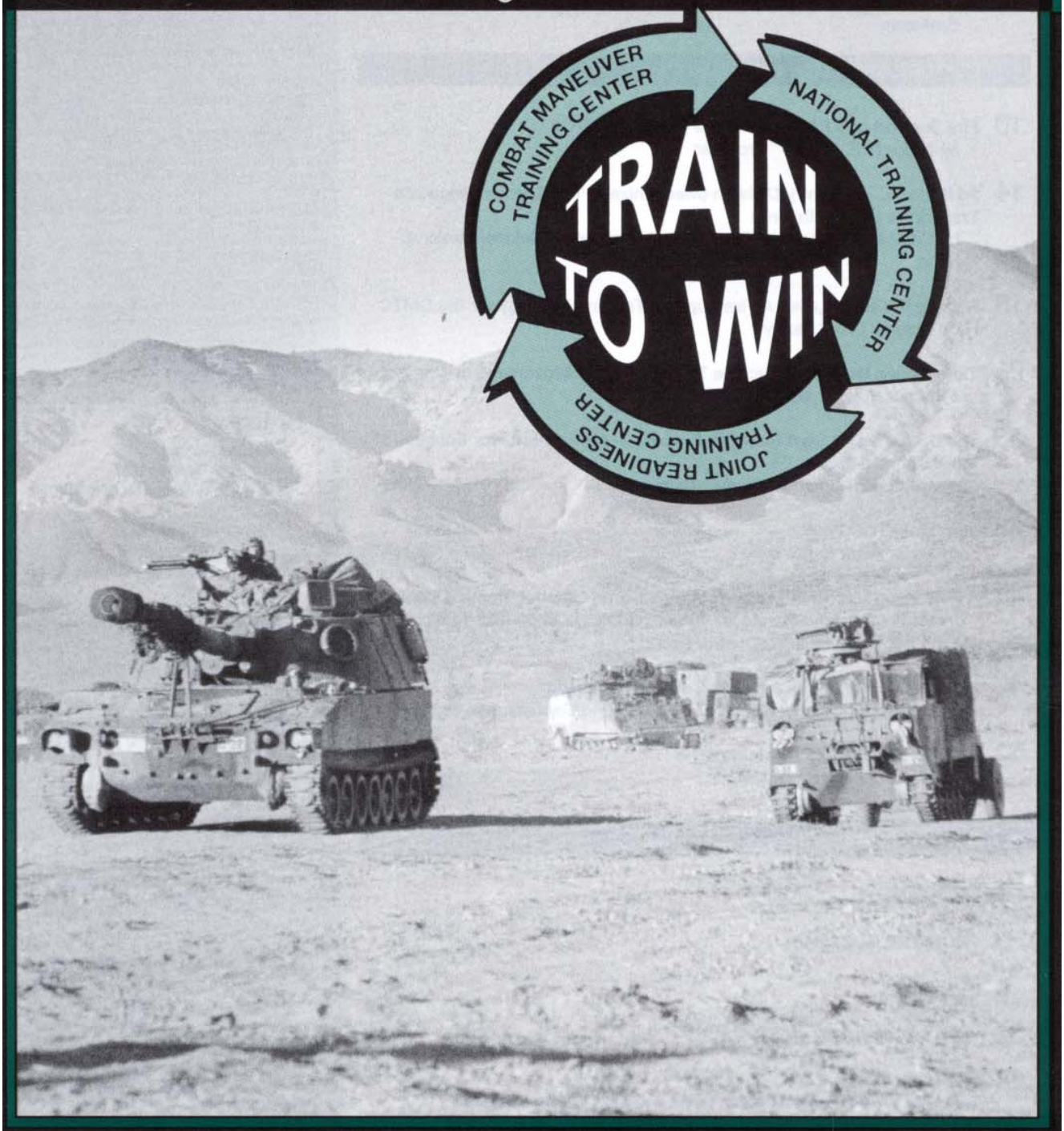
Field Artillery

A Professional Bulletin for Redlegs

October 1992



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INTERVIEW

FEATURE ARTICLES: Training to Win

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Train to Win—Make the Most of Fires and Maneuver

"In a world of diminishing resources, every fire mission and every round should improve the skills of the force as a whole."

Accomplishing the mission and taking care of soldiers are the two most important tasks a military leader has. The two are equally important and never mutually exclusive, and training glues these imperatives together. Quality, realistic training gives our soldiers the skills and techniques they need to fight, win and survive on the battlefield.

Success at our Combat Training Centers (CTCs) and in combat depends on our ability to integrate fires and maneuver and synchronize all combat multipliers to achieve the force commander's intent. We must strive to train as we'll fight—as a combined arms team.

As a contingency force, success is defined as winning quickly and decisively anywhere in the world with minimum casualties. Inherent in that definition is our ability to rapidly deploy and field a well-trained force that can execute with precision and power. Realistic, multi-echeloned training to exacting standards is the key to our success. In the words of a famous oil filter TV commercial, "You can pay me now, or you can pay me later." Paying *later* is unacceptable!

The CTC Playing Field

The CTCs are the prime training vehicles for our success. Each of the CTCs has begun to move toward more contingency-based scenarios. Units now can train on all their critical mission-essential task list (METL) tasks from deployment to warfighting. The Joint Readiness Training Center (JRTC) at Fort Chaffee, Arkansas, implemented this concept from its inception. Contingency-based scenarios currently provide the task force the greatest opportunity for improving all skills tied to contingency operations. In addition, the increase in the number of heavy-light forces training at all the CTCs enhances our ability to rapidly project significant power in contingency crises.

Improving scenarios is a great start, but fire supporters have a golden opportunity to improve combined arms training. The CTCs' original objective was to improve maneuver skills. Their primary focus has been to train units in movement skills and direct-fire engagements. Over the years, this focus may have produced a playing field that's "too level." Commanders rely heavily on direct-fire engagements to register their "kills." Yet history and recent combat in the Persian Gulf have proven indirect fire produces the greatest number of casualties on the battlefield.

It's time to tip the playing field to make training at the CTCs even more realistic. In combat, the Army's goal is to leverage fires to inflict maximum damage on the enemy at the greatest possible range—before he comes close enough to engage with direct fires, creating an advantage for our forces. To help accomplish that goal, the combined arms commander must employ all his indirect-fire assets in concert with maneuver. The commander must learn to leverage fires in training. To reduce the enemy's effectiveness early and deep, commanders must understand the advantages of and techniques for employing fires.

When indirect fires destroy the enemy at one CTC, the battle stops and an After-Action Review is conducted to reinforce the successful effort. This policy helps hammer home our combined arms formula for success: the proper use of all systems equals devastating effects on the enemy, minimal casualties and decisive victory. The key to making this equation work is to integrate fires and maneuver to make the commander's intent effective and lethal.

As fire supporters, we must constantly hone our skills, giving the combined arms commander the leverage to fight with all the assets available to him. But we can't accomplish this training in a vacuum. We must constantly seek to train not only ourselves, but also the joint and combined arms elements we support in fighting with fires.

Institutional Assistance

To help accomplish this, we are cross-training leaders from the combined arms branches and other services in our TRADOC schools. An exchange program now places a maneuver officer advanced course (OAC) graduate in each Field Artillery OAC small group and an FAOAC graduate in each Infantry and Armor OAC small group. We are now pursuing resources to allow us to include combined arms commanders in the how-to-fight fires phase of the Field Artillery Pre-Command Course.

The Gulf War showed we need analysts at all levels to better understand the targeting process and the joint coordination that goes with it. The Field Artillery School has begun a Targeting Course, open to all branches and services, that teaches those skills critical to targeting at the division level and above. A Joint Fire Support Course will debut this November. This course will help develop fire support skills, also at the division level and above, to coordinate joint attack assets. Both courses aim to develop a better understanding of joint doctrine and its practical application. (For information about the two courses' dates, contents and how to enroll, read the article at the end of this On the Move column.)

Field Training

Commanders must focus their training so units can be most effective as part of a combined arms team. Whenever possible, fire supporters must closely integrate their training with the supported units' training. In a world of diminishing resources, every fire mission and every round should improve the skills of the force as a whole. This partnership begins with the basics in lane training and progresses into more complex exercises.

The fire coordination exercise (FCX) and combined arms live-fire exercise (CALFEX) offer tremendous payoffs in integrated maneuver and fire support training for multiple echelons. Each element develops its unique skills, and the force as a whole gains a better understanding of the combat power generated when all the battlefield operating systems (BOS) are synchronized.

Whenever possible, exercises such as FCXs and CALFEXs should have unique scenarios that give leaders an opportunity to use initiative. "Canned" or repeating scenarios afford minimal training value; leaders must learn to make critical decisions about employing their assets through as many experiences as possible. And for each scenario, quality combined arms training results when the commander, fire support element (FSE) and fire direction center (FDC) have realistic input in planning and executing fires in support of the commander's plan.

Training resources are precious commodities, and we must use them wisely. The Combined Arms Training Strategy (CATS) provides an excellent road map for training and resource management. The program gives comprehensive training strategies, which are outlined as a series of tables and critical gates, to help commanders develop training plans in support of their METL. The tables begin with individual tasks and progress to the battalion level. Units must attain proficiency in a series of tasks at each gate before moving to the next set of tables. The strategy outlines resources (ammunition, ranges, OPTEMPO, etc.) to accomplish the given table. A commander then can forecast his resource requirements accurately, based on the training tables and proficiency of his unit.

One of the training methodologies CATS prescribes is simulations. Units can use training devices or simulations ranging from training fuzes for the individual howitzer to the computerized brigade and battalion simulation (BBS) system to provide quality, economical training for the combined arms team.

Fire support is a system of systems, and new simulations are currently under development to further enhance our ability to economically and realistically train. The Closed-Loop Artillery Simulation System (CLASS) will train each node in the battery's gunnery team. CLASS incorporates devices for each element of the team, records and evaluates its performance and provides feedback. CLASS will provide units a method to build and maintain fire support skills while reducing the resources required and concerns about noise abatement and other environmental hazards.

We are also working to acquire a Unit Conduct-of-Fire Trainer (UCOFT) for the M109 howitzer crew. The Howitzer Crew Trainer (HCT) would replicate the inside of the M109 howitzer turret and its computer would simulate howitzer operations. Among other capabilities, HCT's computer would record what each crew member does or fails to do and could be linked to CLASS for integrated training.

Training is and will always remain our top priority. The next opponent our contingency-based Army faces could be one of any number of threats located around the world. Consequently, we must focus on the skills and mission-essential tasks that allow us to fight and win anywhere, anytime.

Training the members of the combined arms team to integrate fires and maneuver will ensure our success. Tough, realistic training will guarantee our fires are—***On Time, On Target.***

New Targeting Courses

Two new targeting courses are being taught at the Field Artillery School. The Warfighter Branch of the Fire Support and Combined Arms Operations Department is teaching the Targeting Process and Joint Fire Support Courses with the details and dates of the courses listed in this article. The Targeting Process Course is recommended for non-FA personnel, regardless of service. The Joint Fire Support Course is recommended for FA personnel. For more information on these courses or to enroll, call the Warfighter Branch at DCTN 639-5323/5194 or commercial (405) 351-5323/5194. The telefax number is DCTN 639-6003 or commercial (405) 351-6003. Write the Warfighter Branch at Commandant, US Army Field Artillery School, ATTN: ATSF-TW, Fort Sill, Oklahoma 73503-5600.

Targeting Process Course

Army Training Requirements Resource System (ATRRS) Course Number 2E-F167. The Targeting Process Course trains selected officers from all services in the Army's targeting process and targeting operations at the division and higher levels. The course uses the Army's targeting methodology of Decide-Detect-Deliver as the basis for instruction. The intent is to produce officers knowledgeable about Army tactics, techniques and procedures to synchronize targeting in a joint environment. To date, the Field Artillery School has run three iterations of the course.

The FY 93 course dates are as follows:

Class 1-93 Start 02 Nov End 13 Nov 92
Class 2-93 Start 25 Jan End 05 Feb 93
Class 3-93 Start 14 Jun End 25 Jun 93
Class 4-93 Start 16 Aug End 27 Aug 93

For more information on or to enroll in the course, call Lieutenant Colonel Oxford in the Warfighter Branch at the telephone numbers listed in the first paragraph.

Joint Fire Support Course

ATRRS Course Number To Be Assigned. The Joint Fire Support Course, a new course beginning in FY 93, prepares officers and NCOs for duty in a division, corps or echelons-above-corps fire support element (FSE). The first week of the course focuses on targeting. The remaining two weeks are dedicated to fire support at the division level and above. Instruction includes information on doctrine, organization and missions of the services; command, control and communications of the fire support systems; attack systems available; and fire support coordinating measures (FSCMs) at the division and higher levels.

The FY 93 course dates are as follows:

Class 93-1 Start 02 Nov End 20 Nov 92
Class 93-2 Start 25 Jan End 12 Feb 93
Class 93-3 Start 14 Jun End 2 Jul 93
Class 93-4 Start 16 Aug End 2 Sep 93

For more information about the course, call Major Kirk at the telephone numbers listed in the first paragraph. To enroll, call Mr. Chadwell at DCTN 639-5305 or commercial (405) 351-5305. Both points of contact (POCs) are in the Warfighter Branch.

Promotion Opportunities for the King's Men

By Command Sergeant Major David P. Stewart, US Army Field Artillery Center and Fort Sill, Oklahoma

The Army began its "build-down" in earnest this year. The restructuring of our force has impacted significantly on soldiers as the voluntary and involuntary separations have begun. As a professional in "All the King's Men" (as in the King of Battle), you and thousands like you are concerned about your futures, especially your promotion opportunities in the Field Artillery.

As a result of the build-down, many military occupational specialties (MOSs) are overpopulated, causing a slowdown in promotions. The FY 92 promotion selection rates were low compared to previous years. As the restructuring progresses and MOS populations become even smaller due to the voluntary and involuntary separations, promotion rates are expected to improve. Already, the forecast for promotions within a year looks much brighter.

The Voluntary Separation Incentive (VSI), an annual annuity, and Special Separation Benefit (SSB), a lump-sum benefit, are affecting the Enlisted Personnel Management System (EPMS). Throughout the Army, the VSI-SSB exodus has created many promotion opportunities. The Army expects a substantial increase in promotion rates by the summer of 1993.

It's imperative that all leaders (commanders, first sergeants and supervisors) identify and program qualified soldiers for early attendance at NCO education system (NCOES) courses. This ensures deserving soldiers are competitive for the upcoming surge in promotions. At the same time, *you* must ensure your personnel records are accurate and up-to-date.

Promotion Selection Process

As professionals, you need to be aware of insights from recent promotion boards. Promotion boards select soldiers based on the "whole person concept." But they focus on specific criteria in the promotion consideration process. In as much as NCO evaluation reports (NCOERs) reflect your manner of performance, the most significant documents considered during your promotion review are your NCOERs and Department of the Army (DA) photograph.

Education is becoming more of a discriminator as promotion boards are looking more carefully at military and civilian education levels. Recent board results show soldiers selected for promotion met their military education requirements and were in the top 20 percent of their classes. When looking at civilian education, promotion boards perceive soldiers who have some college credits in their personnel records as being those interested in personal as well as professional development. The boards see soldiers who show initiative by earning college credit as "going that extra mile." Selection results indicate that soldiers with one to three years of college credit are highly competitive.

Army-wide, more emphasis is being placed on college credit than ever before. Every soldier should have his military training and experience evaluated and translated into college credits, which can amount to a surprising number of credits. Many colleges and universities will do this with minimal cost to you. Your education center can provide you the details.

In the selection process, promotion boards first determine the "fully qualified" soldiers and, subsequently, determine the "best qualified" soldiers, who then are selected for promotion. Your official military personnel file (OMPF) is all the DA centralized boards have to evaluate you for promotion. Unlike promotion boards for lower ranking NCOs, candidates for E7 and above have no chance to talk directly to the members of the board. Each candidate is selected—or not—based solely on his file.

Your NCOES academic efficiency reports and college credits indicated on your DA Form 2A and 2-1 are examples of discriminators that distinguish "best qualified" from "fully qualified" soldiers in the promotion consideration process. Another example of a discriminator for "best qualified" is consistent test scores of 280 to 300 on the Army physical fitness test (APFT).

Your Management of You

You are your own best career manager. As such, you are responsible for ensuring your personnel record is accurate and up-to-date and that your photograph shows you in the correct uniform looking your most professional.

Furthermore, every soldier interested in his future (military or civilian) needs to continue to grow—to develop personally and professionally. Education is the best investment you can make in yourself for whatever the future holds, and physical fitness is the best insurance for good health.

All the King's Men are encouraged to "march to the sound of the guns" —to fight for the tough jobs and, of course, do your best in all assignments. The Army will retain and promote personnel based on its manning requirements, the soldier's manner of performance and potential for future service.

Although the build-down will be painful for some, the vast majority of our force will benefit. In the future, the Field Artillery inevitably will be smaller, but it also will have younger soldiers who see promotions and schools come faster. If you're enjoying what you're doing and achieving success, you can look forward to a rewarding future (career) with the King of Battle.

Command Sergeant Major (CSM) David P. Stewart has led the soldiers and NCOs of the US Army Field Artillery Center and Fort Sill, Oklahoma, for more than a year. He has been a CSM for more than eight years, including serving as the CSM for the 2d Squadron, 11th Armored Cavalry Regiment, Germany, while still an E8. Other CSM assignments were for the US Army Field Artillery School Brigade, Fort Sill; 3d Armored Division Artillery, Germany; 2d Battalion, 41st Field Artillery, 3d Infantry Division; and the 2d Battalion, 37th Field Artillery, 212th Field Artillery Brigade, III Corps Artillery, Fort Sill. CSM Stewart also spent more than four years as a First Sergeant and six years as a Drill Instructor or Drill Sergeant. He has completed two years of college at El Paso Community College, El Paso, Texas.

A Farewell to Lance

The Lance missile system is history. It has been replaced with the Army tactical missile system (Army TACMS).

In the 1950's and 1960's, NATO was convinced it stood little chance of winning a conventional war with the Warsaw Pact. They had a tremendous numerical advantage. This gloomy assessment led NATO to adopt a nuclear-based, defensive strategy using tactical and strategic nuclear weapons to offset its conventional weaknesses.

The development of Lance began in 1962 as a replacement for the Honest John and Little John missile systems. Missile production began in 1970 after nine years of development. The first production model was delivered to the Army for testing in 1971. In April 1972, the first Lance training battalion was activated. Subsequently, eight battalions were activated: six in Germany and two at Fort Sill, Oklahoma. The system also was purchased by Belgium, Germany, Italy, Israel, the Netherlands and the United Kingdom.

Lance was a corps-level weapon system intended for use against enemy missile firing positions and command and logistics installations. It provided the corps commander with accurate, all-weather, nuclear and non-nuclear fire support.

The characteristics of the system included an inertial guidance system, prepackaged liquid propellants, spin stabilization and a capability of delivering warheads accurately to a range of 75 miles.

But Lance became another "dinosaur," with the passage of time and improvements in technology. The Army could not resolve range and accuracy deficiencies or crew survivability on the modern battlefield.

When the Berlin Wall came down and the Soviet Union-led Warsaw Pact broke apart, the need for modernization of this short-range, land-based nuclear missile system vanished. In May 1990, President Bush directed the removal of all tactical nuclear weapons from the Army's inventory.

Lance launchers have, for the most part, been destroyed and most common equipment turned in for re-use. Those soldiers who worked with the system know they did their jobs well and the Lance missile system completed its mission: *the deterrence of war*.

13N BNCOC Class 4-92
NCO Academy
Fort Sill, Oklahoma

Response to “FIST-V Employment”

In response to First Lieutenant Brent M. Parker's letter "FIST-V Employment" [June 1992], I would like to point out some logical errors. Understanding Lieutenant Parker didn't offer this as a foolproof solution, I would still be very hesitant to use this method.

First, the most disturbing point of the option is it continues to foster the "we-they" attitude between maneuver and fire support. The relationship between a fire support team (FIST) and its supported maneuver company is the first and, arguably, most vital step in building the combined arms-fire support relationship.

The trust developed between a company commander and his fire support officer (FSO) is a must if fire support is to be employed successfully on the battlefield. An unfamiliar FIST setting up in a company commander's area gives that commander something else to worry about and, in all likelihood, will result in a reluctance to use the FIST. Simply put, if the commander has a traditional relationship with a FIST, he's not guessing about his competency.

The second advantage Lieutenant Parker lists for "option four" is actually a disadvantage. He states that having the four company FSOs at the task force (TF) tactical operations center (TOC) during planning, "gives the company FSOs the maximum time to refine planned targets along with total understanding of the task force commander's intent." That's fine for the FSO, but bad for the company commander. The FSO will go into battle knowing the fire plan and the company commander will go into battle knowing the maneuver plan. This leads directly, in my opinion, to the problem the combined arms community is working so hard to get away from--the artillery will be fighting a battle separate from maneuver on the same battlefield.

Once again, the FSO has got to be part of "company-level" planning. As stated earlier, this is where combined arms integration begins. With the FSO and company commander sitting side-by-side during planning, the company commander will know what fire support can provide him and the FSO will have a better understanding of what the company commander needs.

Advantage number three states, "The battalion FSO...is able to track the FIST more easily." The TF FSO should be keeping track of the battle (e.g. company locations). Obviously, if he knows where a company is, he's got a pretty good idea where the FIST is. Besides, observer location reports in the tactical fire direction (TACFIRE) system are designed for this.

Separate locating of FISTs adds the additional problem for the TF FSO of getting FISTs to where they are needed. If the FIST is with its company, it's already in the action and not "running to the guns."

Lieutenant Parker also states in advantage three that the TF FSO "should have direct control over the FIST," since he's responsible for clearing fires. Use the term "direct control" if you want, but a good TF FSO will always ensure he's doing this regardless of the employment option used for the FISTs.

Finally, advantage number four states "FIST-Vs and dismounted operations located to support the task force plan can provide total coverage of the entire battlefield." A FIST in each company already accomplishes that better than anything else. To use this argument is to say some companies on the battlefield are not as important as others-they don't need immediate fire support. Without FISTs attached to companies, I would be interested to see the handling and passing of priority of fires.

Again, no answer is entirely right or wrong. I have no doubt that "option four" could be a usable option in certain situations; however, the situation would be a unique one and the decision to use it would be a very gutsy decision by the TF FSO. The bottom line: this option breaks down the most crucial link in the combined arms relationship. It also leaves four FIST-Vs on the battlefield lacking the protection they need. That isn't a comfortable thought.

First Lieutenant Gregory K. Huff
USAFATC
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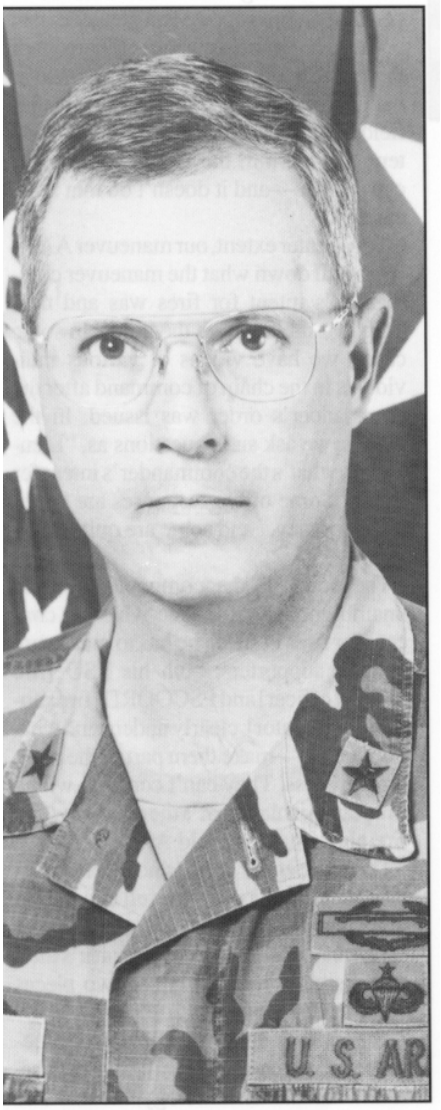
Brigadier General William G. Carter III, Commander of
the National Training Center, Fort Irwin, California

Synchronizing

Combat Power at the NTC

Interview by Lieutenant Colonel Jerry C. Hill, Editor



"If it hasn't been drilled extensively back at home station, it won't go well at the NTC. Integrating artillery maneuver with ground maneuver is not the sort of operation you can do 'on the fly.'"

Given your experiences as the Assistant Division Commander of the 1st Infantry Division [(Mechanized), Fort Riley, Kansas] and as Commanding General of the National Training Center [NTC], how should units prepare for a rotation at the NTC?

There's been a substantial change in the last six months or so in terms of how home-station training is conducted. Most units now focus training at the company and platoon levels. The impact for Field Artillery is that the synchronization of the battlefield operating systems really starts to come together at the battalion and brigade levels. So, as a result of focusing training at the lower levels, there exist fewer opportunities to practice exactly how they're going to synchronize fires.

In the past, there were enough battalion-level maneuver exercises to train synchronization, at least indirectly, if not in separate training events. The situation now is somewhat different. Most divisions are developing fire coordination exercises and devoting more time to computer simulations to work out fire support coordination issues key to success at the NTC.

My experience in the 1st Infantry Division was we had an exceptionally good Field Artillery training program. The Field Artillery ran their SEEs [standardized external evaluations] to exacting standards. But, we didn't do as well in fire support—integrating Field Artillery with maneuver. Of course, that's the more difficult of the two.

If I were back in the division, I would focus to a greater extent on fire coordination exercises and synchronizing battlefield operating systems. Too many of us think that because we can verbalize synchronization, we can do it. The truth is, you have to practice it at home to execute it successfully at the NTC—or in combat.

My second training suggestion is much more difficult to achieve—integrating artillery maneuver with ground maneuver. When I had my brigade at Fort Carson [1st Brigade, 4th Infantry Division (Mechanized)], I had enough money to take the brigade slice to the field and train integrating artillery maneuver with ground maneuver. It sounds simple. But as units discover here at the NTC, it's a complex operation.

For example, when you move your artillery, how do you dovetail all the moving pieces within the concept of fires so when you need the battalion, it's ready to fire? To exercise that on the ground at home station is difficult when money's tight.

You might establish a series of OPD [officer professional development] sessions where the doctrine is reviewed, coupled with a tactical exercise without

troops [TEWT]. Key leaders must develop special relationships and work through integrating artillery maneuver with ground maneuver.

If it hasn't been drilled extensively back at home station, it won't go well at the NTC. Integrating artillery maneuver with ground maneuver is not the sort of operation you can do "on the fly." It requires as much detailed planning as any other aspect of maneuver.

With the dissolution of the Warsaw Pact, the relevance of units facing only a Soviet-style OPFOR [opposing force] at the National Training Center becomes questionable. What are your plans, either current or in the future, for the OPFOR at the NTC?

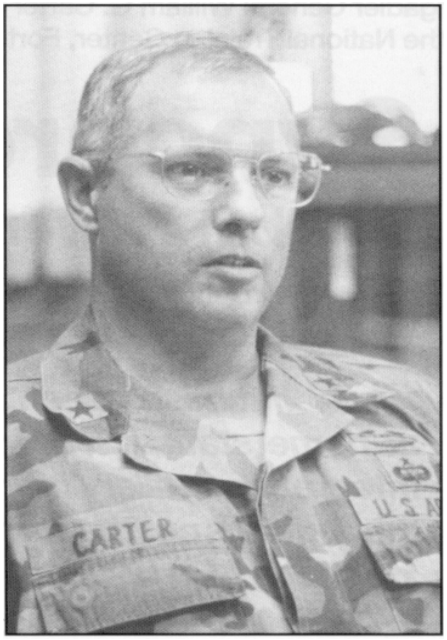
The type of threat we should have at the NTC has been studied extensively during the last year. Since the fall of the Soviet Union and its reorganization into the Commonwealth of Independent States, some have said units training at the NTC against a Krasnovian, or Soviet-style, threat is probably wrong. The argument is that the world order has changed significantly enough for us to reassess and, potentially, come up with a different threat.

During the Gulf War, the NTC converted its OPFOR to portray a Samaran threat, a composite Mid-Eastern threat modeled on the Iraqi Army. We have that Samaran doctrine on the shelf today, ready to execute. There also have been some initiatives to come up with other threat models.

But we maintain the NTC threat as Krasnovian so US heavy task forces and brigades fight a robust force with a myriad of combat multipliers, which requires our units to work through some very difficult missions. They face a sophisticated enemy with a coherent, well-thought-out doctrine developed over a long time.

There are significant, detailed writings in the Soviet body of literature that allow us insights into how they think about doctrine. From that standpoint, there's no other doctrine that gives us that kind of a data base from which to draw.

Equally important is the fact that this doctrine is for a force with full capabilities, ranging from chemical agents to formidable reconnaissance, artillery, attack helicopter and close air support systems. So the Blue Force commander faces the full spectrum of a threat. In Operation Desert Storm, we validated the concept that if we train to fight the toughest



Spc Galen Wiering, PAO

of our potential threats, fighting an enemy with less capabilities is far easier than it might otherwise be.

I also would add that as a result of diminished economic conditions in the former Soviet Union, significant amounts of Soviet equipment are being sold to other countries. The equipment, primarily offensive-oriented, was designed and optimized for Soviet doctrine. So any country that buys large quantities of Soviet equipment, of necessity, needs to "buy into" the doctrine for which the equipment was designed. Our intelligence community has concluded there's a high probability that in future wars, at least in the near-term, we'll fight a threat that's Soviet-equipped and Soviet-trained.

The bottom line: we'll continue to train with the Krasnovian threat at the NTC for the foreseeable future. It may change at some future date. But right now, we're training as we should as the Army draws down and becomes primarily a continental United States [CONUS]-based contingency army.

Key to the "Fighting with Fires" initiative is developing true combined arms commanders who can orchestrate all the battlefield operating systems. What is training at the NTC doing to develop maneuver commanders into combined arms commanders?

"The issue at the NTC is not Field Artillery, it's fire support—the full integration of maneuver with fires. We must impress upon maneuver commanders that it's their responsibility to make those two pieces work in consonance."

We're doing a number of things. One is we're focusing after-action reviews [AARs] on fire support to a greater extent because it comprises about 60 percent of the combat power the heavy maneuver battalion commander brings to the battlefield. It's imperative the fire support system provide him the full measure of its capabilities—and it doesn't do that in all cases.

