PB 7-97-1

Infantry

January-February 1997

PB 7-97-1

This medium is approved for official dissemination of material designed to keep individuals within the Army knowledgeable of current and emerging developments within their areas of expertise for the purpose of enhancing their professional development.

By Order of the Secretary of the Army:
DENNIS J. REIMER
General, United States Army
Chief of Staff

Official: *Joel B. Hudson*
JOEL B. HUDSON
Administrative Assistant to the Secretary of the Army
03399

Distribution: Special

Infantry

January-Febuary 1997 **Volume 87, Number 1**

DEPARTMENTS

COVER: A platoon leader of the 15th Infantry Regiment, 3d U.S. Infantry Division, throws a hand grenade at Chinese Communist postions as UN troops launch an attack near Uijongbu, Korea, 23 March 1951.

• **INFANTRY** (ISSN: 0019-9532) is an Army professional bulletin prepared for bimonthly publication by the U.S. Army Infantry School at Building 4, Fort Benning, Georgia. •Although it contains professional information for the Infantryman, the content does not necessarily reflect the official Army position and does not supersede any information presented in other official Army publications. • Unless otherwise stated, the views herein are those of the authors and not necessarily those of the Department of Defense or any element of it. • Official distribution is to infantry and infantry-related units and to appropriate staff agencies and service schools. • Direct communication concerning editorial policies and subscription rates is authorized to Editor, INFANTRY, P.O. Box 52005, Fort Benning, GA 31995-2005. • Telephones: Editorial, (706) 545-2350 or 545-6951; DSN 835-2350 or 835-6951; Subscriptions, (706) 545-3626. • Periodicals postage paid at Columbus, Georgia, and additional mailing offices. • **POSTMASTER: Send address changes to INFANTRY, P.O. Box 52005, Fort Benning, GA 31995-2005.** •USPS Publication No. 370630.

Commandant's Note

MAJOR GENERAL CARL F. ERNST Chief of Infantry

THE INFANTRY SQUAD–HOW MUCH IS ENOUGH?

As we prepare to enter the next century, the Infantry will continue to shoulder the responsibility for much of the Army's mission in the immediate future and beyond. We will execute peacekeeping operations in the Balkans and other stability and support operations around the world, and the Infantryman and Infantry small units will be the ones who will draw–and enforce–the line in the sand. The Infantry rifle squad will remain the cornerstone of the force, and in this issue's Commandant's Note, I want to share some of our thoughts on the size of the Infantry squad, and I invite you to think about it and give us your recommendations.

The Infantry fight is a close, brutal, and personal gunfight in which victory goes to the side that can seize and retain the initiative, normally turning on the skill and will of the squad. Accuracy and volume of fire are parts of that equation, and the squad must be large enough at the outset to be able to gain and maintain firepower advantage, even with losses. Until 1983, an Infantry squad had eleven Soldiers, but in that year it was reduced to nine men, an 18 percent decrease. This reduction meant that the squad–and hence the platoon–was less able to conduct fire and maneuver, man key weapons, and remain combat effective while sustaining casualties. In effect, rifle Infantry had lost its resiliency.

A basic squad consists of the squad leader and two or more teams. A team conducts individual fire and movement within the team, along a common axis. The squad, on the other hand, can employ a team to provide a base of fire on one axis to fix the enemy, while a second team conducts fire and movement while maneuvering against the enemy along a different axis. The concept of fire and maneuver is not a new one; it is a fundamental principle of squad tactics and has long been employed by Infantry small unit leaders as they press the close fight against an adversary.

The eleven-man squad concept had its origin in the bitter lessons of the Korean War., where battles were won or lost at platoon and squad level. The greatest strength of this earlier eleven-man squad structure lay in its flexibility and robust nature. The squad consisted of a squad leader and two fire teams, each with a team leader, an automatic rifleman, and three riflemen. This structure was retained during the Vietnam War, but with one of the riflemen in each team being replaced with a grenadier.

Today, Infantry battalion modified tables of organization and equipment authorize nine-man Infantry squads for units at ALO 1, while authorizing eight and seven men for ALO 2 and 3 units, respectively; all Infantry squads–including ALO 2 and 3–should be authorized a minimum of

nine Soldiers, the same as for current ALO 1 units.

We at the Infantry School believe that the absolute minimum number required to operate as a Light, Mechanized, Airborne, Air Assault, or Ranger Infantry squad is seven men. A squad of fewer than seven would in effect be little more than a big fire team, only capable of conducting limited fire and movement. Such a unit would rapidly become less effective as it sustained casualties, and could not tolerate any diversion of Soldiers from their primary duties as squad members. Fewer than seven men in a squad is not a viable option.

