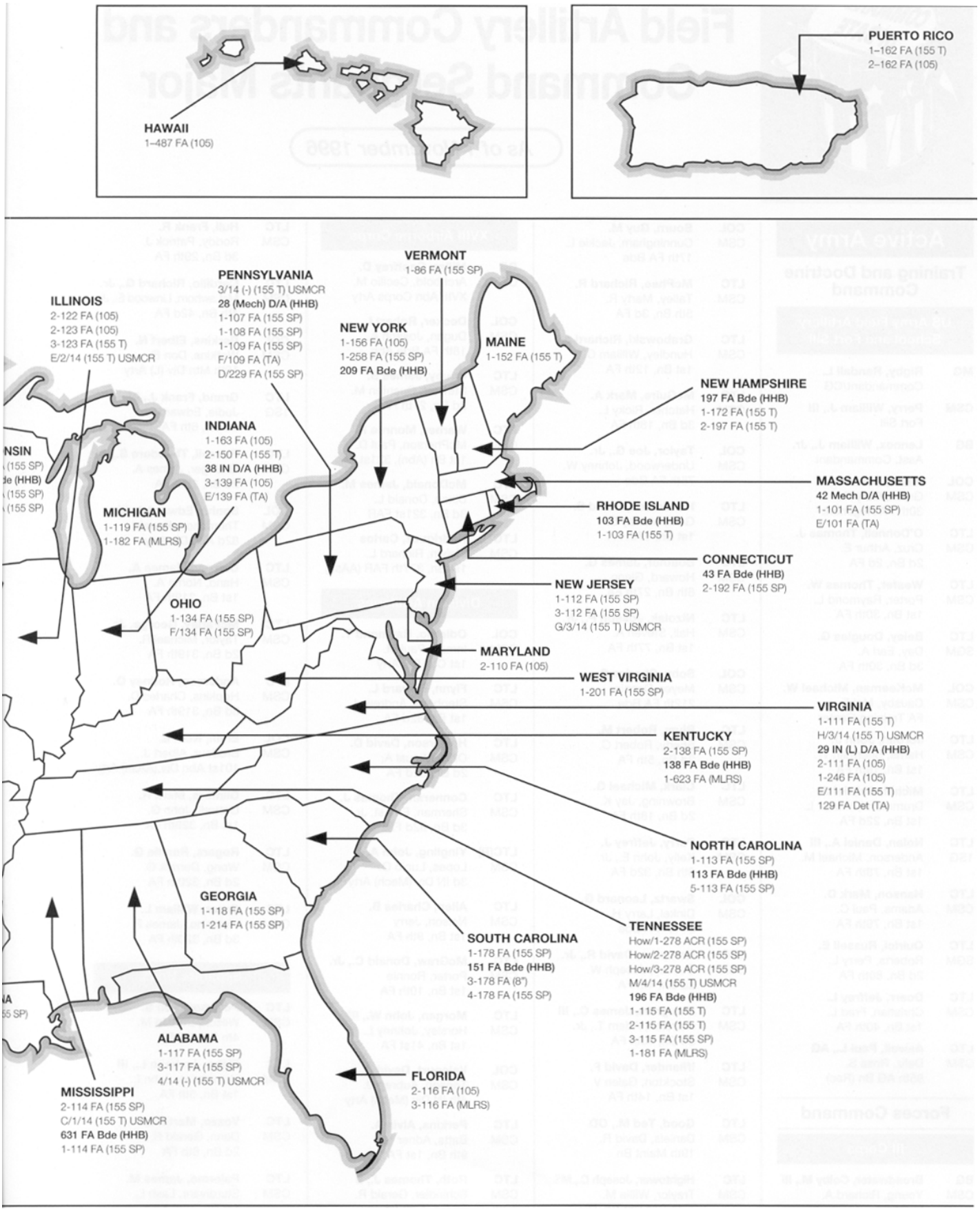
Alaska



Army National Guard and Army/Marine Reserves

As of 1 November 1996

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D/229 FA (155 SP)
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NEW YORK
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MAINE
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197 FA Bde (HHB)
1-172 FA (155 T)
2-197 FA (155 T)
INDIANA
1-163 FA (105)
2-150 FA (155 T)
38 IN D/A (HHB)
3-139 FA (105)
E/139 FA (TA)
MASSACHUSETTS
42 Mech D/A (HHB)
1-101 FA (155 SP)
E/101 FA (TA)
MICHIGAN
1-119 FA (155 SP)
1-182 FA (MLRS)
RHODE ISLAND
103 FA Bde (HHB)
1-103 FA (155 T)
CONNECTICUT
43 FA Bde (HHB)
2-192 FA (155 SP)
NEW JERSEY
1-112 FA (155 SP)
3-112 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
1-111 FA (155 T)
H/3/14 (155 T) USMCR
29 IN (L) D/A (HHB)
2-111 FA (105)
1-246 FA (105)
E/111 FA (155 T)
129 FA Det (TA)
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 (8")
4-178 FA (155 SP)
ALABAMA
1-117 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

As of 1 November 1996

Active Army

Training and Doctrine Command

US Army Field Artillery School and Fort Sill

MG **Rigby, Randall L.**
Commandant/CG

CSM **Perry, William J., III**
Fort Sill

BG **Lennox, William J., Jr.**
Asst. Commandant

COL **White, David C.**
CSM Green, Gary R.
30th FA Regiment

LTC **O'Donnell, Thomas J.**
CSM Cruz, Arthur E.
2d Bn, 2d FA

LTC **Weafer, Thomas W.**
CSM Porter, Raymond L.
1st Bn, 30th FA

LTC **Beley, Douglas G.**
SGM Day, Earl A.
3d Bn, 30th FA

COL **McKeeman, Michael W.**
CSM Causby, Mal E.
FA Training Center

LTC **Jordan, John J.**
CSM Harris, Sherman W.
1st Bn, 19th FA

LTC **Michel, Gabriel J.**
CSM Drummond, Walter L.
1st Bn, 22d FA

LTC **Nolan, Daniel A., III**
1SG Anderson, Michael M.
1st Bn, 78th FA

LTC **Hanson, Mark D.**
CSM Adams, Paul C.
1st Bn, 79th FA

LTC **Quirici, Russell E.**
SGM Roberts, Perry L.
2d Bn, 80th FA

LTC **Doerr, Jeffrey L.**
CSM Christian, Fred L.
1st Bn, 40th FA

LTC **Aswell, Paul L., AG**
CSM Daliz, Rosa S.
95th AG Bn (Rec)

Forces Command

III Corps

BG **Broadwater, Colby M., III**
CSM Young, Richard A.
III Corps Arty

COL **Bourn, Guy M.**
CSM Cunningham, Jackie L.
17th FA Bde

LTC **McPhee, Richard R.**
CSM Talley, Marty R.
5th Bn, 3d FA

LTC **Grabowski, Richard A.**
CSM Hundley, William C.
1st Bn, 12th FA

LTC **McGuire, Mark A.**
CSM Hatcher, Ricky L.
3d Bn, 18th FA

COL **Taylor, Joe G., Jr.**
CSM Underwood, Johnny W.
75th FA Bde

LTC **Henderson, David S.**
CSM Gant, Murray S.
1st Bn, 17th FA

LTC **Boatner, James G.**
CSM Howard, Glenn
6th Bn, 27th FA

LTC **Nizolak, Joseph P., Jr.**
CSM Hall, Steven A.
1st Bn, 77th FA

COL **Soby, Charles S.**
CSM Meyer, Dennis
212th FA Bde

LTC **Blum, Robert M.**
CSM Shady, Robert C.
2d Bn, 5th FA

LTC **Clark, Michael G.**
CSM Browning, Jay K.
2d Bn, 18th FA

LTC **Perry, Jeffrey J.**
CSM Kelly, John E., Jr.
6th Bn, 32d FA

COL **Swartz, Leonard G.**
CSM Dinkel, Larry H.
214th FA Bde

LTC **Hampton, David R., Jr.**
CSM Stanley, Joseph W.
2d Bn, 4th FA

LTC **Moughon, James C., III**
CSM Hairston, Adam T., Jr.
3d Bn, 13th FA

LTC **Ifflander, David F.**
CSM Stockton, Galen V.
1st Bn, 14th FA

LTC **Good, Ted M., OD**
CSM Daniels, David R.
19th Maint Bn

LTC **Hightower, Joseph C., MS**
CSM Traylor, Willie M.
47th Cbt Spt Bn (Prov)

XVIII Airborne Corps

BG **Miller, Geoffrey D.**
CSM Archbold, Cecilio M.
XVIII Abn Corps Arty

COL **Decker, Robert L.**
CSM Dugan, Joseph A.
18th FA Bde Abn

LTC **Couey, James S.**
CSM Stewart, Quenten M.
3d Bn, 27th FAR

LTC **Warner, Monroe P.**
CSM McPherson, Paul D.
1st Bn (Abn), 321st FA

LTC **McDonald, James M.**
CSM Dixon, Donald L.
3d Bn, 321st FAR

LTC **Rodriguez, Carlos**
CSM Melvin, Richard L.
1st Bn, 377th FAR (AAslt)