To a greater extent, our maneuver AARs try to nail down what the maneuver commander's intent for fires was and then "run that rabbit down the hole." In some cases, we have videos of various individuals in the chain of command after the commander's order was issued. In the videos, we ask such questions as, "Lieutenant, what's the commander's intent for fires?" Some of the responses are "right on the money," and some are quite *interesting*.

The point is, the commander has to unambiguously articulate what his concept for fires is. Then he has to make sure his fire supporters, both his FSO [fire support officer] and FSCOORD [fire support coordinator], clearly understand what his intent is—make them part of the planning process. They can't come up with a fire plan in isolation. It's the *commander's* fire plan—not the Field Artillery's.

The issue at the NTC is not Field Artillery, it's fire support—the full integration of maneuver with fires. We must impress upon maneuver commanders that it's their responsibility to make those two pieces work in consonance.

The commanders must know Army doctrine, including Field Artillery doctrine, and what the terminology means. For

example, we have far too many commanders who don't know what destruction means, in terms of percent of the enemy destroyed. So a commander issues his intent, thinking he issued it specifically, but uses the wrong terminology. The artilleryman, then, understands and implements the doctrinal terminology precisely, as he's taught at Fort Sill [Field Artillery School]. He feels assured he's complying with the commander's intent.

During the battle, the commander thinks his fires aren't supporting his intent. Then he finds out in the AAR that the guidance he gave was imprecise and his intent, as stated, *was* achieved. He just didn't understand the doctrinal terminology.

Everyone has to know doctrine. We have to know the different terms so we don't speak *past* each other instead of *to* each other.

The Armor School [Fort Knox, Kentucky] and the Infantry School [Fort Benning, Georgia] need to work on developing combined arms commanders. We've laid this issue at the doorstep of the Field Artillery School for years—and it's not a Field Artillery problem.

The Field Artillery is exceptionally good at loading cannons, pulling lanyards, sending rounds downrange and making them hit the right point on the ground consistent with the firing data provided to the guns. The piece we don't do well is put the rounds on a specific target at exactly the right time and event in the battle. That's fire support, not Field Artillery. That's where the maneuver commander comes in. He must focus all his combat power at a specific point in time against, in most cases, a moving enemy. It's a formidable challenge.

We must continue to work the issue at the Field Artillery School. But more important, we need to work it at CAS^3 [Combined Arms and Services Staff School, Fort Leavenworth, Kansas] where we integrate captains into staffs and start teaching them synchronization. Then we need to work it at CGSC [Command and General Staff College, Fort Leavenworth]. The maneuver commander owns fire support, and it's a cop-out to say the fire support plan didn't work because the FSO didn't come up with the right plan. It's not the FSO's plan—it's the maneuver commander's plan.

"It's as important for the fire supporter to understand maneuver as it is for the maneuver commander to understand fire support."

How important is it for the Field Artilleryman, the fire supporter, to be able to visualize maneuver on the battlefield?

It's as important for the fire supporter to understand maneuver as it is for the maneuver commander to understand fire support. One scenario occurs fairly frequently in the live-fire phase of NTC rotations. The task force maneuvers down a valley, making a dogleg to the right. As the unit makes the turn, its left flank is completely exposed. The artilleryman ought to be able to look at that situation and go to his maneuver commander and say, "I recommend you screen the left flank with smoke." Or, if the commander has included the screen in his intent, the artilleryman needs to say, "Okay Boss, let me explain where the guns need to be positioned to execute that mission and how long it'll take to build a smoke screen dense enough to obscure the task force." They have to work through all that.

Please explain what your enhanced AARs at the NTC are and how effective those AARs have been.

When I arrived at the NTC, I was concerned about the effect artillery was having on the battlefield. What I saw in my brigade command and my time as an ADC [Assistant Division Commander] was that fire support didn't seem to improve at the NTC. Units consistently had problems focusing their fires on the right point at the right time.

But then I participated in Desert Storm, and our division had 13 howitzer battalions and 10 MLRS [multiple-launch rocket system] batteries in support. We had, by anyone's definition, a fairly formidable Field Artillery force that constituted more than 60 percent of the division's combat power. We conducted a deliberate attack and fired a 30-minute prep with 12,000 rounds while on the fly, attacking a day earlier than we had anticipated. What I saw was tremendously effective artillery—more effective than I probably will see again in my career.

I brought that knowledge with me when I came to the NTC and, again, looked at how artillery was contributing to the battle—it wasn't contributing to the extent it should. I asked my senior artillery trainer to recommend improvements to artillery play at the NTC. Then I proposed a concept to the Chief of Field Artillery, who agreed to test it. So we added eight observer/controllers (O/Cs) to observe all the FISTs [fire support teams] and COLTs [combat observation lasing teams] and put a Field Artillery captain in each training analysis and feedback center as an artillery analyst. This allowed us to get the detailed feedback needed to conduct what we call an "enhanced AAR."

In the past, if a target key to success didn't get fired, we could only tell it didn't get fired, or we could tell it got fired, but the rounds landed behind or in front of the enemy. We hadn't gathered the level of detail needed to tell *why* the artillery didn't fire or missed the target. But in the test AAR, we could tell the unit exactly what happened and why. The key to AARs is establishing definitively what happened, so units can spend their time talking about what they're going to do to improve for the next mission.

We also instituted a different fire support AAR. Previously, the senior Armor and Infantry trainers gave AARs, and of course, the artillery FSO for the battalion participated. Those AARs examined fire

support but only as one of seven battlefield operating systems. Fire support didn't get much coverage unless it was the proximate cause of the success or failure of the mission.

Of course, the Werewolves [fire support O/C team] gave AARs to the Field Artillery battalion. They talked about issues internal to artillery—technical and tactical aspects. That's good and needs to be done. But they didn't talk *fire support*—only Field Artillery.

We established an AAR where the Field Artillery senior controller brings together the maneuver and artillery commanders to talk fire support. The first AAR was amazing because they talked *by* each other initially. Then they started to see the light and understand each other. It was fascinating to see the two bond together and start communicating to achieve successful fire support.

The NTC has emphasized rehearsals for some time. What problem areas do you see?

One problem is, too often, the plan is never actually rehearsed or, at best, partially rehearsed. What happens is the brigade commander issues an order, and then the battalion issues an operations order fairly rapidly and schedules a rehearsal. All the subordinate commanders and staff officers start rehearsing their pieces.

During the time between the issuance of the order and the rehearsal, the FSO works the fire support plan, theoretically, with the maneuver commander, making sure he understands the intent and that the plan will give the maneuver commander what he wants. The FSO also works technical aspects with his artillerymen, making sure they all know the plan, have all the targets loaded in TACFIRE [tactical fire direction system], etc.

> ***"At the NTC, the maneuver rehearsal often becomes a time to issue orders for the 'new plan' as opposed to rehearsing the original one."***

Unfortunately, too often during this time, the maneuver commander starts to rethink his plan—*refine* the plan. In many cases, his refinements become *wholesale changes.*

Then it's time for the integrated rehearsal. The "band" has rehearsed the music. The "stage crew" has practiced how it'll change the sets. The "actors" have rehearsed their individual parts. All go to the "dress rehearsal" to find out the name of the play has changed. At the NTC, the maneuver rehearsal often becomes a time to issue orders for the "new plan" as opposed to rehearsing the original one.

We're aggressively trying to convince the maneuver commander that he has to have a simple plan, one planned in exquisite detail, as opposed to a complex one that isn't planned in detail. A very simple plan flyspecked in detail with every aspect double-checked will work well more often than not. Such a simple, thorough plan will need less "refinement" down the road, ensuring units are more prepared to execute it with precision and vigor.

We're also emphasizing the sequencing of rehearsals. The artillery should conduct its rehearsal *before* the task force commander's rehearsal. It's a time management issue in a very demanding period.

When the order is issued, the FSO works the fire plan with the maneuver commander and works with his artillerymen. But the artillery hasn't rehearsed its part. So when the maneuver commander's rehearsal is complete, you hear the artilleryman say to the commander, "The artillery rehearsal will be at 1700." You can't have a dress rehearsal if all the players haven't rehearsed their parts.

Of course, time is at a premium at the NTC. There are more things to do than time to do them. It's a prioritization issue that's new for most staffs—they're under a lot of pressure. An NTC rotation is 14 days of continuous operation, and it's very demanding.

Fire support O/Cs at the NTC have been strong proponents of the observation plan as an integral part of the fire support planning and synchronization process. What problems are the O/Cs finding in the development and execution of the observation plan?

We've learned that top-down fire planning works best because it ties the brigade deep fight in with the task force fight. It stands to reason that the same principle applies to the positioning of observers. The positioning of observers to trigger fires must be planned in detail.

There's still a tendency for the company FSO to be glued to the company commander, and in many cases, that puts him on the battlefield where he can't see his targets. So he can't call for fires. The observation plan is immensely valuable because it nails down another piece of detail—who will have eyes on the target.

Often, a fire plan is a good one that supports the commander's intent. Units then assume the observer tagged to call for fire during the rehearsal will be in the right position to trigger the event. But because there was no formal observation plan, too often, the individual never gets to where he can see the target. So the target doesn't get fired. But the reason why the target wasn't fired doesn't come out until the after-action review.

If you have an observation plan, you've clearly laid down where you expect observers to be to see the battle and call for fires. It's clear you expect them to do something if they can't get to that position—call. This alerts the commander and his FSO to the problem and to look for an alternative if they expect to fire that target.

But executing the observation plan also makes synchronization more complex. Now, instead of the company FSO just following the commander, he may have to go to a different location on the battlefield to achieve a vantage point and observe more than just his company. That puts a training burden on the Field Artillery. An artillery lieutenant not only is responsible for executing a fire plan, but also for navigating independently to get to a specific point at the right time. FIST security is also more complicated.

That's a difficult challenge. It requires a lot of coordination and synchronization in the task force to make sure everyone understands and can execute the plan. The payback is immense, but it's another level of complexity the unit has to deal with.

Based on your experience as the NTC commander, what other warfighting skills do Field Artillery units need to improve and how do they improve fire support?

We need to look at how batteries occupy firing positions. Given the fluidity, openness and nonlinearity of the battlefield, are they going to be able to continue to

> ***"The artillery should conduct its rehearsal before the task force commander's rehearsal.... You can't have a dress rehearsal if all the players haven't rehearsed their parts."***

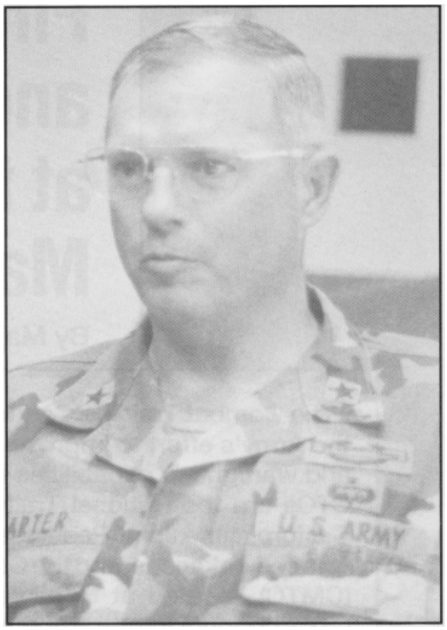
occupy positions with advance parties going in prior to occupation? Batteries must continue to work their hasty occupation techniques without advance parties and rapidly achieve accurate predictive fires. In many cases, batteries may be going in where no maneuver forces have previously gone with the possibility they'll run into enemy forces. Perhaps batteries should occupy positions as an entire unit with mutual support between platoons while maintaining the counterfire survivability afforded by the split-battery (3×8) configuration.

We also need to work on how to maneuver artillery, specifically during brigade operations. In Saudi Arabia, it took us quite some time to figure out how to move a brigade. We had to move two tank battalions, an infantry battalion, an FSB [forward support battalion] and a DS [direct support] artillery battalion in formation across the desert. At the same time, the DS battalion had to be positioned to range enemy targets and provide fire support rapidly to the brigade.

We don't do that well at the NTC. During brigade operations, in many cases, there isn't a good link between the fire support plan and the artillery movement plan.

In the year 2005, what do you think the NTC should look like for our units to train to fight and win on the nonlinear, fast-paced battlefield in a sophisticated world?

In the future, the brigade commander will have access to a far greater, more sophisticated range of intelligence assets than he now has, which will change how we operate markedly. We're conducting exercises with the Intelligence School



[Fort Huachuca, Arizona] that will bring the full spectrum of intelligence assets from the strategic down to the tactical levels to the NTC battlefield. They'll down-link into the brigade commander's command post.

Also, we need to come to grips with the kinds of situations we had in Saudi Arabia. The future battlefield may be larger geographically with a greater dispersion of our forces than any of us anticipated. These aspects of the battlefield carry some significant risks for the artillery—not necessarily for the DS battalions as they travel with the maneuver brigades, but for the artillery brigades that move behind the maneuver brigades on a nonlinear battlefield. In Desert Storm, brigades moved through enemy forces we had bypassed knowingly or, in some cases, unknowingly.

There will be a greater emphasis on self-protection as we operate on a nonlinear battlefield. In the Gulf War, we were fortunate that, as our frontline troops passed through, the enemy became demoralized and surrendered instead of creating pockets of resistance and fighting to the last man. Had they done that, it would have been a terrible experience for the division support commands and the Field Artillery brigades coming behind the lead combat brigades.

We're playing a higher degree of nonlinearity at the NTC, and we'll continue that. But you won't see a sudden change in a single rotation. The scenarios will change over time to portray the nonlinear battlefield. Right now, they're running about 30 percent nonlinear and 70 percent linear.

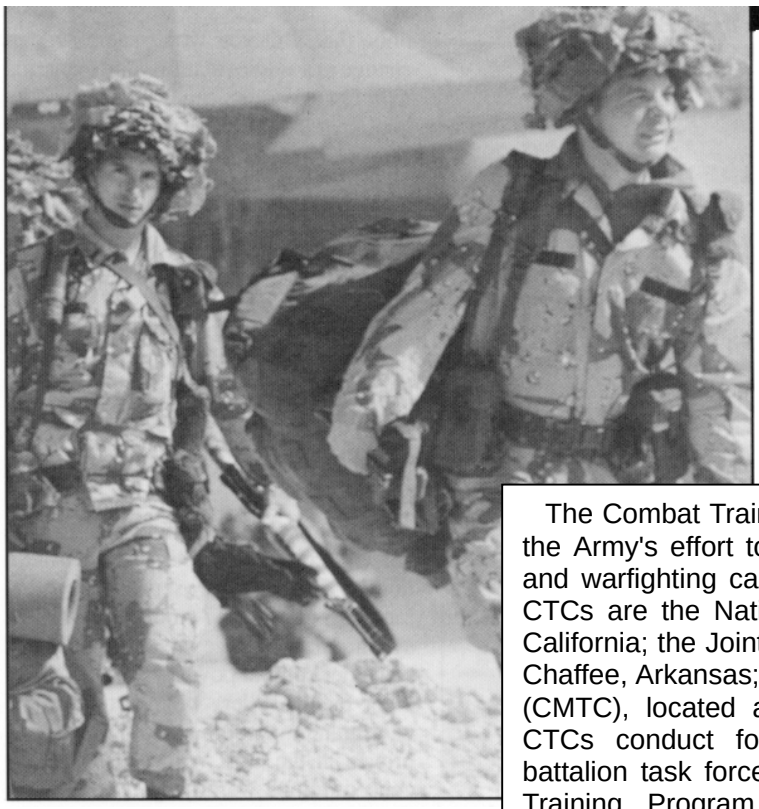
What message would you like to send Field Artillerymen worldwide?

The artillery brings to the battlefield a phenomenal capability in terms of being able to destroy, demoralize and suppress enemy forces—at least 60 percent of the ground commander's combat power. The sheer weight of that potential power makes it essential you aggressively work fire support. Synchronizing fires and maneuver is a combined arms endeavor—it's not the Field Artillery separate from Infantry separate from Armor. And we must synchronize because we can't afford to squander combat power.

The Field Artillery will remain a dominant branch in combat. I think that was proven in the Gulf War where artillery concentrations were as great as World War II. The counterfire program was absolutely devastating and completely stripped the Iraqis' ability to put indirect fire on our forces.

Your performance in Desert Storm was critical to our success and will be as critical—possibly more so—in future conflicts. I ask you continue the good work and aggressively go after the final piece—*full synchronization of the artillery with the maneuver arms.*

Brigadier General William G. Carter III is the Commanding General of the National Training Center and Fort Irwin, California. Previous to this assignment, he was an Assistant Division Commander in the 1st Infantry Division (Mechanized), Fort Riley, Kansas, and fought with the division in Operations Desert Shield and Storm. His other commands include the 1st Brigade, 4th Infantry Division (Mechanized) at Fort Carson, Colorado, and the 1st Battalion, 52d Infantry, 3d Brigade, 1st Armored Division in Germany. In the 82d Airborne Division, Fort Bragg, North Carolina, he commanded three companies, two of them in Vietnam. General Carter's other assignments include serving as Executive Officer to the Chief of Staff of the Army and Chief of Plans and Integration, Office of the Deputy Chief of Staff for Operations and Plans, both in Washington, D.C., and G3 of the 1st Armored Division.



Fire Support and FA Issues at the Maneuver CTCs

By Major W. E. "Casey" Crowder

The Combat Training Centers (CTCs) are the centerpiece of the Army's effort to improve and sustain the professionalism and warfighting capabilities of the total force. The maneuver CTCs are the National Training Center (NTC) at Fort Irwin, California; the Joint Readiness Training Center (JRTC) at Fort Chaffee, Arkansas; and the Combat Maneuver Training Center (CMTC), located at Hohenfels, Germany. These maneuver CTCs conduct force-on-force training for combat at the battalion task force and brigade level. The Battle Command Training Program (BCTP), based at Fort Leavenworth, Kansas, is also a CTC and trains divisions and corps using command post exercises (CPXs).

This article discusses fire support and Field Artillery issues at the battalion task force and brigade level, the first level at which the commander must synchronize multiple battlefield operating systems (BOS) to be effective in combat.

Units from throughout the total force come to the CTCs to test themselves against a world-class opposing force (OPFOR) and a hostile environment. Their experiences provide a gauge by which commanders can assess the effectiveness of their training and identify deficiencies in doctrine; tactics, techniques and procedures (TPP); or unit training. Short of actual combat, a CTC rotation is the ultimate reality check for a commander on how well his unit is trained.

The Army has established several agencies to consolidate observations and identify trends. The Center for Army Lessons Learned (CALL) at Fort Leavenworth is the most visible of the agencies, publishing both newsletters and bulletins periodically for distribution across the force.

The Commandant of the Field Artillery School at Fort Sill, Oklahoma, has established a CTC Branch in the Fire Support and Combined Arms Operations Department to do the same for fire support and Field Artillery issues. The CTC Branch gathers observations from a variety of sources, including CTC observer/controller (O/C) surveys, subject matter expert (SME) and observer visits and research in the CALL data bases. This information is disseminated to the school and the Field Artillery community by several means.

What follows are some of the most significant fire support issues identified at the three maneuver CTCs where the focus is on battalion task force- and brigade-level operations. BCTP deals with the division- and corps-level battles, and the lessons learned, naturally, are somewhat different.

Fire Support Issues and Trends

The Role of the Combined Arms Commander in Integrating Fire and Maneuver. The twin pillars of combat power are fire and maneuver. Historically and for the foreseeable future, fire support represents the preponderance of the combat power available to the combined arms commander.

Unfortunately in many cases, the maneuver commander treats fire support as "Redleg" business. The maneuver commander tends to focus on the plan for his infantry and armor units and provides his fire support coordinator (FSCOORD) and other combat support staff little, if any, specific guidance on what he wants the greatest part of his combat power to do for him.

CTC experience and senior artillery commanders in the field say that one of the greatest challenges facing fire supporters

today is helping to evolve the maneuver commander into a true combined arms commander. A combined arms commander is one who integrates and synchronizes all his BOS to maximize his combat potential. He understands the capabilities and limitations of each BOS and provides a clear vision of what each must accomplish for his plan to succeed.

Field Artillery as an operating system works. It's the coordination of *fire support* as a combat multiplier supporting a scheme of maneuver that CTC experiences indicate needs work.

Success for the fire support system is not and must not be defined by the number of rounds or missions fired or by the number of OPFOR destroyed. Statistics are meaningless if the supported unit fails to accomplish its mission or is destroyed. The fire support system is successful if it accomplishes those tasks the combined arms commander determines are essential to the overall mission. The trick is getting the commander to state specifically what he wants from his fire support system. For this reason, obtaining a clear statement of the commander's intent for his fires is the critical first step in the process of synchronizing fire support.

The Combined Arms Commander's Guidance for Fire Support. In too many cases, the commander's guidance for fire support is a "hand wave," if it's enunciated at all. The FSCOORD must come away from the orders process with some critical pieces of information. He must know in very specific terms not only what the combined arms commander wants his fires to accomplish, but also when, where and what effects must be achieved.

It's impossible for the Field Artillery to mass everywhere and at all times across the extended frontage and depth of the AirLand battlefield. The combined arms commander must determine the times and places on the battlefield where massed fires are critical for success. Just as important, he must decide when and where he's willing to accept the risk of not having all of his fire support immediately available.

The FSCOORD is the commander's primary advisor on fire support synchronization and employment, but the combined arms commander can't delegate the responsibility for integrating the major part of his combat power to an advisor. He must tell the FSCOORD in concrete terms what he wants done. The FSCOORD's job is to take the what, when, where and what effects information and create and execute fire support and Field Artillery support plans that accomplish the specified and implied tasks contained in the commander's guidance.

There's no "cookbook" answer for what the commander's guidance for fire support should look like. Just as no two tactical situations will be exactly alike, the guidance for each mission will be unique—tailored to the requirements of that situation. There are, however, some critical pieces of information the FSCOORD should receive for every mission. (See Figure 1.)

- ☑ Places and events where massing fires are critical and where the commander will accept risks.
- ☑ Priorities for targets and desired effects.
- ☑ Priorities for force protection (which helps focus sensors and guide the counterfire effort).
- ☑ Priorities for special munitions.
- ☑ Priorities for observers and sensors.

Figure 1: Critical Pieces of Information the FSCOORD Needs for Each Mission. Though there is no "cookbook" list of what a FSCOORD must know to create and execute effective FA and fire support plans, some information is critical to those processes. Just as no two tactical situations are exactly alike, the commander's guidance for each mission will be unique.

FM 6-20-40 Tactics, Techniques and Procedures for Fire Support for Brigade Operations (Heavy) and *FM 6-20-50 Tactics, Techniques and Procedures for Fire Support for Brigade Operations (Light)* deal with commander's guidance as a series of questions. If the FSCOORD obtains answers to all the questions, he should understand the commander's intent.

A significant part of the FSCOORD's job is to act as the honest broker for the BOS. If what the commander asks for is beyond the capabilities of the system, it's important the FSCOORD say so emphatically early in the planning process. Objections of this type must be raised during the initial war gaming rather than during the rehearsal when changes cause major disruptions in the preparation phase of the operation.

One of the FSCOORD's duties is to advise the commander on the capabilities and limitations of the fire support system. As a general rule, artillerymen are better at advising on capabilities than limitations. If the commander says he wants to "destroy" a regimental sized armored unit in an engagement area by firing dual-purpose improved conventional munitions (DPICM) and high-explosive (HE) munitions with his one battalion of 155-mm artillery, the FSCOORD had better "come up on the net" and let him know that it's probably not going to happen. If the FSCOORD fails to do so, he creates a situation in which defeat (and an extremely irate combined arms commander) is likely to follow.

The Orders Process for FA Support Planning and the FA Scheme of Maneuver. The compression of planning time caused by the rapid pace of operations at the CTCs has highlighted the Field Artillery support planning process as a problem area. This is particularly true of the direct support (DS) artillery battalions at the NTC and CMTC as each tries to develop a scheme of maneuver to support the mission.

The FA scheme of maneuver is the FSCOORD's plan for moving and massing artillery to meet the commander's guidance for fire support. The problem for the FA support planner is one of both time and distance.

At the maneuver brigade level and higher, the FSCOORD is normally the commander of the supporting artillery unit. He usually spends the majority of his time forward with the combined arms commander. The artillery command post (CP) isn't ordinarily collocated with the maneuver CP.

Positioning himself forward keeps the FSCOORD in touch with the needs of the supported force but makes it difficult to provide the detailed guidance the artillery unit S3 requires to perform adequate FA support planning. In many cases, the S3 plans in a near vacuum with neither a written maneuver operations order nor specific verbal guidance from his commander.

One solution is to include the artillery unit S3 and (or) executive officer in the maneuver planning process as early as possible. If at all possible, the S3 or a representative should attend the initial orders briefing and hear the commander's guidance directly (such as when and where massed fires are critical). If this isn't possible, the FSCOORD, deputy FSCOORD (DFSCOORD) or fire support officer (FSO) should go to the artillery CP as soon as possible after the maneuver plan is developed and thoroughly brief the operations staff.

Neither the fire support plan nor the FA support plan can be properly developed independently of one another. The fire support plan drives FA support planning; the FA support planning acts as a reality check on the fire support plan. Like the FSCOORD's interaction with the combined arms commander, the S3 must speak up when the FSCOORD bites off more than the artillery unit can chew. Getting the planning information quickly and clearly allows the S3 time to prepare, disseminate and rehearse the FA support plan.

There are several items of information that are especially critical for FA support planning. Probably most important are the times and places the combined arms commander wants to mass fires and the times and places he has decided to accept risks. This information will largely dictate the FA scheme of maneuver.

If the plan to be supported requires extensive movement, march tables, recognition signals, passage points and similar information, that information must be identified and better sooner than later. If special munitions are to be employed, they must be transported and distributed as well, which may impact other requirements, such as positioning en route rearm, refuel, resupply and survey points (R^3SP).

Fire Support Rehearsals. The good news is that both maneuver and combat support commanders have recognized rehearsals are critical for success on the CTC (or any other) battlefield. Some type of combined arms rehearsal occurs during the preparation phases of most CTC missions.

The bad news, particularly in the area of fire support, is we still aren't doing rehearsals very well. The primary shortfalls for fire support rehearsals are they aren't always integrated with the maneuver rehearsal, they often don't include all the key fire supporters and they frequently don't include the shooters at all.

There are several desired outcomes from the fire support portion of a combined arms rehearsal. The rehearsal clarifies the fire plan for the observers, the shooters and the maneuver commanders they support. It facilitates the synchronization of fires with maneuver by ensuring the observation plan and the FA scheme of maneuver are crosswalked with the maneuver plan. (For features of a good rehearsal, see Figure 2.)

The bottom line is that an effective fire support rehearsal, *done in conjunction with the maneuver rehearsal,* tells the FSCOORD whether his fire and FA support plans will work and helps identify any problems in advance.

- Exercises both primary and alternate communications nets. Everyone is made aware of who they are to talk to and on what nets.
- Identifies back-up observers and attack systems for critical targets.
- Verifies trigger points and ensures observers are positioned so they can see and are protected.
- Identifies firing battery positioning and (or) ammunition problems. Critical targets should be dry fired to ensure they can be supported from the planned positions.

Figure 2: Fire Support Features of a Good Combined Arms Rehearsal.

It's important the combined arms rehearsal remain exactly that—a rehearsal of the course of action (COA) the commander selected. In many cases, the rehearsal is (or becomes) an extended COA drill. Significant changes to the plan are often the result.

Because rehearsals are normally held just a few hours before the mission and major changes to the maneuver plan necessitate major adjustments to the fire plan, time for FA support planning tends to vanish with those changes. War-gaming both the maneuver and fire plans must occur early in the planning process—not at the rehearsal.

The Fire Support Observation Plan. Fire support O/Cs at the NTC and CMTC have become strong advocates of a more formal planning process for managing fire support observation assets. Experience has shown that observers in general and fire support team vehicles (FIST-Vs), OH-58D helicopters and combat observation lasing teams (COLTs) in particular, are misused. In many cases, no real planning is done to deploy the observation assets available to ensure targets critical to achieving the combined arms commander's intent are properly covered.

The observation plan is developed by the targeting cell at the task force or brigade. The cell consists of the FSO; air liaison officer (ALO); Army aviation liaison officer (LNO); maneuver and FA battalion S3s; engineer, air defense and nuclear, biological and chemical (NBC) representatives; signal officer; electronic warfare (EW) officer; and any other specialists required by the mission. A well-trained targeting cell, using the decide, detect, deliver methodology described in *FM 6-20-10 Tactics, Techniques and Procedures for the Targeting Process,* pays big dividends in the unit's targeting effort.

The targeting cell's first step in the observation planning process is to determine exactly what assets are available to observe critical targets. At the battalion level, this may include FISTs, platoon forward observers (FOs), scouts, observation posts/listening posts (OP/LPs) and, possibly, infantry patrols. At the brigade level, in addition to the battalion observation assets (tasked by the brigade), COLTs, observers from units in reserve, ground surveillance radars (GSR), EW, unmanned aerial vehicles (UAVs) or other assets the division or corps may provide may be available. In any event, the targeting cell determines what assets are available and plans to use them to support the combined arms commander's plan and then protect them while supporting the plan.

Several units have begun incorporating the observation plan into the fire support execution matrix or even developing a separate observation plan matrix. There's no formal TTP for the observation plan at this time, so whatever works is the right solution.

One caution on the observation matrix, however. A separate matrix becomes just one more place for a disconnect to occur in the planning process. If units prepare a separate observation matrix, they must carefully crosswalk it with the fire support execution matrix. For this reason, including the observation plan in the fire support execution matrix appears to be the best technique.

Executable Fire Plans. A planned target is a waste of time unless some means exist to acquire it and initiate fires on it at the appropriate time. This is the reason the traditional "measle sheet" targeting method is such a waste of effort. If no means exist to "see" a target, there's no reason to fire it. If there's no reason to shoot the target, there's also no reason to include it in the fire plan. Like availability of attack systems, the availability of observation assets significantly limits the number of targets that can be planned and executed for any mission.

An executable fire plan is one in which the commander's guidance, the FA scheme of maneuver and the availability

of observation and attack assets are analyzed and synchronized to ensure those tasks critical for success are accomplished and those tasks that aren't don't cause unnecessary targets to clutter up the plan.

Since the NTC opened in 1982, coaching there and, later, at the other maneuver CTCs, has reduced the average brigade fire plan from 150 targets to about 50. In many situations, even this number is at least 50 percent too high.

Critical parts of fire support planning are identifying those targets that must be engaged for the commander's plan to succeed and determining what volume of fire is required on each of those targets—either single targets, groups, series or programs of targets, final protective fires (FPFs), preparations or special munitions missions.