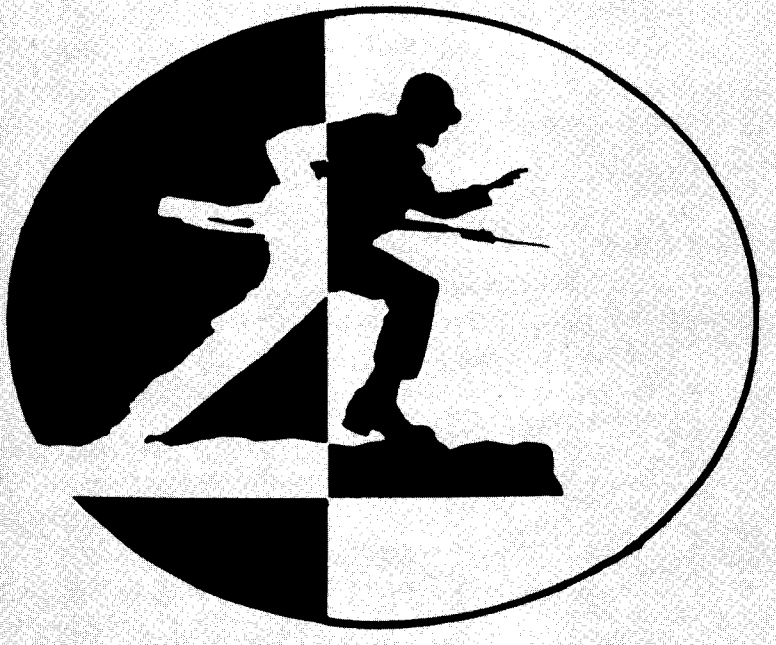
When the Infantry squad was reduced to nine members in 1983, we essentially replaced a robust, flexible squad and platoon organization with a fragile one whose ability to execute the same diverse array of missions is at risk. In many cases, commanders have decided to train Infantry squads of fewer than seven soldiers, for a variety of reasons, but squads forced to operate at such low manning levels are not organized or equipped to fight in accordance with today's doctrine.

All Infantry squads share common tasks and therefore a common basic organization, common doctrine, and a common leadership ratio. All Infantry platoons should likewise have three squads plus an antitank capability and the ability to lay down a base of fire. Beyond this, they begin to differ. The mechanized platoon's base of fire is provided by the Bradley Fighting Vehicle (BFV), and the platoon does not need machinegun teams as much as they need rifle teams to cover ground, clear restrictive terrain, conduct patrols, and perform other essential tasks. Light type Infantry platoons (Airborne, Air Assault, Ranger, and Light) on the other hand, have a greater need for machinegun teams, and should have either the same base-of-fire capability or a weapons squad.

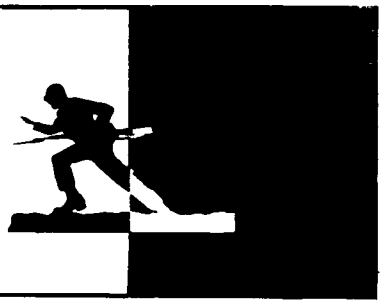
The bottom line is that Infantry platoons need resiliency in terms of both rifle strength and their ability to provide a base of fire. This can best be accomplished with an eleven-man squad, plus either a BFV or a weapons squad, depending on whether the unit is heavy or light. The Infantry squad must be able to fight doctrinally with all key weapons and positions manned if it is to be successful in sustained combat operations.

For our part, we must realistically define our Infantry requirements before we make any recommendations, and that can be done only with input from the field, from those of you who have to balance missions against resources on a daily basis. We need your help and input on this important issue. Send your comments to enor@benning-emh2.army.mil.

Hooah!



INFANTRY LETTERS



SECOND OPINION ON ZEROING WITH NVDs

The procedures recommended in the article "Zeroing Techniques with Night Vision Devices" (INFANTRY, September-October 1996, pages 6-9) begs for a second opinion. The article culminates in 14 steps, with guidance not to omit one because each is critical. But is each step really critical? Unit trainers charged with conducting uncomplicated, relevant, and efficient training that will maximize the combat performance of soldiers with aiming lights in combat may want to consider omitting one step--or even all 14 steps.

Three of the steps involve zeroing the M16A2 during daylight, setting the sights to 8/3 + 1 before zeroing aiming lights and setting sights back to 8/3 after zeroing. These steps only add complexity and confusion, because the setting on the rifle sights is unrelated to the zeroing of aiming lights.

A cross of tape on a silhouette indicates a failure to understand the concept of zeroing. The goal is not precise shooting at 25 meters but an aiming light adjustment that will result in the highest probability of hitting combat targets. Research has shown that there are individual differences in perception of center-of-mass and that when a soldier is required to determine center-of-mass on a zero target, individual peculiarities are incorporated into the zero. In other words, a zero target that presents a visual perception similar to a combat target will result in the best combat zero.

There is no rationale for using an M16A2 zero target, because none of the features on the target relate to zeroing aimin lights, and the white surface may well reflect bloom from the aiming light. Also, any time an M16A2 zero target is used as shown in Figure 1 of the article, it will not accomplish the intended purpose of providing a central aiming point unless the bottom of the target is cut so the scaled silhouette is at the center of the target sheet.

The 25-meter range provides an excellent opportunity for practice firing and initial zero, but the only rationale for firing at 25 meters is that we already have many firing points at that distance. The bullet may be intercepted at any point along its trajectory and brought into theoretical relationship with the aiming light spot; however, this procedure does not result in the best zero for all weapons. For optimum combat performance, the zero of aiming lights must be either conducted or confirmed at actual zero range.

The recommendation to construct a ruler that applies only to one device at one range reflects a requirement that training or hardware developers need to address. The article indicates that, at 25 meters, a click on one light moves bullet strike .64cm and the other 1.0cm. The three adjustments on the M16A2 will move bullet strike .35, .69, and .87cm. No valid rationale can be presented to show why all of these adjustments should not be the same. Commonality of adjustments is needed, not a ruler for each adjustment. Meanwhile, a combat soldier who can see bullets hitting six inches to the right of the aiming point at 100 yards should have some idea of how many clicks are required to bring bullet strike and aim point together.

The recommended transparency of 5.5cm is too large to result in a good zero at 250 meters. A good rule for establishing 25-meter zero criteria is that a visual angle extended to the actual zero range will cover a human-size target—4cm at 25 meters equates to a silhouette target at 300 meters. Therefore, zeroing should be conducted under conditions that result in a better shooting performance, or the aiming light should be zeroed for 200 meters.