Division Artilleries

COL **Odierno, Raymond T.**
CSM Inman, Paul M.
1st Cav Div Arty

LTC **Flynn, Edward L.**
CSM Stephens, Andrew J.
1st Bn, 82d FA

LTC **Halverson, David D.**
CSM Ortiz, Migual A.
2d Bn, 82d FA

LTC **Conneran, Thomas J.**
CSM Sherman, Ernest, Jr.
3d Bn, 82d FA

LTC(P) **Yingling, John A.**
CSM Lopes, Lucio O.
3d IN Div (Mech) Arty

LTC **Allen, Charles B.**
CSM Nelson, Jerry
1st Bn, 9th FA

LTC **McGraw, Donald C., Jr.**
CSM Porter, Ronnie
1st Bn, 10th FA

LTC **Morgan, John W., III**
CSM Horsley, Johnny L.
1st Bn, 41st FA

COL **Valcourt, David P.**
CSM Tooson, Aubrey D.
4th IN Div (Mech) Arty

LTC **Perkins, Alvin A.**
CSM Batts, Adner M.
9th Bn, 1st FA

LTC **Roth, Thomas J., II**
CSM Schindler, Gerald R.
3d Bn, 16th FA

LTC **Hull, Frank R.**
CSM Roddy, Patrick J.
3d Bn, 29th FA

LTC **Cardillo, Richard G., Jr.**
CSM McLawhorn, Linwood E., Jr.
4th Bn, 42d FA

COL **Perkins, Elbert N.**
CSM Watkins, Don B.
10th Mtn Div (L) Arty

LTC **Grand, Frank J., III**
1SG Judie, Edward, Jr.
3d Bn, 6th FA

LTC **Russell, Theodore S., Jr.**
CSM Grainger, James A.
2d Bn, 15th FA

COL **Spohn, Edward A. III**
CSM Thompson, Ronald
82d Abn Div Arty

LTC **Cerrone, James A.**
CSM Hand, Norris A.
1st Bn, 319th FA

LTC **McFarley, George, Jr.**
CSM Taylor, Michael R.
2d Bn, 319th FA

LTC **Anderson, Rodney O.**
CSM Hopkins, Charles D.
3d Bn, 319th FA

COL **Ervin, Kent E.**
CSM Brodeur, Albert J.
101st Abn Div (AAslt) Arty

LTC **Gilmore, Mark R.**
CSM Cottrell, John G.
1st Bn, 320th FA

LTC **Rogers, Ronnie G.**
CSM Wong, Derrick G.
2d Bn, 320th FA

LTC **Greer, William L.**
CSM Victorino, James P.
3d Bn, 320th FA

Separate Units

LTC **Peterson, Leo S.**
CSM Wilson, Donald M.
4th Bn, 1st FA

LTC **Flake, Jackson L., III**
CSM Humphries, John L.
1st Bn, 5th FA

LTC **Vozzo, Martin L.**
CSM Dunn, Gerald R.
2d Bn, 8th FA

LTC **Palermo, James M.**
CSM Sturdivant, Lash L.
1st Bn, 37th FA

COL **Chambless, James R.**
MSG Hammonds, J. D.
TEXCOM Fire Support Dir

LTC **Pfleeger, David J.**
1SG Rodriguez, Inocencio
Fort Chaffee

United States Army Europe

V Corps

COL **Tetu, William J.**
CSM Kermode, William J.
V Corps Arty

COL **Seay, Stephen M.**
CSM Ostos, Joseph M.
41st FA Bde

LTC **Steinke, Ralph R.**
CSM King, Dennis M.
1st Bn, 27th FA

Division Artilleries

COL **Thrasher, Alan W.**
CSM Nelson, George H.
1st AR Div Arty

LTC **Peiper, Kenneth L.**
CSM Allen, John G.
2d Bn, 3d FA

LTC **Hammond, Jeffery W.**
CSM Bean, Walter L.
4th Bn, 29th FA

COL **Smith, Robert L.**
CSM Foster, Thomas H., III
1st IN Div (Mech) Arty

LTC **Young, Morris M.**
CSM Woods, James T.
1st Bn, 6th FA

LTC **Bergner, Kevin J.**
CSM Castillo, Ivan A.
1st Bn, 7th FA

US Army Pacific

Division Artilleries

COL **Hartsell, Lynn**
CSM Purdy, Karl L.
2d IN Div Arty

LTC **Fitzgerald, Michael D.**
CSM Odom, Gene
1st Bn, 15th FA

LTC **Parker, Kevin S.**
CSM Walker, Jimmy
2d Bn, 17th FA

LTC **Oaksmith, Sidney G.**
CSM Shelly, Earl L.
6th Bn, 37th FA

COL **Woods, John C.**
CSM Williams, Anthony J.
25th IN Div (L) Arty

LTC **Rooney, John P.**
CSM Broadwater, William B.
3d Bn, 7th FA

LTC **Andrews, Ronald J.**
CSM Freeman, Lesley, Jr.
1st Bn, 8th FA

LTC **Lewis, Allen D., Jr.**
CSM Shaw, Oscar, Jr.
2d Bn, 11th FA

Separate Unit

LTC **Strong, John L.**
1SG Ramirez, Armando
4th Bn, 11th FA

Army National Guard

I Corps

COL(P) **Baysinger, Howard E., Jr.**
CSM Walbeck, William B.
I Corps Arty

LTC **Nelson, Dale G.**
CSM Stone, Steven T.
1st Bn, 145th FA

LTC **Wilson, Patrick D.**
CSM Alger, Don R.
2d Bn, 222d FA

Brigades

COL **Raphael, John D.**
CSM Mullen, James
43d FA Bde

LTC **Kelly, Edward V.**
CSM Duddie, Joseph, Jr.
2d Bn, 192d FA

COL **McCall, Daryl K.**
CSM Watts, Charles W.
45th FA Bde

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

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

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

LTC **Schrader, Edward C.**
CSM Weller, Gary P.
1st Bn, 121st FA

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

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

LTC **Morris, Raymond A., Jr.**
CSM McDonough, John J.
1st Bn, 103d FA

COL **Taylor, Robert E., Jr.**
CSM Ingram, Larry G.
113th FA Bde

LTC **Swett, Frank M., Jr.**
CSM Ellington, Orman B., Jr.
5th Bn, 113th FA

COL **Weiser, James A.**
CSM Kidd, Ernest T.
115th FA Bde

LTC **Hermanson, Patrick M.**
CSM Varner, Marvin S.
1st Bn, 190th FA

LTC **Kelly, Gary E.**
CSM Hoopes, William L.
2d Bn, 300th FA

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

LTC **McAuley, John M.**
CSM Althouse, Michael D.
1st Bn, 127th FA

LTC **Foster, John S.**
CSM Bahr, Ronald E.
2d Bn, 130th FA

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

MAJ(P) **Petrich, Robert A.**
CSM Rich, William B., II
1st Bn, 128th FA

MAJ(P) **Heldenbrand, Dennis W.**
CSM Green, Roger B.
1st Bn, 129th FA

LTC **Zieska, Kenneth W., Jr.**
CSM Wog, Richard H.
1st Bn, 151st FA

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

LTC **Curtin, Michael J.**
CSM Hoffman, William F.
1st Bn, 623d FA

COL **Cox, Norman J.**
CSM Fagala, Robin F.
142d FA Bde

LTC **Ross, G. Michael**
CSM Kelly, Clarence H.
1st Bn, 142d FA

LTC **Moore, Russell A.**
CSM Bull, Jack R.
2d Bn, 142d FA

COL **Whipple, Frank W.**
CSM Hurney, Richard J.
147th FA Bde

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

LTC **Hawley, Spencer L.**
CSM Logan, Richard L.
2d Bn, 147th FA

COL **Geddings, Friendly R.**
CSM Smith, James D.
151st FA Bde

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

LTC **Richardson, Henry B., Jr.**
CSM Ward, Franklin P.
4th Bn, 178th FA

COL **Perry, Gerald L.**
CSM Chino, Lara
153d FA Bde

LTC **Hutton, Billy J., Jr.**
MSG(P) Morris, William E.
2d Bn, 180th FA

COL **Tyson, John M.**
CSM Rowan, Thomas D.
169th FA Bde

LTC **O'Hara, Patrick M.**
CSM Holt, Larry D.
1st Bn, 157th FA

LTC **Hladkyj, Y. R.**
CSM Dehn, William A.
2d Bn, 157th FA

COL **Moore, William R.**
CSM McDaniel, John C., Jr.
196th FA Bde

LTC **Harris, Robert A.**
CSM Pratt, John R.
1st Bn, 115th FA

LTC **Miller, Lonnie R.**
CSM Stevens, Barrett M.
2d Bn, 115th FA

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

LTC **Jones, Walter M.**
CSM Gentry, Gary J.
1st Bn, 181st FA

COL **Murphey, Lawrence H.**
CSM Crotto, Gregory H.
197th FA Bde

LTC **Scogin, Travis F.**
CSM O'Brien, John B.
1st Bn, 172d FA

MAJ(P) **Guise, James R.**
CSM Starr, John D.
2d Bn, 197th FA

COL **Winter, Brian D.**
CSM Flye, Jerome E.
209th FA Bde

COL **Farris, Joe P.**
CSM Cowley, Gerald R.
631st FA Bde

LTC **Willingham, Joe D.**
CSM Cummins, Ancle W.
1st Bn, 114th FA

Division Artilleries

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

LTC **Golden, Paul D.**
CSM Houston, David J.
1st Bn, 107th FA

MAJ **Gerstenlauer, David L.**
CSM Buch, Howard W., Jr.
1st Bn, 108th FA

LTC **Schrlau, George E.**
CSM Vonstein, Dale T.
1st Bn, 109th FA

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

MAJ **Graf, Donald M.**
CSM Forraster, Clarence
2d Bn, 110th FA

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

LTC **Bramlitt, Carl W.**
CSM Glazener, Edwin H.
1st Bn, 246th FA

COL **Warnock, Tracy T.**
CSM Peterson, Leslie D.
34th IN Div (Mech) Arty

LTC **Kautt, William J., III**
CSM Beranek, Steven W.
1st Bn, 125th FA

LTC **Bierl, Russell V.**
CSM Peters, David B.
1st Bn, 194th FA

MAJ(P) **Kelly, Kenneth E.**
CSM Middleton, William E., Sr.
2d Bn, 122d FA

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

LTC **Nicholas, Robert M.**
CSM Supplee, James L.
2d Bn, 138th FA

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

COL **Peterman, Roger D.**
CSM Shelton, Joseph D.
38th IN Div Arty

LTC **Peters, Mark R.**
CSM Wierman, Michael L.
1st Bn, 119th FA

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

MAJ(P) **White, James R.**
CSM Nicholson, Jerry D.
3d Bn, 139th FA

COL **Kelley, William J., Jr.**
CSM Andrews, Gary W.
40th IN Div (Mech) Arty

LTC **Landrith, Gary S.**
CSM Duran, Jesse
1st Bn, 143d FA

MAJ(P) **Hood, Chris A.**
CSM Pointer, John W.
2d Bn, 144th FA

LTC **Gee, David W.**
MSG Stanton, Kenneth E.
3d Bn, 144th FA

COL **Russell, Edward H.**
CSM Blevins, Johnnie L.
42d IN Div (Mech) Arty

LTC **Delaney, Michael J.**
CSM Engler, Paul D.
1st Bn, 101st FA

LTC **Finck, William H.**
CSM Szymborski, Stanley C.
1st Bn, 112th FA

MAJ(P) **Watson, Robert E.**
CSM Newman, Frank T., Jr.
3d Bn, 112th FA

MAJ(P) **Overton, Clyde L., Jr.**
CSM Adinolfi, Albert
1st Bn, 258th FA

COL **Ortiz, Victor M., Jr.**
CSM Dean, Danny
49th AR Div Arty

LTC **Chapman, Jimmy H.**
CSM Rigsby, Hulen T., III
1st Bn, 133d FA

LTC **Villarreal, Pedro G.**
CSM Talbot, Joseph E.
3d Bn, 133d FA

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

Separate Units

LTC **McCoy, Matthew A.**
CSM Whitney, Gerald D.
1st Bn, 86th FA

MAJ **Taylor, Charles D.**
SGM Tate, George V.
1st Bn, 111th FA

LTC **Martin, Mabry E.**
CSM Travis, Ronald K.
1st Bn, 113th FA

MAJ(P) **Bailey, Larry J.**
CSM Marlow, Johnny N.
2d Bn, 114th FA

LTC **Malloy, John M.**
CSM Bateman, James M.
2d Bn, 116th FA

LTC **Alford, David R.**
CSM Danley, Dwight L.
3d Bn, 116th FA

LTC **Pyron, Walter L.**
CSM Jackson, Charles R.
1st Bn, 117th FA

LTC **Gable, Charles L.**
CSM Snyder, Pugh K.
3d Bn, 117th FA

LTC **Nessmith, Charles R.**
CSM Allen, Thomas G.
1st Bn, 118th FA

LTC **Disher, Gregory R.**
CSM Shapiro, Marc O.
1st Bn, 120th FA

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

LTC **Young, Walter F.**
CSM Dagley, Joe P.
3d Bn, 123d FA

LTC **Hennigan, John R.**
CSM Tyrrell, Patrick J.
1st Bn, 141st FA

LTC **Weaver, Ronald L.**
CSM Forsman, Joe V.
2d Bn, 146th FA

LTC **Flynn, Fred V., Jr.**
MSG(P) Autenrieth, Robert E.
1st Bn, 148th FA

LTC **Cleaves, Arthur W.**
CSM Rolfe, Randall G.
1st Bn, 152d FA

LTC **Morelli, Dominic A.**
CSM Hoetker, John A.
1st Bn, 156th FA

LTC **Bray, Gary D.**
CSM Bates, John B.
1st Bn, 160th FA

LTC **Rivera, Agustin**
CSM Ostero, Luis
1st Bn, 162d FA

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

LTC **Lynch, Stephen L.**
CSM Mattingly, James R.
1st Bn, 163d FA

LTC **Fudger, Wesley J.**
CSM Sexton, Jimmie R.
1st Bn, 178th FA

LTC **Borrmann, Donald W.**
CSM Gates, James A.
1st Bn, 180th FA

LTC **Meyers, Berri K.**
CSM Young, Robert L.
1st Bn, 182d FA

LTC **Holland, Richard E.**
CSM Harman, John E.
1st Bn, 201st FA

LTC **McCormack, Daniel J.**
CSM Piedra, Abraham A.
1st Bn, 202d FA

LTC **Brackin, John L.**
CSM Powell, Larry N.
1st Bn, 206th FA

LTC **Dudney, Lawrence E., Jr.**
CSM Hewell, Gerald M.
1st Bn, 214th FA

LTC **Webber, Craig A.**
CSM Smith, Joseph A.
2d Bn, 218th FA

LTC **Spear, Bruce D.**
MSG Inouye, Robert N.
1st Bn, 487th FA

Army Reserve

Training Brigade

COL **Shafer, Robert L.**
CSM Carter, Garry L.
1st Bde (FA), 95th Div (IT)

MAJ(P) **Hatfield, Mark C.**
CSM Coleman, Eddie
1st Bn, 354th FA (Tng)

LTC **Wolfram, Walter P.**
CSM Anders, William E.
2d Bn, 354th FA (Tng)

LTC **Faust, Daniel G.**
CSM Donahue, Robert F.
1st Bn, 355th FA (Tng)

LTC **Centracco, Robert M.**
CSM Brurnley, Benney J.
2d Bn, 355th FA (Tng)

MAJ(P) **Gebhardt, Richard**
CSM Wedding, Dale T.
3d Bn, 355th FA

Marines

Col **Sachtleben, James L.**
SgtMaj Anthony, John A.
10th Marines

LtCol **Pace, James A.**
SgtMaj Adams, Charles E., Jr.
1st Bn, 10th Mar

LtCol **Lehockey, John D.**
SgtMaj Morris, Charles R.
2d Bn, 10th Mar

LtCol **Garner, John M.**
SgtMaj Thompson, Lawrence E.
3d Bn, 10th Mar

LtCol **Dozier, Robert D.**
SgtMaj Cruz, Anthony A.
5th Bn, 10th Mar

Col **Weber, Joseph F.**
SgtMaj Truscott, Gary G.
1th Marines

Col **Heim, Alan P.**
SgtMaj Veator, Donald G.
1st Bn, 11th Mar

LtCol **Marletto, Michael P.**
SgtMaj Mazella, Patrick A.
2d Bn, 11th Mar

LtCol **Pino, Eugenio G.**
SgtMaj Craig, Bruce A.
3d Bn, 11th Mar

LtCol **Montgomery, Douglas J.**
SgtMaj Anderson, C. D.
5th Bn, 11th Mar

Col **Supko, Leonard M.**
SgtMaj Deas, Joseph B.
12th Marines

LtCol **Vietti, Kevin A.**
SgtMaj Acres, Gary
1st Bn, 12th Mar

LtCol **Barile, David J.**
SgtMaj Kent, Carlton W.
3d Bn, 12th Mar

Col **Gido, Paul A.**
SgtMaj Martin, Willie J.
14th Marines

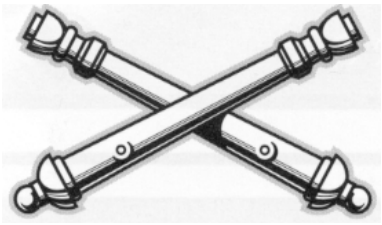
LtCol **Kaminski, Timothy J.**
MGySgt Fulwider, John F.
1st Bn, 14th Mar

LtCol **Workman, Mark A.**
SgtMaj Bricca, Anthony J.
2d Bn, 14th Mar

LtCol **Phillips, Hayden R.**
SgtMaj Pinero, Alphonse A.
3d Bn, 14th Mar

LtCol **Gilbert, John T.**
SgtMaj Lawson, George R.
4th Bn, 14th Mar

LtCol **Foulk, Robert E.**
SgtMaj Carrilla, Carlos, Jr.
5th Bn, 14th Mar



US Total Army Personnel Command

As of 1 November 1996

Field Artillery Assignment Branches

Officers

Field Artillery Branch Chief
LTC Mark A. Graham
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Colonels Division/Colonel Assignments
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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*. The requirement to train with diminished dollars is a significant challenge but has not negatively impacted readiness. I Corps Artillery remains battle-focused and continues to train to deploy and fight in any contingency, anywhere, joint and combined.

Utah ARNG. In addition to its warfighting mission, I Corps Artillery assumes an important and active role in the Utah Army National Guard (UTARNG). It serves as a major subordinate command and provides administrative, logistical, operational and training support for two in-state Field Artillery battalions and one battery of a DS Field Artillery battalion headquartered in Idaho: 1-140 FA (155-mm towed) in Salt Lake City; 1-145 FA (8-inch) in Ogden; 2-222 FA (155-mm self propelled) in Cedar City; and B/1-148 FA (155-mm self propelled) located in Smithfield.

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 conferences and working with them during training exercises continues to be one of the highlights of I Corps Arty's responsibilities. I Corps Artillery is proud to be associated with such high-quality soldiers who are so committed to the defense of our country.

I Corps Fire Support Conference. January 1996 brought the I Corps fire support community together for the 14th annual Fire Support Conference at Salt Lake City. Lieutenant General C. Glen Marsh, I Corps Commander, and Colonel Howard E. Baysinger Jr., I Corps Artillery Commander, kicked off the conference by presenting their command guidance and vision for the Corps and its fire support units. Their guidance helped set the stage for productive mission-oriented training throughout the coming year.

A 2-222 FA howitzer of the Utah Army National Guard races to a new firing position.

Other presenters included the Adjutant General of the Utah National Guard; the Commandant of the US Army Field Artillery School Major General Randall L. Rigby; Fifth Army, First Regional Training Brigade, Combat Integration; and the I Corps G3, G2 and Deputy Fire Support Coordinator (DFSCOORD).

Thirteen ARNG and one Active Army Field Artillery brigades attended the conference: 45th of Oklahoma; 57th of Wisconsin; 103d of Rhode Island; 115th of Wyoming; 135th of Missouri, 147th of South Dakota; 153d of Arizona; 169th of Colorado; 209th of New York; 210th from Fort Lewis, Washington (now inactivated); 142d of Arkansas; 151st of South Carolina; the new 130th Brigade of Kansas; plus the 40th Infantry Division (Mechanized) Artillery of the California ARNG. The conference provided an excellent opportunity for command interface with these brigades.