The targeting cell figures out the time required to fire each mission, given the number and types of attack systems available; factors in the time necessary to move batteries to support the plan; and considers the requirements for acquiring and (or) observing the targets. If the targeting cell does its job correctly, before long, the fire support system is completely occupied servicing only the most critical targets with massed fires. The remainder of the target list is a series of meaningless (and time-consuming) tick marks on an overlay.

An executable fire plan at the brigade level probably consists of between 12 to 20 targets or, in even simpler terms, four or five battalion massed fire missions. Each target is assigned an observer, and especially critical targets are assigned two, a primary and a back-up. There's a *real* plan to fire each target, including an FA scheme of maneuver to move batteries into firing positions at the appropriate time. If the targets are triggered at a specific time or by some event on the ground, this information is in the plan and rehearsed. The necessity to do these things limits the number of targets in the fire plan far better than any arbitrary number set by a doctrinal publication.

1. Focus on those targets critical to the success of the commander's scheme of maneuver and the definition of success.
2. Analyze available fire support assets, particularly firing systems and observation assets.
3. Plan to achieve the necessary effects on critical targets
4. Eliminate targets that can't be supported.
5. Execute the plan.
6. Clear fires.

Figure 3: Steps the Targeting Cell Takes to Develop an Executable Fire Plan. Building an executable fire plan isn't solely the responsibility of the FSO, but the responsibility of the targeting cell, of which the FSO is a member.

Building an executable fire plan is not solely a Field Artillery challenge. It's the responsibility and function of the targeting cell, of which the artilleryman is a member. (For the steps a targeting cell takes in developing an executable fire plan, see Figure 3.)

Fratricide. Indirect fire fratricide is still a problem at the maneuver CTCs, but all three report real progress is being made in this area. This progress has been achieved by increasing the emphasis on positive clearance of fires. The old silence-is-consent method of clearing fires internally within a brigade or battalion task force has largely been abandoned. Targets of opportunity and fires by units other than the one with priority of fire now normally are required to be positively cleared by the lowest level combined arms commander owning the real estate to be fired on. Increased emphasis is being placed on the fire support element (FSE) and the FA CP maintaining the best possible status of the positions of maneuver forces.

Fort Sill recently published a white paper that establishes interim doctrine in this area. The "Clearance of Fires White Paper" states that positively clearing fires *within unit boundaries* is normal procedure. Situations may arise that require less stringent control, but each also requires a positive decision by the combined arms commander. In all cases, some means of positive clearance must be used. The white paper is available by writing the Commandant, US Army Field Artillery School, Fire Support and Combined Arms Operations Department, ATTN: ATSF-TW, Fort Sill, Oklahoma 73503-5600.

Conclusion

These are just a few of the most significant observations arising from the experiences of units training at the CTCs. This list is by no means exhaustive. Targeting, counterfire, light-heavy and heavy-light fire support integration and FSE operations are other issues not addressed.

As the rotational units and the O/Cs move to deal with these issues, new ones will emerge. It's unlikely the day will come when all units are so perfectly trained that no new issues surface at the CTCs. But we're headed in the right direction.

Major W.E. "Casey" Crowder, until recently, was the Chief of Combat Training Center Branch in the Warfighter Division, Fire Support and Combined Arms Operations Department, Field Artillery School, Fort Sill, Oklahoma. Currently, he's assigned to the Initiatives Group, Office of the Chief of Field Artillery, also in the Field Artillery School. Major Crowder was lead writer and publications manager for the recently published revisions of *FM 6-20-1 FA Cannon Battalion* and *FM 6-50 FA Cannon Battery* and the soon-to-be-published revision of *FM 6-20-2 Division Artillery, FA Brigade and FA Section (Corps).* Before arriving at Fort Sill, he was assigned to the National Training Center, Fort Irwin, California, where he participated in 64 rotations as the Armor Battalion Fire Support Observer/Controller and as a Fire Support Analyst. Major Crowder commanded C Battery and Headquarters and Headquarters Battery, 2d Battalion, 78th Field Artillery in the 1st Armored Division, Germany, and has served in both heavy and light cannon units.

Cancellation of 1992 Fire Support Conference

In anticipation of substantial resource reductions in the coming fiscal year, the worldwide Fire Support Conference scheduled 2-5 November 1992 is cancelled. The Field Artillery School will host one major conference during 1993. The Field Artillery Conference, scheduled for 22-26 March 1993, provides a forum to exchange fire support initiatives and issues with both combined arms and Field Artillery commanders. The cancellation of the FY 1993 worldwide Fire Support Conference should provide sufficient cost savings to allow commanders or their designated representatives to maximize attendance at the Field Artillery Conference. For additional information, contact Captain Dunn (Operations Division, Directorate of Training and Doctrine, Field Artillery School) at DCTN 639-6708 or commercial (405) 351-6708/5771. The FAX number is DCTN 639-2304 or commercial (405) 351-2304.

2d Brigade, 3d Infantry Division (Mechanized)

The Spartan Brigade's Training to Fight with Fires

by Colonel J. Richard Wallace, AR, and
Lieutenant Colonel Daniel A. Hahn

Is Field Artillery the King of Battle? In the Spartan Brigade, it's not only the King, but perhaps the whole royal family: King, Queen, Prince and Princess. But bringing the "monarchy of fires" to bear on the close battlefield is not a trivial task.

This article focuses on the 2d Brigade's program for training the complex task of fire support in preparation for "Battlefield Hohenfels"—the Combat Maneuver Training Center (CMTC).

The Spartan Brigade's Training Strategy

The training strategy is quite simple: Train on the tasks necessary to be lethal in the *last 1,500 meters of combat.* The Army's analysis, like ours, says we must train the platoon and lower collective and soldier skills necessary for winning in close combat. We must train those tasks repetitively and, because of limited time and other resources, sometimes train them at the exclusion of others. Clearly, delivering fires in the last 1,500 meters is one of those essential close combat skills.

Brigades and battalions play a vital role in structuring fire support on the battlefield: synchronization. In fact, the brigade's role is to synchronize all the battlefield operating systems (BOS) to ensure companies and platoons are postured for close combat. Then they take over the fight.

From what status did the brigade begin it's odyssey toward Battlefield Hohenfels? Six months before our CMTC rotation, the brigade was still recovering from Southwest Asia (SWA), which included drawing down one armor battalion. The brigade's direct support (DS) battalion, 3d Battalion, 1st Field Artillery (3-1 FA), though experienced in SWA, had fought with another brigade. Most key commanders and staff from Operation Desert Storm were gone, including the brigade commander and executive officer. The

Battle Tasks

- Prepare/coordinate commander's plan.
- Establish FIST headquarters.
- Occupy OP (maintenance and communications).
- Plan fires in support of maneuver operations.
- Develop observation plan.
- Rehearse.
- See and shoot targets.
- Execute primary or alternate fire plan.
- Lift and shift fires.
- Call for and adjust high-explosive (HE) fires and smoke.
- Perform target refinement.
- Position FIST vehicle (FIST-V) and maneuver.
- Conduct obstacle breaching operations.
- Perform digital operations (digital message device, or DMD).

Legend: **MRP** = Motorized Rifle Platoon
Tm = Team
LD = Line of Departure
TAA = Tactical Assembly Area

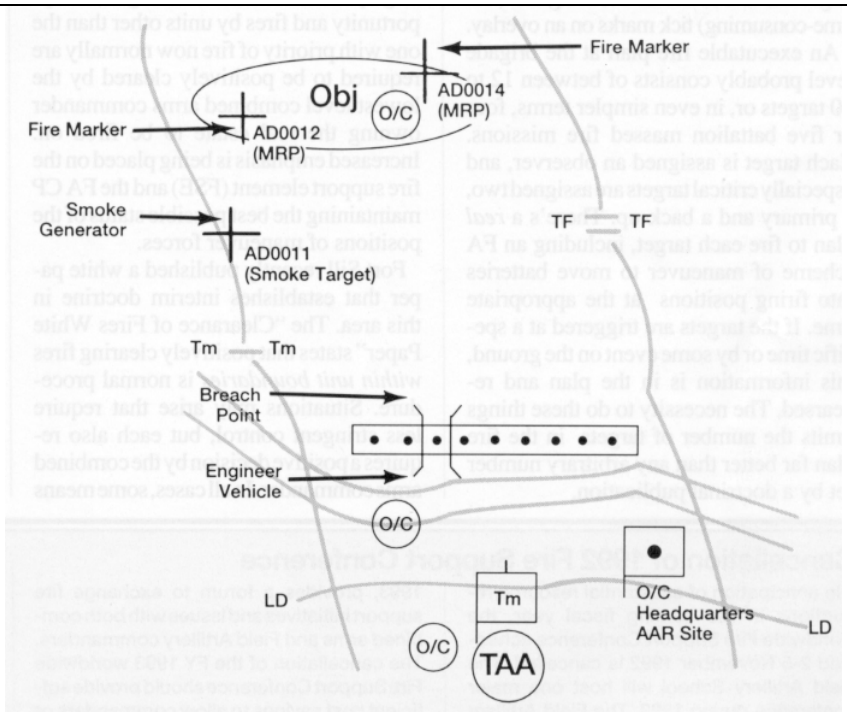


Figure 1: Spartan Thunder STX Lanes

brigade's affiliation with the 3d Infantry Division had just occurred.

Additionally, the brigade had been selected to develop and execute a new US Army Europe (USAREUR) "gate" training approach to the CMTC designed to raise CMTC entry proficiency. To devise such gates, we had access to training resources and opportunities typical of those available to other USAREUR units: maneuver rights areas (MRAs), local training areas (LTAs), Grafenwoehr Training Area (GTA), simulations and Hohenfels Training Area (HTA).

In short, we started the odyssey with a clean slate, causing Spartans to face the fire support training challenge beginning with the basics. After considering this challenge, we decided there were five critical fire support requirements associated with the last 1,500 meters of combat that must be met efficiently and effectively and, where applicable, result in precise, unambiguous products. The five are (1) Commander's Intent, (2) Fire Support Element (FSE) Operations, (3) Rehearsals, (4) Target Refinement and (5) Observation Plan.

This article focuses on how the 2d Brigade trained those five fire support requirements and the fire support lessons learned from our CMTC experience.

Training the Critical Five for Fire Support

The first three critical areas are commander and staff planning issues. If these planning operations are done incorrectly or incompletely, they'll prevent indirect fires or limit their effectiveness. The last two critical requirements affect fire support execution. To ensure success at the CMTC, we geared our training to integrate these five critical requirements into the brigade training plan, the train-up for our rotation.

The Spartan Brigade conducts several training programs designed to make all junior leaders knowledgeable about employing indirect fires and the five fire support tasks. The Maneuver Shooter Program was the first of these.

Maneuver Shooter. This program requires tank, infantry fighting vehicle and scout track commanders to learn to call for and adjust fires. These leaders are trained and certified using a combination of classroom instruction, the observed fire trainer and live-fire training at Grafenwoehr.

Purpose

The company commander and company FSO must be able to explain the relationship of the target to the scheme of maneuver (in the attack or movement-to-contact) or to direct fires and obstacles (in the defense). The brigade or TF commander's intent given to the company/team includes the following:

• Engagement Criteria - What size force to attack, given in vehicle numbers.

• Effects Criteria - What effects he wants on the target: suppress, neutralize (10 percent) or destroy (30 percent), etc.

Target Location

• Determine the refined target location, including the new grid and target number, number of rounds, minutes of fire and shell-fuze combination.

• In the Defense, register the target.

• In the attack, determine the target location and whether the target is templated or confirmed.

Trigger

Defense/Movement-to-Contact

When? In the defense and movement-to-contact, the trigger is based on an enemy event; e.g. the enemy is seen at the trigger location and the enemy's size meets the engagement criteria.

Where? Determine the trigger location by calculating the distance required to *lead* the enemy so the artillery or mortar rounds hit the enemy at the target location. The distance between the trigger location and the target is a function of how fast the enemy is traveling and how quickly the artillery or mortars can deliver fires.

Attack

When? Initiate the call for indirect fire based on a friendly event, usually a maneuver location on the ground.

Where? Determine the trigger location by calculating the time required to achieve the indirect fire effects by the time the friendly forces are in position. To allow the indirect fire to achieve their full effects, maneuver may need to hold in place until the fires are complete.

Observer

Who?

• Identify the observer by duty position and call sign. Determine the observer's location, generally in a position to see the trigger location. But someone else may have to observe the target location to adjust fire, as necessary, and report whether the fire had effects on the target.

• Identify at least one backup observer who will execute the target if the primary observer can't. Be sure the primary and secondary observers can talk on the radio.

• Have a plan for limited visibility: How will the observer call for fire on the target if he can't see it from the trigger location? Where is the alternate location? Can the observer use thermal sights? Predict visibility using the weather forecast and light data.

How? Consider the survivability of the observer in developing the plan and his positioning, but if the target is important, someone must observe it.

• In the defense, develop an observation point (OP) occupation plan (mounted/dismounted), including when to occupy and security considerations. Test the communications from the OP to the FM station receiving the call-for-fire.

• In the attack or movement-to-contact, develop the observer plan for movement and his location in the formation. Consider communications requirements, such as a retransmission capability from the DS battalion.

Figure 2: Target Refinement Worksheet. This fire support training tool developed by the Spartan Brigade provides a common language for maneuver soldiers and fire supporters as they refine targets and develop an observation plan.

The results are excellent, as seen during our CMTC rotation. The number of successful maneuver-initiated fire missions at the CMTC greatly increased. Because of this training, maneuver shooters routinely are integrated into the observation plan as primary and alternate shooters for preplanned targets.

Fire Support Road Show. A second program is the 3-1 FA Fire Support Road Show conducted by the fire support coordinator (FSCOORD), brigade fire support officer (FSO) and task force FSOs. The road show, presented to key maneuver players, helps leaders understand the five critical fire support requirements. The maneuver leaders also discuss using indirect fires in support of three maneuver operations: attack, defend and movement-to-contact.

The intent of the road show is for fire supporters and maneuver leaders to develop a common understanding of how and when to employ fire support at the CMTC and to allow task force commanders to discuss how they plan to integrate fires and maneuver at the CMTC. Participants include the task force commander, executive officer, S3, S2, task force engineer, scout and mortar platoon leaders and company commanders. These briefings and discussions are conducted early in the training cycle to allow the key players to incorporate the ideas into future training.

FA Battalion Exercise. Several training exercises that focus on fire support training and the five critical requirements are conducted before our CMTC rotation. The first is an FA battalion exercise conducted during a two-and one-half-day period at GTA. The training objectives are based on tasks to plan and execute fires.

Each mission begins with the issuance of a brigade order to the task force FSEs. The FSEs and their fire support teams (FISTs) plan the commander's fires, develop an order and fire support plan and rehearse the plan. Then the battalion executes the plan, to include both maneuvering fires and shooting targets. The execution phase is conducted twice, first a "dry-fire run" followed by a "live-fire run."

Members of the FA battalion serve as observer/controllers (O/Cs) for the exercise, which includes the S2 and S3, the brigade FSO and targeting officer and fire support lieutenants from the task forces. The FSCOORD serves as the head O/C and conducts an after-action review (AAR) after each run. The exercises are excellent training for our FSEs, FISTs and the FA battalion tactical operations center (TOC).

Operation FireStarter. A second fire support training exercise, called Operation FireStarter, a division exercise conducted by 3d Infantry Division Artillery, also focuses on the five fire support requirements. FireStarter, conducted at GTA, trains FSEs and FISTs with their company commanders.

During the training, each FSE plans a defense, rehearses the plan and then executes it. Additionally, attack and movement-to-contact lanes integrate company commanders and FISTs to execute fires. One lane simulates fires using fire markers, applying the CMTC rules of engagement, and the other lane incorporates artillery live fire.

Fire Support STX. Our final training exercise is the Fire Support Situational Training Exercise (STX). This training is conducted at Hohenfels, the home of the CMTC, just before each task force rotation. The exercise, a fire support STX attack lane, allows the company commander, platoon leaders and company FSO to prepare, plan and execute fires on an objective. (See Figure 1 on Page 14) The design of this exercise allows each company/team's leaders to execute the operation at least three times with an AAR after each run.

Planning Phase	
_____ Post commander's intent to status/info board.	FSO/FSNCO
_____ Develop reconnaissance and surveillance plan (R&S).	Targeting Off
_____ Disseminate info:	FSNCO
- Command Fire 2 Net (CF2), staff crosstalk	
- Copies: target list (6) and complete set of graphics (6)	
- Update status/info board	
_____ Develop planning timeline (FSE-specific).	Targeting Off
_____ Build observation plan.	FSO
_____ Plan for Copperhead (12-point checklist).	FSNCO
_____ Track FS assets: observers, FA, mortars, ground surveillance radars (GSRs), survey and FIST-Vs.	FSNCO
_____ Verify integration of targets with engineer obstacles.	Targeting Off
_____ Plan close air support (CAS).	FSO
_____ Variable-Format Message Entry Device (VFMED): Disseminate info to XO/S3, S2, engineer, FA battalion and brigade (track, brief and post info from VFMED).	FSNCO
_____ Send/receive fire support coordinating measures (on VFMED).	FSNCO
_____ Maintain status of call signs, frequencies and signal operating instructions (SOI) changeovers.	FSNCO
_____ Maintain operational status of M577, generator, radio and FIST-Vs.	FSNCO
_____ Verify operational FIST-Vs and commo/DMD.	FSNCO
_____ Brief info on activities (last 6 hours).	All
_____ Develop mortar support plan (targets, ammo, move and timing).	FSO
Preparation Phase	
_____ Disseminate info:	FSNCO
- CF2 staff crosstalk	
- Update status/info board	
_____ Refine fire support execution matrix products (as info is available).	Targeting Off
_____ Verify refined target grids with actual engineer obstacles.	Targeting Off
_____ Refine targets (info flow from company to brigade).	FSNCO
_____ Verify observation plan is set.	FSO
_____ Verify operational FIST-Vs and commo/DMD.	FSNCO
_____ Back-brief within FSE.	All
_____ Verify fire plan (radio rehearsal).	Targeting Off
_____ Prepare for and attend combined arms rehearsal.	All
_____ Track FS assets (observer, FA battalion, mortars, GSRs and survey).	FSNCO
_____ VFMED: Disseminate info to XO/S3, S2, engineer, FA battalion and brigade (track, brief and post info from VFMED).	FSNCO
_____ Maintain status of call signs, frequencies and SOI changeovers.	FSNCO
_____ Maintain operational status of M577, generator and radios.	FSNCO
_____ Brief info on activities (last 6 hours).	All
_____ Register targets.	FSNCO
_____ Rehearse Copperhead targets.	FSNCO
Execution Phase	
_____ Disseminate info:	FSNCO
- CF2 staff crosstalk	
- FSO/FSNCO crosstalk	
- Update status/info board	
_____ Track battle (enemy).	Targeting Off
_____ Refine targets (info flow from company to brigade).	FSNCO
_____ Track FS assets: observers, FA, mortars, GSRs, survey and FIST-Vs).	FSNCO
_____ VFMED: Disseminate info to XO/S3, S2, engineer, FA battalion and brigade (track, brief and post info from VFMED).	FSNCO
_____ Brief info on activities (last 6 hours).	All
_____ Execute plan.	All

Figure 3: FSE Duties and Responsibilities Checklist

The learning that occurs in each run is significant and has proven to be a great confidence and team builder for each company/team. The fire support STX lane allows us to focus the company commander and platoon leaders on the fire support tasks associated with the last 1,500 meters of combat just before their CMTC rotation.

Tools of the Trade. During our train-up for the CMTC, we developed two fire support training tools. The first is the Target Refinement Worksheet to help refine targets and develop an observation plan (Figure 2 on Page 15).

The worksheet's purpose is to provide a common language between company commanders and company FSOs. It's a checklist for engaging the enemy with indirect fires in both offensive and defensive operations.

The second tool we developed is an FSE Duties and Responsibilities Checklist (Figure 3). The purpose of the checklist is to identify specific tasks that require coordination among the task force staff and enable the task force commander, S3 and FSO to synchronize fire support and maneuver in the overall plan.

Fire Support Lessons

Our training program produced excellent results during our CMTC rotation, and we learned several lessons on how to train. The following fire support training lessons appear to be the most significant.

We need more training on using the commander's intent for fires if we want to avoid the tyranny of the forward observer (FO). The FO tends to call for fires on whatever enemy comes into his engagement area unless there's a focus for fires and an understanding of the commander's intent.

It was apparent we lacked precise language for and a common understanding of the translation of the brigade commander's intent from the task force through the company commanders and company FSOs. Because fires are the brigade commander's weapon, we need to ensure all task force- and company-level exercises properly mass fires in concert with a brigade commander's intent.

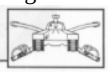
A second lesson is the need to expand our Maneuver Shooter Program to increase the platoon leaders' and sergeants' appreciation of the time it takes to bring fires onto a target and to use trigger points to execute fire missions effectively. We can use more simulation exercises, such as the JANUS battle simulation system, to train these fire support employment techniques.

A final lesson of significance is the need to integrate fire support training with task force scout training. We need to ensure each scout understands the relationship between his mission and the successful execution of fires.

We plan to involve combat observation lasing teams (COLTs) with scout training as well, so the first time these elements operate together is *not* at the CMTC. Further, we plan to design command post exercises (CPXs) with the task force S2, FSE, scouts and COLT participating so they can better link the reconnaissance and surveillance (R&S) and the fire plans. Also, we must learn to make better use of targeted areas of interest (TAIs) in relation to named areas of interest (NAIs) and then make the observation and R&S plans mesh.

In conclusion, fire support training is a mutually shared responsibility. Neither the maneuver nor the FA commander can train his portion alone. Training exercises require the staffs of maneuver and artillery organizations to mutually understand and work to achieve brigade training objectives.

Every 2d Brigade maneuver or fire support exercise must successfully integrate fires and maneuver and focus on the last 1,500 meters of combat. Maneuver and fire support staff officers must design and develop our training exercises together. In the Spartan Brigade, *together* is the way to train and fight.



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Lieutenant Colonel Daniel A. Hahn, until recently, commanded 3d Battalion, 1st Field Artillery, direct support to the 2d Brigade, 3d Infantry Division. Currently, he's assigned to the Combat Maneuver Training Center (CMTC) in Hohenfels, Germany. In a previous tour in Germany, he was the Brigade Fire Support Officer and S3 of the 6th Battalion, 1st Field Artillery, 1st Armored Division. Lieutenant Colonel Hahn commanded C Battery, 1st Battalion, 11th Field Artillery, 9th Infantry Division (Motorized), Fort Lewis, Washington. He holds a Master of Military Science from the School of Advanced Military Studies, Fort Leavenworth, Kansas, and a Master of Business Administration from Southern Illinois University.

Raising the Entry Level:

A Fire Support Training Strategy for the CMTC

by Colonel Leo J. Baxter

Since the onset of Operation Desert Shield, the 3d Infantry Division (Mechanized) Artillery (Div Arty) in Germany has conducted 13 battalion rotations at Grafenwoehr Training Area (GTA) and six battalion rotations through the Combat Maneuver Training Center (CMTC) at Hohenfels. The Div Arty has trained extensively and remained focused on combat readiness.

Tough, tactical, combined arms training at the CMTC continues to be the ultimate training challenge for soldiers in US Army Europe (USAREUR). But General Crosbie E. Saint, who until recently was Commander-in-Chief of USAREUR, demanded more than just good training. To increase units' chances of success in combat, he challenged units to beat the opposing force (OPFOR) at the CMTC. His intention was clear: raise the training entry level for the CMTC.

During the past two years, the Div Arty developed a fire support training strategy in response to General Saint's challenge. The strategy is based on two precepts: reinforcing the basics and establishing fire support training gates to train and assess fire support readiness before CMTC rotations. Now the CMTC rotation is a "graduation exercise," the culmination of rigorous training in simulations, at home station and at GTA—at the latter, a revision in the way Field Artillery units have trained there for some 40 years.

This article discusses the development of that strategy and the two precepts upon which it is based.

Before we could develop the strategy, we had to assess the Div Arty's current training level. The division fire support element (FSE) reviewed almost 70 task force and fire support after-action reviews (AARs) from earlier CMTC rotations and captured the many fire support lessons learned. The FSE identified and recorded recurring strengths and weaknesses. From this analysis, we designed a progressional fire support training strategy to prepare units for graduation exercises at the CMTC.

During the analysis, it became apparent fundamental fire support skills were not well understood or, at least, were not being executed to standard. To raise the CMTC entry level, we had to improve basic fire support skills and sustain them. We designed training to improve and sustain those basic skills—TAA Rocky, the foundation of our fire support training strategy. Then we designed gates through which units must pass: Thunder University; company, battalion and brigade simulations; GTA Density; and Operation FireStarter (Figure 1).

Reinforcing the Basics

The basics of fire support must be trained year round, not just when a unit is training at Grafenwoehr or Hohenfels. Training the basics is much like the functions conducted in a TAA where the unit prepares for future operations. In TAA Rocky, the Div Arty develops those unit skills fundamental to executing fires in combined arms operations: pre-combat checks, rehearsals, fire support conferences, standardization of essentials and training of maneuver leaders to execute fires.

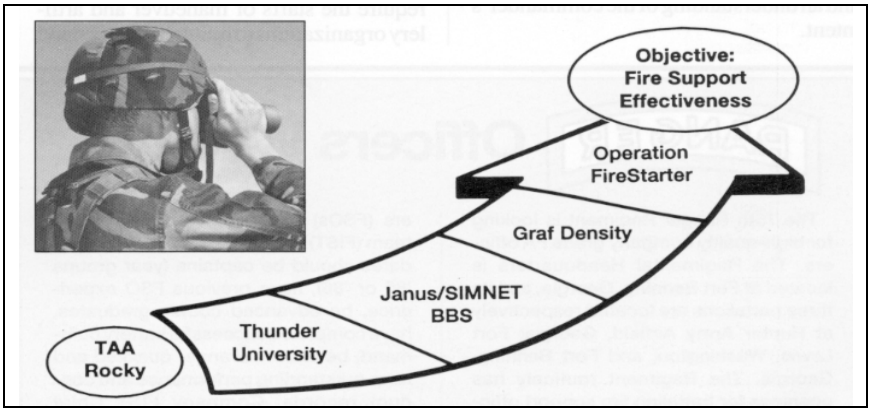

Figure 1: 3d Inf Div Arty's Training Strategy to Improve Fire Support Effectiveness at CMTC

Brigade Fire Support Execution Matrix | Page ___ of ___ Pages

1. FRAGO:
2. DTG:
3. Mission:
FS Graphics
Intent for Fires:
4. Division:
5. Brigade:
6. Coordinating Instructions:

Line #	Tgt #	Description	Location	Alt	Size	Trig Event	Shooter	Alternate Shooter	Remarks

7. Tgt Refinement Cutoff Time _____ Brigade FS Rehearsal (Loc) _____ Freq _____

FRAGO: | Page ___ of ___ Pages

		A	B	C	D	
8.	Phase Mvr or Action					Hi-Payoff Tgt List
9.	Priority Fires					
10.	Attack Guidance					Org for Combat
11.	Attack Helicopter					
12.	____ Brigade					
13.	COLT					CPHD Avail
14.	TF					
15.	TF					Min Smoke Avail
16.	TF					
17.	TF					Min Illum Avail
18.	Scouts					
19.	FPF/Priority Targets					
20.	CFL					FASCAM Avail
21.	FSCM					
22.	CAS					

Legend **COLT** = Combat Observation Lasing Team **CAS** = Close Air Support
CFL = Coordinated Fire Line

Figure 2: An example of a standardized Brigade Fire Support Execution Matrix in the 3d Infantry Division Artillery

Pre-Combat Checks. In TAA Rocky, pre-combat checks ensure the right people are assigned to the right fire support jobs and are there for the right amount of time. Like most Field Artillery units, the Marne Div Arty wrestled with assigning the most qualified fire support officers (FSOs) at the brigade, task force and company levels. It was imperative we entrust the most experienced officers possible with those fire support positions and that they stay long enough to be proficient and develop credentials with their maneuver commanders. We had to balance this approach with the officers' professional development requirements.

We made great progress in this regard. All three brigade FSOs are graduates of the Command and General Staff College, Fort Leavenworth, Kansas, or are selectees; 40 percent of the task force FSOs are now former battery commanders; and nearly 40 percent of the company FSOs have served as platoon leaders or fire direction officers (FDOs).

The Div Arty's objective is for all FSOs to have impeccable qualifications for their fire support assignments. And maneuver commanders have come to expect such quality fire supporters with sufficient retainability for continuity on the task force battle staff.

Scheduled for publication this fall, *DA Pam 600-3 Commissioned Officer Development and Utilization* adds the requirement for battery-grade officers to have a minimum of 12 months of fire support coordination experience for Branch qualification. This requirement properly emphasizes the importance of developing young officers as fire supporters.

Rehearsals. These are critical to training basic fire support skills. In TAA Rocky, we conduct two training events regularly: battle drills and tactical fire direction system (TACFIRE) sustainment training.

We established battle drills for the fire support teams (FISTs). They are executable on demand and practiced weekly during Marne Leaders' Time, which is a five-hour weekly block of time set aside exclusively for leaders to conduct training (the 3d Infantry Division's version of Sergeant's Time). The five battle drills are Upload FIST Vehicle (FIST-V) and Prepare for Combat; Establish Fire Support Headquarters; Occupy an Observation Post (OP); Execute Planned Targets; and Engage Targets of Opportunity.

The five drills train the basic crew collective tasks a FIST must execute on the

Legend

1. FM Radio (Brigade FSO)
2. FM Radio (Div Arty Command/Fire 1)
3. FM Radio (Battalion Command)
4. FM Radio (Brigade Operations and Intelligence)
5. Variable-Format Message Entry Device (VFMED)
6. Remotes
7. FA Battalion Fire Net
8. Liaison Officer (LNO) Radio
9. Clock
10. Lap-Top Workstation
11. S3 Work Area
12. S2 Work Area
13. LNO Work Area
14. S2 Radio/Telephone Operator (RTO) and Duty Log
15. S3 RTO and Log
16. Mimeo Machine
17. Mobile Subscriber Radio Terminal (MSRT) and FAX
18. Office Supplies Box
19. Map Box
20. Operations Map
21. Intelligence Map
22. Platoon Status Chart
23. Movement Matrix/Target List
24. Execution Matrix
25. Intelligence Summary Chart
26. Radar Status Chart
27. S3 HMMWV
28. LNO HMMWV
29. TOC Trailer
30. Tactical Fire Direction System (TACFIRE) Shelter
31. TACFIRE B-Bus
32. Nuclear, Biological and Chemical (NBC) Work Area
33. Communications/Security Safe
34. Emergency Action Procedures Safe
35. Radio/Telephone 1539 Mobile Subscriber Equipment (MSE)
36. TACFIRE Ramp/Ladder
37. Reference Storage
38. TACFIRE Generators
39. Maneuver Control System (MCS)
40. S3 Field Desk

Figure 3: Example of a Standardized Layout for the Direct Support Artillery Battalion Tactical Operations Center (TOC) in the 3d Infantry Division Artillery

battlefield, and NCOs make it all happen. These capabilities are truly the bedrock of the fire support training strategy.