The aid to knob turning also reflects a need that training and hardware developers should examine. If soldiers cannot determine which way bullets will move, units should conduct appropriate training or developers should consider affixing directional marks, or both.

The negative training implications of using white light from a flashlight while wearing night vision goggles should be avoided if other training alternatives are available.

There are no shot-group analysis procedures that are unique to the zeroing of aiming lights. It should be noted, however, that it may not be appropriate to replace a target after four groups if no aiming light adjustment has been made, because a proper analysis will focus on all bullets above, below, left, and right of the strike point, not on the last shot group fired.

What steps are really critical? Schedule a field-fire or record range for night firing; a review of targets hit at various ranges will reveal whether critical steps have been accomplished.

ART OSBORNE
Infantryman, Retired
Columbus, Georgia

AUTHORS' RESPONSE ON ZEROING

We appreciate Mr. Art Osborne's continuing interest in rifle marksmanship and concur that some zeroing steps will change under combat conditions. In our research, we examined the points made by Mr. Osborne. Our article, of necessity, was limited in the scope of research findings that could be included.

The Dismounted Battlespace Battle Lab is continuing the effort to improve the design of aiming lights so that the zeroing process, whether dry-fire or live-fire, is expedited, without sacrificing accuracy, for all soldiers on all weapons.

JEAN L. DYER
Infantry Forces Research Unit
U.S. Army Research Institute
Fort Benning, Georgia

100th/442nd/MIS MEMORIAL

The 100th/442nd/MIS World War II Memorial Foundation has kicked-off its fundraising campaign for a monument that will memorialize the role of the 100th Infantry Battalion, the 442nd Regimental Combat Team, and the Military Intelligence Service in that war.

The monument will be erected on the walkway adjacent to the Japanese American National Museum as part of a major redevelopment effort in the heart of downtown Los Angeles. In order to begin construction in March 1998, the Foundation's goal is to raise $2.5 million by the end of 1997.

For more information, write to the Foundation at 133 W. Gardena Blvd, Suite 205, Gardena, CA 90247; telephone (310) 327-4193.

DEBRA NISHINAKA-SKELTON
Executive Director

SHAEF/ETOUSA VETERANS ASSOCIATION REUNION

The SHAEF/ETOUSA Veterans Association (European Theater, World War II) will hold its 13th National Reunion in Kansas City, Missouri, and Abilene, Kansas, 10-13 October 1997.

SHAEF (Supreme Headquarters, Allied Expeditionary Force) led the cross-channel invasion of Europe during World War II under the command of General Dwight D. Eisenhower. ETOUSA (European Theater of Operations, U.S. Army) was the Army's administrative headquarters during the war.

For further information, contact me at 2230 South Overlook Road, Cleveland Heights, OH 44106; telephone (216) 721-0921; FAX (216) 229-0921.

WILLIAM C. LAHMAN

40mm Mk 19 SHORT OF EXPLOSIVE POWER

The problem with the Mk 19 is not a shortage of advocates, as Sergeant First Class Ronald Alley seems to fear (INFANTRY, November - December 1996, page 4). The problem is the palm-sized 40mm round's shortage of explosive power to blast a building, a bunker, or any vehicle with a modicum of armor.

The superiority of the 34-pound 106mm recoilless rifle (RR) round slamming into targets at more than 1,100 feet per second to lobbing tiny 40mm rounds has nothing to do with sentimentality for the RR, but instead addresses actual combat effectiveness. Sergeant Alley may not be aware that our M40A2 106mm design is currently manufactured and in widespread use all around the world by many armies for the purpose of shock action. We have dozens of 106mm RRs in storage, already paid for, that can be used to give our light forces the kind of shock action needed—as demonstrated in Panama and Somalia—at little or no cost to the Army. The cancellation of the M8 armored gun system and M551 Sheridan tank leaves our light forces without organic shock effect and direct fire support, a problem that must be solved, and as soon as possible.

The latest manufactured 106mm RR rounds can kill main battle tanks with full thicknesses of armor—including explosive reactive armor—not the measly two inches that the 40mm can pierce only if struck at an unlikely 90-degree angle. The 106mm will effectively bust reinforced bunkers and totally demolish buildings. Australian Army 106mm RRs have the CLASS laser sighting system, which extends its range to 1,800 meters with 80 percent first-round-hit probability at night against moving targets. The latest electronic sights are ready to mount on the M40A2 just as easily as on the Mk 19. Try to get this accuracy with the garden-hose-style firing pattern of the Mk 19, and you'll only alert the enemy to kill you with his large-caliber cannon if he's in an armored fighting vehicle (AFV). The Mk 19s on HMMWVs (high-mobility multipurpose wheeled vehicles) in Somalia were adequate only to suppress the enemy and break contact; the Rangers would not have been saved without the allied AFVs on the scene (the same M113-type vehicles that we're using to build reefs), which were able to absorb the intense enemy fire that the Mk 19's best efforts had not been able to stop.

If you want to ride around the battlefield in an unarmored, land-locked (non-swimmable) HMMWV with just a grenade launcher and get clobbered by artillery fire or the typical Third World country's AFV with large-caliber direct-fire cannon, be my guest. But don't offer such impotent ideas as solutions to our airborne/light forces' urgent need for a battlefield dominating gun system. HMMWVs alone, with only 40mm Mk 19s, are not capable of duplicating the ability of the 106mm RR to win battles hands-down through overwhelming shock action and explosive effect against point targets. Hard targets must be completely destroyed with one shot, not peppered over time. The Mk 19 and its thin-skinned HMMWV are not designed to slug it out with rocket-propelled grenades (RPGs) or heavy machineguns. You don't trifle with an enemy strong point; you point, shoot, and blast it to smithereens, or else you're the one that gets blasted. The Mk 19 is an automatic grenade launcher, not a main gun; it must fire continuously to achieve destructive effects. Area suppression, yes—shock action, no. While not ideal, if we mount both systems—an RR and an automatic grenade launcher (AGL)—on every other armored HMMWV, we've given our soldiers a decisive edge.