Training Year—DeepLook—96. I Corps Artillery's training year kicked off by supporting the 25th Infantry Division (Light) Battle Command Training Program (BCTP) Warfighter exercise in Hawaii. In January, I Corps Artillery returned to Japan for another successful Yama Sakura Exercise. After that, it was off to Fort Lewis for Tempest Express, then to Thailand for Cobra Gold and back to Fort Lewis for Blue Flag—all three yielding excellent joint operations training.

With summer came DeepLook 96, a real highlight of the training year. This exercise, held at Dugway Proving Grounds, Utah, brought together varied assets of the Utah Army and Air National Guard, the 419th Tactical Fighter Wing (Reserve), an I Corps tactical operations center (TOC) slice (Active Army) and an MLRS section from the Kentucky Army National Guard.

DeepLook 96 was a sensor-to-shooter free-play exercise linking sensor platforms through the deep operations coordination cell (DOCC) to firing elements (Army attack aviation, MLRS and cannon). The exercise included a number of systems employed against emitters deployed to replicate enemy units in the joint conflict model (JCM) simulation being run at Fort Lewis. The live emitters enabled I Corps Artillery to assess the effectiveness of the sensor-to-shooter process.

During the exercise, I Corps Artillery used tactical satellite (TACSAT) to link sensors on a quick-fire channel to the Kentucky Army National Guard MLRS section and fired an ATACMS missile in conjunction with Dugway Proving Ground's test command.

At Fort Lewis this summer, the Corps Artillery supported the 1st Brigade of the 25th Infantry Division (Light) in Cascade Thrust. The exercise was a Corps G3 train-up for the brigade's upcoming JRTC rotation. Returning to Fort Lewis in September, I Corps Artillery rounded out the training year with the pre-BCTP exercise Cascade Mist before participating in the Corps' top training event, Cascade Peak, in November.

America's Corps Artillery actively supported brigade/battalion simulation (BBS) exercises of five of its Field Artillery brigades resulting in very valuable training at reduced expenditures.

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 challenge and fuzing the Total Force into one. ***America's Corps Artillery!***

III Corps Artillery

Power projection, warfighting, training innovation and transition characterized this year for III Corps Arty as we supported joint and combined operations throughout the world. Headquartered at Fort Sill, Oklahoma, the *Phantom Corps Artillery* is the largest artillery organization in the Army.

We employ advanced techniques for fighting the corps deep battle and were instrumental in the OPFOR's overwhelming defeat during the III Corps BCTP Warfighter in March. Our progressive, sequential artillery training strategy included many off-post deployments after rigorous home-station training and preparation. This year, we also converted two 8-inch battalions to MLRS and began transitioning two cannon battalions to Paladin. Finally, we conducted a spectacular ceremony to reflag four battalions and designate four others as regimental headquarters.

17th FA Brigade. The *Thunderbolt Brigade* lived power projection and warfighting during a dynamic year of training challenges and opportunities. The headquarters supported the 2d Infantry Division's Warpath and Warfighter exercises in Korea and III Corps' Phantom Saber V and Warfighter exercises at Fort Hood, Texas. The headquarters also deployed to Korea's Gateway target acquisition and counterfire exercise and supported a joint precision strike demonstration (JPSD).

5-3 FA (MLRS) began its year with an outstanding deployment and EXEVAL at Fort Bliss, Texas, followed by a successful live-fire exercise at White Sands Missile Range, New Mexico. The battalion supported the 2d Infantry Division's WarStrike EXEVAL of 6-37 FA (MLRS), deployed to Fort Riley, Kansas, to support the 1st Infantry Division's Gauntlet exercise and then to the NTC for a successful rotation.

1-12 FA (MLRS) also supported the 6-37 FA EXEVAL. The battalion conducted aggressive, demanding platoon and battery training and then deployed its headquarters and two batteries to Twentynine Palms, California, for the Marine Corps' Desert Fire Exercise (DESFIREX) 2-96.

C/6-27 FA unloads from a C-17 in the Republic of Korea as it prepares to participate in an RSOI exercise.

3-18 FA (155 SP) deployed to the NTC to support the 3d Armored Cavalry Regiment, followed four months later by another NTC deployment in support of the 1st Cavalry Division. The battalion transitions to the M109A6 Paladin in January.

75th FA Brigade. 1996 was rewarding and challenging for the *Diamond Brigade* soldiers. During the III Corps Warfighter, the brigade honed its sensor-to-shooter techniques, providing timely, accurate reactive counterfires to the III Corps and 1st Cav Div Arty, Fort Hood. During the Taut Lanyards FTX, the brigade realistically rehearsed a major contingency plan that concluded with a demonstration of formidable combat power.

1-77 FA (MLRS), formerly the 5-18 FA, was the last active battalion to certify as MLRS. It completed a superb fielding program, deploying to White Sands. During an arduous capstone annual external evaluation (AEE), it mastered sensor-to-shooter operations and reinforced the 1st Cav Div Arty.

1-17 FA (155 SP) deployed its operations and intelligence section (O&I) along with HHB elements to the NTC to reinforce 4-5 FA. It completed a challenging battalion exercise that had a live-fire defense lane complete with mine-sweeping teams, restrictive rules of engagement, allied operations and soldier interaction with the media.

6-27 FA (MLRS) was the first to fire the reduced-range practice rocket on Fort Sill. C Battery deployed a platoon to Korea as part of Reception, Staging, Onward Movement and Integration (RSOI) 96 that included a platoon AEE and live fire in support of the 2d Infantry Div Arty. 6-27 FA's performance was lauded as a model for operational deployment.

212th FA Brigade. The *Courage and Command Brigade* had an eventful year. It supported the 101st Airborne (Air Assault) Division Warfighter, Fort Bragg, North Carolina, and helped refine MLRS and Paladin TTP and light division counterfire doctrine. The brigade honed its warfighting skills and refined its TTP during corps and 3d Infantry Division Warfighters, the latter at Fort Stewart, Georgia.

2-17 FA (155 SP) was redesignated 2-5 FA in the reflagging ceremony. Earlier, 2-5 FA participated in NTC Rotation 96-04 by providing reinforcing fires for the 4th Infantry Division (Mech).

2-18 FA (MLRS) completed its transition from the 8-inch howitzer with an AEE and certification at White Sands. Also at White Sands, 2-18 FA was the player unit in the initial operational test and evaluation for the new ATACMS Block IA missile.

6-32 FA (MLRS) set the standard as the first MLRS battalion to provide an O&I as a reinforcing unit at the NTC. The battalion's 1996 training focused on deployability and rehearsing TTP for counterfire in forward areas with rapid deployment forces. In November, the battalion is going to White Sands for its AEE.

214th FA Brigade. The *Naturally We Lead Brigade* is the Army's largest and most diverse FA brigade. Its staff began and ended the year in exercises at Fort Hood. All its artillery battalions reflagged during the Corps Arty reflagging ceremony.

The brigade's five battalions took advantage of many deployments and training exercises this year. 2-4 FA deployed twice to the NTC, supporting both the 1st Infantry Division (Mech) and the 1st Cav. 3-13 FA deployed to Twentynine Palms for DESFIREX with the 11th Marines and then to the NTC to support the 4th Infantry Division. 1-14 FA conducted battery- and battalion-level training in preparation for its AEE at White Sands.

The 47th Combat Support (Prov) and 19th Maintenance Battalions provided excellent support for every Corps Arty field problem and exercise this year. The 47th Battalion deployed its field hospital to the JRTC, and both battalions provided personnel and equipment for Army missions worldwide.

The accomplishments of III Corps Arty's 8,000 soldiers demonstrate our enormous capability and contributions to the Total Force. When the Nation requires firepower and professionalism, ***Phantom Firepower*** is ready!

V Corps Artillery

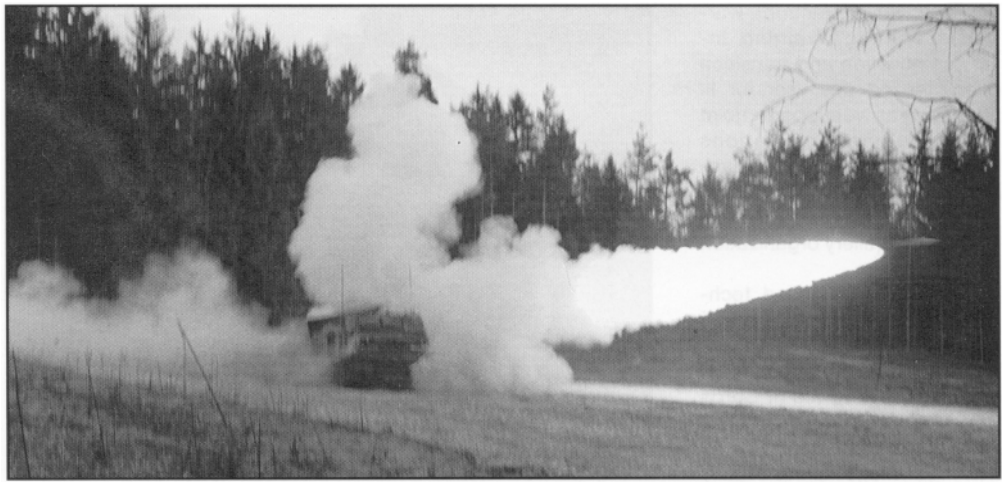
V Corps Artillery (VCA), headquartered in Wiesbaden, Germany, remains *Steadfast and Strong* as the only forward-deployed Corps Artillery in the US Army. VCA experienced an exciting year of operations and training. The Corps Artillery performed a vital role in Operation Joint Endeavor in Bosnia and, concurrently, accomplished its primary mission—providing fire support coordination to V Corps and the United States Army, Europe (USAREUR).

Fire Support—More With Less. VCA accomplished its fire support coordination mission to V Corps and USAREUR in a joint and multinational environment by employing exportable fire support elements (FSEs). These flexible and mobile FSEs allow the Corps Artillery to task organize to meet most fire support coordination requirements in V Corps and USAREUR.

Exportable FSEs proved crucial during the joint Central Command (CENTCOM) exercise Internal Look in March when an FSE deployed with the V Corps Crises Action Team. In April, VCA successfully supported the Southern European Task Force (SETAF) Battle Command Training Program (BCTP) exercise Island Thunder in Vicenza, Italy—a joint/multinational exercise requiring meticulous fire support coordination. Finally, in September, VCA exported an FSE to a separate brigade in support of Operation Joint Endeavor.

The 41st *Railgunner* Brigade supported Operation Joint Endeavor while conducting rigorous training and brigade and battalion changes of command. Operation Joint Endeavor support included: the deployment of A/25 (TA) to Tuzla, Bosnia, in December; sponsoring 10 reception, staging, onward movement and integration (RSOI) units; and certifying four Field Artillery units for deployment.

Through live-fire exercises, the brigade certified two FSEs exported from the 28th Infantry Division (Mechanized) Artillery (Pennsylvania Army National Guard) and the 101st FA Battalion (Massachusetts Army National Guard). The 101st FA Battalion succeeded the 28th Div Arty in providing fire support to the Nordic Brigade companies, battalions and brigade headquarters in the Task Force Eagle's (US 1st Armored Division-plus) area of operations for the Implementation Force (IFOR) in Bosnia-Herzegovina.



SFC Carl Taylor

3/B/1-27 FA live fires at Grafenwoehr in August.

Concurrently, our 41st FA Brigade executed taxing training densities at Grafenwoehr Training Area in March and August and practiced deep strike operations.

Our 1-27 FA (MLRS) participated in a challenging training density in March—accomplishing three separate, simultaneous battery missions: conducting a CMTC rotation in Hohenfels, firing 24 rockets in support of the 5th (German) Artillery Regiment's aerial drone training and executing a brigade deep-strike operation. The *Gridsmashers* continued its tradition of multinational interoperability through its participation in a 5th (German) Artillery Regiment CPX and support of the French Memorial Day ceremonies at Somme, France. In August, 1-27 FA excelled during a grueling 10-day EXEVAL, featuring force protection lanes and maintenance/recovery lanes.

A Unique Mission. The V Corps Commander placed VCA in command of all non-deployed corps separate brigades, corps separate brigade rear detachments and the 1st Armored Division rear detachment and non-deployed battalions on December 14 by establishing Task Force Victory (TFV). TFV, a major subordinate command of V Corps in direct support of Operation Joint Endeavor, commands 10 brigade-sized elements (approximately 11,000 personnel) that includes six corps separate brigades and four 1st Armored Division brigade rear detachments. The task force staff focuses on four tasks: supporting Operation Joint Endeavor, protecting the force, training the force and maintaining the force.

Support to Operation Joint Endeavor includes the reception, staging, onward movement and integration of individual and unit replacements. Units undergo collective task certification and theater-specific training prior to deployment. Individual replacements arrive in Germany, complete initial inprocessing and equipment issue and go to the CMTC for theater-specific training. Replacements then deploy by air or ground transport to the area of operations. To date, TFV has received, trained and deployed upwards of 6,000 individual replacements and 58 units for Operation Joint Endeavor.

TFV sustained a high training and operational tempo throughout the year. TF 3-12 Infantry, TF 2-7 Armor and the 11th Attack Regiment all conducted highly successful CMTC rotations. Partnership for Peace exercises, such as Peaceful Eagle in Albania and Cooperative Determination in Bulgaria, have helped foster goodwill throughout Europe. The 80th Nijmegan Road March (a multinational military challenge) featured Task Force Victory units representing the United States for the US' 50th Anniversary of participation in the road march. Current Task Force Victory Operations include Operation Provide Comfort in Turkey and Operation Provide Cover in Southwest Asia.

VCA stays committed to providing professional, flexible and mobile fire support coordination with lethal fires to accomplish any mission. V Corps Artillery remains—***Steadfast and Strong!***

XVIII Airborne Corps Artillery

The XVIII Airborne Corps Artillery at Fort Bragg, North Carolina, continues to provide fire support to the Army's strategic contingency force. The Corps Artillery's three M198 howitzer battalions, MLRS battalion and corps FSE are constantly ready to deploy within 18 hours of notification by land, sea or air to fight and win anywhere in the world.

Corps Artillery Transitions. This year, the Corps Artillery received a "facelift," with three of our battalions being reflagged. 1st Battalion (Airborne), 39th Field Artillery Regiment (FAR) was redesignated the 1st Battalion (Airborne), 321st FAR [1-321 FAR (Abn)]; 3d Battalion, 8th FAR was redesignated the 3d Battalion, 321st FAR (3-321 FAR); and 5th Battalion, 8th FAR (Air Assault) was redesignated the 1st Battalion, 377th FAR (Air Assault) [1-377 FAR (AASLT)]. In addition to the reflaggings, the Corps Artillery changed commanders, as did 3-321 FAR, 1-377 FAR (AASLT), and 3-27 FAR (MLRS).