TACFIRE sustainment training is conducted weekly by all digital users down to the company FISTs. The Div Arty program establishes the minimum tasks to be performed, and battalions add training objectives, based on their individual training assessments. Quarterly, all Div Arty systems come to a central location to rehearse and practice those perishable digital skills critical to our business.

There's nothing new in this training; TACFIRE sustainment has been around for years. But I can't overemphasize the importance of *quality* training in this area.

Fire Support Conferences. Another element of the training in TAA Rocky is quarterly fire support conferences. Chaired by the Div Arty commander, the one-day conferences bring together fire support coordinators (FSCOORDs) from all levels, S2s, S3s and FDOs to focus on fire support topics. Maneuver brigade commanders are invited to participate and share their version of "fighting with fires." Observer/controllers (O/Cs) from the CMTC provide meaningful insights, based on their experiences. Lessons learned from the CMTC and from corps, division and brigade command post exercises (CPXs) are all addressed. At the conference, attendees analyze battles, identify problems and share solutions.

One day each quarter, the Div Arty focuses exclusively on fire support. This has proven to be an excellent way to establish the azimuth for fire support training and to keep the focus on what's important.

Standardization. The Div Arty that assembles in TAA Rocky, like many other units in the Army today, comes from a mixed bag. Consisting of some battalions formerly of the reconfigured 1st Armored Division and from the original 3d Infantry Division, the Div Arty this past year also included a battalion from the inactivated 72d Field Artillery Brigade and recently attached a multiple launch rocket system (MLRS) battalion from the 41st Field Artillery Brigade.

If ever a unit appreciated the benefits of standardization, the 3d Infantry Division does. So, as our training strategy unfolded, we standardized those areas directly affecting how the Div Arty provides fire support. And one of those areas was developing standard company, task force and brigade fire support execution matrices (see Figure 2 on Page 19). This form offers one standard to all maneuver units and enhances the division's execution flexibility.

We also standardized the layouts for platoon operations centers (POCs) and direct support (DS) artillery battalion tactical operations centers (TOCs) for streamlined battle tracking (see Figure 3). These helped ensure we were responsive and facilitated the delivery of cleared fires.

Maneuver Training to Execute Fires. Last in TAA Rocky, the Div Arty needed to train each supported maneuver unit to execute a fire support plan. A successful observation plan dictated we train maneuver leaders at the company, platoon and squad levels to execute planned fires and adjust artillery and mortars onto unplanned targets.

Working with the division G3, the Div Arty implemented a Maneuver Shooter Program throughout Marneland. The real benefits derived from implementing such a program have just begun to materialize.

The brigade FSCOORDs conduct the training, which entails using the training set, fire observation (TSFO) extensively and adjusting live rounds at Grafenwoehr. Infantry or Armor soldiers now can share responsibility for executing planned fires from the company execution matrix or can call for fires on a lucrative target of opportunity.

Passing Through Training Gates

To train FSEs and FISTs on those skills critical to successful execution at the CMTC—ultimately in combat—it became imperative we establish a series of fire support training gates paralleling the USAREUR training gates for maneuver units (see Figure 4 below).

Thunder University. The first gate is the 3d Infantry Division School for Fire Support, commonly referred to as Thunder University (see Figure 5). This key training event lays the foundation for integrating fires with maneuver. The program is a four-day combination of class-room instruction and practical exercises, focusing on fire support for the brigade combat team. It's organized by phases of the combined arms commander's battle and taught by the division FSE and members of the Div Arty staff.

Training at Thunder University is not in the "art" of fires, but rather in the "science." The "how to" is what's important. Thunder University trains the execution of those techniques and procedures that soldiers *have* to understand to make fires lethal for the maneuver commander.

As with all training, timing is everything. Thunder University is scheduled for that critical juncture in the fire support training plan that's early enough to provide a framework for the collective training effort, but late enough for all principal fire support assignments to have been made. The payoff has been a reinforcement of the basic fire support skills, a smattering of what's doctrinally correct and a large dose of what works on the battlefield and what doesn't.

Simulations. Before CMTC rotations, maneuver units must take advantage of simulations—with the decline in resources, these are training opportunities lost and then found. Each battalion conducts a CPX using the brigade or battalion battle simulation (BBS), and companies execute a fire control exercise (FCX) with the JANUS battle simulation system or simulation network (SIMNET). The FSEs or FISTs participate in these exercises with their supported units.

The simulations provide opportunities for maneuver commanders to demonstrate proficiency in fighting with fires and other battlefield operating systems (BOS) or, at least, to further their development in this critical area. And they're great opportunities for fire supporters to practice their craft, work as part of the battle staff and integrate fires with maneuver.

Passage through these gates by both maneuver leaders and FSOs is critical to their preparation for combined arms operations at the CMTC or in combat. This is particularly true in a training environment increasingly sensitive to the movement of tracked vehicles in maneuver rights areas (MRAs). And the simulation center is the *perfect* place to train synchronization.

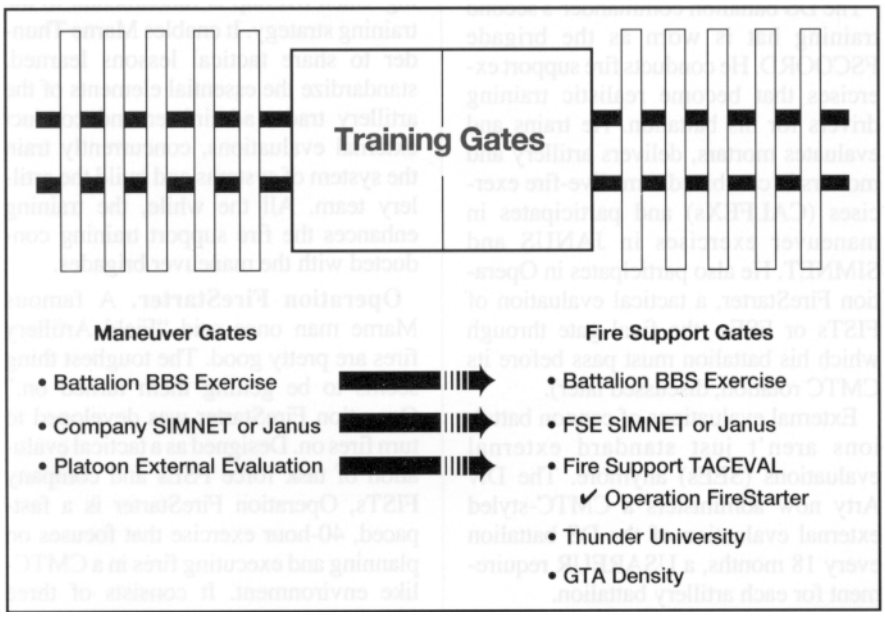

Figure 4: Fire Support Training Gates. To train FSEs and FISTs on those skills critical to successful execution at the CMTC, a series of training gates was established paralleling the USAREUR training gates for maneuver units.

Day 1: Maneuver Concept

- Commander's Intent
- Intelligence Preparation of the Battlefield (IPB)
- Threat
- Scheme of Maneuver
- Fire Support Integration into the Maneuver Battalion Staff
- Targeting
- Priority of Fires
- FSCOORD Location

Day 2: Planning and Prep Phase

- Top-Down Fire Planning
- Hasty Fire Plan
- Obstacles
- Mortar Integration
- Target Refinement
- Observation Plan
- COLT Employment
- Fire Support Coordinating Measures (FSCM)
- Co/TF Execution Matrix
- Rehearsals
- Selection of FIST-V Positions
- Plan/Execute Special Munitions
- Battle Tracking
- Fratricide

Day 3: Execution Phase

- FSCOORD Location/Execution Phase
- Execute Triggers
- How to Shoot the Plan
- Digital Message Device (DMD)
- TACFIRE Management

Day 4: CMTC Phase

- Lessons Learned
- Rules of Engagement (ROE)
- Practical Exercise
- Mobile Training Team (MTT) Overview of CMTC
- Certification Evaluation

Figure 5: Marne Thunder University. The first fire support training gate is the 3d Infantry Division School for Fire Support, referred to as Thunder University. This training focuses on fire support for the brigade combat team and is organized by phases of the combined arms commander's battle.

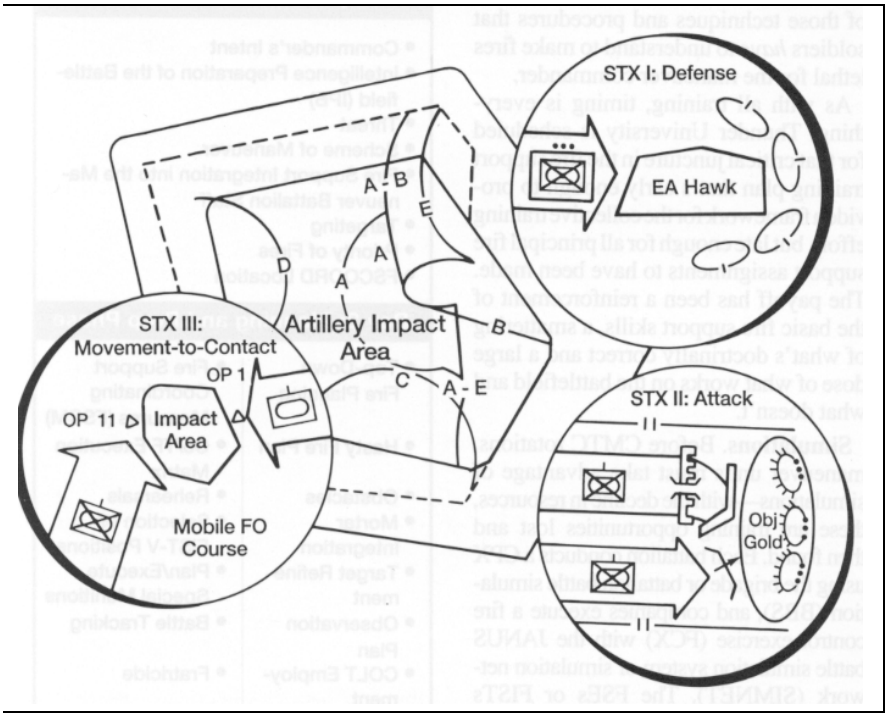

Figure 6: Operation FireStarter at Grafenwoehr. The final gate is a 40-hour, fast-paced series of three situational training exercises (STXs): defense, attack and movement-to-contact. Operation FireStarter brings the CMTC fight to Graf and is a training gate for both maneuver and fire supporters in the 3d Infantry Division.

Grafenwoehr. The GTA density is as old as USAREUR, but the requirements are more demanding than ever. For 40 years, artillery battalions in USAREUR have gone to Grafenwoehr (or Graf) to hone gunnery skills and conduct battalion-level tactical training. Graf increasingly has become associated with good gunnery training. And that's as true now for maneuver units as it is for artillery battalions.

In developing the fire support training strategy, one thing became clear: the traditional artillery approach to training at Grafenwoehr had to change. In addition to gunnery and Field Artillery tactics, Grafenwoehr is a great place for fire support training.

At Graf, the DS battalion commander is expected to wear two training hats. Wearing one hat, he trains his battalion to deliver fires and to sustain operations and survive. He trains his FSEs and FISTs to plan and integrate fires with maneuver and his unit to mass with the Div Arty, integrating all facets of the system of systems: guns, launchers, fire direction centers (FDCs), TOCs, survey, radars, meteorology and, now, fire support. The Div Arty has massed as many as seven battalions at Graf and integrated MLRS live fire into maneuver and cannon battalion training.

The DS battalion commander's second training hat is worn as the brigade FSCOORD. He conducts fire support exercises that become realistic training drivers for his battalion. He trains and evaluates mortars, delivers artillery and mortars in combined arms live-fire exercises (CALFEXs) and participates in maneuver exercises in JANUS and SIMNET. He also participates in Operation FireStarter, a tactical evaluation of FISTs or FSEs (the final gate through which his battalion must pass before its CMTC rotation, discussed later).

External evaluations of cannon battalions aren't just standard external evaluations (SEEs) anymore. The Div Arty now administers a CMTC-styled external evaluation of the DS battalion every 18 months, a USAREUR requirement for each artillery battalion.

The evaluation is based on the battalion's mission-essential task list (METL), and the battle scenario is driven by the battalion's supported maneuver brigade, which prepares the DS battalion for the scenario it will encounter at the CMTC. The battalion must plan, prepare, rehearse and execute—just like at the CMTC. The 18 fire missions the Div Arty must deliver are evaluated during the appropriate maneuver battle: the defense, attack and movement-to-contact.

The CMTC-styled evaluation increases the brigade staff's understanding of the requirements of the DS battalion, prepares the battalion leadership for the CMTC and for combat and integrates the complete fire support system in a realistic tactical scenario.

Also conducted at Grafenwoehr is Deep Thunder, a Div Arty-level counterfire exercise. It trains the Div Arty TOC, target acquisition battery (TAB) and MLRS battalion. Typically, a Div Arty mass fire mission and MLRS live fire are integrated into the exercise. Deep Thunder is a superb opportunity to link counterfire training at the Div Arty with the battalion training programs. It also focuses the TOC, TAB and MLRS battalion's efforts while at Grafenwoehr.

Artillery training at Grafenwoehr certainly has changed. In a typical 25-day rotation, well over 50 percent of the training time is dedicated to supporting maneuver forces. And the battalions' rotations are designed to fit into the structured Div Arty density. The Div Arty density requires *at least* 10 to 15 days of overlap with all Div Arty units present and training. Such overlap is fundamental to the training strategy. It enables Marne Thunder to share tactical lessons learned, standardize the essential elements of the artillery trade, administer and conduct external evaluations, concurrently train the system of systems and build the artillery team. All the while, the training enhances the fire support training conducted with the maneuver brigades.

Operation FireStarter. A famous Marne man once said "Field Artillery fires are pretty good. The toughest thing seems to be getting them turned on." Operation FireStarter was developed to turn fires on. Designed as a tactical evaluation of task force FSEs and company FISTs, Operation FireStarter is a fast-paced, 40-hour exercise that focuses on planning and executing fires in a CMTC-like environment. It consists of three situational training exercises (STXs) that replicate the three principal battles fought at CMTC: the defense, attack and movement-to-contact (see Figure 6). Operation

FireStarter has brought the CMTC fight to Grafenwoehr.

In STX I, the task force defends battle positions along the eastern portion of the Grafenwoehr impact area, called Engagement Area (EA) Hawk. The exercise begins with a warning order. During a sleepless night, the task force staff completes the planning cycle, including briefing the task force commander on the concept, developing the orders, briefing the task force on the orders and back-briefing the brigade in the middle of the night. The task force conducts a deliberate rehearsal in the early morning. By mid-morning, the motorized rifle regiment (MRR) attacks, and the task force conducts its defense. The task force receives the warning order for the next mission during the battle.

In STX I, the fire plan for the defense is executed by delivering live artillery rounds. The FSE must integrate the reconnaissance and surveillance plan, develop a detailed observation plan, consider the effects of limited visibility and integrate the scouts and mortars. The FSO must complete the same tasks required of him at the CMTC.

In STX II, the focus shifts from the planning process to rehearsals and execution. Maneuver company commanders participate in tanks or Bradley fighting vehicles. In this scenario, the task force conducts an attack against a defending motorized rifle company (MRC). The commander's intent is to destroy a platoon with fires before the maneuver units assault the MRC at Objective Gold.

The rehearsal is key as the company commander and his FSO review and practice shifting fires as the company maneuvers and begins its assault. The MRC is portrayed by life-sized silhouettes, and fires are replicated by fire markers, just as they are at the CMTC. The objective of this exercise is to fight with fires and to maneuver to exploit their effects.

As the company commander and his FSO maneuver to STX III, they begin a movement-to-contact along one of the two mobile forward observer (FO) courses that enter the Grafenwoehr impact area. The focus is squarely on execution. When the company encounters the forward security element, the commander directs actions on contact. The FSO responds by developing a hasty fire plan. Twenty minutes later, the company engages the advance guard main body, and the commander and his FSO must execute their fire plan.

This exercise has proven to be very popular, exciting and challenging. Live rounds impact 1,500 meters from the commander and his FSO. For many, this is the closest they've been to impacting artillery.

Operation FireStarter enhances fire support and maneuver training at Grafenwoehr and bridges the gap between training at the unit's home station, in the local training area, in simulations and at the CMTC executing lethal fires. But it isn't a panacea—there are improvements to be made.

In the initial iteration of Operation FireStarter, the Div Arty staff role-played the task force battle staff, focusing on evaluating the FSE. The second iteration of Operation FireStarter included the task force commander and his battle staff. This greatly increased the benefits of the exercise by externally assessing the maneuver commander's ability to fight with fires, not simply evaluating his FSE.

Now, by direction of the Division Commander, Operation FireStarter is a training gate for maneuver units preparing for CMTC rotations. Its form may be modified somewhat, but the objective of training and evaluating the maneuver task force's ability to fight with fires is clearly entrenched in the division training program.

Concluding

The discussion begs the question, "Is the strategy working?" Indications are that it is. The division has recently completed five task force rotations at the CMTC. While the detailed analyses are not yet complete, the fire support results are extremely positive.

Fires were more lethal than at any previous division rotation—significantly more lethal. Maneuver commanders had greatly improved their abilities to synchronize fires with maneuver. Top-down fire planning, bottom-up refinement, and combined arms rehearsals were effectively executed as part of the task force and brigade fight. Mortars were effectively employed in the fight and consistently so.

Maneuver commanders used indirect fires and their effects to neutralize and suppress enemy formations and were more able to exploit their effects than at any previous time. But we've only just begun to get after this "fighting with fires"—admittedly, there's much work to be done.

The problems that fires experienced were consistently in executing the target. Too frequently, the observation plan was not sufficient to ensure an observer was positioned at that critical place where the OPFOR was stalled, and therefore, fires couldn't be delivered.

The last rotation identified the absolute requirement to link the maneuver commander's reconnaissance and surveillance (R&S) plan to his fire support plan. In the attack, the commander must be very certain where the enemy is to bring effective fires to bear on him before conducting the assault. In the defense, he must have a clear vision of where he wants to kill the enemy and, then, be successful in executing his counter-reconnaissance fight.

If the scouts can find the enemy and provide timely reports and if the battle staff can develop an accurate read of the battlefield, then the maneuver commander, advised by his FSCOORD, can correctly determine where and when to deliver lethal indirect fires. The ability to form this linkage may be the critical piece in ensuring effective fires.

The fire support training strategy appears to be right. Training the basics and passing through the training gates have raised the entry level at the CMTC. The training opportunities are available, and the critical tasks to execute have been identified. Now continues the intensive training cycle designed to ensure we deliver fires where the maneuver commander wants them and when he needs them.

Colonel Leo J. Baxter commanded the 3d Infantry Division (Mechanized) Artillery in Germany from June 1990 through June 1992. Currently, he's the Chief of Staff, United States Army Field Artillery Center (USAFACFS) and Fort Sill, Oklahoma. Colonel Baxter also commanded the 2d Battalion, 6th Field Artillery, 3d Armored Division in Germany, and A Battery, 1st Battalion, 17th Field Artillery, 75th Field Artillery Brigade at Fort Sill. He previously served at Fort Sill in the Department of Instruction of the Field Artillery School and as Executive Officer to the Assistant Commandant. He's also a graduate of the US Army War College at Carlisle Barracks, Pennsylvania. Colonel Baxter is the author of "Trainers, Rise Up" published in the *Field Artillery Journal* in 1974.

JANUS Battle Simulation System

Designing, resourcing and conducting effective tactical training for the battalion task force (TF) is a significant task. Success in battle often hinges on a TF effectively employing its combat power while coordinating its actions with adjacent units and higher headquarters. TF-level training using simulations can now be conducted at Fort Sill, Oklahoma using the Field Artillery School's new JANUS battle simulation center, which opened in March 1992.

The computer-based command post exercise (CPX) facility increases the FA School's effectiveness by providing simulation-based training to develop tactical leadership and fire support planning skills for officers and NCOs training at the Field Artillery School or working in active or reserve units at Fort Sill and the surrounding area. The facility also provides a perfect environment for the Army Research Institute (ARI) to conduct research on factors affecting command and control, information flow, decision making and FA integration.

The Field Artillery School added JANUS training as part of an overall Army effort to meet the challenges created by changes in doctrine, weapons systems, force structure and organization, automation and the Threat. While Combat Training Centers (CTCs) have made significant contributions to combat readiness, more cost-effective resources have also been developed, particularly those that employ battle simulation.

Battle simulation is now, and for the foreseeable future, playing a key role in developing tactical leadership skills. In an era of significant resource and space limitations, battle simulation provides an effective alternative. The joint exercise support system (JESS) is the backbone for simulating corps and division-level operations for the Battle Command Training Program (BCTP). Battalion and brigade simulation (BBS) supports brigade and battalion operations. Simulation network (SIMNET) provides training opportunities at the company, platoon and section levels.

By choosing the JANUS battle simulation system, the Field Artillery School recognizes the training value of simulations for maneuver tactics and fire support planning and synchronization. The Tactical Commanders Development Course (TCDC) in the Command and General Staff College (CGSC) at Fort Leavenworth, Kansas and I Corps' Simulation Center at Fort Lewis, Washington have used JANUS extensively to train leader tasks at the task force and company levels.

JANUS permits leaders at every level of the battalion TF to develop their tactical and technical skills and determine how their actions contribute to the success of the TF as a whole. The system allows the user to plan and execute battles with an authentic computer-generated threat and then assess the effectiveness of their planning. It can portray virtually any tactical situation or item of equipment. The user drives combat actions by inputting instructions for movement, target acquisition and delivery of fires. The computer determines the results of individual fires according to established probabilities and priorities.

The system also incorporates a unique software capability that allows post-processing of battle results. Each time a battle is completed, data on position, movement, obstacles and kills are collected and recorded. As the process of recording battles continues, JANUS creates a data base that allows researchers to develop hypotheses and extract from the data base the information needed to test them.

This capability also provides immediate feedback to JANUS users for after-action reviews (AARs). The JANUS(A) analyst workstation (JAAWS) allows users to display events such as sensor detections, positions of units, movement, direct-fire engagements, fire support and obstacle employment, force attrition and sustainment operations. The event-display features of JAAWS enable the user to assess the effectiveness of tactical plans, functional area synchronization and the contribution of various battlefield operating systems (BOS) to the outcome of the battle.

By maximizing this simulation facility, the Artillery School is not only stretching its training dollars, it is providing a cost-effective and realistic training environment where leaders can augment lessons learned during classroom and field training. The JANUS battle simulation system will increase the FA's effectiveness in the future and maintain the artillery as *the King of Battle.*

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Attacking a Moving Target

Commanders in the field and observer/controllers (O/Cs) at the National Training Center (NTC) continue to identify a fire support training shortfall—engaging a moving target array with indirect fire.

The consensus is that fire supporters are good at placing accurate and timely fire on specific grid coordinates. Unfortunately, because we fight on a highly mobile battlefield, the location sent in the call-for-fire, in many cases, is not where the enemy is when the rounds impact. The bottom line—fire support is not contributing to the battle anywhere near its potential.

ARTEP 6-115-20 Mission Training Plan, Field Artillery Cannon Battalion Fire Support gives the tasks, conditions and standards for a combat observation lasing team (COLT) or fire support team (FIST) engaging a moving target array. The ARTEP MTP references doctrine (FM 6-30) and training publications (STP 6-13F14-SM-TG) that prescribe the technical procedures to effectively engage a moving target. But the problem is not in the procedures, it is in the techniques we use to train the procedures.

There are several methods units can use to train this task, each with advantages and disadvantages. Commanders must evaluate their unit's level of training and the resources available to train moving target engagements, then develop aggressive programs to produce fire support officers (FSOs) and forward observers (FOs) capable of effectively attacking a moving target.

The training set, fire observation (TSFO) is one resource commanders can use to provide initial-level training on the technical procedures (determining target speed, processing time and trigger points) the observer uses to attack a moving target. However, the TSFO can only portray a single moving target on a two-dimensional screen. Because of this limitation,

once an observer masters the technical procedures, he must leave the TSFO and train to engage a realistic (three-dimensional) moving target array.

Training Methods

There are two common methods units are using to transition observers from the TSFO to battlefield-type targets: simulating moving targets using white phosphorous (WP) smoke rounds or simulating moving targets using a vehicle-mounted position azimuth determining system (PADS).

White Phosphorous. A moving target array is depicted by firing successive rounds of WP into the impact area along the intended direction of travel and at the appropriate intervals to represent the desired target speed. The observer, using the technical procedures mastered in the TSFO, computes the intercept point and uses live rounds to engage the simulated moving target. Evaluation feedback is provided by determining if the rounds impacted near enough to the WP to produce the desired effects. The disadvantage of using this method is WP rounds are not resourced for this training in *DA Pamphlet 350-38, Standards in Weapons Training*.

PADS. A moving target array is depicted by using a vehicle-mounted PADS alone or in a group of multiple vehicles. The vehicle(s) move along a predetermined route at a specified speed. The observer, again using the technical procedures mastered in the TSFO, computes the intercept point and calls for a dry-fire mission to engage the moving target (vehicles). The vehicles are halted (through radio link) when the rounds would have impacted. The PADS vehicle determines its current grid location. Evaluation feedback is provided by comparing the PADS grid to the grid fired by the FDC and determining if the rounds would have achieved the desired effects. The disadvantages of using this method are the vehicle and land resources required for support and the requirement to fire dry missions.

JANUS Battle Simulation System

In the near future (FY 93-94), most major Training and Doctrine Command (TRADOC) and Forces Command (FORSCOM) units will have access to the JANUS battle simulation system. JANUS is an advanced, integrated, computerized battle simulation system that can realistically portray moving target arrays and effects from artillery fires. This system is currently in use at the Field Artillery School.

Officer Basic Course (OBC) students receive procedural training on how to engage moving targets in the TSFO. After developing their skills in the TSFO, they transition to battlefield-type targets using the JANUS system. The OBC student spends one day on the JANUS system engaging moving target arrays. As a result of this training the OBC graduate is familiar with, but not proficient in, attacking moving target arrays. Sustainment training is required, once they reach their units, to become proficient.

By comparison, Officer Advance Course (OAC) students don't receive the TSFO introductory training, but do spend three days with the JANUS system engaging moving target arrays at the battalion task force level.

Suggestions or innovative ideas to better train to perform this task should be sent to Director, Fire Support and Combined Arms Operations Department, so we can share your ideas with other units. Contact: Commandant, US Field Artillery School, ATTN: ATSF-TF, Fort Sill, Oklahoma 73503-5600 or call DSN 639-5801 or commercial (405) 351-5004.

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Palletized Loading System for the FA

Since the art of warfare was first practiced, the adequate supply of ammunition has been a formidable task for the logistician and continues to be so now. In the mid 1980's, the Army started reassessing distribution of supplies and ammunition. The current system uses numerous types of vehicles to transport ammunition to the user and requires large areas for storage and transfer.

After evaluating the British demountable rack off-loading platform system (DROPS) and the civilian trucking industry system for moving bulk supplies long distances, the Army developed a similar system, called the palletized loading system (PLS), to enhance the movement of supplies and ammunition. With the fielding of PLS and the implementation of the maneuver-oriented ammunition distribution system (MOADS), the Army will implement its latest doctrinal changes (MOADS-PLS) in the next revision of *FM 9-6 Ammunition Service in the Theater of Operations*.

Under MOADS, 75 percent of the ammunition required at the front lines will be shipped to the brigade ammunition transfer point (ATP) on truck-trailer combinations from the corps storage area (CSA). These trucks must be loaded and unloaded using forklifts, which consumes a great amount of time and energy.

PLS provides the final link in an evolving MOADS designed for Army 2000 and beyond. PLS enhances relocation capabilities by combining the use of flatrack storage and PLS transportation prime movers. Stocks are no longer placed on the ground, but stored on flatracks (cargo containers). These flatracks slide directly on or off the PLS vehicle. The vehicle can drop off or pick up a flatrack loaded with ammunition and other supplies in less than a minute. Ammunition transfer and movement capability increases while the need for organic materiel-handling equipment decreases.

OSHKOSH Truck Corporation

PLS enhances relocation capabilities by combining the use of flatrack storage and PLS transportation prime movers.

Depending upon the situation and factors of mission, enemy, terrain, troops and time available (METT-T), the corps' PLS assets (trucks and trailers) can deliver ammunition to the FA battalion combat trains. This capability will shorten resupply lines and significantly increase the combat effectiveness of the FA. Each PLS truck will have the capability of returning up to three flatracks on its trip back to the resupply point. Very few, if any, flatracks will be discarded on the battlefield. FA battalions won't be issued trailers, because extensive cross-country travel forward of the battalion combat trains would limit mobility.

The Army's PLS truck is being built by Oshkosh Truck Corporation in Oshkosh, Wisconsin. Oshkosh has a contract to build approximately 2,626 trucks, 1,050 trailers and 11,030 flatracks. Delivery of the first PLS trucks will be to the 1st Cavalry Division at Fort Hood, Texas in the 2d quarter of FY 93.

The PLS truck is a 500-horsepower, five-axle, diesel-powered vehicle with an automatic transmission, two-speed transfer case and full-time drive to all 10 wheels. The engine includes an electronic control system that offers self-diagnostics and improved operational efficiency. The 10x10 axle design (all five axles drive) provides excellent weight distribution between the axles to increase off-road mobility. Tests conducted at the Waterways Experimental Station in Vicksburg, Mississippi indicated that the fully loaded PLS truck and trailer are more mobile than the fully loaded heavy expanded mobility tactical truck (HEMTT) and trailer.

OSHKOSH Truck Corporation

The 10x10 axle design (all five axles drive) provides excellent weight distribution between the axles to increase off-road mobility.