The current Mk 19 is a development of the Vietnam war era series of AGLs and is just about as old

technologically as the 106mm RRs still in use by U.S. Army Special Forces (such as the 5th SF Group in Operation *Desert Storm).* We must avoid attitudes that consider things that are new to be automatically better; the current trend in military circles to supplant traditional firepower with high-tech, expensive weapons ignores the fact that combat demands violent, decisive firepower at the critical point. In combat, it is what kills that counts, not what is easy to do or "fun to shoot," like the Mk 19.

One gun system is not enough to defeat the increasing number of hard targets to be found in the urban environment. It will take a combination of gun systems on a survivable, fully terrain-mobile platform that is air-deliverable and can move into firing positions, even against enemy small arms fire. The 106mm RR is for blasting hard, point targets; the 40mm Mk 19 is for area targets; the Javelin missile is for main battle tanks and helicopters. Place all three of these weapons on an autocannon/RPG-resistant applique armored M113A3 fighting vehicle, and you get a synergism of gun-missile-auto grenade cannon and infantry that is greater than you get if these systems are parceled out onto the soldiers' backs or soft-skinned HMMWVs, or even worse--put into storage, as is the case with dozens of U.S. 106mm recoilless rifles.

The lack of organic fire support in our light units is an issue that is too serious to be viewed emotionally, and we cannot afford to be swayed by sentiment or intoxicated by high-tech promises. It's about what works and what doesn't work on the modern battlefield. The Mk 19, as good as it is, will not, by itself, give us the decisive shock effect that we can get from an AFV-mounted 106mm, an M3 84mm RAAWS (Carl Gustav), or even an M67 90mm recoilless rifle.

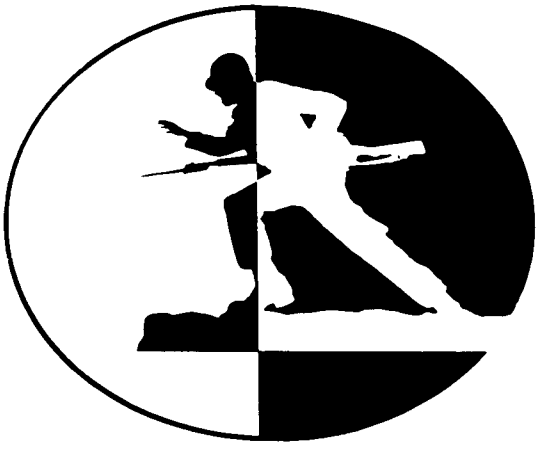
ERNEST HOPPE
SSG, U.S. Special Forces
Fort Benning, Georgia

TACTICAL SOPs REQUESTED

In order to create a TACSOP library that students may use while at the Infantry School, the Tactics Division of the School is asking units from company through brigade level to provide copies of their tactical SOPs. Units wishing to participate in this project are requested to forward copies of their SOPs to:

Commandant
U.S. Army Infantry School
ATTN: ATSH-ATT
Fort Benning, GA 31905

For further information, call the Chief, Tactics Division, Combined Arms and Tactics Directorate, at DSN 835-5726 or commercial (706) 545-5726.