Training the Corps Artillery. As always, training continues to be the top priority. During the past 12 months, the Corps Artillery conducted various battery- and battalion-level ARTEPs, participated in three divisional BCTP Warfighter exercises, operated the exercise control cell during Combined Joint Task Force Exercise 96 (CJTFEX 96—Royal Dragon) and deployed on a variety of other tactical and live-fire exercises.

Each of the battalions participated in many brigade- and higher-initiated emergency deployment readiness exercises (EDREs). The EDREs involved everything from M198 howitzer heavy parachute drops with live-fire drop zone missions to MLRS static load exercises in C5 Galaxy aircraft. The flawless performance of all Corps Artillery units consistently validated their ability to deploy rapidly and decisively.

Two of the major training exercises this year were the 82d Airborne Division's Warfighter exercise in February and CJTFEX 96, Royal Dragon, in May. The Corps Artillery contributed greatly to the success of both of these important training missions.

CPT Ketchum, 1-321 FAR (Abn)

Soldiers from 1-321 FAR (Abn) conducting an airborne assault on Sicily Drop Zone, Fort Bragg, following an M198 heavy drop.

During the 82d's Warfighter, the Corps Artillery significantly influenced the battle by firing ATACMS at high-payoff targets deep in the corps and division zones in addition to planning, coordinating and executing all suppression of enemy air defenses (SEAD) and joint SEAD missions in support of corps deep attacks. The 18th Field Artillery Brigade (Airborne) [18th FA Brigade (Abn)] executed the mission of counterfire headquarters, supporting the 82d Airborne Division Artillery's ability to focus on the close battle.

Royal Dragon was a US Atlantic Command (USACOM)-directed joint and combined exercise designed to train USACOM headquarters and subordinate forces for joint and combined combat operations. It involved both US and UK soldiers. A highlight of the exercise was the airborne assault with both US and UK paratroopers. More than 5,000 paratroopers and 144 aircraft participated, making it the largest airborne operation since World War II.

In support of Royal Dragon, the Corps Artillery planned, coordinated and executed the joint exercise operations control group cell (JEOCG). The JEOCG also was responsible for training, supervising and controlling all observer/controllers for the BLUEFOR and OPFOR throughout the conduct of the exercise, which was four times larger than a normal JRTC rotation. The smooth flow of force-on-force actions during the exercise was the direct result of the O/C system developed by the Corps Artillery. During Royal Dragon, the 18th FA Brigade (Abn) and the 1-377 FAR (AASLT) planned and executed the firemarker system for the exercise, simulating all indirect BLUEFOR and OPFOR fires.

When not engaged in these major training exercises, the battalions in the Corps Artillery executed several important missions. 1-377 FAR (AASLT) sponsored and conducted a Mobile Training Team Air Assault Course on Fort Bragg. The MTT trained and graduated more than 150 soldiers from all Fort Bragg-based units. 1-321 FAR (Abn) conducted an airborne assault onto Andrews Air Force Base in support of the Department of Defense Open House ceremonies this past May. 3-321 FAR conducted training, testing and evaluation of the Army's advanced towed cannon artillery system (ATCAS), contributing immensely to the future success of this key artillery system.

Conclusion. The Corps Artillery continues to lead the way as the Army's only airborne corps artillery. We remain *America's Contingency Corps Artillery*—with outstanding, dedicated soldiers and families—ready to deploy, fight and win anywhere on a moment's notice—***Thunderbolt! Air Assault! Steel Rain! Airborne!***

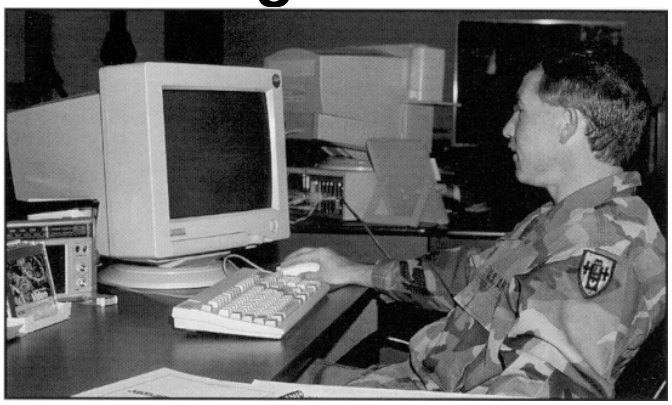
Field Artillery Training Command

The Field Artillery Training Command at Fort Sill, Oklahoma—the home of all US Army and Marine Redlegs—is meeting the future head-on. We, the Field Artillery School, NCO Academy and Field Artillery Training Center, are training smarter and leveraging technology to give the Total Force the best trained soldiers and leaders. We're applying today's technology and looking out to leap-ahead capabilities for Army XXI and the Army After Next.

FA Road Map. The FA School is building the strategy for the future FA by laying down a map of how to get from the present to Vision 2020. The map charts our modernization and acquisition course and is based on the analysis of future warfighting concepts, technology and resource constraints. It is designed to show the impact of developmental or acquisition changes in one program and how they might affect others. We have thoroughly canvassed both government and industry sources to determine our path. The FA's first Road Map will be electronically distributed by the end of the year with updates annually.

In addition, the Chief of FA has established four integrated concept teams (ICTs) to resolve modernization issues for the "FA System": Weapons and Munitions; Target Acquisition; Command, Control and Communications; and Combat Service Support. The ICTs include government, industry and field organization representatives. Although the ICTs are meeting separately from the Road Map development conferences, their ongoing findings will impact current and future Road Maps. The ICT report-out will be early next year.

Total Army Training. The FA School has been the Training and Doctrine Command's pioneer for using technology to train the Total Force smarter, faster and consistently across all components. The FA School took the lead for TRADOC in developing hi-tech Distance Learning capabilities for the Total FA via teletraining and other means. We now have begun upgrading the FAOAC small-group classrooms into world-class automated, multimedia facilities that include computers that emulate Janus simulations and IFSAS. In these classrooms, students can learn at their own pace on interactive, multimedia training packages; receive instruction from long-distance experts simultaneously with other sites; and access automated research sources, on-line training interfaces and other resources.



An FAOAC Hi-Tech Classroom. The FA School has two of these multimedia facilities with four more to be constructed.

Under the Total Army School System (TASS) Affiliation/Accreditation Program, the FA School is aligned with and the accrediting authority for FA School Battalions in seven regions. To date, 256 instructors have received TASS certification and all 27 FA courses have been converted to the Total Army Training System (TATS) and will be available for training in FY 97.

Training the FA's Future. Our future is our Redlegs. With the rapid approach of the 21st century, the FA Training Center initial entry 13 B Cannoneer Crewmen have begun instruction on the M109A6 Paladin.

The FA School is developing and validating multimedia, interactive courseware in CD-ROM for MOS 13 F, to be available in the near future. Courseware completed for MOS 13E10/30 and 13B30/40 is available as of November 1996.

The NCO Academy—the Center for FA NCOES—has added a one-hour college class to PLDC, exposing students to college-level requirements and allowing students to have Pike's Peak Community College evaluate their military experience. The Academy also started the newsletter "Mission Complete!" for students and FA NCOs in units.

The newly revised FAOBC POI has more hands-on instruction for lieutenants to help them "tie the FA system together." The students are in the field the first two weeks of the course and have four FTXs with three of them over-night exercises. The School has established a mentoring program for the new lieutenants to help acclimate them in the Army.

The FAOAC also has a new POI that focuses on teaching supervisory as opposed to operator tasks and eliminates a number of redundancies in FAOAC and FAOBC. In addition, the POI increases the hours devoted to fire support instruction and includes more extensive simulations.

Other Banner Events. We're currently revising and publishing more manuals than we have in the past ten years. For example in March, we'll distribute our updated Field Artillery capstone manual—*FM 6-20 Doctrine for Fire Support*—to guide us into the next century.

This year, the FA School received approval for several force organizational changes: an additional TA detachment for each corps, a 2x9 MLRS battalion per heavy division and two additional officers for each MLRS battalion TOE. Also, our heavy force is converting to 3x6 as Paladin is fielded, enabling us to cascade the more capable M109A6s into 14 ARNG battalions. Overall, the firepower of our heavy divisions will double with the added rocket fires.

We have had several equipment "firsts" this year. The first of the XM7 Bradley FIST vehicles (BFISTs) rolled off the line in October. Ten XFISTs will participate in the Force XXI Heavy AWE at the NTC in March. Also for the first time, we test-fired ATACMS Block IA missiles in an operational setting at White Sands Missile Range, New Mexico. The new precision-guided missile is our first munition to include GPS-augmented guidance for precise kills on soft targets out to 300 kilometers. Fielding is scheduled for early 1998. In addition this year, we fielded the first test-version of AFATDS to the 1st Cavalry Division at Fort Hood, Texas, for operational experimentation and TTP development.

The Training Command remains committed to the FA—the Army's pace-setter for training and digitizing the force and the developer of Crusader, the Army's combat platform for the 21st century—***King of Battle!***

1st Armored Division

Redlegs of the 1st Armored Div Arty out of Germany have spent an exciting year providing fire support for Task Force Eagle in Bosnia-Herzegovina as part of the NATO-led Implementation Force (IFOR) keeping the peace in the former Yugoslavia.

Task Force Eagle artillery organized quickly for training last fall. In addition to the Div Arty's normal organization of 2-3 FA and 4-29 FA (155-mm, DS), C/333 (TAB) and A/94 FA (MLRS), the addition of A/25 FA (TAB) from the 41st FA Brigade, B/25 FA (TAB) from the 1st Infantry Div Arty, and two meteorological sections brought the task force's Redleg strength to 2,300. After an intense train-up at Grafenwoehr, the Div Arty assault command post deployed by air to Tuzla in December 1995 with elements of A/25 FA (TAB), howitzers from 4-29 FA and D/319 FA from the Southern European Task Force (SETAF) to establish the initial lodgment.

The remaining elements deployed by ground and provided all-weather fire support for the Sava River crossing and, later, for their sectors. The Div Arty provided fire support personnel and a cannon battery for the Nordic-Polish Brigade and TA radars and a processing section to help protect Sarajevo in the French sector. The Div Arty relied on augmentation from National Guard units to fill FIST and TA needs.

The multinational organization of TF Eagle allowed the Div Arty to train with Redlegs from other countries. 4-29 FA established a partnership with a Russian 2S9 (I20-mm, mortar) battery while 2-3 FA worked extensively with the Turkish (155-mm) battery and the artillerymen in the Nordic-Polish Brigade.

Photo by Combat Camera

Howitzers from B/4-29 FA firing on Resolute Barbara Range, Bosnia.

The Div Arty trained extensively on a daily basis, including live-firing in Hungary and the British sector of Bosnia. Platoons moved weekly and frequent two-gun raids ensured maneuver operations always had indirect fire support.

The Div Arty's experiences showcase the abilities of our NCOs and junior leaders, the utility of well-trained battle drills and the discipline achieved through demanding training and high standards. ***Iron Steel!***

1st Cavalry Division Artillery

The 1st Cavalry Div Arty (*Red Team*) Fort Hood, Texas, remains on the cutting edge of the Cav's saber—trained and ready to deliver devastating fires in support of *America's First Team*.

In September, the Div Arty's MLRS battery (A/2-1 FA), TA battery (B/2-6 FA) and 2-82 FA closed rapidly in Kuwait as part of 1st Cav soldiers sent to deter Iraqi threats against Iraqi Kurds and US forces in the area. As a Force Package 1 deployable unit, the Div Arty already had deployed A/2-82 FA (Paladin), command and control (C^2) elements and Met and survey slices to Kuwait for Intrinsic Action. Other deployments this year: Ulchi Focus Lens (Korea), Unified Endeavor (North Carolina) and Joint Endeavor (Bosnia).

MAJ Larry Seefeldt, Fort Hood, PAO

Also this year, all three artillery battalions (1-82 FA, 2-82 FA and 3-82 FA) were challenged at the NTC. In preparation, we certified leaders in the light COLT platoon concept and refined the TTP at the NTC, achieving devastating fires deep and establishing conditions for successful maneuver battles. With the *Red Team's* earlier fielding and testing of AFATDS Version 6 software, our DS battalions digitally planned, disseminated the plans and executed artillery fires more accurately and rapidly.

Our Paladin fielding keeps the *Red Team* on the cutting edge of modernization. 1-82, the first to field Paladin, has been key in developing Paladin Gunnery Tables to validate gun crews' proficiency under demanding field conditions. All Paladin fielding was completed in September.

Additionally, we fielded the M1068 CP carriers for our FSEs and FDCs, the modular azimuth reporting system (MAPS) for our Q-36 radars in the TA battery and the meteorological measuring set AN/TMQ-41.

Red Team soldiers trained with III Corps units during exercise Phantom Saber IV (Warfighter). In this exercise, AFATDS was the base system for the digital initial fire support automation system (IFSAS) and TACFIRE. The 75th FA Brigade of Fort Sill, Oklahoma, deployed to Fort Hood for the exercise and provided command and control (C^2) cells.

The Redlegs of the 1st Cav Div Arty remain trained and ready to deploy on a moment's notice anywhere in the world and provide devastating fire support for America's First Team. ***Red Team—First Team!***

1st Infantry Division (Mechanized) Artillery

Drumfire Artillery, Bam-berg, Germany, trained harder than ever to provide a year of excellence in fire support to the *Big Red One*. The Div Arty started the year as a major force provider for Operation Joint Endeavor, providing B/25 FA (TA), personnel fillers and equipment to Task Force Eagle in Bosnia.

While sustaining this effort, the Div Arty conducted live-fire exercises during the January Grafenwoehr gunnery density, an EXEVAL of 1-7 FA and a successful brigade CMTC rotation. A targeting CPX that integrated joint tactical simulation (JTS) to facilitate high-resolution contingency operations gave the Div Arty TOC, FSEs and A/33 FA (MLRS) a thorough workout. This was followed by a maneuver rights area (MRA) exercise that supplemented the flexibility of a free-play OPFOR in simulation with the friction of real-world maneuver.

The 1996 reflagging of the 3d Infantry Division (Mechanized), Germany, to the 1st Infantry Division (Mechanized).

In March, the Div Arty participated in a Partnership for Peace exercise Peace Shield II at Fort Leavenworth, Kansas. This was a CPX/CAX with Ukraine's 24th Motorized Rifle Division.