Additional mobility is achieved through the central tire inflation system that allows the driver to adjust all truck tires to any one of four preset tire pressures (highway, cross-country, sand/mud/snow, and emergency). It has a 336-mile average range between fueling stops and can ford water to a depth of four feet.

The PLS truck uses three steering axles. The fifth axle is coordinated with the front axles through a mechanical link design. The truck will easily negotiate a 90-de-gree turn in less than a 30 × 30 foot area.

The PLS truck comes equipped with the highly capable multi-lift Mark V load handling system (LHS). The system can rapidly and safely load and unload cargo weight up to 16.5 tons. The entire operation can be performed by one person without leaving the truck cab. The unique rear roller design of the multi-lift LHS permits a safe misalignment between the truck and flatrack of over 20 degrees.

PLS trucks going to Field Artillery cannon units will be equipped with the Grove materiel handling crane. The crane is capable of lifting pallets up to 3,900 pounds at a 19.5 foot reach. In addition, the crane is capable of handling the 5,400 pound multiple launch rocket system (MLRS) pods at a 16.5 foot reach. The Grove crane is similar to the crane on the Army's HEMTT.

The PLS truck has other applications that include hauling medical shelters, ribbon bridges, portable kitchens, and command and control shelters. When necessary, PLS can retrieve disabled vehicles, giving the Army additional recovery capabilities.

PLS will revolutionize Army logistics. It will take supplies from the ports and rear-area depots over highway or cross country to the front lines. It is a responsive, highly flexible system that is employable world-wide and complements the operational requirements of the future battlefield.

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Space Exploitation Demonstration Program

The setting is a remote battlefield. The enemy patrol heard the single artillery shell fly overhead. Instant fear gave way to relief. They knew they hadn't been spotted because the shell continued on its trajectory impacting more than a kilometer away. Little did they know that the projectile that flew overhead was a US Army video imaging projectile (VIP). They were oblivious to the fact that this imaging projectile had just targeted the main body of their unit and had sent the exact location back to a firing unit through a satellite data link.

Within minutes two types of munitions were delivered on this unit. One of the munitions was a radio frequency attack missile, rendering their electronics use-less. The other was a series of "gunk" rounds that gummed up the engines of their vehicles. The result was a combat ineffective enemy force.

This scenario is obviously fictional, but the stated capabilities are well within the realm of possibility. In fact, the Army space community is working hard to develop these capabilities. The work is being done through the Army Space Exploitation Demonstration Program. Key participants in the demonstration program are the Army Space Command at Colorado Springs, Colorado; the Army Space Institute at Fort Leavenworth, Kansas; and the Army Space Technology Research Office at Fort Belvoir, Virginia.

Several systems used during Desert Storm were proven through the demonstration program. They include the small, lightweight global positioning system receiver (SLGR), the Wraase receiver for weather satellite imagery, multi-spectral imagery (MSI) work stations for topographic information and the tactical display processor for early warning of tactical ballistic missile launch.

One might ask, "What does the Army Space Command have to do with artillery projectiles or any other artillery systems?" The Army Space Command has several demonstrations planned for FY 93 that will have major impact on the Field Artillery. They include the gun laying positioning system (GLPS) with global positioning system (GPS) integration, the precision lightweight GPS receiver (PLGR), tactical weather broadcasting using communications satellites, the mobile profiler system (an Atmospheric

Sciences Laboratory initiative) and computer assisted artillery meteorology (Met), and mission planning rehearsals.

The following is a brief description of these demonstrations and a discussion on how the fire support community can improve combat operations with their introduction.

GLPS. The GLPS will determine grid azimuth, deflection angle, position and elevation for all current and projected howitzers with an external panoramic sight. A demonstration this year will tie in GPS information to provide location accurate enough to eliminate survey support.

PLGR. The PLGR will provide increased accuracy to all systems that have an integrated GPS or use a GPS receiver. PLGR will provide a ten-meter circular error probable (CEP) for location and a ten-meter probable error (PE) for vertical height. The PLGR capability will be available to GLPS, described above, the azimuth determining system (ADS), the lightweight laser designator rangefinder (LLDR) and the GPS fuze, discussed later.

Tactical Weather Broadcasting with Communications Satellites, Mobile Profiler System and Computer Assisted Artillery Meteorology (High Resolution Weather Equipment). This demonstration will help provide target-area met. Currently, we have a draft Target Area Meteorology Sensors System (TAMSS) Mission Need Statement (MNS) that describes our long-standing requirement for target-area met. The high resolution weather equipment will provide the commander with more accurate and timely weather information resulting in more efficient use of critical smart and special-use munitions.

Mission Planning Rehearsals. This demonstration will display compact commercial equipment that will provide the commander with the capability to integrate various mission planning profiles, e.g. Special Operations Forces, Aviation, Maneuver, or Field Artillery with digital terrain and multi-spectral imagery data simulating the appearance of the terrain in a proposed area of operations. This information will allow the commander to view the terrain in three dimensions and rehearse the mission prior to actual operations.

The above described demonstrations are only some of those planned by the Army Space Command for FY 93. There are numerous others scheduled that will provide the commander with improved capabilities on the battlefield. The following are proposed additional demonstrations:

Azimuth Determining System (ADS). ADS uses information from the GPS constellation to provide azimuth information used as a check for the stabilization reference package/position determining system (SRP/PDS) on the multiple launch rocket system (MLRS). ADS was demonstrated at Fort Sill last year. The system is being improved to provide four-mil azimuth accuracy with a requirement to achieve one-mil accuracy. ADS is being planned as a future demonstration at Army Space Command once the one-mil capability has been achieved.

GPS Fuze. This demonstration integrates GPS information into the fuze of a VIP to accurately measure trajectory positions and trace the flight path of the projectile. This information then is compared to the predicted trajectory and corrections for future rounds are applied as required. A GPS translator in the fuze receives GPS signals and transfers them to a ground processor for computation of trajectory and the corrections for subsequent rounds. Also, GPS information provides precise time and projectile location data. Combined with known viewing angles, it would provide target locations within 30 to 40 meters.

Lightweight Laser Designator Rangefinder (LLDR). This demonstration would integrate GPS with the LLDR to provide accurate self-location, allowing the user to locate targets accurate enough to provide first round fire-for-effect. There is an approved MNS and a draft Operational Requirements Document (ORD) for the LLDR that requires GPS integration.

Differential GPS. There are combat systems, such as the Firefinder Radar, that require more precise positioning than that provided by PLGR (ten-meter CEP, ten-meter PE). This demonstration would show the feasibility of having a master station monitoring GPS signals. When a combat system required additional accuracy, a formatted digital message could be routed to the master GPS station for processing. Within seconds, the master station would compute specific differential corrections and send a message back to the intended user. The trade off for differential GPS is that personnel must establish reference stations and broadcast via land line or active radio systems to achieve this capability.

This simple, user-transparent implementation of differential GPS would provide increased positional accuracy for more systems than those requiring it today. Most other combat systems (observers, shooters, etc.) requiring a low volume of accurate positioning also could utilize this method. Developing a simple, more accurate position/navigation (POS/NAV) capability that exceeds today's minimum requirements will certainly increase our overall effectiveness on the battlefield.

Although the Field Artillery will not have space-based howitzers on-call for fire missions, there are many space activities that enhance our daily operations. Some of the space activities that affect the Field Artillery that were not discussed above are: long-range communications, GPS and single-channel ground and airborne radio system (SINCGARS) integration, battlefield laser acquisition sensor test (BLAST) and space-based asset tracking. The long-range communications has become a necessity for the Field Artillery with the introduction of semi-autonomous systems on the battlefield. The GPS SINCGARS will automatically provide precise location to the radio user. The BLAST will enhance the commander's capability to detect lasers on the battlefield and provide the ability to uplink GPS information by laser from field locations to spaceborne sensors. Asset tracking will give the commander the capability to track critical assets (ammunition and supplies) and troop locations.

You can see that the hypothetical scenario at the beginning of this article is not so far from reality. In the near future we will use GPS information to lay howitzers, emplace radars, track artillery projectiles and possibly eliminate many of our current survey requirements. We will use space-based systems to communicate over long distances, track critical assets and unit movements, detect battlefield lasers, provide target-area met for use in employing smart munitions and provide the commander with imagery that will allow for mission rehearsal and terrain analysis prior to an operation.

Many space-based systems helped provide the technological edge during the last war and through the demonstration program we should be in a position to provide even better support for the next one.

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Time-Space Relationships: The TF FSO and the Movement-to-Contact

by Major Boyd D. Gaines

One of the most demanding missions a task force fire support officer (TF FSO) must plan for is undoubtedly a movement-to-contact against a moving threat formation. Limited reconnaissance, sketchy observation and communications plans and unfamiliar terrain all weigh heavily against success on the battlefield. They can easily become variables that could contribute to mission failure. This article reviews movement-to-contact doctrine and offers suggestions to help TF FSOs plan for success.

Doctrinal Review

The task force normally conducts a movement-to-contact as part of the brigade operation. *FM 71-2 The Tank and Mechanized Infantry Battalion Task Force* states, "a TF conducts a movement-to-contact to make or regain contact with the enemy and to develop the situation." Doctrine is fairly specific about how a TF organizes to execute a movement-to-contact.

Figure 1 depicts a TF organized into a security force, an advance guard and a TF main body (as part of the brigade formation). Understanding this formation and the doctrinal missions given each element is critical to formulating an effective fire support plan. FM 71-2 also states, "...the security force is normally established with the battalion scout platoon. Engineers and forward observers [FOs] are attached to the scout platoon and security force as necessary. Normally, the security force has initial priority of indirect fires....The security force must be far enough ahead of the advance guard (usually two to six kilometers) to provide adequate warning and sufficient space for them to maneuver....When the enemy force is discovered, the security force calls for and adjusts fires on the enemy....The security force avoids detection..."

The advance guard has similarly explicit tasks, "...the advance guard quickly moves to overpower and destroy platoon-sized and smaller security forces and combat outposts. The advance guard...fixes larger than platoon-sized enemy forces." The main body "remains one to two kilometers behind the advance guard element...it is flexible enough to maneuver rapidly to a decisive point on the battlefield to destroy the enemy."

Doctrine is also fairly specific with regard to fire support considerations to synchronize fires. See Figure 2 for those considerations as outlined in *FM 71-2* and *FM 6-20-40 Tactics, Techniques and Procedures for Fire Support for Brigade Operations (Heavy).*

Let's look at a threat formation that US forces could face on a movement-to-contact. Figure 3 shows a doctrinal portrayal

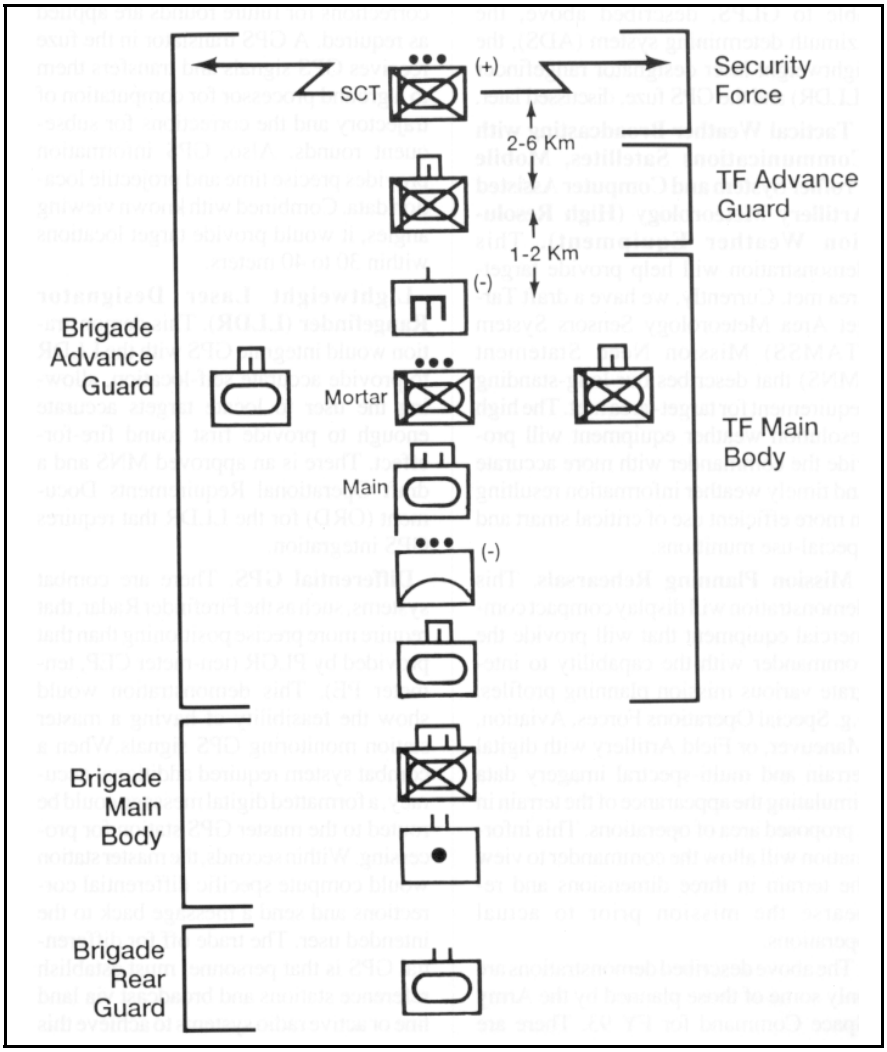

Figure 1: Battalion TF Movement-to-Contact as Part of a Brigade Attack. The TF consists of a security force, an advance guard and a main body.

of a threat motorized rifle battalion (MRB) organized into an advance guard formation as shown in *FM 100-2-1 The Soviet Army: Operations and Tactics (May 1989)*. Let's assume this is the threat the TF is facing. (It could be any threat. The point is, any mechanized adversary follows some sort of doctrine and can be templated.)

In the case of the advance guard formation in Figure 3, the TF FSO should note the following peculiarities:

• Multiple reconnaissance patrols are composed of BMPs [Soviet amphibious infantry combat vehicles], BRDMs [Soviet scout vehicles] and tanks.

• Tanks, mortars, engineers and artillery support the forward security element.

• The force is employing the doctrinal distance between the various sub-elements. This is important as it allows the TF to predict when the different formations will appear on the battlefield.

Knowing what the threat looks like on the battlefield gives the TF FSO (and brigade) a starting point upon which to build his plan for fires.

The Basic Plan

Failure to plan is planning for failure.
Anonymous

So what are the key planning considerations a TF FSO must take into account? As always, the planning process starts with the receipt of a mission. In this case, the TF mission is to meet an advance guard formation somewhere in the TF zone and destroy it to facilitate the forward movement of the brigade. The following are techniques that expand on the fire support considerations listed in FM 71-2 and FM 6-20-40.

Ensure the fire plan facilitates responsive fires. Figure 4 (Page 30) shows a typical maneuver plan with a fire plan superimposed. The TF has an axis of advance with objectives for orientation. An important point to remember is the objectives are for orientation only. The TF mission is force-oriented (i.e., destroy the threat) versus terrain-oriented. This means the objective won't necessarily be targeted.

The FSO plans targets along the TF's main axis of advance. These targets probably will be no more than three to four kilometers apart. During the war-gaming process, the TF commander, operations officer (S3) and intelligence officer (S2) "fight" the battle, including determining how the TF will react to enemy contact and then counteracting the threat's reaction to contact. Likely or proposed engagement areas (EAs) will result from this wargaming process. The basic question is not where they want to kill the enemy, but *when* and *how* they want fire support to influence the battle when the TF makes contact.

Given this information, the FSO targets the most likely place the TF will make contact with the threat. This set of targets *becomes the generic sequence of engagements* for the TF, regardless of where it makes contact. In Figure 4, for example, the target Group A1B is meant to be fired when the brigade makes *contact* with the forward security element.

The intent for fires is what's important. No matter where the TF meets the threat, it will engage the reconnaissance patrols, forward security element and advance guard's main body in the same generic sequence. It's impossible to target every proposed EA and contingency, given the normal limitations on targeting from brigade. Furthermore, if the FSO does target every EA, he ends up with the proverbial "measle sheet," which dilutes the clarity of the fire plan. You can provide the TF much more fire support flexibility by producing a fire plan that addresses the most likely course of action and conveying the intent to the company shooters.

Allocate priority targets. Priority targets do two things for the TF. First, priority targets along the axis of advance keep the artillery and mortars within range. Second, when contact is made, fires will be more responsive.

During the planning phase, the direct support (DS) battalion S3 and mortar platoon leader can determine position area requirements for different phases of the battle. An important point to remember is a planned target for a movement-to-contact facing an advancing threat formation is unlikely to be where the enemy actually deploys. But, because the tubes are already oriented in this general area, shift times should be reduced and fire support assets will be in range at the appropriate time. Furthermore, the FSOs use of priority targets focuses the fire support effort as the brigade moves to contact.

The FSO should—

- Ensure the priority task for fire support in the attack is the suppression of anti-armor systems that inhibit maneuver.
- Use smoke and illumination to facilitate TF maneuver.
- Allocate priority targets to weight the main attack.
- Provide responsive fires to the lead element by—
  - Assigning priority of fire.
  - Allocating priority targets to the company/team requiring responsiveness.
  - Positioning FOs or combat observation lasing teams (COLTs) effectively.
  - Making mortars more responsive upon contact.
  - Using a quick-fire or exclusive fire net to facilitate fire missions.
- Plan fires on the terrain to be traversed and on the flank to protect the force.
- Use smoke to obscure operations, screen friendly movement and breach obstacles.
- Be prepared for a hasty attack or defense, once contact is made.

Figure 2: Fire Support Considerations for Synchronization of Fires. As shown in this figure, FM 71-2 and FM 6-20-40 provide doctrinal fire support considerations for offensive operations.

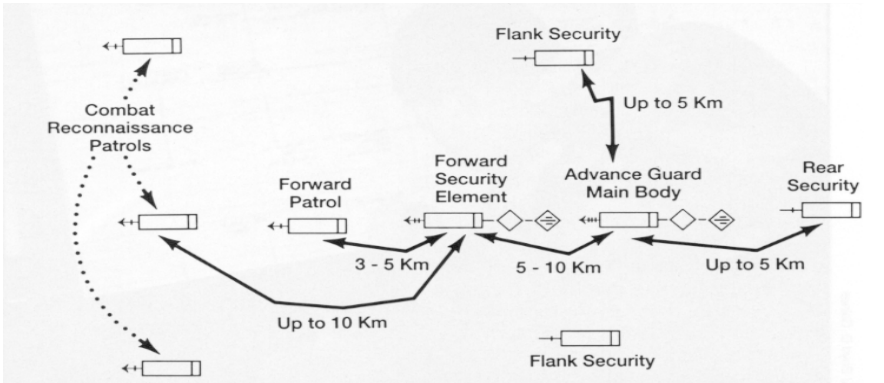

Figure 3: Doctrinal Template of a Motorized Rifle Battalion in a Typical Advance Guard Formation (FM 100-2-1)

Position FOs and COLTs effectively. Fire support (specifically mortars and artillery at the TF level) can influence the battle during a meeting engagement with an advance guard battalion during limited windows of opportunity. Normally, when the company-sized elements (forward security element and advance guard's main body) appear, they are lucrative targets. Unfortunately for the TF FSO, when these units come under direct fire, they tend to leave pre-battle formation and disperse. The fight then becomes danger-close with direct fire.

To counter this, the TF FSO must look at ways to get his assets forward into the fight. Reserve or follow-on company/teams can be stripped of their fire support team vehicles (FIST-Vs) while leaving the company FSO with the company commander or executive officer (making sure the company FSO has access to a radio that works). This technique provides extra assets to use on the battlefield. (This technique is addressed in *FM 6-30 Observed Fire Procedures*, page 2-3.)

COLTs are also ideal for this mission. A COLT could be given the mission of backing up the advance guard or company or of augmenting the scouts. The FSO should remember the COLT needs to be linked up with the appropriate company as soon as possible, allowing it to be integrated into the troop-leading procedures for that company/team. The drop-dead time for linkup is usually the TF operations order time. This requires the brigade to be very proactive in assigning a mission, briefing and linking COLTs up early with their respective TFs.

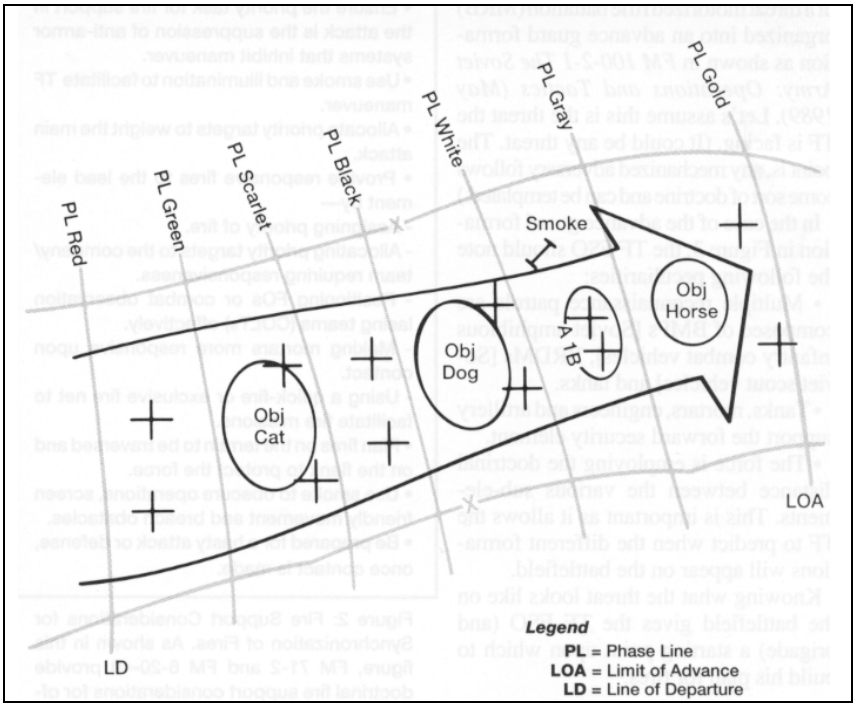

Figure 4: Simplified TF Graphics with Fire Plan Overlay

MAJ Boyd D. Gaines

Wargaming the course of action is a critical task for the TF FSO.

The argument can be made that "backup observers" (trained personnel within the company/team who are not fire support specialists) can handle the fire support tasks if the company FSO goes down. This is a home-station training issue that needs to be practiced before the TF FSO can rely on this technique. For example, the backup observer for a particular target could be one of the maneuver platoon leaders. The inherent danger with this option is that during execution, the platoon leader might be fighting his tank or commanding his platoon and may forget or disregard his fire support responsibilities.

Whatever the method, the result should be a TF FSO with redundant sets of eyes forward to exploit *windows of opportunity* in accordance with the commander's intent for fires.

Provide responsive fires to the lead element. Why do we provide responsive fires to the lead element other than to destroy the enemy? In the case of the advance guard commander for the lead TF, we do it to provide him one extra element of combat power that helps ensure success on the battlefield and minimize friendly casualties. This is why,

Viper, CMTC

Opposing Force (OPFOR) BMP at the Combat Maneuver Training Center (CMTC), Hohenfels, Germany.

doctrinally, the mortar platoon is placed under the operational control of (OPCON) the advance guard.

Mortars can provide that decisive edge that allows the advance guard commander to accomplish his doctrinal mission of destroying reconnaissance patrols and fixing company-sized elements. Suppression of enemy armored vehicles is definitely a combat multiplier that could give an M1A1 tank crewman the opportunity to destroy his opponent without taking return fire.

When the mortar platoon is OPCON to the advance guard, it literally belongs to that company/team. The fire direction centers (FDCs) drop off the TF fire support net, and the platoon leader operates on the company/team command net.

Because mortars are the only fire support asset the TF owns (and the only one the TF can always count on), the TF FSO should ensure there's a follow-on mission for the mortar platoon. At some point, the advance guard will cease to be the main effort, and during the war-gaming process, the TF FSO should be able to determine who priority of fires goes to for planning.

A final point about mortars—it's a good idea to put a cap on the number of rounds they can fire without notifying the TF tactical operations center (TOC). This cap should not exceed a specified percentage of the basic load, which will prevent the platoon from firing all the ammunition without the TF commander, S3 or FSO's knowledge.

The other element in the TF that should get initial priority of fires is the security force, which is normally built around the scout platoon. Receiving calls-for-fire from the scouts and tying them into a fire plan can be a tough nut to crack. A good technique is to coordinate with the TF S2 to relay calls-for-fire from the scouts (over the battalion operations and intelligence net or whatever net the S2 is talking to the scouts on) and pass them to the fire support element (FSE) at the TOC (difficult when the TOC is moving). Calls-for-fire also can come over the TF command net.

Another good technique is to attach a COLT or FIST from one of the company/teams (minus the company FSO) to act as a conduit for fire missions. This meets the criteria for "effective positioning" and gives the scouts their own FSCOORD.

The bottom line is the TF FSO must adopt the method that works best for his TF. The ideal situation is observed, adjusted fire from the scouts, and they should be trained to adjust indirect fire (which means all they need is access to the fires net). This procedure is hard to do over the TF command net in the middle of a battle.

The security force, by doctrine, brings indirect fires upon the enemy on contact. Because the security force operates two to six kilometers in front of the TF, this could prevent the mortars from supporting them. During the war-gaming process, the FSO and commander must answer the following question. Does fire support (artillery) fire at combat reconnaissance patrols or forward patrols at the risk of diluting its effect on the follow-on company-sized elements? Hitting a moving target with artillery is difficult at best; setting up the engagement and waiting for the forward security element to appear on the battlefield and then massing fires is probably more reasonable.

A technique to manage this is to set up an engagement criteria that establishes a minimum number of vehicles that aren't high-payoff targets the DS battalion can engage. The brigade establishes a cutoff for the number of vehicles as part of the staff planning process. However, the scouts' primary means of survival is to evade detection, and the FSO should accept calls-for-fire to allow the scouts to break contact and survive, regardless of target description.

Finally, more often than not, the brigade won't engage reconnaissance vehicles in a movement-to-contact, but that's not a "hard and fast" rule. Some movement-to-contact missions will dictate all reconnaissance vehicles be destroyed to ensure the success of the brigade.

Use quick-fire nets to increase responsiveness. Using quick-fire or exclusive nets, as outlined in FM 6-20-40, is a valid, viable technique for increasing the responsiveness of fire support assets. Having one or two of the lead FISTs (such as the advance guard company FIST of the lead TF) on the brigade fire support coordination net eliminates relays and provides the FSCOORD real-time information. This could be standing operating procedure (SOP) for a brigade movement-to-contact, but it needs to be rehearsed during the fire support rehearsal.

Use smoke as a combat multiplier. The FSO must remember to plan for smoke. FM 6-20-40 addresses the possible uses of smoke during a movement-to-contact. The brigade FSO should have allocated a certain amount of smoke to the TF for planning purposes. During the war-gaming process, the TF FSO should identify the events that call for the smoke and plan accordingly. Smoke is ideal for supporting the deception effort.

Rehearsals and Refinement

The TF maneuver rehearsal should focus on actions upon contact. The TF FSO should use this time to ensure his shooters are aware of their responsibilities and fire

support is synchronized with the other battlefield operating systems.

The fire support rehearsal also should focus on actions on contact and what redundancies are available. For example, backup observers are identified by name and position and, as a minimum, make radio checks with the mortar and DS battalion FDCs. The advance guard FIST should be able to explain the concept for employing the mortar platoon.

Refinement of targets may be limited due to the vagueness of the enemy situation. So the FSO should resist the temptation to plan targets to support every maneuver contingency. He should stick to a generic scheme of fires that is event-driven. In that case, the TF FSO will have to change very little, assuming the enemy has merely moved closer to the TF zone.

Movement-to-Contact Execution

The FSO must assume that part of the intent for fires is to mass on company-sized elements and ignore platoon-sized and smaller elements unless they are high-payoff targets. This means the TF FSO and FSE are concerned with where the forward security element and advance guard's main body are. The TF S2 uses an event template to predict locations of threat elements on the battlefield at any given time. (The S2 is "paid" to analyze and predict this type of information.)

The TF FSO must understand the time-space relationships between the reconnaissance patrols, the forward security element and the rest of the formation. Knowing this, he can make intelligent decisions that allow fire support to influence the battle. For example, in Figure 3, the doctrinal distance between the first combat reconnaissance patrols (CRPs) and the forward security element is up to 10 kilometers. Given a rate of advance of 30 kilometers per hour—based on mission, enemy, terrain, troops and time available (METT-T) from the threat perspective—this means the forward security element doctrinally will appear 20 minutes after the sighting of the first reconnaissance patrols. The five- to 10-kilometer distance between the forward security element and the advance guard's main body also provides a reference point for when they'll appear on the battlefield.

What does the TF FSO do with this information? Ideally, there will be a covering force (reporting to the division or higher) in front of the brigade advance guard. Spot reports and intelligence summaries will provide the brigade S2 a *picture in time* as to threat dispositions and strengths. Spot reports will confirm sightings of BMPs, and the S2 will be able to predict they're the CRPs from the advance guard battalion. This *key read* literally sets the clock ticking as to when the forward security element will arrive on the battlefield. The TF security force will be oriented to pick up and track the enemy reconnaissance elements as they enter the brigade zone. The TF commander probably will maneuver the advance guard to destroy the CRPs and take up a position to fix the forward security element so the main body of the TF can maneuver.

This is the window of time for the TF FSO to get his fire support "ducks in a row." He uses this time to get shooters in position and sets into action the generic sequence of events decided on during war-gaming and the fire support rehearsal. The TF FSO, in conjunction with the TF commander, selects the indirect-fire EA and relays this information to his subordinate FIST and the DS battalion. The DS battalion prepares to mass fires on the new priority target. The company FSO (and backup shooters and COLT team, if applicable) responsible for the engagement gets into position to see the trigger point, verifies communications with the firing elements and synchronizes the fight at the company level. The advance guard FIST ensures the mortar platoon is prepared to deliver fire. The reserve FIST attached to the scouts reports to the FSCOORD or FSO when the TF security force picks up the forward security element and continuously maintains eyes on the formation until the TF engages it.

This same thought process is used when the TF fights the advance guard's main body. The intent for fires drives the fire support actions on contact, regardless of where contact occurs. Ideally, the TF FSO is nothing more than a facilitator during the battle to ensure the intent for fires is met.