INFANTRY NEWS

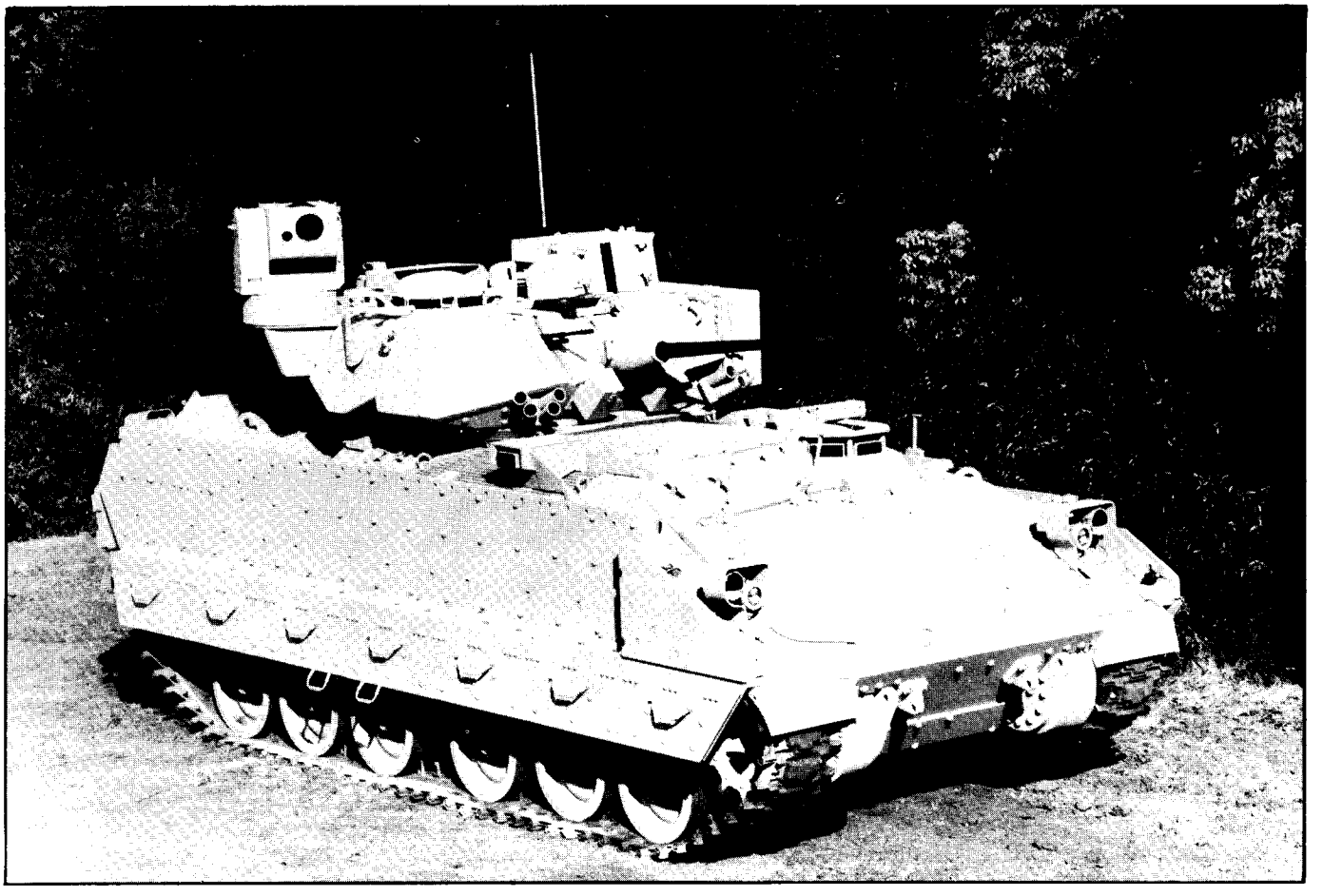
OPERATIONAL TESTING has begun on the A3 digitized version of the Bradley fighting vehicle system (BFVS). The A3 extends the digital capability of mechanized infantry out to the year 2025, which will enable the Army to make appropriate changes in doctrine, organization, training, leader development, materiel, and soldier interface to increase force cohesion and effectiveness as the new century arrives.

The multi-phased test and evaluation program is a combined effort of the Infantry School as combat developer, the Program Manager-BFVS as the materiel developer, and the testing community, with the U.S. Army Test and Experimentation Command (TEXCOM) as operational tester.

The operational testing and evaluation will be conducted in four phases:

- The Operational Evaluation Phase (February-April 1997) includes two proof-of-principle tests at the contractor's facilities in California, plus gunnery at Aberdeen Proving Ground, Maryland.
- Limited User Test #1 (1-12 December 1997), scheduled for Fort Benning, Georgia, is intended to validate interim software upgrades for command and control and fire control as well as position navigation. Gunnery for this phase will include Bradley firing Tables I through VIII.
- Limited User Test #2 (April-June 1998) will be the critical melding of technical improvements with combined arms requirements with a full-up software package. Gunnery for this test, which will go from Table VI through Table XII and include platoon-level force-on-force maneuver, is tentatively planned for Fort Hood, Texas.
- Initial Operational Test and Evaluation (May-July 1999) will include combined arms company team maneuver and gunnery. Sixteen M2A3 Bradleys and five digital M1A2 Abrams tanks will go up against 14 M2A2 ODS model Bradleys and five M1A1 tanks in force-on-force maneuver.

The operational test is expected to demonstrate the product improvements that separate the M2A3 from the M2A2 and the M2A2/ODS. The M2A3



is the basis for a medium weight class combat vehicle family that could include vehicles for future infantry, scouts and division cavalry, SHORAD-air defense, artillery fire support, and battle command at all echelons. It is also the first infantry digital match with the already digital M1A2 series tank.

Payoffs for the Army include the following Bradley improvements:

Situational Awareness. The A3 has commander/squad leader tactical displays, plus a commander's independent viewer (CIV), giving a closed-hatch 360-degree view through day/night, smoke and obscurants through a second-generation forward looking infrared (FLIR) capability. Commanders and dismounts can enter up to 10 tactical multiscale displays, delivering a 30-percent greater capability in situational awareness than the A2 series.

Lethality. In terms of lethality, the A3 packs day TV and second-generation FLIR for the gunner. The system delivers full-solution digital fire control and an auto-tracking, hunter-killer capability not found on earlier models. In terms of target detection, the CIV and FLIR deliver three times the acquisition capability of an earlier model Bradley.

Survivability. The A3 model BFVS has an enhanced driver's vision system plus overhead and NBC protection. The NBC gas particulate filter unit now extends to the dismounts as well as the crew. Redundant systems also aid survivability; for example, older model BFVs had only one turret processor unit while the A3 has a hull processor unit as well. If one computer is destroyed, the other keeps running the system.

Sustainability and Reduced Operating and Sustainment Costs. The A3 is built for sustainability and reduced operations and sustainment costs; it has an embedded diagnostics and training package, plus software upgrades for direct support and general support units. The computerized maintenance systems boast a 95-percent fault isolation rate. Examples include integrated Built-in Test/Built-in Test Equipment that eliminates semiannual verification of the TOW 2 subsystem.

To request a copy of the 1996 index to INFANTRY, write to the Editor at P.O. Box 52005, Fort Benning, GA 31995-2005; or call DSN 835-2350, commercial (706) 545-2350.

Compatibility with M1A2 SEP. The A3 can now interface digitally with the M1A2 main battle tank that is already in the field. The M2A3 series includes artillery, air defense, and command and control variants, all of which extend digitization on the battlefield.