Our second gunnery density again displayed the Div Arty's leadership, discipline and high standards. The division validated its FCX model during the brigade-level exercise Danger Fires I. The exercise integrated artillery, maneuver and attack aviation in both simulation and real-world environments. This was followed by the demanding, computer-driven V Corps CPX Danger Forward, which drove fire support training at the brigade and division levels. The division's series of exercises, christened Mountain Eagle III, were designed to prepare follow-on forces for future deployments. These included a FCX, a CPX and task force validation exercises.

Drumfire Artillery closes the year with a gunnery density at Grafenwoehr that includes an EXEVAL of 1-7 FA, a targeting CPX and an MRA exercise. Operation Danger Gauntlet prepares our 4-1 FA with its 1st Brigade at Fort Riley, Kansas, for its upcoming NTC rotation.

We look forward with pride knowing that our soldiers and their training have produced a synchronized, lethal fire support system second to none. ***Drumfire!***

2d Infantry Division Artillery

The world focused on Korea this year with North Korea's troop buildup along the border and unauthorized incursions within the Demilitarized Zone. Despite these tensions and the challenges of rapid personnel turnover and restricted land availability, *Warrior Thunder* artillery continued as the most forward deployed Div Arty in the world—decisively oriented on supporting the Warrior Division and our Republic of Korea (ROK) allies.

This year saw dynamic changes in the Div Arty. All three battalions and both separate batteries changed commanders while the 8-8 FA was reflagged to the 2-17 FA. Tough, realistic training kept us prepared to go to war should hostilities resume. The Div Arty staff played a key role in the successful completion of 11 major exercises. Once again, the Div Arty destroyed the world-class OPFOR in the Warfighter BCTP following the Warpath train-up. Of particular note was the overwhelming success of the division's counterfire.

The 1-15 FA *First to Fire* and 2-17 FA *Steel* sharpened their fire support synchronization skills. They performed superbly in their two-week NTC-style Warsteed EXEVALs while significantly contributing to the success of their supported brigades. The 665 (ROK) FA *Phoenix* continued its tradition of excellence, providing DS fires to the 5th (ROK) AR Brigade *Iron Storm.* The battalions also participated in many other live-fire exercises, force-on-force operations and combined arms training.

2d Infantry Division Artillery MLRS firing in Korea.

The *On the Minute* Rocketeers of the 6-37(+) FA (MLRS) conducted three live-fire exercises, firing the reduced-range practice rocket, and participated in a rigorous two-week Warstrike evaluation to exercise the division's counterfire force. F/26 FA (TA) *Wolfpack* observed every round fired—more than 9,000 rounds safely.

This past year has presented many fast-paced and rewarding challenges and opportunities for the 2d Div Arty Redlegs as they provide ***Warrior Thunder!***

3d Infantry Division (Mechanized) Artillery

The Redlegs of the Marne Artillery, Fort Stewart, Georgia, closed the book on a distinguished and proud history when the 24th Infantry Division (Mechanized) inactivated on May 15. The division reflagged to the 3d Infantry Division (Mechanized)—*Rock of the Marne.* The Div Arty changed colors but steadfastly holds the same mission. Our mission is to rapidly deploy to a contingency area by air, sea and land to provide fire support as a part of the mechanized punch of the XVIII Airborne Corps. Paladins of 1-9 FA, 1-10 FA and 1-41 FA; MLRS launchers of A/13 FA (MLRS); and target acquisition radars from A/39 FA (TA) continue to provide the most devastating and lethal fire support in the world.

Tough realistic training helped maintain the readiness of the Div Arty. 1-10 FA and 1-9 FA both successfully provided accurate and responsive fires for the maneuver commander during NTC rotations, 1-41 FA deployed to Egypt for Bright Star this year, and 1-9 FA and A/13 FA (MLRS) deployed to Kuwait and conducted coalition training and live-fire exercises.

The Div Arty also participated in two division-level interdiction counterfire exercises (ICE) that combined artillery live fire, Army and Air Force air attacks, and division and corps intelligence collection assets. A/39 FA (TA) provided the critical sensor-to-shooter links for the ICE that helped redefine targeting TTPs and SOPs.

Div Arty continued to build on its relationship with 1-118 FA, Georgia ARNG. Special skills, knowledge and lessons were passed along during 1-118 FA's AT. The Div Arty demonstrated its flexibility when we assumed responsibility as the deployment control headquarters. Deployment procedures were refined and validated as the Div Arty successfully controlled the deployment of troops to the NTC, Saudi Arabia, Kuwait and Bosnia. The Div Arty also continued its modernization with the retrofit of the M109A6 Paladin, the upgrade of the AN/TPQ-37 radar and the fielding of the AN/TPQ-41 meteorological measuring set.

Continued exploitation of the tactical local area network (TACLAN), digital communications on mobile subscriber equipment (MSE), brigade/corps/division (BCD) software and tactical satellite (TACSAT) all signal that the 3d Infantry Division (Mechanized) Artillery is ready to lead fire support into the next century. ***Marne Thunder!***

4th Infantry Division (Mechanized) Artillery

The Redlegs of the 4th Infantry Division, Fort Hood, Texas, are leading the fire support community into the 21st century. As the Army's Experimentation Force (EXFOR), this year has been eventful and historic for the division.

On December 15, 1995, the 2d Armored Division at Fort Hood was redesignated as the 4th Infantry Division (Mechanized) and gained the 3d Brigade at Fort Carson, Colorado. 4th Div Arty consists of 4-42 FA (Paladin) (reflagged from 1-3FA); 3-16FA (Paladin) (reflagged from 1-14FA); 3-29FA (Fort Carson); and 9-1FA, a provisional battalion consisting of HHB Div Arty, A/26 FA (TA), B/20 FA (MLRS) and the 31st Chemical Company (Divisional).

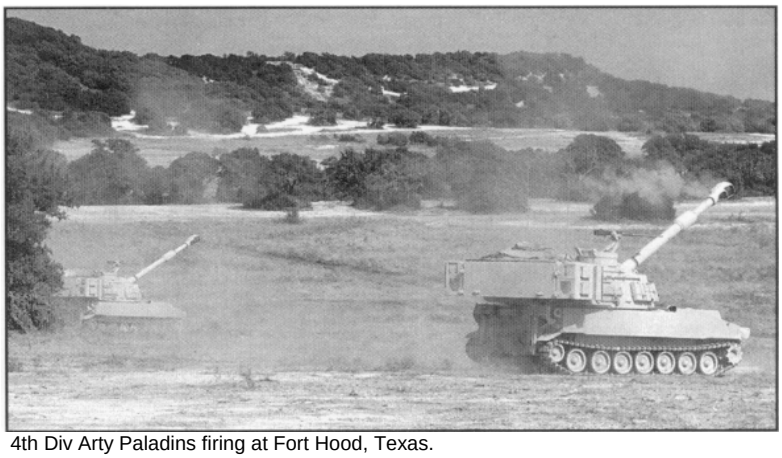
Early in the year, the Div Arty participated in division and corps BCTP Warfighter exercises. We were able to defeat an enemy who outnumbered us in FA battalions and outranged us in many of his systems. The Div Arty massed and synchronized fires and proved to be one of the most lethal killers on the battlefield.

Throughout the year, the Div Arty modernized its force. We fielded Paladins, FAASVs, AFATDS, Bradley FISTs, Striker COLTs, FDC-Vs, SINCGARS and Applique, the latter a Force XXI situational awareness computer in combat, C^2 and CSS vehicles.

4-42 FA *Straight Arrows*, DS to TF XXI (1st Brigade), completed its transition to 3x6 155-mm (Paladin) and is training for its advanced warfighting experiment (AWE) NTC rotation in March 1997. 3-16 FA *Rolling Thunder* transitioned to 3x6 Paladins, completed a demanding EXEVAL with B/20 FA (MLRS) and then deployed to the NTC DS to the 2d Brigade Combat Team in July. 3-29 FA *Pace Setters,* DS to the 3d Brigade, had a very successful NTC rotation in April and is transitioning to 3x6 and Paladin, complete with SINCGARS and AFATDS.

In addition to force modernization and our Force XXI azimuth, the Div Arty supports real-world missions, with soldiers deployed to Bosnia, Germany, Honduras, Cuba, Kuwait and Saudi Arabia. We also conducted competitions and designated the Master FIST, Best COLT and Best Howitzer Section.

The 4th Infantry Div Arty stands ready to support our wartime mission while leading the way into the 21st century. ***Redlegs!***



Chaplain D. Erich Schwartz

4th Div Arty Paladins firing at Fort Hood, Texas.

Silhouettes of Steel

10th Mountain Division (Light Infantry) Artillery

The Redlegs of the 10th Div Arty, Fort Drum, New York, completed another year of dynamic, battle-focused training ranging from vigorous section certifications in January to a heavy-light BCTP Warfighter in October.

Both battalions paused to reflag in the early winter months—1-7 FA to 3-6 FA and 2-7 FA to 2-15 FA. They kept up the pace the rest of the year: three battery-level rotations to Fort Pickett, Virginia; multiple battery EXEVALs; a Div Arty FTX; and the first of three division CPXs.

In the spring, 3-6 FA validated its EDRE SOPs and honed its joint and combined arms warfighting skills by successfully deploying to Fort Bragg, North Carolina, for the joint task force exercise Royal Dragon. During the summer, the Div Arty staff focused on the tactical decision-making process and parallel planning. The staff deployed to Fort Leavenworth, Kansas, for a Warfighter seminar, training that provided a decisive edge during the division ramp-up CPXs and BCTP Warfighter in the fall. 2-15 FA energetically supported USMA Cadet Troop Leaders Training (CTLT). 3-6 FA supported Bold Shift and the AT evaluation of 1-156 FA, New York ARNG.

Fall included a variety of exciting training challenges. The Div Arty validated staff skills sharpened over the summer, participating in Mountain Summit 96-4, a division-wide CPX. The 10th Div Arty also continued to build a strong relationship with the 197th FA Brigade, New Hampshire ARNG, working closely with the guardsmen throughout the exercise. The Div Arty massed timely and accurate fires during a high-energy live-fire exercise in August. Strong digital communications and fire mission processing resulted in a synchronized and lethal fire support system second to none.

10th Mountain Div Arty leaders' training during section certifications in January.

The Div Arty closes the year focused on the BCTP Warfighter, the centerpiece of the division's training calendar, and fully supporting Mountain Peak, the JRTC train-up for 3-6 FA. A number of intensive battery EXEVALs and a Div Arty live-fire exercise in December promises to cap an exceptional training year.

We remain ***Mountain Thunder!***

25th Infantry Division (Light) Artillery

The *Tropic Thunder* Red legs of the 25th Infantry Division (Light) Artillery at Schofield Barracks, Hawaii, completed a year of exciting training. After conducting a variety of challenging missions, the Div Arty demonstrated it's ready for the full range of military operations.

The Div Arty continues to adjust to the challenges posed by the loss of one battalion (7-8 FA, *Red Dragons)* through inactivation and the transition from a three-cycle training system to a two-cycle system. In 1996, *Tropic Thunder* units deployed worldwide: Yama Sakura in Japan; 1-8 FA supported the Hawaii Army National Guard's AT in Yakima, Washington; Ulchi Focus Lens in Korea and Fort Hood, Texas; a Division CPX on Oahu and two corps CPXs at Fort Lewis, Washington; 2-11 FA and 3-7 FA JRTC rotations at Fort Polk, Louisiana, and accompanying brigade-level train-up exercises; and a heavy/light NTC rotation. A 155-mm platoon from 1-8 FA was part of 2-11 FA's rotation to the JRTC with the Warrior Brigade—a first for the Division. Each exercise tested the versatility of *Tropic Thunder* soldiers as they dealt with a variety of cultures, conditions and tactical situations.

The Div Arty maintained the fire support edge in battle-focused training—EXEVALs for all units and live-fire exercises on Oahu and at Pohakuloa Training Area (PTA) on the Island of Hawaii (Big Island). Combined arms and joint training were enhanced through CALFEXs with the Division's maneuver and aviation elements and a CAS exercise with the Navy, which trained non-artillerymen to "fight with fires." The Division TA detachment significantly enhanced its force protection capabilities by conducting two Korean-based force protection exercises with a platoon from the 3d Marine Regiment and an impressive air assault of the Q-37 radar. The Div Arty also trained for the realistic possibility of a hurricane hitting the Hawaiian Islands with an operational readiness exercise.

1-8 FA conducts a raid at Pohakuloa Training Area (PTA) on the Big Island.

The Div Arty continues to train on its go-to-war METL tasks while taking time to enjoy our surroundings in the beautiful Aloha State.

Hooah—Tropic Thunder!

28th Infantry Division (Mechanized) Artillery

The 28th Div Arty, Pennsylvania ARNG, continued its quest to be known as a World Class Division Artillery during TY 96. This was an extremely exciting year for the Redlegs of the 28th Div Arty.

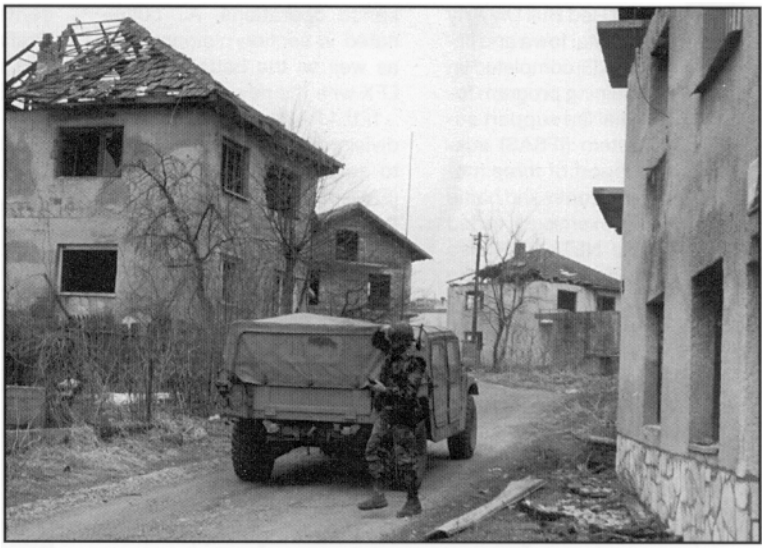
The major training objective for the Div Arty was to participate in the 28th Division Warfighter at Fort Leavenworth, Kansas. However, events overcame plans when we were notified we would send a 40-man fire support detachment to Bosnia in support of Operation Joint Endeavor.

Initial notification was received 4 January, and volunteers from across the Div Arty were to report 8 January. A blizzard delayed their report date one day. After three weeks of intensive training at Fort Indiantown Gap and Fort Dix, New Jersey, they flew to Germany for additional training and then to Bosnia.

While in country, they supported an international Nordic Brigade comprised of Norwegian, Swedish, Danish and Polish soldiers. They successfully redeployed back to CONUS in September.