This approach of using intelligence preparation of the battlefield (IPB) products combined with a good intent for fires adds structure to the battlefield and reduces the variables the TF FSO must contend with.

MAJ Boyd D. Gaines

Fire supporters in the FSE, 2d Bde, 3d ID, plan for an upcoming operation at the CMTC.

Conclusion

This article focuses on the TF FSO and his role in planning, preparing and executing a fire plan to support a movement-to-contact. In the interest of brevity, I didn't discuss in detail the roles of all the key players involved in this type of operation, such as the brigade FSO and the DS battalion S3. Army Aviation and close air support (CAS) also were omitted.

All of the techniques in this article are just that—techniques. Every movement-to-contact is unique, and the fire plan to support it must be tailored to METT-T. By applying sound doctrinal techniques and having a thorough understanding of the threat, the TF FSO can significantly increase his battalion's chances of success on the battlefield.

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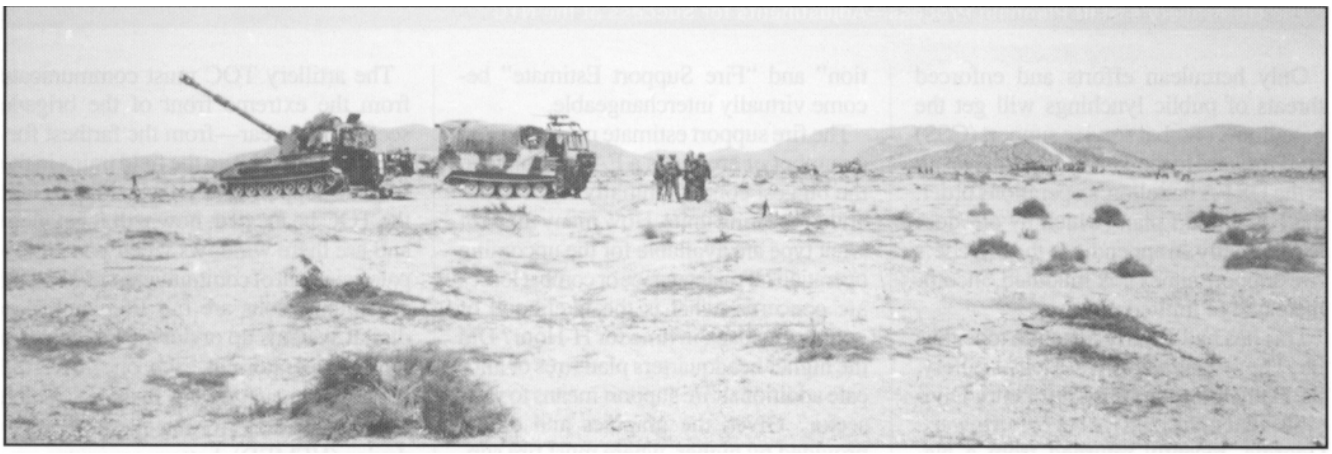


The DS Artillery's Staff Planning Process—
Adjustments for Success at the NTC

by Lieutenant Colonel Albert F. Turner, Jr.

The Army's staff planning doctrine does not apply in the direct support (DS) Field Artillery. As with so much of our Army's doctrine, it's applicable only to the maneuver commander and his operations. Despite the FA being the most powerful and agile force on the battlefield, it's relegated to a "catch-up-to-me" status.

This contributes to its oft cited lower-than-expected performance at the National Training Center (NTC) at Fort Irwin, California. Most of our inadequacies at the NTC revolve around timeliness or responsiveness of fires. Operation Desert Storm after-action reports are replete with how artillery responsiveness was slow to the extreme. Much of it can be traced back to its root cause—*the staff planning process does not support the needs of the artillery*.

Staff Planning and the Artillery

The perception exists that fire support is only one of several battlefield operating systems (BOS) to be incorporated into the maneuver plan. Overlooked is the imperative for the fire supporters to develop their own implementing orders. Therefore, the artillery is forced to circumvent the process. Only by doing so can it develop plans in sufficient detail to allow the artillery team time to react.

Why does the staff planning process break down for the DS artillery? The simple answer is *timing*. It's absolutely essential that fire support planning occur before the equivalent maneuver battalion has the opportunity. Otherwise, the penalty may be the FA pushed to the rear—or "out of sector."

The best way to explain this is through an example. A DS FA battalion supports a brigade. The fire support coordinator (FSCOORD) participates in the brigade's planning process along with the brigade fire support element (FSE). The maneuver task forces (TFs) receive the order when the staff planning process at brigade is complete. If the FA battalion receives no prior information of its requirements until the same orders brief, then, from that point on, it's scrambling to catch up.

The FA battalion must coordinate for, draw, move and position the heaviest, bulkiest and most transportation-intensive ammunition in the brigade combat team. It must position itself by negotiating with the terrain owners, normally the maneuver battalions by virtue of the brigade's operations graphics. And it must conduct its own staff planning process without the field-grade expertise concentrated in the tactical operations center (TOC), unlike the maneuver TF.

FA doctrine tells us to do this—to hamstring ourselves. The FSCOORD, more than likely, is with the brigade commander on a terrain reconnaissance. The executive officer (XO), if employed as the "super logistician," is off solving the myriad of problems associated with a battalion spread across the width and breadth of a brigade sector. Planning devolves to the S3 and a generally inexperienced operations and intelligence section.

Only herculean efforts and enforced threats of public lynchings will get the battalion's combat service support (CSS) staff forward to the TOC. Often, the result is the DS FA battalion's operations order, the FA support plan (which by our doctrine is really an appendix to the brigade's fire support annex), is muddled, incomplete and of limited utility.

This has had a fairly negative tone thus far. The 3d Battalion, 41st Field Artillery, the Battlekings of the 24th Infantry Division (Mechanized) at Fort Stewart, Georgia, recently returned from a National Training Center rotation. And, if you were to stop reading now, you would assume this is a "sour grapes" article—that we had a hard time accomplishing our mission. *Not true*. Rather, we took the doctrine, adapted it to our needs, adjusted it to fit the brigade's planning cycle and enjoyed success. This article describes how we worked beyond the framework our doctrine provides us.

The Fix

We adjusted the staff planning process to meet our needs (see the chart). We trained on it and then took it to the NTC. It was not developed in isolation. It's the result of four months of development, testing, refinement and study. We attempted to validate it during several brigade and numerous internal battalion orders drills. Mostly, it remained intact. By the time the rotation was complete, we had added only a few points of consideration and were satisfied it worked. Probably the best thing about the process chart is each block serves as a mini-checklist for that phase of the planning process.

The center of the chart replicates the major steps in the doctrinal staff planning process. The left column, which is deliberately bereft of detail, is the planning process followed by the maneuver forces. Only fire support-specific areas they consider are listed. The right portion of the chart is our process, the information we sought or included in each phase.

The Fire Support Estimate Process

Our first observation was the estimate process starts even before we receive the mission. In the doctrinal context, "mission" means receiving the higher headquarters operations order (OPORD). In reality, the estimate process begins when we receive the first warning order. Thus the block labeled "Gather Information" and "Fire Support Estimate" become virtually interchangeable.

The fire support estimate must consider a number of areas. As a FA commander, the biggest concern initially is the availability of firing units. How many tubes of what type are available for the upcoming operation? If maintenance or combat losses are concerns, what is the likelihood of getting any back in time for H-Hour? Did the higher headquarters plan fires or allocate additional fire support means to your sector? Given the graphics and orders provided by higher, where must fire support assets be positioned to range the enemy? For an extended-distance operation, when and where will the artillery have to move to provide continuous coverage of the sector? How many times can it mass? How long will it take to do so, and how far apart should the targets be when shifting?

The next consideration is ammunition. We place the most demands on transportation assets in the brigade. Both in bulk and weight, we require extraordinary planning to ensure our tubes have the right types and quantities of ammunition. Early in the planning process, we must determine what is on hand, what can be made available and how much work must be done to get it.

What's the status of the combat observation lasing team (COLT) and fire support teams (FISTs)? This question applies to both personnel and equipment, especially the fire support team vehicle (FIST-V). Can they be regenerated in time for the next battle? Can we reorganize shortages and place them in the most critical areas?

The OH-58D helicopter is an important consideration in this process. In the 24th Infantry Division, it belongs to the FA once it enters the brigade sector. It's another set of eyes but is an extremely limited asset given crew rest restrictions. If they fly using night-vision goggles, they're available for four out of 24 hours. You must know the availability of backup crews, the maintenance status of each helicopter and their optics and radios (both voice and digital) to properly plan for their use.

The target attack guidance is spelled out in both the higher headquarters plan and in any special considerations the maneuver commander may have given you during his initial thoughts. Have you been told to suppress, neutralize or destroy certain categories or types of targets? Perhaps the guidance is keyed to certain phases of the battle.

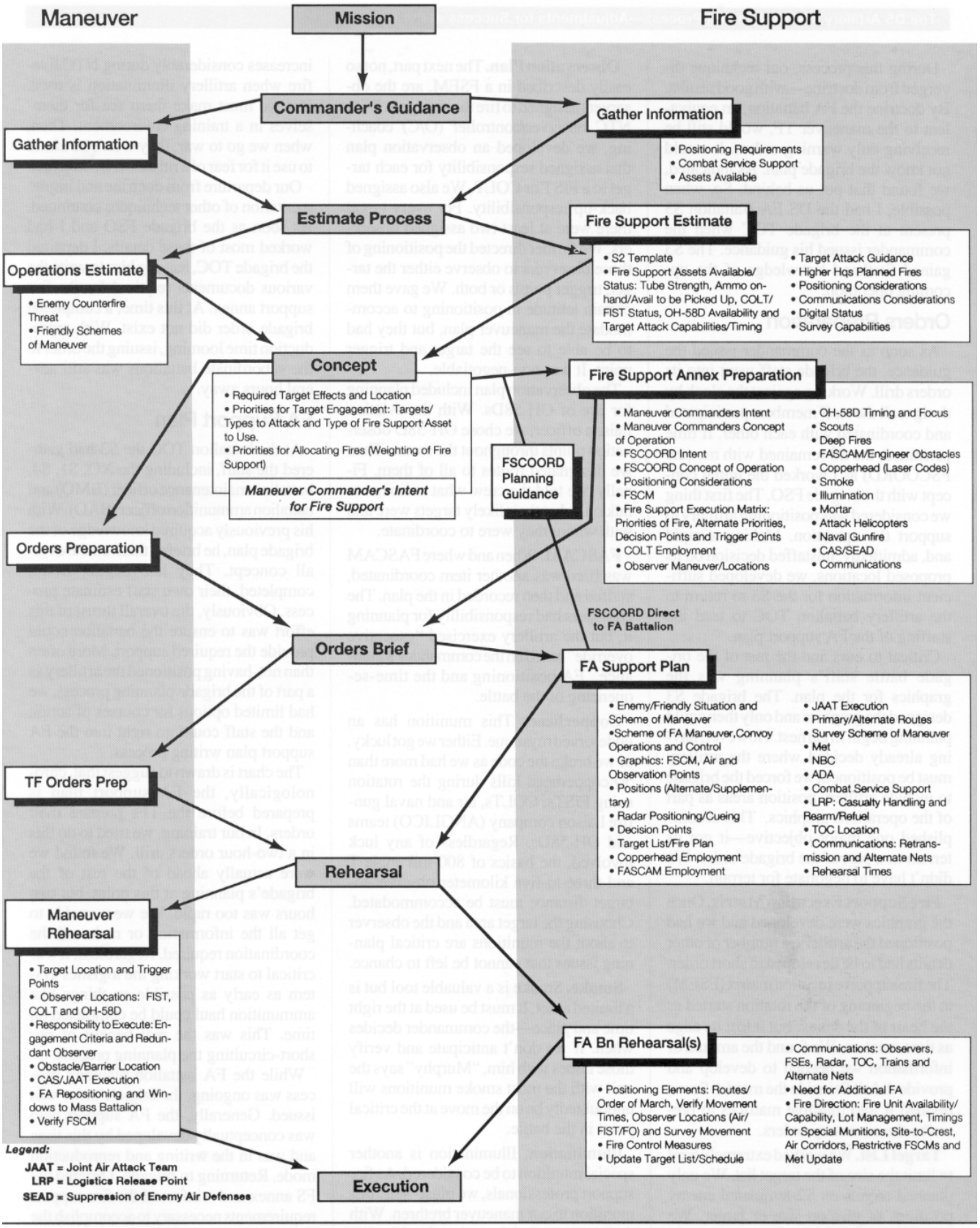
The artillery TOC must communicate from the extreme front of the brigade sector to the rear—from the farthest forward FIST/COLT to the field trains in the brigade support area (BSA). Where will the TOC be located, how will it get there and are there windows when you anticipate being out of communications? Digital communications are our lifeblood. Are digital systems up or down? Do we have trained operators at each one? Are the radios with each digital message device (DMD), variable-format message entry device (VFMED), battery computer system (BCS) and tactical fire direction system (TACFIRE) all operational, peaked and multiplexed?

Finally, what's the status of survey? Is the position and azimuth determining system (PADS) operational? Is the conventional team prepared to bring survey control forward or man a master station? Are there sufficient survey control points in the area of operations to support the artillery, mortar, OH-58D, meteorological, radar and reinforcing FA requirements?

Concept and Commander's Intent

Having completed this estimate process, an ongoing operation rather than a finite event, the brigade staff comes together with the commander. They brief him on their conclusions and their recommendation for a course of action. At this time, he issues his concept guidance and provides the commander's intent for fire support. The doctrinal solution is shown in the labelled box in the chart. If the maneuver commander provides this information, we, as fire supporters, can better plan and prepare his support. That is, provided he was adequately advised to know what to ask for.

A better solution would be for him to describe what he wants the fire support system to accomplish in order of priority. Usually, this will be a menu of choices that eventually exceeds the capabilities of the assets available. The FSCOORD or fire support officer (FSO) then has the responsibility to draw the cut line and tell the commander what he can't have. That process, in our experience, worked best. Through a process of give and take, the list was generally refined, and we put the artillery, mortars, naval gunfire, and close air support (CAS) where the commander wanted it.



The "Battlekings" Staff Planning Process. The doctrinal staff planning process did not support the needs of the artillery. The 3-41 FA's adjusted staff planning process met with good results at the NTC.

During this process, our technique diverged from doctrine—with good results. By doctrine the FA battalion, an equivalent to the maneuver TF, would still be receiving only warning orders. It would not know the brigade plan. As indicated, we found that put us behind. So, when possible, I had the DS FA Battalion S3 present at the brigade TOC when the commander issued his guidance. The S3 gained firsthand knowledge of the upcoming operation.

Orders Preparation

As soon as the commander issued the guidance, the brigade staff went into its orders drill. Working against the clock by design, all the staff members participated and coordinated with each other. If time permitted, the S3 remained with me (the FSCOORD) as I worked the initial concept with the brigade FSO. The first thing we considered was positioning artillery to support the operation. Making a rapid and, admittedly, unstaffed decision on its proposed locations, we developed sufficient information for the S3 to return to the artillery battalion TOC to lead the staffing of the FA support plan.

Critical to ours and the rest of the brigade battle staff's planning was the graphics for the plan. The brigade S3 designed the graphics and only then could planning begin in earnest. However, having already decided where the artillery must be positioned, we forced the brigade to include artillery position areas as part of the operations graphics. This accomplished one major objective—it got us terrain as a part of the brigade order. We didn't have to negotiate for terrain.

Fire Support Execution Matrix. Once the graphics were developed and we had positioned the artillery, a number of other details had to be developed in short order. The fire support execution matrix (FSEM) at the beginning of the rotation started as the heart of the annex, but it lost its edge as time went on. We found the amount of information we needed to develop and provide didn't fit inside the matrix. So we divided it into multiple matrices to prescribe the necessary orders.

Target List. We worked extremely hard to limit the size of the target list. We only planned targets on S2-templated enemy positions of platoon size or larger. We targeted terrain features only at choke points where we might consider firing family of scatterable mines (FASCAM).

Observation Plan. The next part, not so easily described in a FSEM, are the observers assigned to fire those targets. With NTC observer/controller (O/C) coaching, we developed an observation plan that assigned responsibility for each target to a FIST or COLT. We also assigned back-up responsibility. For every target there were at least two assigned observers. We further directed the positioning of those observers to observe either the target, trigger points or both. We gave them certain latitude in positioning to accommodate the maneuver plan, but they had to be able to see the target and trigger point. It was non-negotiable.

The observation plan included planning for use of OH-58Ds. With the aviation liaison officer, we chose OH-58D observation points throughout the sector. Then we designated routes to all of them. Finally, we told the crew what radio net to talk on, what their likely targets were and with whom they were to coordinate.

FASCAM. When and where FASCAM was fired was another item coordinated, staffed and then recorded in the plan. The engineers had responsibility for planning it, but the artillery exercised "executive override" based on the commander's guidance, FA positioning and the time-sequencing of the battle.

Copperhead. This munition has an undeserved mystique. Either we got lucky, or we broke the code as we had more than 50 copperhead kills during the rotation using FISTs, COLTs, air and naval gunfire liaison company (ANGLICO) teams and OH-58Ds. Regardless of any luck involved, the basics of 800-mil angle T and three-to-five kilometer observer-to-target distance must be accommodated. Choosing the target area and the observer to shoot the munitions are critical planning issues that cannot be left to chance.

Smoke. Smoke is a valuable tool but is a limited asset. It must be used at the right time and place—the commander decides when. If we don't anticipate and verify those issues with him, "Murphy" says the unit with the most smoke munitions will undoubtedly be on the move at the critical point in the battle.

Illumination. Illumination is another special munition to be considered. As fire support professionals, we must "sell" this munition to our maneuver brethren. With their improved night optics, they've concluded that illumination blinds them. Not so. The quantity and quality of direct fires increases considerably during NTC live-fire when artillery illumination is used. But we must make them see for themselves in a training environment. Then, when we go to war, they won't be afraid to use it for fear of a misunderstood effect.

Our departure from doctrine and implementation of other techniques continued. As soon as the brigade FSO and I had worked most of these details, I departed the brigade TOC, leaving him to write the various documents required for the fire support annex. At this time, a completed brigade order did not exist. With reproduction time looming, issuing the order to the subordinate battalions was still several hours away.

FA Support Plan

At the battalion TOC the S3 had gathered the staff, including the XO, S1, S4, battalion maintenance officer (BMO) and battalion ammunition officer (BAO). With his previously acquired knowledge of the brigade plan, he briefed them on the overall concept. They had begun, if not completed, their own staff estimate process. Obviously, the overall thrust of this effort was to ensure the battalion could provide the required support. More often than not, having positioned the artillery as a part of the brigade planning process, we had limited options for courses of action and the staff could go right into the FA support plan writing process.

The chart is drawn to suggest that, chronologically, the FA support plan is prepared before the TFs prepare their orders. In our training, we tried to do this in a two-hour orders drill. We found we were actually ahead of the rest of the brigade's planning at this point, but two hours was too rapid. We were unable to get all the information or make all the coordination required. Regardless, it was critical to start working the logistics system as early as possible so things like ammunition haul could be completed on time. This was the real benefit of our short-circuiting the planning process.

While the FA battalion planning process was ongoing, the brigade order was issued. Generally, the FA support plan was conceptually developed by this time and was in the writing and reproduction mode. Returning to brigade, I briefed the FS annex and reinforced the fire support requirements necessary to accomplish the plan. Also, I was able to participate as an equal in discussions resulting from the disseminated order, to listen to concerns

"Copperhead. . . has an undeserved mystique. Either we got lucky, or we broke the code as we had more than 50 Copperhead kills during the rotation. . ."

the TF commanders had and hear any adjustments made to the plan to accommodate those concerns. This was invaluable when later assessing the final FA support plan product.

The FA support plan forced the entire DS battalion to support the brigade. We addressed every primary and special staff area of interest and generally had an annex or appendix for all of them. We told radar when to cue and when to move. We told the meteorological section when to fly and when to broadcast. We told each PADS team when and where to go, when to re-initialize and when to shut down. We told the conventional survey team when and where to go and when to set up a master station.

Battalion ammunition, mess and maintenance all had their appendices or paragraphs. In fact, we found that a matrix-type order worked particularly well for CSS. But we also used matrices for movement, radar and survey operations. We determined which batteries would be the special munition (smoke, illumination, FASCAM and Copperhead) shooters and ensured they had the ammunition on hand to do so. Plus, we always built a backup to that plan, just in case the primary didn't work.

Communications over extended distances were difficult. We detailed how the battalion retransmission (RETRANS) assets would be positioned to accommodate fire support communications.

Rehearsals

Finally, we directed when three different artillery rehearsals would be conducted. We issued our own order to the battalion as soon as reasonable. Often, because of the brigade's rehearsal schedule, we issued our order to the batteries before the brigade conducted its rehearsal.

When we issued the order, we generally did the first of three rehearsals shortly thereafter—usually before the battery commanders had departed. After absorbing the order, we conducted a terrain-model rehearsal where all players, not just the battery commanders but also the staff (FDO, BAO, etc.), explained their actions at each stage of the battle. We made them explain every detail—down to identifying the bumper number of the lead battery's trail vehicle that the next battery followed. Call signs, frequencies and anti-jamming sequences were all subjects for discussion during the rehearsal. Then we released them to return to their battery or staff section to brief their subordinates.

The brigade rehearsal was often the first time the brigade commander heard his TF commanders' concepts. The maneuver plan was sometimes altered at the brigade rehearsal. Consequently, there was risk in issuing our order so early. We accepted that risk. It was easier to change what the batteries already had than wait and give them a 100-percent correct solution, but with very little time to adjust.

Listed under maneuver rehearsal on the chart is what we had hoped would come out of the brigade's rehearsal. It is right in line with those listed in the Center for Army Lessons Learned (CALL) pamphlets. Unfortunately, all we really got was how the movement of the FA fit into the overall scheme of maneuver. So, as a derivative, we determined when we would be in position to mass the battalion.

Consequently, this led us to our second FA battalion rehearsal, conducted on the radio. We received superb coaching by the NTC O/Cs on how to conduct this rehearsal. It was the most extensive and comprehensive of our three rehearsals. While the terrain-model rehearsal with the battery commanders and staff was a good one, it did not include FSE or FIST participation.

For the radio rehearsal, we required the battalion FDC, all six platoon FDC's, the FA battalion TOC, the brigade and TF FSEs and COLTs to participate. We went through the entire operation. The best thing about it was the TF FSEs talked to the battalion FDC and to the FA battalion TOC. The FSOs described in great detail (after many pointed questions) their TF's scheme of maneuver and the targets they anticipated firing. This allowed the battalion FDC to verify it had the correct grid and the correct munition requirements for each target. In turn, it allowed the platoon FDCs to verify they had the capability to engage their targets.

The FA battalion TOC gained a much better appreciation of the flow of the battle, especially the S3, who had to make tactical decisions on when and where to move batteries.

The third FA rehearsal occurred some time later, generally just hours before H-Hour or line of departure (LD) time. The battalion FDC conducted it with the platoon FDCs. The battalion FDO confirmed digital communications were in and working. He also updated the target list with the platoon FDCs. He verified critical ammunition had been delivered. Then he talked through each phase of the battle with the FDCs and made them compute firing data from their current or proposed positions for each planned target. Once all were satisfied, they could support the fight, and we were ready to meet the commander's intent.

Concluding

Doctrine tells us to plan following a certain sequence. That sequence does not readily adapt itself to the needs of the artillery. The DS battalion must plan and coordinate parallel or concurrently with its supported or higher headquarters. It can't afford to do it sequentially, some time later.

This is one unit's approach or technique for solving the doctrinal shortfall in the planning process. Other units may have a better way. But this one *worked* for 14 exhilarating days at the NTC. Perhaps aspects of it will work for other FA battalions.

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View from TOC Wadi

by Major Mark E. Wilcomb

Upon leaving Europe two years ago, I was absolutely certain I was one of the finest artillery battalion S3s to have walked the earth. I could put together and brief a training plan that was sure to raise the assessment of every task on the battalion mission essential task list (METL) to a "T" (trained) in the shortest amount of time with the lowest expenditure of resources. The Chief of Staff of the Army and I were in total agreement on the magnificence of *FM 25-100 Training the Force*.

The battalion's general defense plan (GDP) was locked in and coordinated with the supported brigade and sister artillery units. Each battery commander knew the complex plan from the border through to his final position. My tactical operations center (TOC) was full of "Jedi Knights" and digital-speaking warriors. I knew we could move the battalion and mass its fires wherever and whenever the need arose. Our statistics and battle damage assessment (BDA) during exercises were awe-inspiring and a true source of Redleg pride. As I headed for an assignment at the National Training Center (NTC), Fort Irwin, California, I thought I had left the battalion in great shape.

My first few rotations at the NTC were painfully humbling. Through those first months of grim soul searching, I realized I wasn't the *operator* I had thought.

During the course of the next few years it dawned on me that, in my former life as an S3, I had accomplished only about 30 percent of the duties of a *good* battalion S3. A good battalion S3 must control the battalion and its fire support elements (FSEs) every moment of every day, during dirty and confusing fights against a dirty and confusing foe—all while dodging "Murphy."

After departing the NTC, I was still troubled by the ease by which I had gained such a deceptive assessment of my performance as an S3. For months I wondered how I had misread the requirements and capabilities of my TOC, the true value of my staff METL and training plans in preparing the TOC for battle and the ability of my officers and NCOs to flawlessly execute a plan so clearly written and briefed.

Those same questions tend to spill out of the mouths of many artillery S3s as the dust settles from their first experience stepping into the ring and sparring with 115 BMPs (Soviet infantry vehicles) and 45 T-72s (Soviet tanks) at the NTC—the experience we called "high adventure."

What I offer in the remaining paragraphs are several answers given to me by those S3s as we waded through several hundred periods of high adventure at the NTC.

METL

The last thing I'd expect to see in the next rotation is a METL for the battalion staff. I haven't seen one in years. We have them at home station and brief them every quarter, but we shelve them while at the NTC.

Most of us find by the end of a rotation that a meaty staff METL, void of showmanship, is the first step in organizing the TOC. We know that each task in the METL should link directly to the functions required of our staff in combat. Chapter three of *FM 6-20-1 Field Artillery Cannon Battalion (How to Fight)* identifies specific functions for the TOC and is worth comparing our METL to from time to time.

Figure 1 lists those essential tasks that frame the heart of the TOC's mission and some we failed to accomplish at one point or another during our periods of high adventure. Those failures not only jeopardized our ability to achieve the commander's intent for fire support, but often "dropped us to our knees."

Duties

We conducted several informal after action reviews (AARs) at the NTC in the absence of S3s and operations sergeants. In them, officers and NCOs consistently surprised us by being able to filter through all the fog of the battle and identify one of our root problems—individual staff duties are not well defined or supervised. The following sums up their collective recommendations:

- Take the staff METL off the shelf.
- Establish the duty positions required to accomplish each METL task to standard.
- Specifically define the responsibilities and performance standards of each duty position.
- Slate soldiers against each duty position (two deep, where possible).
- Train the soldiers to perform those duties to standard.
- Hold soldiers accountable to consistently perform those duties to standard.

Many of those officers and NCOs have grown tired of us climbing down from our "Captain Kirk" consoles and leaving the "bridge of the Enterprise" to navigate for a while, grab the "throttle" for a minute or "switch on the energy shields" at just the right moment. Those are *their* duties, not ours. They'll do them for us and do them

Organize and Prepare for Operations

- ❑ Organize TOC Elements for Continuous Operations
- ❑ Supervise Subordinate Unit/Battery Preparations
- ❑ Conduct TOC Rehearsals

Perform Intelligence Tasks

- ❑ Perform Collection Management
- ❑ Perform Intelligence Processing
- ❑ Perform Intelligence Preparation of the Battlefield (IPB)

Develop FA Support Plans to Support Brigade Operations

- ❑ Organize the Staff Planning Process
- ❑ Plan/Coordinate Routes, Movements and Positions for Units
- ❑ Plan/Coordinate Ammunition Resupply of Units
- ❑ Plan/Coordinate Survey Tasks to Support the Brigade Sector
- ❑ Plan/Coordinate Scheduled Fires
- ❑ Plan/Coordinate Radio and Wire Communications Requirements
- ❑ Plan/Coordinate Target Acquisition
- ❑ Prepare and Distribute FA Support Plans
- ❑ Conduct Orders Briefings

Control Fires

- ❑ Organize the FDC for Continuous Operations
- ❑ Establish Voice and Digital Communications
- ❑ Establish and Maintain Initial Files
- ❑ Determine and Manage Weapon and Ammunition Information
- ❑ Integrate Fire Planning into the TACFIRE System
- ❑ Provide Tactical and Technical Fire Control to the Battalion
- ❑ Operate While Degraded/Perform Organizational Maintenance

Manage Essential Tactical Information

- ❑ Maintain Current Information on the Operational Status of Fire Support Assets
- ❑ Maintain Current Information on the Friendly Maneuver Situation
- ❑ Maintain Current Information on the Enemy Situation
- ❑ Prepare and Disseminate Operational Reports

Move

- ❑ Provide Command and Control of the Battalion During Movement
- ❑ Displace the TOC
- ❑ Conduct Road March
- ❑ Re-establish Operations Following Occupation of Position

Defend the TOC

- ❑ Defend Against Air Threats
- ❑ Defend Against/Avoid Ground Threats

Figure 1: Tactical Operations Center (TOC) Mission-Essential Tasks

well, if we assign them the tasks, teach them the procedures and demand they perform to standard. Until then, they'll continue to step out of our way and watch us play all the parts, do only what we tell them and grow more frustrated with duty on the Enterprise.

One of the most contented soldiers I ever watched was Jones, a radio/telephone operator (RTO) who "commanded" one TOC's Command Fire 1 (CF1) net. He *owned* that radio net from his pork chop through to the handset of every RTO on that frequency, and he felt personally responsible for it all. He performed preventive maintenance checks and services (PMCS) on his system like a surgeon, knew the reflective power and output wattage, and demanded his OE-254 antenna be erected "twelve poles" high and maintained to standard.

He knew which RTOs were up on his net, which had momentarily dropped off and why, and where to reach them. He didn't miss a call, omit an entry in his duty log or fail to pass a legible message to the right section in the TOC.

He would defy other RTOs to fail to respond promptly to calls from him or anyone else on his net. Very few did. He understood from previous experience that the operations sergeant, monitoring his performance from a few feet away, would take him to the "land of Armageddon" if he skipped a beat, so he didn't—and he enjoyed duty on the Enterprise.