Outyear Battlefield Requirements. In addition to being a replacement for the current infantry fighting vehicle, the M2A3 also enables ground combat forces to go into the next century with digital, interoperable information transmission systems for close combat, cavalry, air defense, artillery, and command and control.

For further information on BFVS A3 operational testing, contact TRADOC System Manager, Bradley Fighting Vehicle System, Fort Benning, GA 31905; (706) 545-5386/76, DSN 835-5386/76.

THE OFFICER CANDIDATE School (OCS) at Fort Benning has presented its 1996 Robert P. Patterson Award to Second Lieutenant Patrick P. Stobbe.

This prestigious award is given each year in memory of Patterson, who was commissioned a second lieutenant from the World War I equivalent of OCS. He attained the rank of major and was recognized for acts of gallantry and bravery by award of the Distinguished Service Cross, the Silver Star, and the Purple Heart. He went on to serve as a Federal judge and as Secretary of War.

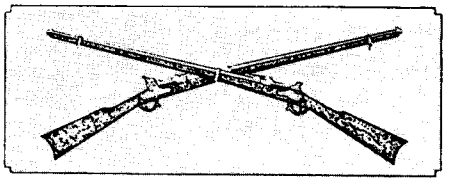
The Patterson award is presented each year to the outstanding infantry graduate of OCS and the Infantry Officer Basic Course. The selection is made on the basis of leadership, academic effectiveness, aptitude, and character.

Lieutenant Stobbe is now assign-ed to Company B, 3d Battalion, 187th Infantry, 101st Airborne Division, Fort Campbell, Kentucky.

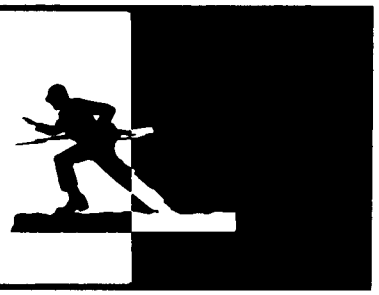
A TACTICAL NAVIGATION system for the Army's Bradley fighting vehicle is being produced under a recent contract. The contract is part of a retrofit program for the Army's Bradley fleet. Delivery of the systems is scheduled for the fourth quarter of 1997.

The low-cost, digital compass-based TACNAV is integrated with a global positioning system (GPS) receiver to provide vehicle crews and commanders with superior information on navigation and target orientation. TACNAV enables a crew to maneuver faster, synchronize operations, and locate targets rapidly and accurately.

In the past, compasses could not be used aboard armored vehicles because the metal interfered with accuracy. With TACNAV, automatic calibration capabilities have been embedded to compensate for the magnetic influences of the vehicle's hull, turret, and pitch and roll.



PROFESSIONAL FORUM



Counterinsurgency
In An Urban Environment

CAPTAIN O. KENT STRADER

Infantrymen like fighting clearly defined conflicts–a uniformed enemy with certain equipment who fights in a generally predictable manner. As the Cold War ended, few realized the role that the United States would play in peace enforcement operations. But the current trend in conflicts–from Algeria, Haiti, Somalia, Rwanda, Sri Lanka, Bosnia, and a longer list of small brushfire conflicts with geopolitical ramifications–requires that infantrymen train for the diverse contingencies of the 21st century. All of these regions have, however, a common factor–an insurgent threat in or near an urban center.

U.S. military doctrine calls for avoiding committing troops to combat in urban areas and populations whenever possible. High-intensity conflict calls for all civilians to be relocated when feasible, making the fight a clearly defined battle. Low-intensity conflict (LIC) places civilians, regulars, and guerrillas on the same battlefield. With the worldwide trend toward urbanization, the United States will increasingly find itself in conflicts that require extensive LIC training using advanced military operations in urban terrain (MOUT) to combat insurgents.

The form, scope, and development of the military commitment to counterinsurgency operations will depend upon the circumstances and seriousness of the situation. The way these types of operations are to be conducted cannot be neatly arranged into established scenarios. A counterinsurgency mission can manifest itself as a reaction to civil disobedience requiring crowd and riot control measures, as in the food riots in Somalia. This type of operation may require security forces to deal with the safe passage and distribution of food–stuffs and provisions, to conduct cordon and search operations in urban terrain, and to serve as quick-reaction force for military police.

Counterinsurgency can come in the form of civil disobedience requiring riot control, as in the food riots in Somalia.

On a more advanced scale, U.S. forces may find themselves enforcing a peace agreement while attempting to identify and deal with disaffected groups that conduct acts of terrorism to destabilize the peace process. There is a potential for crossover in these types of operation, when a simple operation that requires providing medical care and food is sabotaged by insurgents. In most of these situations–and there are many other potential scenarios–the ability to differentiate between friend and foe will not be easy. Soldiers will have to be more aware of their surroundings; for example, patrolling with the intent of gathering intelligence and establishing good will with the local populace. Snipers may be incorporated to conduct surveillance and effect surgical kills on threats as they emerge. Rules of engagement will become more complex in impoverished nations where the principal building materials are tin, plywood, and other scavenged materials, and insurgents will be indistinguishable from the populace. In these and other marginal environments, units will deploy more frequently with psychological operations and civil affairs teams.

Training for urban counterinsurgency operations requires centralized planning and decentralized execution. Peace enforcement and peacekeeping operations require the individual soldier to know more and be responsible for more than the average soldier of ten years ago. Training on intelligence gathering is one of the categories soldiers must develop. During Operation *Just Cause*, after the initial hostilities had died down and the methodical search for weapon caches

and Panamanian Defense Forces began, soldiers on patrol in Panama City were expected to gather and report intelligence information.