The Div Arty headquarters continued to train for the division Warfighter with train-up exercises in March and June. The soldiers of the Div Arty excelled at defeating the World Class OPFOR during the actual Warfighter in August. It was the first time we fully integrated the initial fire support automation system (IFSAS) into a high-level exercise, which we'll continue for future training.

The battalions also were busy during TY 96. Each battalion received an EXEVAL during its AT cycle. The 1-107 FA and 1-109 FA conducted AT at Fort Drum, New York, while 1-108 FA was at Fort Pickett, Virginia. D/229 FA, the GS battery, and F/109 FA (TA), HHB (-) conducted AT at Fort Indiantown Gap. All units trained to wartime mission requirements and are making great strides in integrating higher levels of collective training.



FISTers in Bosnia. A soldier from Detachment 1 performs reconnaissance.

As the 28th Div Arty trains and modernizes to accomplish world-wide missions—such as Operation Joint Endeavor—we remain ***Charged to Excellence!***

29th Infantry Division (Light) Artillery

Capitalizing on last year's Warfighter lessons, the 29th Div Arty (headquartered in Sandston, Virginia) assessed its warfighting skills and capabilities, realigned its training and resourcing priorities and embarked on a four-year "Journey Into Excellence." Exercising our fire support processes, linking the Div Arty digitally and reactivating 1-111 FA were our most significant challenges this year.

E/111 FA, 29th Infantry Division (Light) Artillery, in a live-fire exercise during AT at Fort Pickett, VA.

The Div Arty FSE and FS sections from 2-110 FA, 2-111 FA and 1-246 FA trained extensively in the initial fire support automation system (IFSAS) and LTACFIRE. The training included two Army training battle simulation system (ARTBASS) exercises, two battle command battle staff training (BCBST) exercises and a live-fire joint air attack team (JAAT) exercise at Fort Pickett in April. The training ended with a successful, three-day digital FS exercise at AT in July.

2-110 FA (Pikesville, Maryland) focused on individual skills, leader training and strength maintenance, using AT to master the basics of delivering FA fires.

2-111 FA (Norfolk, Virginia) was key in 1-111 FA's reactivation, surrendering a firing battery and many junior officer and NCOs. The battalion overcame these deficits to regain its expertise in all facets of its DS mission.

The 1-246 FA (Danville, Virginia) focused on crew proficiency and its digital fire control equipment. The battalion participated in several LFXs, culminating with Div Arty mass fire missions during AT.

E/111 FA (Sandston) was collocated with the Div Arty headquarters when the Emporia unit was reflagged as C/1-111 FA. A new E/111 FA was reconstituted and spent the year in 13B/13E MOS qualification training.

129 FA (TA) (Sandston) had an outstanding year, maintaining a high level of proficiency in radar TA skills and supporting the Div Arty with counterfire training.

1-111 FA (Petersburg, Virginia) was reactivated with an E-Date of 1 October 1996. It is manned, equipped with M198 howitzers and has completed MOS qualification training.

We are the 29th Div Arty and, as always, ***We Stand Ready!***

34th Infantry Division (Mechanized) Artillery

The 34th Red Bull Div Arty (Minnesota, Iowa and Illinois ARNG) completed an aggressive training program focusing on initial fire support automation system (IFSAS) sustainment, support of three maneuver brigade command battle staff training exercises, called BCBSTs, and NET. 1996 also marked a period of change in the Div Arty's makeup. We're establishing a training relationship with the 1-120 FA (Wisconsin ARNG), which will become our third DS battalion in 1997, replacing 2-122 FA (Illinois ARNG).

2-122 FA focused on IFSAS sustainment and lanes training this year. The training culminated in the battalion's qualifying on FA Table 8 tasks during AT 96.

1-125 FA transitioned from its M102 to M109A5 howitzers—from towed to self-propelled. The training plan was intensive throughout IDT, focusing on drivers' training and maintenance operations. AT culminated in section/platoon lanes as well as the battalion's first LFX with the new howitzer.

1-151 FA transitioned from the division's GS artillery battalion to an echelons-above-division (EAD) battalion during 1996. Although assigned to the 135th FA Brigade, 1-151 FA receives its training and administrative support from the 34th Div Arty. 1-151 FA focused on leader validation and lanes training this year as well as air assault operations.

1-194 FA focused on the Reserve training concept using FA lanes and artillery table training. It also conducted extensive air assault training in support of the 2d Brigade, culminating in an air assault lane in AT.

Battery F, 151 FA was brought on line as the division's GS artillery battery this year. The unit has M109 howitzers in lieu of MLRS. It concentrated on MOS qualification training and NET. Battery E, 151 FA (TA) training centered around upgrading Firefinder Version 10 software and supporting many battalion IFSAS CPXs. In July, the unit went on alert for deployment to Bosnia for Operation Joint Endeavor. The remainder of AT was spent completing pre-deployment requirements for the unit deploying to Bosnia.

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

Battery F, 151 FA and 1-125 FA conduct new equipment training on the M109A5 howitzer.

35th Infantry Division (Mechanized) Artillery

The 35th Infantry Division (Mechanized) Artillery—Kansas, Kentucky and Nebraska Army National Guard—had a busy year. We concentrated the majority of our efforts on MOS conversion training, unit realignment within the State of Kansas, mobilization of E/161 FA (TA) for participation in Operation Joint Endeavor in Bosnia and the 35th Infantry Division BCTP Warfighter at Fort Leavenworth, Kansas.

A 13B10 student is backing the 155-mm howitzer in position to lay on the the aiming circle at Fort Riley. The howitzer is positioned on the gun guide stakes.

Early February saw a joint effort by the State Area Command (STARC), HHB 35th Div Arty, 1-127 FA, 2-130 FA and 1-161 FA to mobilize Battery E/161 FA (TA) for deployment to Bosnia in support of Operation Joint Endeavor. In addition, a cell from the 35th Div Arty traveled with Battery E to Fort Benning, Georgia, to support the unit in its pre-deployment train-up.

March of 1996 saw Kansas undergo a major unit realignment that included moving 1-127 FA (DS) and 2-130 FA (which converted to MLRS) to the newly formed 130th Field Artillery Brigade with its headquarters in Topeka, Kansas. Div Arty retained control of 1-161 FA (GS), E/161 FA (TA) and gained a separate 8-inch battery, F/161 FA (GS). The Div Arty also assumed operational control of the 174th Combat Support Battalion with its subordinate units, the 170th and 995th Maintenance Companies. The 1-161 FA converted from 8-inch howitzers to M109A5 howitzers and retained its GS role.

The 35th Div Arty, 1-127 FA and 2-130 FA provided instructors and support personnel for two CMF 13 series MOS schools, which allowed personnel displaced by unit deactivation to retrain and become Field Artillery qualified.

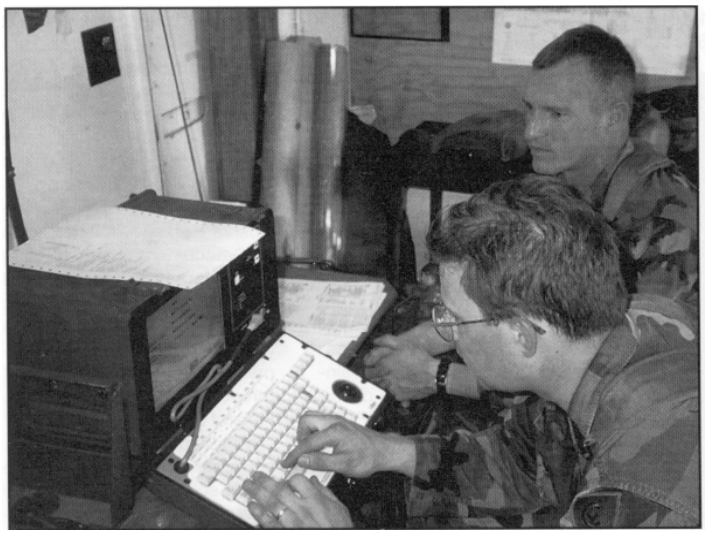
In addition, 35th Div Arty units participated in combined arms training throughout the year in preparation for the 35th Infantry Division Warfighter exercise during July.

1-168 FA in Nebraska supported the 67th Infantry Brigade (Mechanized) and the 35th Div Arty during the 35th Division Warfighter. It also trained on IFSAS and completed its last AT period as a Field Artillery battalion before reorganizing. This ends 37 years of Field Artillery tradition in Nebraska—the battalion will be missed.

The 35th Div Arty is trained and deployable to meet contingencies facing our nation, always ready to support the ***Santa Fe Division!***

38th Infantry Division Artillery

The 38th Infantry Division Artillery, ARNG, headquartered in Indianapolis, Indiana, with units in Indiana, Michigan and Ohio concentrated on using the initial fire support automation system (IFSAS) during Training Year 1996. Our efforts culminated in a Div Arty joint air attack team (JAAT) exercise at Camp Grayling, Michigan, on 30 July.



38th Div Arty soldiers using IFSAS at Camp Atterbury, Indiana, during IDT.

In preparation for the 38th Division's Warfighter in August of 1997, the FSE trained with the division headquarters in developing target matrices and hand-off procedures. The Warfighter should provide the basis for training programs 1998 through the year 2000.

1-119 FA of Lansing, Michigan, completed weapons transition from M101A1 (105-mm) to M109 (155-mm) howitzers to support the 46th Infantry (Mechanized) Brigade. The battalion conducted several live-fire exercises and participated in Div Arty staff training programs.

1-134 FA of Columbus, Ohio, is DS to the 37th Armored Brigade. It also consists of M109 howitzers and participated in a Div Arty live-fire exercise using IFSAS. Additionally, the battalion was responsible for standing up the Div Arty's new GS battery, F/134th FA, in Cleveland, Ohio.

3-139 FA of Crawfordsville, Indiana, transitioned from its M101A1s to M102s during the training year. This battalion is DS to the 2d Infantry Brigade and has conducted staff exercises with the brigade in anticipation of the 38th Division's Warfighter.

E/139 FA (TA), Indianapolis, Indiana, conducted many support missions for both infantry and artillery units. The battery's training centered on counterbattery and sustainment operations.

The 38th Infantry Division Artillery will continue to hone skills and be prepared to deliver steel on target as ***Cyclone's Thunder!***

40th Infantry Division (Mechanized) Artillery

The 40th Div Arty, headquartered in Los Angeles, California, with Redlegs located as far north as Walnut Creek and as far south as San Diego, have had a banner year. Although the 40th Div Arty saw the retirement of the venerable M110A2 8-inch howitzer, we also saw unit strength and soldier MOS qualification levels increase dramatically. In addition, we integrated some of the latest technology available.

This year, the 40th Div Arty FISTs participated in more division, brigade and battalion battle simulation exercises than ever before—14 in all, including one division mini-Warfighter, three maneuver brigade command battle simulation training (BCBST) exercises, four brigade battalion simulation exercises (BBS) and six battalion Army training battle simulation system (ARTBASS) exercises.

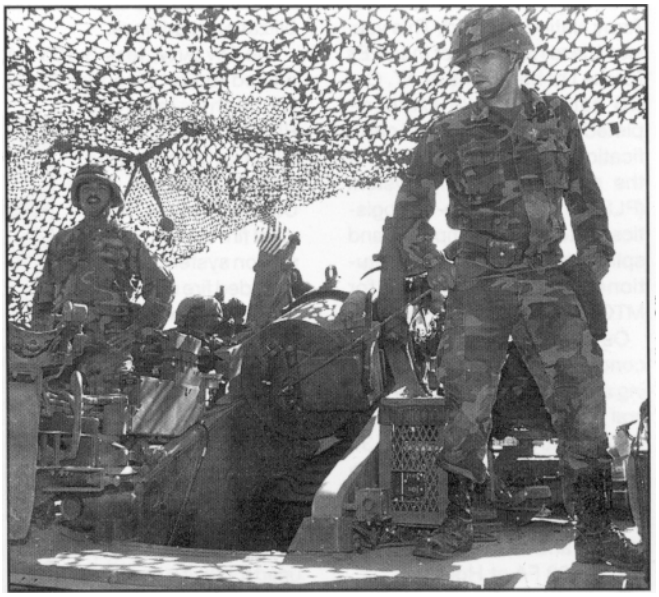
Further, the 40th Div Arty pushed the technology envelope with a number of initiatives. The Div Arty tested upgrades to initial fire support automated system (IFSAS) software and several high-tech tools, such as the enhanced precision lightweight GPS receiver (EPLGR) and the passive laser rangefinder binoculars with EPLGR interface.

1-143 FA from Walnut Creek participated in FA lane training and a training evaluation model controlled by the 2d Regional Training Brigade, Fifth Army, from Fort Lewis, Washington.

2-144 FA in Burbank successfully conducted digital live-fire missions initiated from the FO using a forward entry device (FED) and cleared through the fire support chain to the AFSCOORD at the DTAC using IFSAS.

3-144 FA deployed a task force FSE and company FISTs to Yakima Training Center in Washington as a part of an OPFOR task force.

Div Arty force structure modifications will have an impact on TY 97 adding 2-180 FA in Arizona to the division rolls. With the strong institutional belief that every move we make is a move forward, the 40th Div Arty continues to ***Lead the Way!***



Gun 3, D/144 FA (8-inch) conducts crew drills prior to firing the last 8-inch round in the division. Pictured are SGT Teru Moon (left), Chief of Section, and PV1 Brent Jablonowski (right), Number 1 Canoneer.

42d Infantry Division (Mechanized) Artillery

The artillerymen of the 42d Infantry *Rainbow* Division Artillery, Army National Guard, with its headquarters in Rehoboth, Massachusetts, continued progress toward modernization in TY 96 and deployed a detachment to Bosnia-Herzegovina in support of NATO peace enforcement forces. Significant improvement was made toward our modernization goal with the M109A5 howitzer upgrade across our tri-state battalions. Our DS battalions 1-101 FA in Massachusetts, 1-258 FA in New York and 3-112 FA in New Jersey, continue to train toward Artillery Table VIII. Our GS battalion from New Jersey, 1-112 FA, started converting from M110 to M109 howitzers with NET during AT at Camp Edwards, Massachusetts.

1-101 FA soldiers deployed to Bosnia.

The pursuit for "Rainbow Readiness" continued with training programs integrating physical fitness, common task training and rifle marksmanship across the Div Arty.

Enhanced training integrating the initial fire support automation system (IFSAS) was achieved through a series of progressive training events that culminated in a major IFSAS CPX hosted by the 42d Div Arty. This successful IFSAS milestone included two attached non-divisional brigades—the 43d FA Brigade from Connecticut and the 103d FA Brigade from Rhode Island—and incorporated digital communications with radar and meteorological equipment.