Specialist Jones had been slated against a TOC duty position, trained on his duties, supervised by his operations sergeant and held accountable to execute those duties to standard. Our soldiers, likewise, must be given back their duties (and job satisfaction), and we need to get back to the bridge.

Configuration

There are a number of *good ideas* in our unit standing operating procedures (SOPs) on the physical design of the TOC complex itself. Several I've seen truly optimize the work space available and tend to boost the efficiency of the different elements of the TOC. But others are reminiscent of bumper car rinks. The S2 and operations sergeant collide with one another moving between their posts; the signal officer can't get started; the nuclear, biological and chemical (NBC) officer can't find an empty car; and there always seems to be one guy going the wrong way. The solution we settle on must provide our soldiers deconflicted work space to execute their duties. It also should accommodate our bridge.

We must see and hear our TOC performing to standard. We also must see and hear the battlefield to know if maneuver, our howitzers and our FSEs are on track in achieving the commander's intent. Annex C of FM 6-20-1 provides a starting point in reviewing our TOC configuration, recommending several standardized command post configurations. They're not the most efficient, nor have they been used extensively at the NTC. But they prompt several worthy considerations.

In each of them, the S3 is positioned in the heart of the TOC. From his post he can see and hear most TOC elements. His remote communications monitoring unit (RCMU) is within arm's reach. Other critical nets are remoted into the work area (at a low volume), so all can "see and feel" the battlefield. The tools of the TOC, whether a variable-format message entry device (VFMED) or the clock on the wall, are each assigned a specific place.

While the S3 can see and hear most TOC elements in these configurations, he has *lost* the tactical fire direction system (TACFIRE). The trend that continues to surface in TOCs at the NTC is the speed with which we, as S3s, lose control over our FSEs and howitzers. We offset our TACFIRE from the main TOC and monitor fires from a TA-312 telephone, the RCMU and the VFMED. In doing so, we give our 24 howitzers to the fire direction officer (FDO). He now owns them.

At the NTC, I routinely challenged S3s to accurately update their commander on what the FDO was doing with his guns during the heat of any battle using this configuration. I've heard a number of good tries, but none could confirm that fires were being cleared against fire support coordinating measures (FSCM), that fire orders complied with the commander's criteria, that fires were being massed when planned or that good solid tactical fire control was being performed. Many of us have been surprised to open the TACFIRE shelter door to find a private first class (PFC) at the console and the rest of the section at chow during a crucial period of high adventure.

A configuration several S3s adopted while at the NTC is shown in Figure 2. Though not necessarily the best idea for every unit, we found it provides better use of space and allows the S3 to monitor his

TOC while closely controlling the actions of the fire direction center (FDC) and FSEs. The trade-off in this configuration is the risk of losing both the operations and intelligence (O&I) section and the TACFIRE section to enemy direct or indirect fires. I think the increase in control over those 24 howitzers provides better support to the maneuver force and is worth the risk.

Yes, this configuration takes a while to set up—the first time. Through practice, our times dropped to 15 minutes, coming or going.

Yes, all the key players are "on shift" at the same time. With our present day manning, the luxury of shifts has been revoked. Key players must be up for the bulk of the planning, rehearsals and battle. The sleep plan will be the four hours here and there we can afford during all other times.

Yes, there are a few more soldiers than we're authorized in the TOC. They come from the wire teams or radio repair or some other slice of Headquarters and Headquarters Battery (HHB). It doesn't matter where they come from; what matters is we fill all the positions required to accomplish our essential tasks.

No, it may not meet our needs in a rapid 100- or 200-kilometer movement-to-contact. But we've proven we're smart enough to adjust to those unique missions.

Using this TOC configuration, the S3 has all the tools available to perform his duties. From his post, he can monitor the pulse of all fire support assets entrusted to him and determine if they are achieving the commander's intent. He can continually cycle through each of the elements to confirm they are on track.

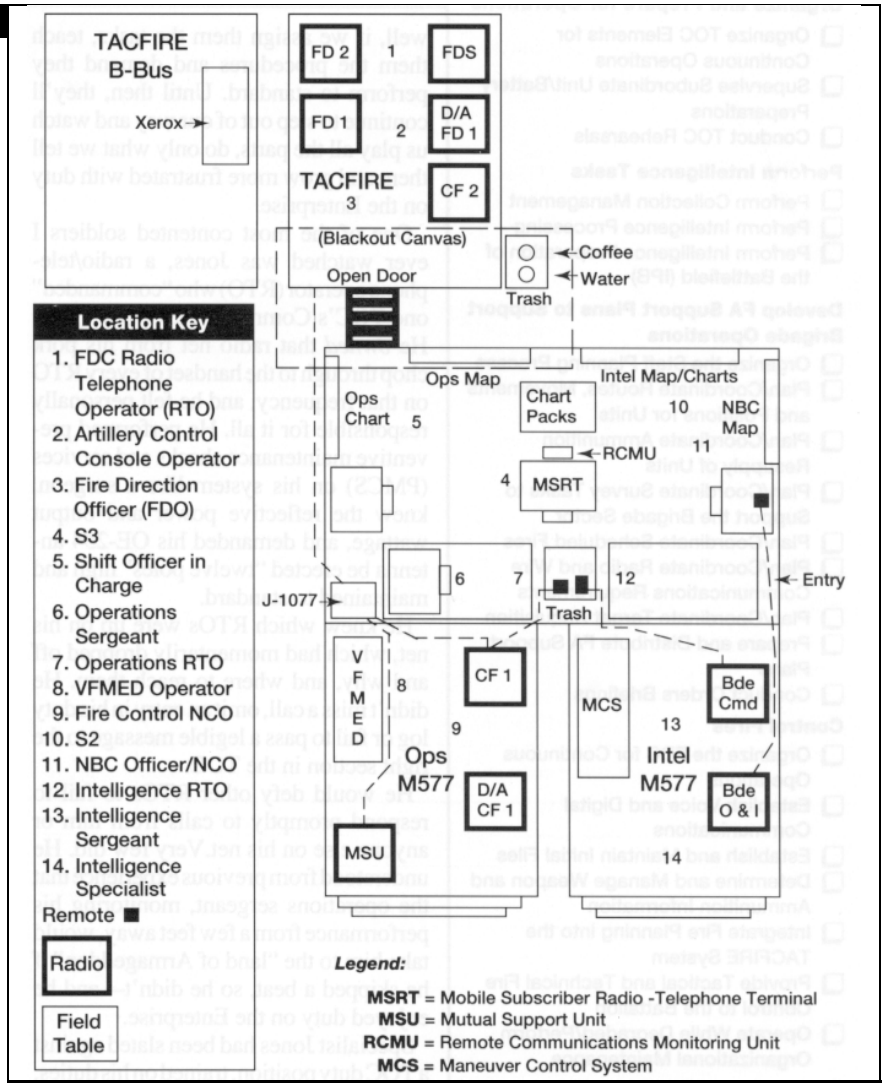

Figure 2: TOC Configuration. This configuration provides good use of space and allows the S3 to monitor the TOC and FDC operations.

Procedures

With our METL, duties and configuration established, it takes very little effort to complete the *organization* portion of what is evolving into our TOC SOP. Now we can try to stop a number of "gremlins" from growing by establishing ground rules for the TOC.

My TOC SOP required the cleanliness and orderliness of a surgical ward. The cigarettes were to be taken outside, along with the chow, visitors, off-shift soldiers and magazines—period. I knew it was right, the soldiers knew it was right—it was the law.

Yet every visitor saw then what I routinely saw at the NTC: the medic passing out throat lozenges and foot powder from the S2's post, the *Penthouse* on the floor of the TACFIRE, Jones' shaving kit and towel under the operations sergeant's table (because Jones knows it doesn't belong around "his" CF1 net) and Captain Smith in his sleeping bag on the shelf of the S2 track because it's warmer there.

The ability of garbage, clutter and chaos to spread in a TOC is directly proportionate to the rank of the visitor our commander walks in with. Once again, we're surprised, embarrassed and disappointed that we dropped our standards.

Rules are rules—we should enforce them. In just minutes, we can begin to resemble a "route-step" outfit.

Information Management

We manage information like Sybil negotiates a hall of mirrors. We try every possible method. But, in the end, 30 minutes before crossing the line of departure (LD), we seem to have trouble identifying who we are and where we're heading.

We have charts, overlays, duty journals and accordion files at each station because other guys have those things. Everyone who's important has his own stack of electronic line printer (ELP) paper on his table. We have a need to constantly transmit and receive current information from commanders, FDCs and FSEs because that's what TOCs do and because we keep getting No-Gos on that Army training and evaluation program mission training plan (AMTP) task. We need "Red-Ones," "Purple-Threes" and "Barracuda" reports along with this week's revision of "Movecon 1, 2 and 3." After collecting all that "good" information, we

can make sound decisions and issue our brilliant S3 edicts to units—if we could only find where we put that stuff—"Ask for it again."

Our basic problem, discovered in our AARs, was trying to manage every bit of information from the latest changes in the commander's intent to the fuel level in Bravo-27. Why do we continue to require first sergeants to send their defense diagrams to the TOC within 30 minutes of occupation? What have we ever done with them? What edict or change in course did we issue because of them? What happened if we didn't get them? We know the answer. We continue to "drop the meat grabbing for the after-dinner mint."

Our METL helps us get back on the right track. Essential information is required to accomplish essential tasks. If we require units to interrupt their mission to pass or receive information, that information should lead to decisions and orders that facilitate our achieving those essential tasks—not the "nice to do" tasks.

And we should send or receive that information once. If we go beyond once, our tools to record the information need to be reconsidered. Our methods of reporting should be as convenient and concise as we can make them.

For some reason, we always require an essential report from a commander at the worst moment in his life. We routinely ask his FDC for a 32-line ammunition status report about the time an OPFOR (opposing force) company is completing a MTOE (modified table of organization and equipment) adjustment on his remaining platoon.

A thorough scrub of our status charts, reports and reporting procedures will go a long way toward helping us manage only essential information. Figure 3 represents what many have used as an operations status chart. Most of the fluff has been removed. Fuzes, lots and FSCM are not included. Those details are tracked in FDCs where decisions concerning them are made. The ammunition status and location of reinforcing platoons are not tracked on this chart. The liaison officer (LNO) tracks those details. The bulk of the remaining detailed information is either found in our orders, on the execution matrix posted next to the operations chart, recorded in the duty journal, entered into TACFIRE, plotted on the map or filed in the operations or intelligence files. Charts are for quick and frequent reference.

How and where we determine the information is to be managed will depend on its usefulness to the staff as a whole, frequency of anticipated use and relative importance. We should record, post or file it in one location. Battery locations and tube status will be referred to far more often and by more people than will the information for the priority target they've

Unit	Grid	Alt. Grid	Azimuth	# Tubes	DP	AP	HE	RAAM	ADAM	RAP	WP	SMC	ILL	CPHD	M3	M4	119
1A																	
2A																	
1B																	
2B																	
1C																	
2C																	
Cbt Trns																	
Fld Trns																	
Reinf. TOC																	
A																	
B																	
C																	
Q-36																	
Retrans																	
PADS 1																	
PADS 2																	
LRP 1																	
LRP 2																	
Bde TOC																	
Bde TAC																	
D/A TOC																	
TOC																	

Mission	Commander's Intent	Planning Time Line	Warning Order
		NLT PLAN Msn Received Msn Analysis Warning Issued Staff Estimates Order Issued Order Brief Back PREPARE Units Positioned TOC Rehearsal FS Rehearsal Ammo Distributed EXECUTE LD Defend NLT	MISSION LD/Defend Time Move NET ORDERS BRIEF Time Location PRELIMINARY ACTIONS: PCI NLT Resupply Recon
ADA Status		MOPP Status	
Warning: Hold Tight Free WCS: Red Yellow White Current as of: _____		MOPP Level: 0 1 2 3 4 Current as of: _____	

Legend:
LRP = Logistics Release Point
D/A = Div Arty
DP = Dual Purpose
AP = Armor Piercing
RAAM = Remote Anti-Armor Mine
ADAM = Area Denial Artillery Munitions
RAP = Rocket-Assisted Projectile
WP = White Phosphorus
SMC = Smoke
ILL = Illumination
CPHD = Copperhead
WCS = Weapon Control Status
PCI = Pre-Combat Inspections
MOPP = Mission-Oriented Protective Posture

Figure 3: Operations Status Chart

been assigned. They are best posted on the operations chart and plotted on the operations map; priority targets should be maintained by the FDC. Few items of information require recording, posting or filing by more than one element of the TOC, and most need be actioned only once.

Summary

This article covered only a few of the lessons we've learned in organizing the TOC. I know none of it's new or surprising. Hopefully, it was of some value as a review.

I didn't discuss the orchestration of the planning, preparation and execution of the battle itself. There isn't enough room to cover those duties in one article. But I can offer you the one major lesson I've learned that appears to be common to all of these areas: Any lasting problem we faced grew from our failure to enforce established standards or our failure to establish a standard.

Problems will always crop up to challenge us. We can blame the isolated ones on Murphy with relative success. The ones that routinely plague us are those we permit by allowing standards to slip. That too is not new or surprising, but it hurts when we forget.

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Right by Piece

NOTES FROM UNITS

Battalion S1 Operations at the JRTC

How much emphasis should be placed on administrative operations in a low-intensity conflict (LIC)? Does your unit have an effective plan for handling casualties and replacements on the battlefield? While these topics are sometimes brushed aside as less important than other operational concerns, the Joint Readiness Training Center (JRTC), Fort Chaffee, Arkansas, exercises these and other tasks that are the responsibility of the battalion SI and the Administration and Logistics Operations Center (ALOC).

The 1st Battalion, 319th Airborne Field Artillery Regiment deployed to the JRTC in support of the 3d Brigade, 82d Airborne Division, Fort Bragg, North Carolina, and provided fire support for three battalion task force rotations. The following observations reflect some of the lessons learned during the rotation.

The battalion began preparing for its JRTC rotation approximately 90 days before deploying. The battalion staff developed milestones to ensure we identified critical tasks early. Some of these tasks included close coordination with the brigade SI in developing manifests, processing for overseas movement (POM) schedules and briefing battery commanders on casualty evacuation procedures.

The battalion ALOC established operations within the brigade support area (BSA) following an airborne assault and airlift into the theater of operations. The ALOC consisted of one standardized integrated command post system (SICPS) with two field desks and a radio remoted from a high-mobility multipurpose wheeled vehicle (HMMWV). Operating out of one SICPS allowed quick and easy set-up and breakdown. Running the tactical army combat computer system (TACCS) out of the personnel action center (PAC) HMMWV instead of in the SICPS allowed more room in the tent and didn't hamper the TACCS operation.

In establishing the ALOC for combat, we found that engineer support to harden positions was a *must*. The ALOC was bermed in every position to protect it from indirect fires. Fighting positions were prepared to standard with good overhead cover, preventing many unnecessary casualties from fires.

The ALOC defensive sector of the BSA was initially weak due to a lack of supporting communications and inappropriate sectors of fire. However, constant emphasis on defense by the headquarters and service battery (HSB) commander ensured each soldier knew how his fighting position

tied into the defense of the perimeter and how that ultimately helped the unit. Digging to "check the block" quickly proved worthless against the nightly opposing force (OPFOR) attacks.

Planning defensive indirect fires was key in providing adequate defense for the BSA. In addition to his administrative duties, the battalion S1 may also serve as the BSA fire support officer (FSO). To do that, the S1 or a knowledgeable representative must always be available at the ALOC to control and clear fires.

Within the BSA perimeter, fire mission requests were submitted to the ALOC using wire communications. The S1 planned targets and passed requests for fires through the brigade fire support element (FSE) or recommended targets be attacked with other assets. Security teams patrolling the BSA perimeter confirmed and adjusted the planned targets. The target lists were then posted in the brigade ALOC and brigade FSE.

When the HSB portion of the BSA perimeter was attacked, the FA battalion S1 and S4 were prepared to control the defense from the FA battalion ALOC. Personnel in fighting positions used wire communications to pass information to the ALOC. Spot reports were sent initially to the ALOC and then were passed to the brigade ALOC and the FA battalion tactical operations center (TOC).

The HSB commander led the reaction force to respond to attacks and maintained radio contact with the ALOC. An updated situation map and timely situation reports (SITREPs) on the command frequency allowed the ALOC to anticipate enemy activity and prepare to repel attacks.

The battalion's casualty processing procedures met with good results. Each soldier carried DA Forms 1155 Witness Statement on Individual and 1156 Casualty Feeder Report in his first aid pouches with the headings filled out for quick processing. Combined with effective report formats, timely and accurate casualty reporting assisted greatly in receiving timely personnel replacements.

Letters of condolence to next of kin are often overlooked but are as important as any other tasks that must be performed on the battlefield. Pre-formatted letters on the TACCS can be quickly tailored to different situations and were necessary for timeliness. Getting the commander's personal comments and signature took additional time but also was necessary.

Receiving and processing replacement soldiers is a task that must be handled as expeditiously as possible. The responsibility for preparing a new soldier for war initially rests with the ALOC. A thorough situation briefing for incoming personnel must cover enemy and friendly forces, the supported brigade's mission, enemy operations in the last 48 hours and their probable courses of action, future friendly operations and forecasted weather for the next 48 hours. An inprocessing checklist should be used that focuses on operations in combat. Inprocessing a soldier in combat also should include a unit history briefing, a command standards briefing and completion of DA Form 3569 Change of Address cards. An S4 representative should brief and check incoming soldiers to ensure they have adequate supplies of food and personal equipment.

- Current Signal Operating Instructions (SOI)
- Situation Map
- Ammunition Status Report
- Current Logistics Status (LOGSTAT) Report
- Blank LOGSTAT Forms
- Blank Personnel Statistics (PERSTAT) Forms
- DA Form 638 Recommendation for Award
- DA Form 1155 Witness Statement on Individual
- DA Form 1156 Casualty Feeder Report
- DA Form 1594 Daily Staff Journal and Duty Officers Log
- ALOC Duty Log
- Note Paper

Battle Notebook. This chart lists the contents of the notebook carried by the ALOC representative, who functions as the assault ALOC and parachutes into the area of operations with the initial command and control elements of the battalion.

The S1 monitors and maintains the personnel strength of the battalion. Additionally, the strengths of detached sub-units also must be monitored, though not reported, in case the responsible unit fails to track its attached personnel. This may occur with FSE personnel, air liaison officers (ALOs) and supporting-arms liaison teams (SALTs).

An area that normally receives little emphasis is the ability of the S1 and PAC supervisor to handle logistics operations in the absence of the S4 and vice versa. Our battalion ALOC cross-trained PAC and S4 personnel in basic reporting and accounting procedures with rehearsals to check proficiency. Cross-training allowed the proper handling of reports while key leaders were absent.

In reflection, effective after-action reviews (AARs), both formal and informal, led to the gradual improvement of our ALOC performance through the 30-day deployment. After the final AAR, the battalion leadership began updating the field standing operating procedure (SOP) to reflect lessons learned. One of the most important of these changes to the field SOP was establishing a one-man "assault ALOC" to parachute in with the initial command and control elements and begin processing personnel and logistics information immediately. He carried a Battle Notebook containing the key forms and reports needed to accomplish the mission. (For a list of the Battle Notebook contents, see the figure.) This ALOC representative later linked up with the ALOC at the BSA.

Some of these concerns may seem minor compared to the timeliness or accuracy of fires—the artillery's main focus. But failure to maintain control of administrative and logistical functions hampers battalion operations as a whole. Focusing on key administrative areas allows the S1 to be successful in the LIC environment and pays big dividends in helping to accomplish the battalion's mission.

Captain James P. Daniel, Jr.
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82d Abn Div, Fort Bragg, NC

A Few Good Men in the Desert

Marine Corps Combat Training Center

by the Tactical Exercise and Evaluation Control Group Staff
and Marine Corps Air Ground Combat Center Staff

Situated in the Mojave Desert of Southern California at Twentynine Palms is the Marine Corps' combat training center (CTC). Similar to the Army's National Training Center, Fort Irwin, California, the Marine Corps Air Ground Combat Center (MCAGCC) conducts a combined arms exercise program aimed at training units and staffs to synchronize combat power under realistic, live-fire conditions.

The MCAGCC occupies 932 square miles of the southern Mojave Desert and is currently the fastest growing base in the Marine Corps. It has a history of military use that dates back to 1940 when the Army used the area to train glider crews.

In 1943, the Navy took over the training area for bombing and gunnery ranges and, at the conclusion of World War II, returned it to San Bernardino County. In 1952, the Marine Corps acquired control of the area and expanded the base for use as an "austere" artillery training center. The first artillery units arrived in 1953 and continued to be the primary users of the facility for the next 22 years.

The Marine Corps' combined arms training program was initiated in 1975 with the Palm Tree Exercise. Further expansion of the center was required by the arrival of Fleet Marine Force units beginning in 1977. This growth continued with the evolution of the Palm Tree Exercises into combined arms exercises in October 1978, followed by the formal redesignation of the training center as the Marine Corps Air Ground Combat Center in 1979.

On 16 May 1980, the base became the home for the headquarters element of the 7th Marine Expeditionary Brigade (MEB) and was responsible for training, exercising and planning for the employment of assigned forces associated with the Maritime Prepositioning Ships Forces Strategy. The 7th MEB headquarters element was absorbed into I Marine Expeditionary Force (I MEF) headquarters located at Camp Pendleton, California. First Marine Division (1st Mar Div) subsequently moved a forward headquarters element to MCAGCC to become the senior headquarters element for the division's units permanently stationed at the base.

Mission

The mission of MCAGCC is to develop, administer and conduct a combined arms program to exercise and evaluate Marine Air Ground Task Forces (MAGTFs) in command, control and coordination of supporting arms. The vehicle by which this is accomplished is the Combined Arms Exercise (CAX). The training is aimed principally at training reinforced maneuver battalions to do the following:

• Exercise command, control, communications and intelligence in the conduct of fire support coordination in combined arms operations, to include planning, allocation

and coordination of all fire support assets with priority placed on air-ground integration in a mechanized and countermechanized environment.

• Exercise the capability of each supporting arm to respond effectively to requests of the supported unit during CAXs.

• Exercise capabilities at all levels to conduct combined arms operations in darkness and during reduced visibility.

• Exercise the capability of the combat service support element (CSSE) to support units and identify CSS requirements.

• Exercise electronic warfare (EW) capabilities in combined arms operations by realistically employing signal intelligence (SIGINT) and EW resources. The ultimate goal of EW training is to prepare units to accomplish their mission objectives in a hostile EW environment.

• Exercise capabilities at all levels to conduct sustained, combined arms operations in a nuclear, biological and chemical (NBC) environment.

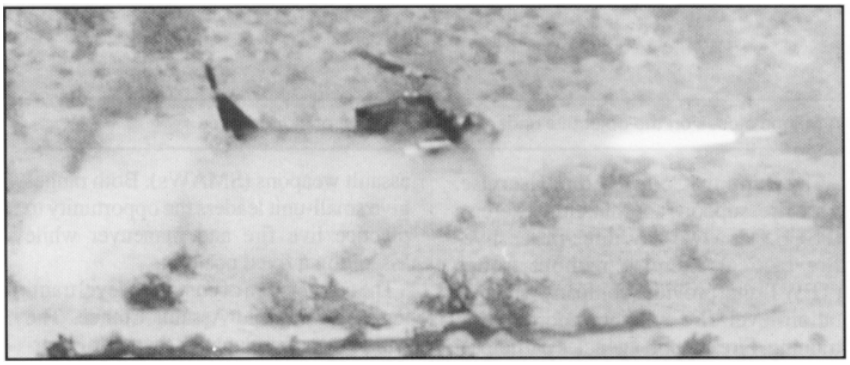
The CAX is the most realistic, live-fire exercise in the world. It provides commanders the opportunity to employ all weapons systems of the MAGTF in support of maneuver forces. Approximately 2,500 marines and sailors participate in each 22-day training cycle using a "building-block" approach, starting with small-unit training and culminating with a three-day exercise.

MCAGCC Exercises

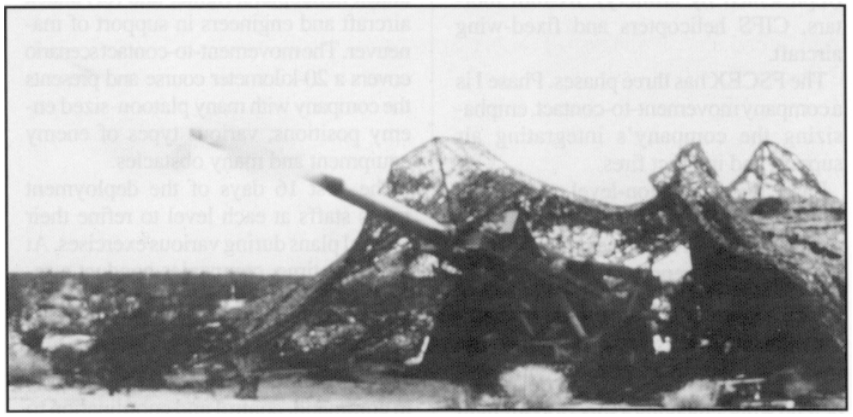
Combined Arms Staff Trainer. Several types of exercises are conducted during the training cycle, the first being the Combined Arms Staff Trainer (CAST). The CAST is an operational simulator that allows members of the exercise force staff to train on command, control and coordination of supporting arms. Each maneuver battalion conducts three CAST exercises, and the regimental headquarters conducts one CAST with two maneuver battalions as subordinate maneuver elements.

The CAST allows the exercise force to practice standing operating procedures (SOPs) and validate and refine its scheme of maneuver and supporting fire plan before a live-fire field exercise. It encompasses a three-dimensional terrain simulation subsystem, an indirect fire marking subsystem, a computer-supported logistics accounting and scenario tracking subsystem, and a communications subsystem that includes an EW capability. All major elements of the MAGTF are brought together for detailed coordination, to include the command element (CE), the ground combat element (GCE), the aviation combat element (ACE) and the CSSE.

The integration of close air support is practiced during the Air Support Coordination Exercise.



Company FOs and FACs control CIFS aircraft supporting the attack.



A Marine howitzer section provides indirect fires during the Fire Support Coordination Exercise.

Air Support Coordination Exercise. The Air Support Coordination Exercise (ASCEX) is a two-day, live-fire exercise designed to practice and refine techniques for integrating and deconflicting close air support (CAS) and close-in fire support (CIFS) aircraft with artillery and mortar-delivered suppression of enemy air defense (SEAD) fires. The training emphasizes coordination, starting at the company level, among the forward air controller (FAC), the artillery and 81-mm mortar forward observers (FOs) and the company commanders.

The second phase of the ASCEX requires the maneuver battalion staff to monitor its communications nets while coordinating and deconflicting many indirect fire missions with CAS and CIFS.

The ASCEX also introduces the maneuver battalion to night CAS and CIFS, both unilluminated and illuminated missions with flares delivered by 81-mm mortars, artillery and aircraft. A representative practice heliborne insertion and landing zone (LZ) preparation also are conducted.

A Marine closes on the objective under the suppression of indirect fires.

Fire Support Coordination Exercise. The fire support coordination exercise (FSCEX) is a two-day, three-phase, live-fire tactical exercise without troops (TEWT) that provides company- and battalion-level fire support coordination training. Fire support agencies participating include artillery, naval gunfire ships (represented by artillery), 81-mm mortars, CIFS helicopters and fixed-wing aircraft.

The FSCEX has three phases. Phase I is a company movement-to-contact, emphasizing the company's integrating air support and indirect fires.

Phase II is a battalion-level movement-to-contact, emphasizing continuous CIFS to enable maneuver forces to close with the enemy. A representative troop lift with an LZ preparation is also conducted.

Phase III is a battalion defense-in-sector, again emphasizing continuous CIFS to enable maneuver forces to delay and defend while engaging a superior-strength enemy force.

Engineer efforts are planned extensively during Phases II and III.

Company/Team-Level Range Training. Concurrent with the maneuver battalion staffs refining their plans and SOPs, the company/teams train on ranges. Using the building-block approach, the ranges start with a platoon live-fire assault range. The second range is a company live-fire assault of a strongpoint, incorporating 81-mm mortars and all weapon systems organic to the Marine rifle company. These weapons include 60-mm mortars, dragons and AT-4s, .50 caliber and M-60 machine guns, MK 19s (40-mm automatic grenade launchers), demolitions and shoulder-launched multipurpose assault weapons (SMAWs). Both ranges give small-unit leaders the opportunity to practice live fire and maneuver while assaulting a fixed position.

The culmination of company-level training is the Mobile Assault Course. The company/team plans for the use of mortars, artillery, representative naval gunfire, attack helicopters, fighter and (or) attack aircraft and engineers in support of maneuver. The movement-to-contact scenario covers a 20-kilometer course and presents the company with many platoon-sized enemy positions, various types of enemy equipment and many obstacles.

The first 16 days of the deployment trains staffs at each level to refine their tactical plans during various exercises. At the same time, companies conduct a series of live-fire exercises to refine procedures for breaching operations and dismounted attacks on enemy positions. This work-up period teaches units lessons in command, control and coordination to be incorporated into their plans and SOPs. In addition, commanders conduct supplemental or specialized training, as required.

Three-Day Final Exercise. As H-Hour approaches for the final exercise, indirect fires, CIFS and CAS missions are initiated on known and suspected enemy positions. At H-Hour, the maneuver elements begin the attack to seize their objectives. The company's FOs and FACs control indirect fires, CIFS and CAS to support the attack, while the infantry battalion fire support coordination center (FSCC) coordinates or deconflicts, as necessary. As the company/teams advance, they must breach obstacles and attack dismounted until they secure the objectives and consolidate their forces.

The battalion commander constantly faces the challenge of maintaining command, control and communication with all the subordinate and supporting elements. Periodically, fragmentary orders from the MAGTF CE, passed through the Tactical Exercise Evaluation and Control Group (TEECG), give the GCE commander his next mission.

The logistical challenges presented by maneuvering 80 to 120 kilometers through the MCAGCC environment are demanding. Food, water, fuel, ammunition, spare parts and maintenance support are in constant demand by forward elements, while simulated personnel casualties and inoperable equipment require evacuation to the rear.

After-Action Reviews. One of the most important aspects of the rotation is the debriefing conducted by the TEECG. Each exercise is examined in detail with participants exchanging ideas and perceptions of what occurred. A successful CAX is the culmination of the MAGTF applying the principles of fire support coordination within the principles of combined arms warfare.