Soldiers and units gather intelligence by observing the area of operations and gaining the trust of local noncombatants. At battalion level, the use of the remotely monitored battlefield sensor system, low-level voice intercept, and ground surveillance radar can augment intelligence gathered from patrols. Still, the subtleties of operating in urban terrain will make using these assets more of a challenge to operators and commanders. Aerial photographs with the grid system overlaid can augment maps to assist commanders in various operations. Intelligence gathering is the heart of counterinsurgency operations; it should be the first task trained by any unit preparing to undertake such a mission.

The mission essential task list (METL) for urban counterinsurgency is long, and it requires intensive training, especially at the individual, team, and squad levels. Many of the METL tasks associated with these operations are carried out independently by squad and team leaders. While there are opportunities to train for some of these tasks at the combat training centers, training at home station can be difficult due to the nature of training support requirements. In order to incorporate the large numbers of civilians needed to support training in riot control operations, other battalions may be required to provide role players for greater realism. One unit used family members from their company—placing them in MILES harnesses during training on clearing rooms—to train with noncombatants in an urban environment. Training for these operations also requires creativity and originality in designing training schedules.

The skills required include cooperation between the combat arms, combat support (CS), and combat service support (CSS) branches. For example, the threat of riots would make it advantageous for a military police advisor to be attached to every infantry battalion staff in a peacekeeping, peace enforcement, or humanitarian relief mission. Collating a list of linguists, by language, ahead of time can provide assistance to overtaxed interpreters attached to the battalion. The lack of a front line, which is intrinsic in a LIC environment, will place CSS units forward with infantry forces. This means they will have to train extensively in marksmanship, reacting to vehicular ambushes, dealing with riot conditions, and reacting to mine warfare. Consequently, infantry units will find it necessary to conduct parallel planning and assist their supporting forward support battalion in training for their missions in an urban environment.

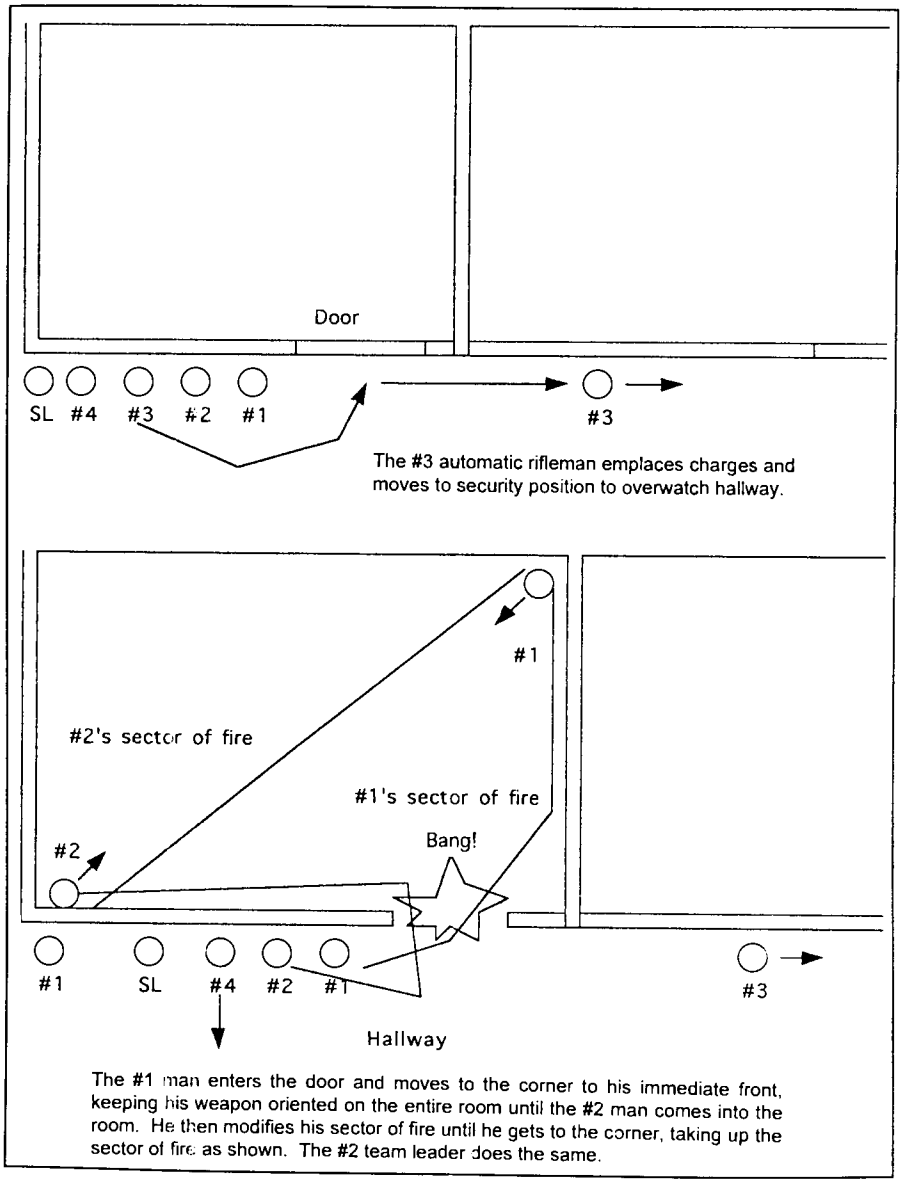


Figure 1. Four-man enter-and-clear technique.