The 42d Div Arty supported the training in the Northeast Region Artillery conducted under the auspices of the Massachusetts Military Academy. With Readiness Group Devens, the Division Artillery assisted in the training and task validation of the 1-101 FA's fire support capabilities for deployment to Bosnia-Herzegovina. Members of Detachment 2 (Provisional) Headquarters Battery deployed in support of the NATO peace enforcing mission Operation Joint Endeavor. The Detachment was assigned to support forces from Poland, Sweden, Finland and Denmark.

With full confidence in the professionalism and competence of our soldiers, we stand ready to support missions and challenges, whenever and wherever required, with ***Redleg Thunder!***

49th Armored Division Artillery

TY 96 offered no respite from demanding, fast-paced training for the 49th Armored Div Arty, Texas Army National Guard. This year saw the reinstitution of the SEEs for the DS battalions at AT. Our GS battery, D/132d FA, completed reorganization and certification. Div Arty-wide, NET for the palletized loading system (PLS), a state-of-the-art logistics system, was completed and split-battery operations institutionalized in preparation for MTOE changes in September.

Our DS howitzer battalions conducted LFXs and lane training at Forts Hood and Bliss several times this year. E/133 FA (TA) deployed its Q-36/Q-37 Firefinders from San Antonio via USAF Reserve C-5A (433d Airlift Wing) to support 3-133 FA at Bliss and 1-133 FA, 4-133 FA and D/132 FA at Hood.

The aerial displacement to Fort Bliss provided effective training for both USAF and TXARNG personnel. The habitual relationship developed between the 49th Div Arty and the Air Force Reserve have provided both exciting training and improved mobilization readiness.

The Div Arty, less 3-133 FA, moved to Fort Hood for AT 96. Highlights included PLS NET, SEEs for the DS battalions and EXEVALS by the 1st Cavalry Div Arty. The initial fire support automation system (IFSAS) provided fire control information, helping the 49th Div Arty deliver fast, responsive and accurate fires.

3-133 FA, supported by elements of HHB of the 49th Div Arty and E/133 FA, conducted internal evaluations at Fort Bliss. IFSAS was used for digital fire missions and split-battery operations were employed. The battalion received high marks for its expertise and efficiency during its evaluation.

Employer support of the Guard and Reserve was, again, a high-light of AT. Some 200 civilian employers, local elected officials and members of the Texas and US Houses of Representatives were treated to equipment displays and LFXs.

We are modernizing and training to meet and defeat any threat, anywhere, as the ***Texas Artillery!***

4-133 FA gunners conducting annual training at Fort Hood.

82d Airborne Division Artillery

The 82d Airborne Div Arty, Fort Bragg, North Carolina, had a banner year that reinforced the importance of tough, realistic training to high standards. Our troopers deployed regularly for training and in support of the division's airborne task forces—Bosnia, Panama, Haiti and Honduras and from coast-to-coast in the US via air drop, air land, air assault, ship, rail and road. The pace never slows in the 82d.

With superb support from the 18th FA Brigade, the Div Arty demonstrated, again, it is the greatest killer on the battlefield in the successful Warfighter in February. The *Loyalty* Battalion, the 1-319th, parachuted into Cortina in March for a tremendous training experience at the JRTC.

The Div Arty hosted the 7th Royal Horse Artillery Regiment from the United Kingdom in April and May for cross training and a parachute jump exchange just before the largest airborne operation since World War II. In Operation Royal Dragon, the Div Arty served as the force artillery headquarters, massing two airborne regiments of artillery on targets in support of US and UK paratroopers and Marines.

The 1-319th demonstrated air assault and firing battery-Kiowa Warrior coordination in front of more than 100,000 spectators at the Coca Cola 600 at Charlotte Motor Speedway. Without a breath, the 1-319th began ROTC camp fire support training and participated in the 3-82 Brigade Task Force training exercise. Deployments to Fort Stewart, Georgia, the NTC and Fort A. P. Hill, Virginia, rounded out the battalion's training.

Paratroopers of the *Falcon's Fury,* the 2-319th, conducted a series of nine close support FCXs with the combined arms—most at night and at danger close range, integrating mortars, artillery, attack aviation and CAS. In July the 2-319th deployed to Camp Lejeune for brigade TF training followed by the August jump onto a totally dark drop zone in Cortina.

The *Gun Devils,* the 3-319th, set a new standard for a brigade "walk-and-shoot" by providing maneuver commanders of 1-82 a firsthand opportunity to integrate fires in support of their forces. Additionally, the 3-319th executed rigorous mortar EXEVALs while maintaining its own skills. Many EDREs and brigade FTXs that began with drop-zone missions were ideal training for 3-319th's upcoming forcible entry into Cortina.

The defining characteristic of the 82d Airborne Div Arty is dedication—that of the Army's finest soldiers and their leaders who train them to high standards. ***All the Way! Airborne!***

C/3-319 firing in support of the 1st Brigade CALFEX, Fort Bragg.

101st Airborne Division (Air Assault) Artillery

This year, Redlegs of the 101st Div Arty and the 320th FA Regiment at Fort Campbell, Kentucky, trained extremely hard. Our tough, realistic training focused on planning, coordinating and delivering timely, accurate fires in support of the 101st.

During this exciting year, our artillerymen had many opportunities to put their training into action. In October, Redlegs participated in Mega Gold, an intensive two-week division FTX focused on artillery and attack helicopter fires in support of air assault operations. In April, the Div Arty participated in Eagle Talon, a demanding division CPX to prepare for the 101st's BCTP Warfighter exercise. Our training paid off as the Div Arty provided effective, timely fire support during the division's very successful Warfighter in June.

Our DS battalions continually trained and prepared to support contingency operations. In September, 1-320 FA (*Top Guns*) completed a difficult 30-day FTX in preparation for the JRTC. The *Top Guns* deployed to the JRTC in January where the battalion executed several air assaults and provided devastating fires. 2-320 FA (*Balls of the Eagle*) trained hard during Winter Fires 96 in February. In this tough field problem, the battalion conducted multiple live-fire exercises, three battery raids and a deliberate air assault. 3-320 FA (*Red Knights*) completed an EXEVAL in November, distinguishing itself with extremely accurate fires. The *Red Knights* also tested their ability to deploy rapidly in both corps- and division-level EDREs in January and June. C/5-8 FA (*Big Guns*) redesignated to C/1-377 FA in June, along with its parent battalion at Fort Bragg. In September, the *Big Guns* set the standard with a live fire on Fort Campbell. The battery fired 12 Copperhead rounds with 12 direct hits. Three hits were designated by AH-64 Apaches and nine by G/VLLDs.

The 101st Div Arty continued to move toward the future with the upgrade to the Version 8, Block II Q-37 radar system, allowing for the Army's first tactical deployment of a Q-37 by C-130 aircraft. In May, the 2d FA (TA) (*Guardians*) successfully airlifted a Q-37 radar by C-130 to a field landing strip and was ready for operations in less than two hours.

Redlegs of the 101st Airborne Division Artillery are trained and ready to deploy anywhere, any time, to provide fire support for the Screaming Eagles Division. ***Air Assault!***

A/1-320 FA prepares to fire a salute during the 101st Airborne Division's change of command.

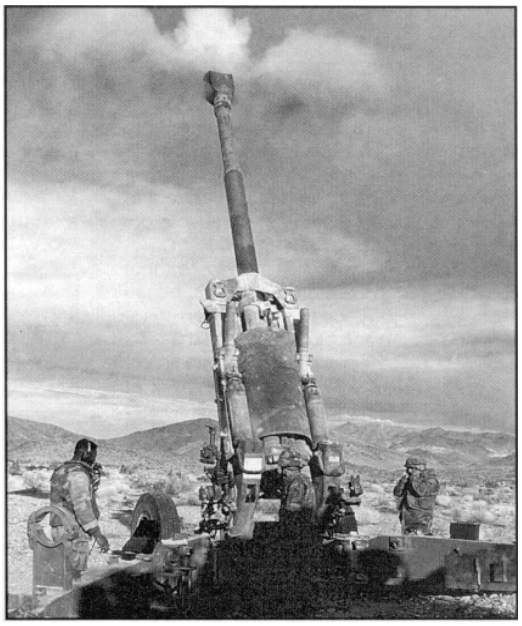
10th Marine Regiment

As the 2d Marine Division's *Arm of Decision*, the 10th Marines, Camp Lejeune, North Carolina, trained and deployed to every clime and place—from Japan to the Mediterranean Sea, to Norway and to the Caribbean during FY 96.

In support of joint and combined exercises, units participated in exercises Battle Griffin in Norway; Unified Endeavor and Purple Star in the United States; and Cooperative Osprey, a 16-nation Partnership for Peace NATO exercise. Firing batteries also deployed for six months in support of the unit deployment program (UDP) to Okinawa, Japan, and were deployed with the battalion landing teams of the 22d, 24th and 26th Marine Expeditionary Units. These deployments provided our nation a forward military presence in such diverse areas as Okinawa, Liberia, Bosnia, North Africa and the Middle East.

Other deployments included amphibious training at Camp Lejeune and at Vieques Island, Puerto Rico; combined arms exercises at the Marine Corps Air/Ground Combat Center, Twentynine Palms, California, which were supported by the 2d and 3d Battalions of the 10th Marines; and exercise Agile Sword, a maritime prepositioning force offload exercise in Puerto Rico.

The regiment's semiannual deployments to Fort Bragg, North Carolina, for exercise Express Sword were outstanding opportunities for sustaining proficiency in artillery digital fire direction and fire support. During the March exercise, the 2d Marine Division Combat Operation Center (COC) as well as two maneuver regiments, the 3d Battalion, 27th Field Artillery Regiment (MLRS) from the Army's 18th Field Artillery Brigade (Airborne); the 3d Battalion, 14th Marines, USMCR; and both fixed- and rotary-wing CAS were integrated into a very successful supporting arms training exercise.



Combined Arms Exercise 9/10-95, Marine Corps Air/Ground Combat Center at Twentynine Palms. *(Photo by the 2d Marine Division Combat Camera Unit)*

As the oldest artillery regiment in the Corps, the 10th Marines remains totally committed to combat readiness and providing timely, accurate fires in support of the 2d Marine Division as its ***Arm of Decision!***

11th Marine Regiment

Throughout 1996, the 11th Marines *Cannon Cockers*, Camp Pendleton, California, have shown we're truly a force in readiness in support of the 1st Marine Division. The regiment provided one battery for each of the three forward-deployed MEUs—11th, 13th and 15th—for the western Pacific and Persian Gulf. These six-month MEU deployments gave the US a combat-able, special operations-capable force that is ready to respond rapidly to the nation's needs. Training exercises were conducted in Okinawa, Hong Kong, Singapore, Oman, United Arab Emirates, Qatar, Kuwait and Jordan. Also, batteries rotated to Okinawa as part of the unit deployment program (UDP) in support of the 3d Marine Division.

Closer to home, batteries deployed to Yuma, Arizona, to support the Weapons and Tactics Instruction fire support package for Marine Corps aviators. Also, Marine cannoneers supported several Joint Task Force-6 counterdrug missions along the south San Diego border with Mexico.

Cannon Cockers from the 11th Marines prepare a howitzer to send steel down range at Twentynine Palms.

With the short distance to the MCAGCC, the regiment frequently supported live-fire and maneuver training during CAXs. Each CAX allowed us to integrate all fire support assets—artillery, mortars and air—while using live ordnance firing in close proximity to maneuver units. At the MCAGCC, we conducted two Desert Firing Exercises (DESFIREXs). These were regimental artillery exercises that included an Army MLRS battalion from Fort Sill and focused on the ability to mass fires with minimal maneuver involvement. This year, we fired more than 16,000 rounds and 200 MLRS rockets and conducted 400 fixed- and rotary-wing sorties safely.

The 11th Marines has taken part in many fieldings of new hardware and software. The most important occurred in October and November when the regiment hosted and joined Army howitzer sections for the operational assessment of the advanced towed cannon artillery system (ATCAS). Soldiers and Marines tested two prototypes in a desert environment at the MCAGCC and then assessed amphibious and helicopter capabilities at Camp Pendleton. In addition, the regiment fielded the new M-94 muzzle velocity chronograph, the new meteorological measuring system and the brigade-corps-Div Arty software upgrade for IFSAS and AFATDS.

The 11th Marines continues to lean forward in support of real-world commitments and on the cutting edge of technology and doctrine integration. The regiment is positioned to deliver steel on target, on time—***Cannon Cockers!***

12th Marine Regiment

As the 12th Marine Regiment, Camp Foster, Okinawa, Japan, greets the end of another year, the tempo does not slow in the regiment's effort to sharpen its ability to provide supporting fires to the 3d Marine Division. The unit deployment program (UDP) cycle keeps the regiment "globally sourced" with batteries from the 10th and 11th Marines and from the 1st Battalion, 12th Marines in Hawaii. Integrating the UDP batteries into the 12th Marines provides a constant, yet unique challenge to the regiment as it is difficult to maintain combat readiness due to the continuous influx of new firing batteries. It's also a challenge to constantly rotate in and train new personnel with the cultural and political sensitivities associated with being stationed in a foreign country.

Aside from the many on-island live-firing exercises conducted in Okinawa's Central Training Area (CTA), the 12th Marines' second home for training remains Camp Fuji, Japan. Camp Fuji allows us to fire a greater variety of ammunition and has a larger area for training. A highlight of 1996 was the coordination and execution of a Marine Corps combat readiness evaluation (MCCRE) for 3d Battalion, 12th Marines in May. During this realistic and challenging evolution at Camp Fuji, the regiment was assisted by evaluators from the 1st Battalion, 12th Marines. The 12th Marines repeated its efforts in October when it evaluated the 1st Battalion, 12th Marines, during a MCCRE at the Army's Pohakuloa Training Area (PTA) on Hawaii's big island.

Marines from Battery B, 1st Battalion, 12th Marines live firing at Camp Fuji, Japan.

Other events this year included the fielding of SINCGARS and the celebration of the 12th Marines' birthday, rededicating the regimental colors. ***Thunder and Steel!***

14th Marine Regiment

The 14th Marines, headquartered in Dallas, Texas, is the Marine Corps' largest and only Reserve artillery regiment. It has five battalions dispersed at 19 sites across the country. Structured to mirror the active counterparts, the Regiment stands *At the Ready* to augment and reinforce the active forces and assume the role of force artillery headquarters (FAHQ) during a major regional contingency. During 1996, the Regiment pursued its goals of total force integration and joint training. The training focus was on digital command and control (C^2) and reinforcing basic artillery skills.

Marines from the 2/14th prepare to engage a direct fire target during exercise High Impact 96 at Fort Sill.