CAX in the Future

The Marine Corps currently is changing CAX to enhance it. Although the focus will remain on the maneuver battalion, one proposal calls for the CE to be a Marine expeditionary force forward (MEF Fwd) staff, the GCE to be an infantry regiment (with two maneuver battalions) and the ACE and CSSE to increase in size proportionately.

The duration of the deployment will grow from a 21-day to 35-day exercise. Both maneuver battalions will work through the same training cycle as described in the current CAX, and a fourth phase to the FSCEX will be added to allow a regimental live-fire coordination exercise.

The CAX program is a dynamic and ever-changing exercise that allows the Marine Corps to exercise its current and future warfighting operations in a realistic, live-fire environment.

This article was written as a consolidated effort by members of the Tactical Exercise Evaluation and Control Group (TEECG) Staff and the Marine Corps Air Ground Combat Center (MCAGCC) Staff, Twentynine Palms, California.

Platoon Lane Training: A Key to Collective Training

by Lieutenant Colonel Robert G. Morris III and Captain John D. Sims

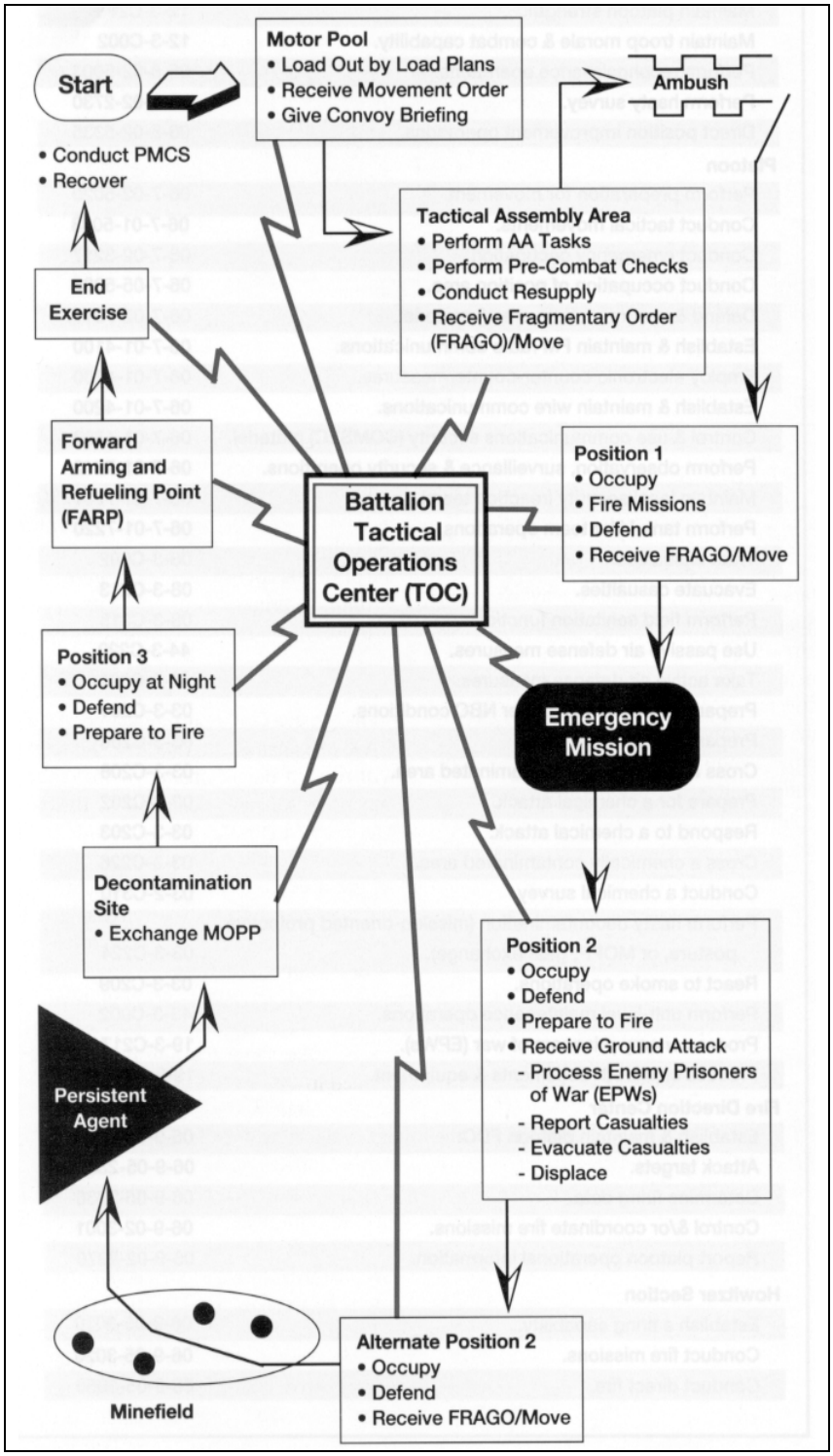


Figure 1: The Run Through Hell. This is a typical scenario of platoon lane training in the 2-18 FA. The 18- to 20-hour training exercise is an assessment tool for the battery commander--not an evaluation.

Field Artillerymen often struggle with how to conduct realistic collective training at the platoon level. Perhaps one of the best ways, which is publicized in *FM 25-101 Training the Force: Battle-Focused Training* but seldom used, is lane training. Though the National Training Center (NTC), Fort Irwin, California, uses lane training extensively, some units may not be capitalizing on this important building block in home-station training.

The 2d Battalion, 18th Field Artillery (2-18 FA), 212th FA Brigade, III Corps Artillery, Fort Sill, Oklahoma, recently completed a lane training exercise appropriately called "The Run Through Hell." This article highlights the benefits of conducting lane training for FA units. Hopefully, it will motivate other units to adopt this effective training tool.

For our maneuver brethren, lane training is nothing new. Infantry and Armor units have long been sending squads and tank crews downrange to assess their level of training and proficiency.

What is Lane Training?

FM 25-101 defines lane training as "a technique for training primarily company/team-level and smaller units on a series of selected soldier, leader and collective tasks, using specific terrain." The battery commander picks the mission-essential task list (METL) tasks he wishes to train and then sends the platoons down the "lane" to execute each task.

Lane training is an assessment tool for the battery commander—*it is not an evaluation.* It allows the commander to send a platoon through METL-related training and bridges the gap between crew training and the platoon's train-up for its annual external evaluation.

Often, FA units concentrate on individual training and then jump to training at the battery or battalion level, usually in preparation for an Army training and

evaluation program (ARTEP). This allows platoon-level training to go completely unchecked—an opportunity for sections and platoons to be less than combat ready.

Because howitzer sections don't usually fight independently (although the evolution of the Field Artillery and the fielding of the M109A6 Paladin may change this), lane training is most effective when conducted by platoons. This is the lowest level at which you can maintain effective command and control.

At 2-18 FA, The Run Through Hell lasted 18 to 20 hours. (See Figure 1 on Page 47, for a typical scenario in the 2-18 FA's lane training.) It consisted of fast-paced, intensive training orchestrated by the S3, who also served as chief controller, and supported by the entire battalion.

The 2-18 FA lane training was executed in four phases: load-out and assembly area operations (alert and pre-combat checks), platoon operations (firing), platoon operations (not firing) and combat service support operations (fuel, food and maintenance). All tasks performed in the phases were derived from and assessed using the platoon mission training plan (MTP). Fire mission times and accuracy standards were also measured using five live-fire missions and five to 10 dry-fire missions. During the lane training, each platoon fired 50 rounds per iteration plus small-arms ammunition.

In lane training, the battery commander focuses on one platoon at a time. By observing each platoon separately, the commander can assess task proficiency, rework training priorities and, later, standardize battery standing operating procedures (SOPs).

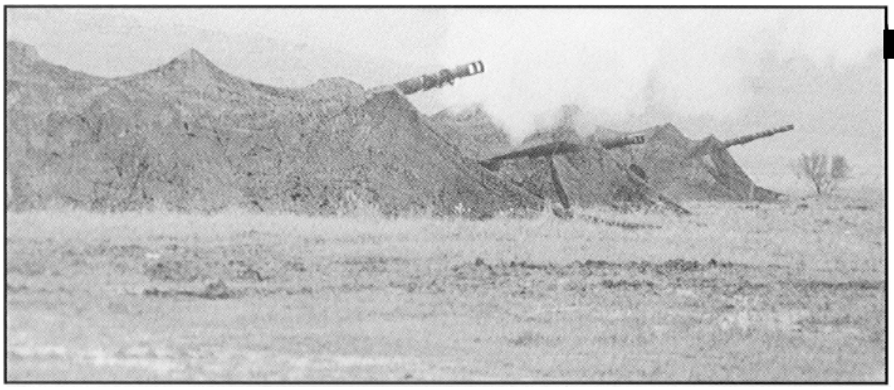
What makes lane training so valuable is focusing the battalion's resources on the platoon. The battalion commander uses the S3 and his personnel to swarm on the platoon and give feedback to the battery commander on what's going well and what needs improvement.

The training gives the battalion commander the opportunity to observe the troop leading strengths of the platoon leader and platoon sergeant firsthand. Additionally, the battery commander can closely critique METL execution and individual performance.

The battery commander controls the pace of the exercise and only proceeds to the next task when he's sure the current task is completed to standard. Additionally, after-action reviews (AARs) are

Collective Tasks	Training & Evaluation Outline Number
Platoon Headquarters	
Maintain platoon strength.	12-3-C216
Maintain troop morale & combat capability.	12-3-C002
Perform reconnaissance operations.	06-8-02-5003
Perform hasty survey.	06-8-02-2730
Direct position improvement operations.	06-8-02-5335
Platoon	
Perform preparation for movement.	06-7-02-5020
Conduct tactical movements.	06-7-01-5033
Conduct emergency occupation.	06-7-02-3217
Conduct occupation of position area.	06-7-05-5032
Defend & secure platoon area & materiel.	06-7-02-7011
Establish & maintain FM radio communications.	06-7-01-4100
Employ electronic counter-countermeasures.	06-7-01-4700
Establish & maintain wire communications.	06-7-01-4200
Control & use communications security (COMSEC) materiel.	06-7-01-4800
Perform observation, surveillance & security operations.	06-7-01-7242
Maintain local security (reaction team).	06-7-01-7201
Perform tank-killer team operations.	06-7-01-7220
Treat casualties.	08-3-C002
Evacuate casualties.	08-3-C213
Perform field sanitation functions.	08-3-C315
Use passive air defense measures.	44-3-C220
Take active air defense measures.	44-3-C221
Prepare for operations under NBC conditions.	03-3-C201
Prepare for nuclear attack.	03-3-C206
Cross a radiologically contaminated area.	03-3-C208
Prepare for a chemical attack.	03-3-C202
Respond to a chemical attack.	03-3-C203
Cross a chemically contaminated area.	03-3-C226
Conduct a chemical survey.	03-2-C310
Perform hasty decontamination (mission-oriented protective posture, or MOPP, gear exchange).	03-3-C224
React to smoke operations.	03-3-C209
Perform unit-level maintenance operations.	43-3-C002
Process enemy prisoners of war (EPWs).	19-3-C217
Process captured documents & equipment.	19-3-C218
Fire Direction Center	
Establish & maintain platoon FDC.	06-9-02-2320
Attack targets.	06-9-05-2331
Determine firing data.	06-9-05-2336
Control &/or coordinate fire missions.	06-9-02-3001
Report platoon operational information.	06-9-02-2370
Howitzer Section	
Establish a firing capability.	06-9-05-3010
Conduct fire missions.	06-9-05-3020
Conduct direct fire.	06-9-05-3950

Figure 2: Basic Tasks Trained and Assessed in 2-18 FA's Lane Training. All tasks in the exercise are derived from and assessed using the platoon MTP. Fire mission times and accuracy standards are also measured using five live-fire missions and five to 10 dry-fire missions.



CANNONEER

Because lane training is not billed as competition or an evaluation, soldiers complete this demanding training event as "winners." Morale and confidence are at their highest from a good day's training.

conducted after each task to ensure all understand the results. Later, exercise observer/controllers send MTP evaluation sheets to the battery commander with specific tasks listed for improvement. What separates lane training from a platoon ARTEP is the MTP evaluation sheets go *only* to the battery commander to use as a tool for future training.

Platoon leaders, platoon sergeants and fire direction officers (FDOs) from other firing batteries serve as controllers to help the battery commander assess his platoon. The combat service support (CSS) controller is the battalion maintenance officer (BMO) who conducts a preventive maintenance checks and services (PMCS) validation. The opposing force includes 12 aggressors who conduct ground attacks against the platoon. Other support resources required for lane training are command and control vehicles and maintenance, survey, meteorological and medical support.

How Do Units Maximize Lane Training Benefits?

Obviously, the platoon reaps the rewards of a thorough look. Because lane training is not billed as competition or an evaluation, soldiers complete this demanding training event as "winners." Morale and confidence are at their highest from a good day's training.

Lane training eliminates the shot-in-the-dark approach for lower level training in the traditional training strategy. But other parts of the battery also benefit from a platoon's lane training. To get the most out of lane training, units should emphasize using the battery headquarters elements. Because supply, maintenance, ammunition and communications sections support each platoon run, their performance has an impact on the platoon's overall success. Units should incorporate these sections into the run and assess their performance.

Units can use battalion elements. During the six days needed to send the platoons downrange, the tactical operations center (TOC) should stay in the field to pass orders, provide intelligence and nuclear, biological and chemical (NBC) reports and monitor the tactical situation. At the battalion level, survey, medical, communications and battalion fire direction center (FDC) sections receive training as they support the platoons.

The service battery should provide a mobile field kitchen to deliver hot meals during the exercise. Our experience in Operation Desert Storm was that units should serve hot meals at every opportunity to improve performance and soldier morale. Though the lane training was only 20 hours long, serving hot meals completely exercised the field messing procedures and allowed the battalion to evaluate its tactical feeding operations.

Fuel and ammunition sections should set up and execute a night forward arming and refueling point (FARP). By standardizing FARP site layout and individual responsibilities, the efficiency of the FARP greatly increased. We established six lanes (two for ammunition distribution and four to refuel), allowing platoons to complete resupply in 20 minutes.

Lane training for platoons requires thorough planning and rigorous execution at the battalion level. The S3 must arrange for the external resources: training areas, road clearances, meteorological support, mess, fuel and ammunition. Additionally, the S3 tasks, organizes and trains the controllers before the lane training.

Why Conduct Lane Training?

From a "resources needed" standpoint, lane training may not appear very efficient. It takes about the same amount of time, equipment, personnel and money to conduct lane training as it does to conduct a platoon or battery ARTEP. However, from an "effective training" standpoint, it's extremely efficient. It's intense, quality training that yields excellent results when built from the platoon level. It narrows the training focus, allowing leaders to isolate weaknesses and correct them before moving on to more difficult tasks.

Lane training is an excellent way to improve collective training. It not only improves the training posture of firing platoons, but also improves the combat readiness of the entire battalion. Regular execution of lane training will raise any battery's readiness and better prepare units to fight and win.

Lieutenant Colonel (P) Robert G. Morris III, until recently, commanded the 2d Battalion, 18th Field Artillery, 212th Field Artillery Brigade, III Corps Artillery, Fort Sill, Oklahoma, taking command of the battalion in June of 1990 and deploying the unit to Operations Desert Shield and Storm. Currently, he's the Senior Army Advisor to the State of New Jersey in Lawrenceville. His previous two assignments were as Executive Officer of the 212th Brigade and S3 of the 3d Armored Division Artillery, Germany. Lieutenant Colonel Morris also served as the 3d Brigade Fire Support Officer in the 101st Airborne Division (Air Assault), Fort Campbell, Kentucky. He commanded batteries for 40 months: A Battery, 6th Battalion, 10th Field Artillery, followed by C Battery, 3d Battalion, 35th Field Artillery, both in the 72d Field Artillery Group, VII Corps, Germany.

Captain John D. Sims commands C Battery, 2d Battalion, 18th Field Artillery (2-18 FA). His previous assignment was as the battalion's Fire Direction Officer. Captain Sims served as the 2-18 FA Liaison Officer to the 3d Battalion, 41st Field Artillery, 24th Infantry Division (Mechanized) during Operations Desert Shield and Storm. His first assignment was with the 1st Armored Division in Germany where he was a Company Fire Support Officer, Fire Direction Officer, Platoon Leader and Adjutant. Captain Sims is a graduate of the Combined Arms and Services Staff School, Fort Leavenworth, Kansas.

FIST Training
Tropic Lightning Style

by Major Joseph P. Nizolak, Jr.

Throughout its history, the 25th Infantry Division Artillery (Div Arty) has employed the widest range of fire support assets imaginable—everything from quad-.50 caliber machine guns to 8-inch howitzers, both towed and self-propelled. From flat, dry terrain to mountainous jungle, the Div Arty has successfully supported light and mechanized infantry, armor and cavalry missions throughout the Pacific theater.

Today, the 25th Div Arty (Tropic Thunder) continues to meet the challenge of providing fire support in the low-, mid- and high-intensity conflict environment. Like Div Artys of other light infantry divisions, Tropic Thunder has to be prepared for many contingencies in its area of responsibility and must be "wheels up" within 18 hours of notification. To "hit the ground running," Tropic Thunder trains hard and realistically.

One of the prime training tools used for fire support training is the fire support team (FIST) Battle Run. The Battle Run provides training while evaluating and developing fire support and leadership skills. Through this challenging training, Tropic Thunder develops FISTs who can provide effective fire support.

FIST Battle Run

The FIST Battle Run focuses primarily on fire support training and teamwork. Under the direction of an officer and NCO instructor team, FISTs navigate through a 10-kilometer course consisting of eight to 12 stations. The runs are based on a tactical scenario, and company fire support officers (FSOs) are required to prepare and brief a fire support plan. FISTs navigate through the Battle Run course using a map and compass, stopping at each station to complete the designated tasks. FIST members rotate through leadership positions during Battle Run, normally at the completion of the even-numbered stations.

Instructors accompany the FISTs to train and evaluate them on designated tasks. Instructors also act as company commanders, first sergeants, battalion FSOs, fire support NCOs (FSNCO), air liaison officers (ALOs), etc. They conduct after-action reviews (AARs) at each station and at the conclusion of Battle Run.

All Tropic Thunder FISTs complete the Battle Run, conducted by the division fire support element (FSE), in conjunction with their direct support (DS) battalions'

Critical Tasks	
a. Perform land navigation.	071-329-1006
• Identify terrain features.	- 1001
• Identify map symbols.	- 1000
• Determine grid coordinates on map.	- 1002
• Perform resection.	- 1015
• Perform intersection.	- 1014
• Measure distance on map.	- 1008
b. Adjust naval gunfire.	061-284-3221
c. Direct a close air support (CAS) strike.	061-283-3031
d. Conduct observed-fire procedures/Send calls-for-fire.	
• Prepare terrain sketch.	061-283-1052
• Determine target direction.	- 1001
• Locate target by grid method.	- 1002
• Locate target by polar method.	- 1003
• Shift from known point.	- 1004
• Request and adjust area fire.	- 1011
• Conduct immediate suppression mission.	- 1014
• Request and adjust final protective fires.	- 2002
• Conduct immediate smoke mission.	- 2021
• Conduct fire-for-effect mission.	- 1015
e. Plan fire support (FS).	
• Plan for offensive operations.	061-284-3222
• Plan for defensive operations.	-3223
• Coordinate/prepare FS plan.	-4219
• Develop/execute quick FS plan.	-3224

Critical Tasks	
f. Employ fire support coordinating measures (FSCM).	
• Position info on map.	061-284-1011
• Recommend and disseminate FSCMs.	- 4040
• Advise cdr on use of FSCM.	- 4040
• Coord fires across boundaries.	- 3043
• Pass info to lower units.	- 3046
g. Perform nuclear, biological and chemical (NBC) tasks.	
• React to NBC Hazard.	031-503-1018
• Put on M17 mask.	- 1002
• Wear protective equipment.	- 1015
• Recognize and react to NBC threat.	- 1019
• Administer first aid for nerve agent.	- 1030
• Use M-8 paper.	- 1004
• Use latrine and drink.	031-503-1009
• Use an M256/M256A1 kit.	TM 3-6665-307-10
• Perform unmasking procedures.	FM 3-4, pg 5-2
h. Use communications-electronics operating instructions (CEOI).	
• Encode and decode message.	113-573-4003
• Enter and leave a net.	113-571-1019
• Send meaconing, intrusion, jamming, interference (MIJI) report.	113-573-7017
• Recognize electronic countermeasures (ECM) and apply electronic counter-countermeasures (ECCM).	113-573-6001

Figure 1: Example List of Tasks for a FIST Battle Run

external evaluations (EXEVALs). Brigade FSEs also use battle runs to train their FISTs on critical fire support tasks during training exercises throughout the year. Pyrotechnics and a fire-marker system for indirect fire are used in the battle runs so they can be conducted in any of the division's maneuver training areas.

Preparing for Battle Run. One month prior to the DS battalion's EXEVAL, the brigade FSO provides a list of tasks he wants included in Battle Run to the division FSE. The FSE then prepares instructor packets with sub-tasks, conditions and standards for each of the selected tasks. See Figure 1 for an example list of tasks trained during Battle Run.

Packets for the instructors include all scenario information (orders, overlays, special instructions, etc.), navigation information (map, compass, station grids and distance), leadership position changes, checklists for the tasks, and blank forms the FIST will complete for certain tasks, for example shelling reports (SHELREPs), terrain sketches, etc.

To preclude instructors from carrying an unwieldy packet, checklists and blank forms are prepositioned at each station in a waterproof container. Instructors take the checklists out, use them to train and evaluate the FIST and then put the completed checklists and forms back into the containers. The instructors collect the packets at the end of the day. While walking the course, the instructors only carry a packet consisting of the scenario, navigation information, leadership position changes and comment sheets.

Executing Battle Run requires a minimum of eight personnel to run one lane (Figure 2).

Starting—The Fire Support Plan. Battle Run always begins with fire support planning. The officer in charge (OIC) or senior instructor briefs the company

Position	Rank	Number	Remarks
OIC	MAJ/CPT	1	Controls Battle Run from the briefing area. Briefs VIPs.
NCOIC	SFC/SSG	1	Assists the OIC. Supervises the radio telephone operator (RTO).
RTO	SPC/PFC	1	Monitors the Battle Run net. Replicates the scenario-based stations that the FIST would contact.
Fire Marker	SGT/SPC	1 per lane	Replicates fire missions during Battle Run by expending pyrotechnics at the call-for-fire grids.
FIST Instructor	CPT/1LT	1 per lane	Should have BN FSO experience. Trains and controls the FIST during Battle Run.
FIST Instructor	SFC/SSG	1 per lane	Should have BN FSNCO experience. Assists the officer FIST instructor during Battle Run.
Lane RTO	SPC/PFC	1 per lane	Monitors the Battle Run net.
Medic	N/A	1 per lane	May be positioned at the briefing area if a dedicated vehicle is available.

Figure 2: Personnel Requirements for the Tropic Thunder Battle Run. One Battle Run lane requires a minimum of eight personnel who provide support and perform instructor functions.

FSO and FSNCO on the scenario and operations order (OPORD) the day prior to the run. His briefing follows the five-paragraph field order and provides guidance and requirements for the next day's briefing and other administrative instructions (e.g., briefing times). The OIC requires the FSO to brief back the commander's intent and scheme of maneuver before he departs the briefing area.

At the end of the briefing, the OIC or senior instructor issues the FSO a copy of the battalion OPORD, company OPORD and forms to complete during the planning process, such as the fire support execution matrix, attack guidance matrix, close air support (CAS) requests, etc.

Receiving the briefing one day ahead provides time to plan and conduct troop-leading procedures. The company FSO briefs his fire support plan to the senior instructor before crossing the line of departure (LD) while the assistant instructor checks pre-combat inspections and soldier loads. After a station AAR, the FIST leaves the briefing area and begins the Battle Run course.

Moving Between Stations. The instructors move with the FIST as they navigate between stations. Instructors monitor the direction and pace count to prevent the FIST from becoming disoriented and poor land navigation skills from becoming a training distraction. Problems with land navigation also provide excellent training opportunities. Instructors note these problems in their feedback to the company FSO.

Movement between stations offers the opportunity to train on various tactical movement techniques. By adjusting the tactical scenario, the instructors can require the FIST to execute tactical road marches, land navigation or even air assaults.

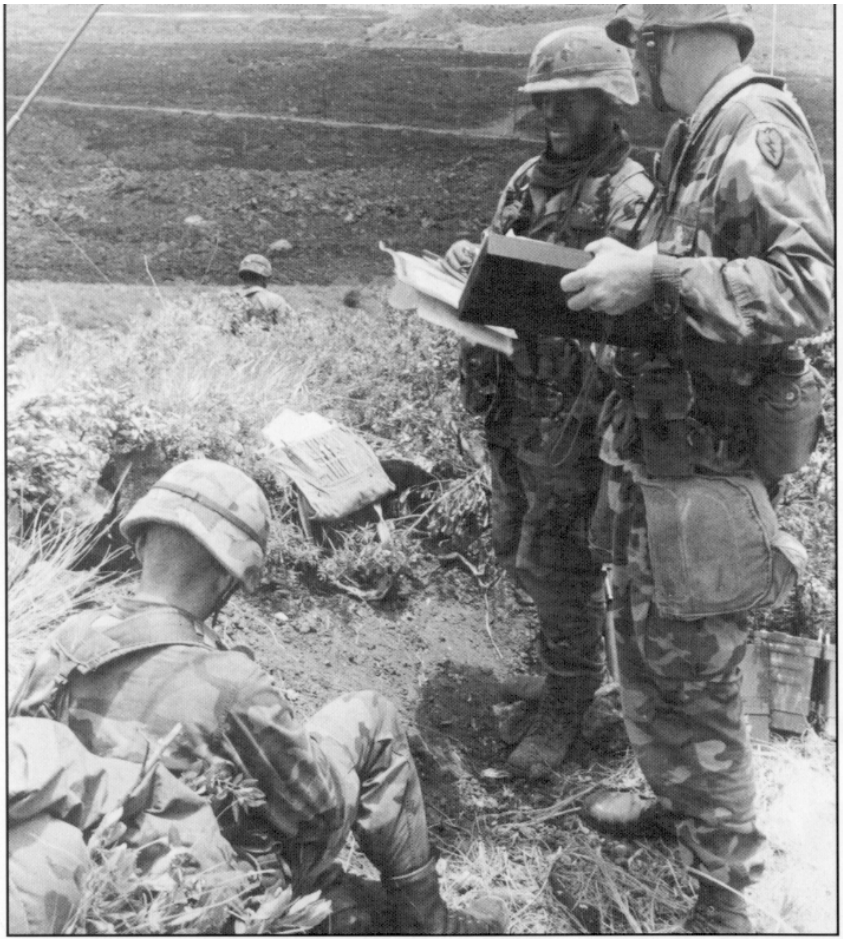
Every area on Battle Run offers a training opportunity. There are also opportunities during movement for the instructors to check individual soldiers' knowledge. By having "hip pocket" questions ready, the instructor checks soldiers' understanding of weapon capabilities, FSCM and other fire support information. However, instructors should avoid disrupting tactical movement when questioning soldiers.

Taking Action at the Stations. When the FIST arrives at a station, the instructors brief them on the station scenario and the tasks, conditions and standards. Instructors issue any forms the FIST must complete and give them a time limit for completion. They monitor the team's progress and provide training as necessary. When the tasks are complete, the instructors conduct a brief AAR. At the completion of the AAR, they collect any results, change leaders (if appropriate) and issue navigation instructions. The FIST leaders then organize for the move and navigate to the next station.

An important aspect of Battle Run is that instructors allow soldiers to use references to perform the tasks to standard. The degree to which the FIST relies on the reference is an appropriate comment for the AAR. Total reliance on a manual

The focus of Battle Run is training and every soldier gets a chance to lead. Here a FIST navigates to the next station. Movement between stations offers the opportunity to train on various tactical movement techniques.

Simultaneous tasks stress organization and leadership skills. Here incoming artillery requires SHELREPS, first aid and medical evacuation (MEDEVAC) requests.



Small-group AARs reinforce success and identify areas that require further training. Instructors conduct AARs after each station and at the end of Battle Run.

indicates the FIST requires further training. Using the manual to accomplish the tasks on the run, however, is an excellent *first* step in this type of training.

Rotating Leadership Positions. Instructors obtain a roster of the personnel in the FIST before executing Battle Run. They then map out leadership position changes for the run. The goal is to give every soldier the opportunity to perform the functions of the FSO or FSNCO. Changing positions about every other station facilitates accomplishing this goal. Once the new leaders are in position, former leaders become team members.

While the main objective is training soldiers, instructors apply common sense to these position changes to ensure the skills required don't outweigh the training benefits and leave the soldier frustrated. For example, an instructor would not place a junior enlisted soldier in the FSO position during the CAS mission unless the actual FSNCO remains in his position so he can assist the "FSO."

Conducting AARs. One of the most important parts of the FIST Battle Run is the AAR. Instructors conduct AARs after each station and at the end of the run. These are not fault-finding sessions; they are interactions between the instructor and FIST, with FIST members "discovering" their errors through the instructor's leading questions.

The instructor and FIST discuss the tasks: how they were accomplished, and if not to standard, how they could have been done better. FIST members answer the AAR questions and, if necessary, are *guided* to the correct procedures in accordance with our published doctrine and tactics, techniques and procedures (TTPs). The AAR concludes with a summary of section performance and recommended improvements. Instructors stress the positive, identify weaknesses and end on a positive note.

Instructor Techniques. FIST instructors recognize the objective of the FIST Battle Run is training and teamwork. They look at themselves first as trainers and second as evaluators. Instructors present challenging training situations that cause the FIST to solve a problem and perform a task to standard. They always allow the FIST to try to complete the tasks. If the soldiers can't perform the task to standard, the instructor then trains them.

Instructors take copious notes on FIST performance during Battle Run. While the task checklists provide the source of specific Go/No Gos for each task, the notes provide comments on the team's confidence in performing the tasks, teamwork and other input appropriate for the AARs. The AARs are key for planning future training.

Conclusion

The Tropic Thunder Battle Run provides training that builds on individual-level training and begins the collective training process for the FIST. Skills trained through the use of this course are indispensible to the overall mission of providing timely and effective fire support to the Tropic Lightning Division.

The history of the Tropic Thunder Div Arty reflects its ability to move rapidly, shoot accurately and communicate effectively. Training systems like the FIST Battle Run provide trained and ready fire supporters, continuing the Tropic Thunder tradition of excellence.

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