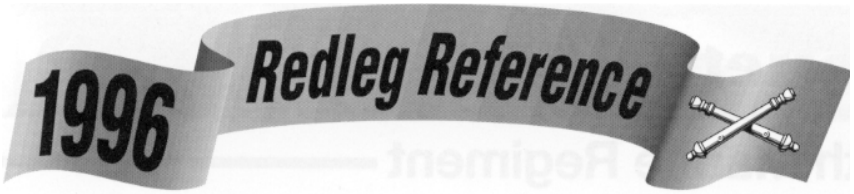
In March, a command element from the regimental headquarters and 5/14, along with the Army's 3-13 FA (MLRS), III Corps Artillery, Fort Sill, Oklahoma, participated in a joint desert firing exercise (DESFIREX) with the 11th Marines at Twentynine Palms, California. Also during March, a command element from 2/14 provided C^2 for E/2/14 and A/1/10 (active unit) during exercise Battle Griffin 96 in Norway. The 14th Marines provided operations tempo relief for active units in this NATO exercise.

During June, the regimental headquarters, 2/14, 3/14 and Combat Service Support Detachment-44 (CSSD-44), deployed to Fort Sill for joint and combined arms exercise High Impact 96. As the force artillery headquarters, the Regiment coordinated cannon and rocket fires and CAS, which included sorties of USMC F/A-18s and USAF Reserve F-16s and MLRS rockets fired by A/1-77 FA from III Corps Artillery.

During High Impact, both 2/14 and 3/14 participated in a surface artillery raid from Fort Sill's West Range to the East Range. The raid was supported by the air delivery of ammunition and supplies from USMC KC-130 aircraft. Air assault support from USAR CH-47 and USMC RH-53 helicopters moved the loads to rapid resupply points managed by CSSD-44. At the conclusion of High Impact, 3/14 underwent a successful combat readiness evaluation.

Also in June, 4/14 deployed to Twentynine Palms for CAX 7-96 followed by 1/14's support of CAX 8-96 while 5/14 conducted AT at Camp Pendleton, California.

In 1996, the Regiment deployed and trained with the high standards that keep us ***At the Ready!***



The following is a list of articles and selected items from "Registration Points" (RP), "View from the Blockhouse" (VB), "Incoming" (INC), "Redleg Review" (RR) and "From the Gun Line" (FGL) appearing in *Field Artillery* during calendar year 1996. The entries are categorized by subject and listed chronologically by title and edition.

Unit Reports

"Digital Counterfire Before AFATDS," (18th FA Bde (Abn)) Jan-Feb

"TTP for Winning the Counterfire Fight," (2-82 FA, 1st Cav Div Arty) Jan-Feb

"TA Tactics in the 34th ID," Jan-Feb

"MLRS Platoon Lanes: Battle-Focused Training," (6-37 FA, 2d IN Div Arty) Mar-Apr

"Training the Force FA METL: The Interdiction-Counterfire Exercise," (24th IN Div (Mech) Arty) Mar-Apr

"Marne Thunder's IFSAS Sustainment Training," (1st IN Div (Mech) Arty) Mar-Apr

"USMC Desert Firing Exercise 2-95," (11th Marines; 14th Marines; 6-27 FA, 75th FA Bde) Mar-Apr

"2d Infantry Div Arty Master Gunner Program," Mar-Apr

"TA Success and Challenges in Bosnia," (C/333 FA (TA), 1st AR Div Arty) (INC) May-Jun

"Fires for Attack Helicopter Operations," (101st Abn Div (AAslt) Arty) Mar-Apr

"Reflagging: 2d Armored Division Becomes the 4th Infantry Division (Mechanized)," Jul-Aug

"Evolving Tactics, Techniques and Doctrine for Fire Support in Peace Enforcement Operations," (2-3 FA, 1st AR Div Arty) Jul-Aug

"Massing Combat Effects: 1st Cav Fire Support TTP," Sep-Oct

"AFATDS: Digitizing Fighting with Fires," (1st Cav Div Arty) Sep-Oct

"AFATDS in the 1st Cav: A Laydown from DMAIN to Battalion TOC," Sep-Oct

"Red Rain—Counterfire Operations in Bosnia-Herzegovina," (C/333 FA (TA) and A/94 FA (MLRS), 1st AR Div Arty) Sep-Oct

"Competing with Long-Range Enemy Artillery," (4th IN Div (Mech) Arty) Nov Dec

"Silhouettes of Steel," (Reports by US FA Corps Artys and Div Artys) Nov-Dec

"US FA Units Worldwide," (Maps of Army and Marine Units, Separate Battery and Above) Nov-Dec

Targeting/Target Acquisition

"Targeting for Combat Power," (RP) Jan-Feb

"Target Acquisition Reporting Channels Made Standard," (INC) Jan-Feb

"De-Mystifying Joint Targeting," Jan-Feb

"Targeting—A Force XXI Combined Arms Concept," Jan-Feb

"Digital Counterfire Before AFATDS," Jan-Feb

"TTP for Winning the Counterfire Fight," Jan-Feb

"Future Watch: Target Acquisition and Precision Attack Systems," Jan-Feb

"Digital Sensor-to-Shooter Links," Jan-Feb

"Targeting via AFATDS," Jan-Feb

"Exploiting the Effects of Fires: Synchronized Targeting and Execution," Jan-Feb

"Strike/Reconnaissance Team," Jan-Feb

"The Artillery S2—Passing the Commander's 'So What?' Test," Jan-Feb

"New Targeting FM Coming," Jan-Feb

"TA Tactics in the 34th ID," Jan-Feb

"TA Success and Challenges in Bosnia," (INC) May-Jun

"Responses to 'TTP for Winning the Counterfire Fight,'" (INC) May-Jun

"Today's Air Tasking Process," May-Jun

"Integrating Army Aviation into the Brigade Targeting Process," May-Jun

"Fires for Attack Helicopter Operations," May-Jun

"The Radar Technician and His Role," (INC) Jul-Aug

"DS Battalion TOC Needs Full-Time Radar Expert," (INC) Jul-Aug

"Warfighter: Winning Through Basic Targeting," Jul-Aug

"Firefinder Position Analysis System," Jul-Aug

"Red Rain—Counterfire Operations in Bosnia-Herzegovina," Sep-Oct

"Competing with Long-Range Enemy Artillery," Nov-Dec

Training

"WO 131A Targeting Transitioning Course," Jan-Feb

"Digitization—A Training Revolution," (RP) Mar-Apr

"The TABE—Could it Make or Break a Soldier's Career?" (FGL) Mar-Apr

"MLRS Needs Robust Liaison Section," (INC) Mar-Apr

"Cavazos on Training," (Interview with GEN (Retired) Richard E. Cavazos, Senior Observer, BCTP) Mar-Apr

"Army Training XXI," Mar-Apr

"FA Training Devices for 1990s and Beyond," Mar-Apr

"Crusader—Training Force XXI's Firepower," Mar-Apr

"CMTC: Stability Operations Training," Mar-Apr

"NTC: Fire Support Trends," Mar-Apr

"JRTC: Fire Support Observations," Mar-Apr

"MLRS Platoon Lanes: Battle-Focused Training," Mar-Apr

"Training the Force FA METL: The Interdiction-Counterfire Exercise," Mar-Apr

"Marne Thunder's IFSAS Sustainment Training," Mar-Apr

"NETT Paladin Lessons Learned," Mar-Apr

"USMC Desert Firing Exercise 2-95," Mar-Apr

"2d Infantry Div Arty Master Gunner Program," Mar-Apr

"FATC 13B OSUT—Training Cannoneer XXI," Mar-Apr

"MLRS NET for the ARNG," Mar-Apr

"Commo Training for 21st Century Redlegs," (VB) May-Jun

"New STRAC Allocations," (VB) May-Jun

"1996 MAGTF Fire Support Conference," Sep-Oct

"Mapping the Future: State of the Branch 1996," Nov-Dec

Doctrine and TTP

"TTP for Winning the Counterfire Fight," Jan-Feb

"TTP for Clearing Brigade Fires," Jan-Feb

"The Artillery S2's Intelligent Preparation of the Battlefield," Jan-Feb

"New Targeting FM Coming," Jan-Feb

"Quick-Fire Net—Nonstandard Tactical Mission, Force Structure Alternative or Something Else Entirely?" Jan-Feb

"Alternative MLRS Emplacement—1x3-Kilometer Formation," (INC) Mar-Apr

"Fast, Accurate Fires in the Close Fight," Mar-Apr

"Today's Air Tasking Process," May-Jun

"Air Power's Battlespace," May-Jun

"Report Out: 1996 Senior Fire Support Conference—Focusing Fires for Force XXI," May-Jun

"Fires for Attack Helicopter Operations," May-Jun

"Planning Fire Support for Attack Helicopters," May-Jun

"Field Artillery Special Text Update," (VB) May-Jun

"The Changing Face of Ground Warfare—Fires First," (RP) Jul-Aug

"Response to 'Air Power's Battlespace,'" (INC) Jul-Aug

"Response to 'Today's Air Tasking Process,'" (INC) Jul-Aug

"The Div Arty's Role in the Division as an ARFOR (or Why Captains Need to Understand the Operational Art)," Jul-Aug

"Evolving Tactics, Techniques and Doctrine for Fire Support in Peace Enforcement Operations," Jul-Aug

"Response to 'Air Power's Battlespace,'" (INC) Sep-Oct

"Making the Most of Air Power," (Interview with GEN Ronald R. Fogleman, Chief of Staff of the Air Force) Sep-Oct

"Massing Combat Effects: 1st Cav Fire Support TTP," Sep-Oct
"Paladin 3x6 Operations," Sep-Oct
"1996 MAGTF Fire Support Conference," Sep-Oct
"Response to 'Air Power's Battlespace," (INC) Sep-Oct
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Personnel/Force Structure/Leadership

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"MLRS Needs Robust Liaison Section," (INC) Mar-Apr
"2d Infantry Div Arty Master Gunner Program," Mar-Apr
"Reflagging: 3d Armored Division Becomes the 4th Infantry Division (Mechanized)," (INC) Jul-Aug
"3x6 Cannon-2x9 MLRS Transition," Sep-Oct
"US Total Army Personnel Command Field Artillery Assignment Branches," Nov-Dec
"US FA Units Worldwide," (Maps of Army and Marine Units, Separate Battery and Above) Nov-Dec
"Field Artillery Training Command Directory," Nov-Dec
"US FA Commanders and Command Sergeants Major," (List of Battalion and Higher Commanders and CSMs in the Total Army and Marine Field Artillery) Nov-Dec
"Mapping the Future: State of the Branch 1996," Nov-Dec

History

"Response to Review of Steel Wind," (INC) Jul-Aug
"WWII: Fires at Futa Pass," Jul-Aug
"Citizen-Gunners: A History of National Guard Field Artillery," Jul-Aug
"Artillery Raids: Vietnam, Desert Storm and Future Applications," Jul-Aug
"For Valor: L Battery at Nery," Jul-Aug
"Cushing of Gettysburg: The Story of a Union Artillery Commander," (RR) Jul-Aug
"Napoleonic Artillery—The Paradigm of Jominian Mass," Jul-Aug

Equipment and Technology

"Response to the Army Science Board Study," (INC) Jan-Feb
"Digital Counterfire Before AFATDS," Jan-Feb
"Future Watch: Target Acquisition and Precision Attack Systems," Jan-Feb
"ATACMS Block II: Killing Armored Targets Deep," Jan-Feb
"Targeting via AFATDS," Jan-Feb
"Digitization—A Training Revolution," (RP) Mar-Apr
"Crusader—Training Force XXI's Firepower," Mar-Apr
"NETT Paladin Lessons Learned," Mar-Apr
"Fires in AWE Focused Dispatch—A Step Toward Task Force XXI," Mar-Apr
"MLRS NET for the ARNG," Mar-Apr
"Report Out: 1996 Senior Fire Support Conference—Focusing Fires For Force XXI," May-Jun
"RAH-66 Comanche—Eyes and Ears for the 21st Century," May-Jun
"Focus on Light Force XXI: AWE Warrior Focus," May-Jun
"The Threat—Why Modernize FA Cannons?" May-Jun
"The Changing Face of Ground Warfare—Fires First," (RP) Jul-Aug
"Owning the Weather—Improving FA Accuracy," Jul-Aug
"Massing Combat Effects: 1st Cav Fire Support TTP," Sep-Oct
"AFATDS: Digitizing Fighting with Fires," Sep-Oct
"AFATDS in the 1st Cav: A Laydown from DMAIN to Battalion TOC," Sep-Oct
"Digitization in Task Force XXI," Sep-Oct
"AFATDS Future—Fire Support C^2 for the Next Generation," Sep-Oct
"Digitizing the Joint LW 155-mm Howitzer," Sep-Oct
"3x6 Cannon-2x9 MLRS Transition," Sep-Oct
"Paladin 3x6 Operations," Sep-Oct
"1996 MAGTF Fire Support Conference," Sep-Oct
"Mapping the Future: State of the Branch 1996," Nov-Dec

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"USMC Desert Firing Exercise 2-95," Mar-Apr
"The FA and Air Attack Team," (RP) May-Jun
"Today's Air Tasking Process," Mar-Apr
"Air Power's Battlespace," May-Jun
"MOA Between the US Air Force and US Army for Liaison Support," May-Jun
"Report Out: 1996 Senior Fire Support Conference—Focusing Fires for Force XXI," May-Jun
"Response to 'Air Power's Battlespace,'" Jul-Aug
"Response to 'Today's Air Tasking Process,'" Jul-Aug
"The Div Arty's Role in the Division as an ARFOR (or Why Captains Need to Understand the Operational Art)," Jul-Aug
"Making the Most of Air Power," (Interview with GEN Ronald R. Fogleman, Chief of Staff of the Air Force) Sep-Oct
"Naval Surface Fires and the Land Battle," Sep-Oct
"Allied Interoperability with AFATDS," Sep-Oct
"Digitizing the Joint LW 155-mm Howitzer," Sep-Oct
"The Russian God of War in Transition—From Quantity to Quality," (Interview with COL-GEN Nikolai M. Dimidyuk, Commander of Rocket Forces and Artillery Troops, Ground Forces Federation of Russia) Nov-Dec
"Response to 'Air Power's Battlespace,'" (INC) Sep-Oct

Contingency Operations

"CMTC: Stability Operations Training," Mar-Apr
"TA Success and Challenges in Bosnia," (INC) May-Jun
"TAP: A Conceptual Framework for Stability Operations," Jul-Aug
"Evolving Tactics, Techniques and Doctrine for Fire Support in Peace Enforcement Operations," Jul-Aug
"The FA 'Presence' Mission," Jul-Aug
"Red Rain—Counterfire Operations in Bosnia-Herzegovina," Sep-Oct