Training for counterinsurgency in an urban environment requires an unprecedented emphasis on the marksmanship skills of the individual soldiers under varying conditions. These conditions include limited visibility operations with night vision devices, quick-kill close engagements, and long-range sharpshooting. These types of engagements do not have score sheets—manual or computerized—which demonstrates a need for them to be developed in combination with standardized ranges Army-wide.

During the preparations for the planned invasion of Haiti, my unit trained to clear a prominent U.S. offi-

cial's quarters of Haitian forces in a limited visibility environment with night vision devices. The rules of engagement called for no noncombatant casualties and minimal collateral damage. Similar situations will present themselves in the years to come. In the past, these types of operations have been the specialty of Ranger and Special Forces units, but future operations will be conducted by line units. Units of the 10th Mountain Division regularly had to engage in urban conflict with insurgents in Somalia, requiring precision engagements to avoid noncombatant casualties.

Neither the manuals for training line units for this type of marksmanship nor the ammunition needed to train to standard are available. The John F. Kennedy Special Warfare Center's Special Text 21-6-1, *Close Quarter Battle,* provides train-the-trainer information on shooting techniques, advanced weapons handling in a MOUT environment, and corrective technique training for specific shooting errors. The infantry needs a manual like this for training soldiers to become better marksmen under urban conditions.

Advanced or precise MOUT training uses a two-man or four-man team entering and clearing a room, using controlled fires, and in some situations advanced breaching techniques as well. These are not skills that are taught in any infantry manual, but units have incorporated them from time to time for certain situations. In our company one of our platoons used a four-man enter-and-clear technique (Figure 1) while another used a two-man technique (Figure 2). In a MOUT environment, troops from one platoon may work with those of another and will need to know a common procedure to work effectively together.

Intelligence gathering is the heart of counterinsurgency operations; it should be the first task trained by any unit preparing to undertake such a mission.

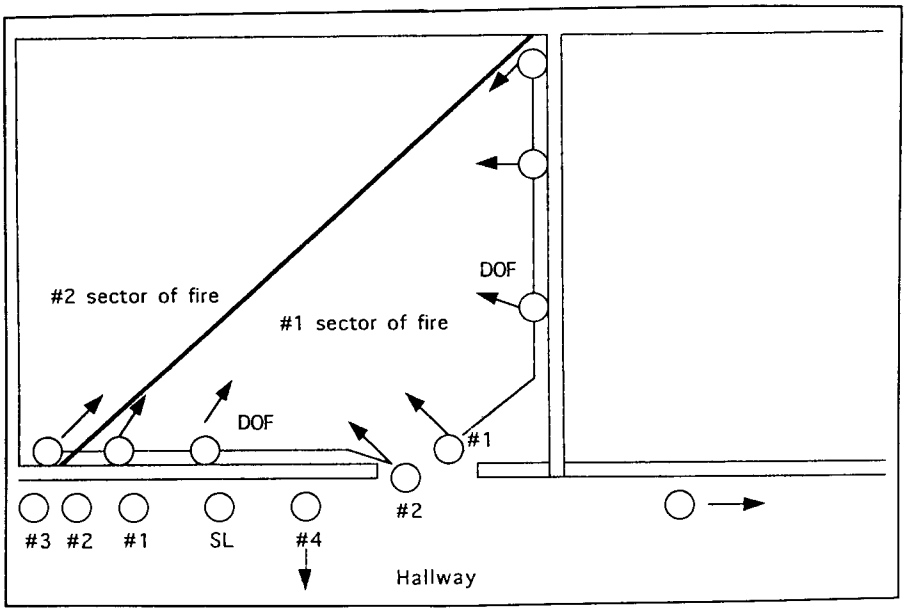


Figure 2. Two-man technique.

The use of grenades in this environment is not like that in a high-intensity conflict environment where a soldier throws a grenade into a room to clear it. The flash/bang grenade is the instrument of choice in a city environment, giving the attacker a high probability of surviving without killing any noncombatants in the process. The use of these grenades is not common among infantrymen, and soldiers should have an opportunity to train with them during MOUT live-fire exercises. A side note to weapons and ammunition in an urban counterinsurgency environment is the need for a shotgun in the U.S. Army inventory that is capable of breaching doors and engaging and killing an enemy at a maximum range of 100 meters. This weapon should be capable of firing slugs, all calibers of buckshot, and tear gas. Its purpose is to breach doors, employ riot control agents in advance of room clearing, and reduce projectile travel, lessening the incidence of fratricide or noncombatant casualties. *(See also "The 100-meter Combat Shotgun," by Stanley C. Crist, INFANTRY, September-October 1995, pages 5-7.)*

The proposed collective task list is a compilation of tasks that includes *cordon and search, construct and man a checkpoint, conduct vehicular and personnel searches, clear a building, conduct convoy escort, conduct noncombatant evacuation operations, conduct civil affairs and psychological operations, conduct civil disturbance operations, identify and clear a minefield, gather intelligence, and conduct humanitarian relief operations.* Conducting cordon and search operations in an urban environment, with its three-dimensional aspect, is particularly difficult. The 2d Battalion, 87th Engineers, used a technique known as "speed wiring" to cordon off portions of Kismayu in Somalia. The engineers drove a truck around the block targeted for search, dropping rolls of double concertina fence around the area in less than 15 minutes. The fence allowed maximum effort to be focused on the search while using minimum assets in the cordon. Openings in the wire were strategically placed to enable individuals to exit the cordon once they had been searched in a controlled manner and cleared.

The incorporation of armored vehicles and Army helicopters is an essential psychological tool in defeating an enemy in an urban environment.

Conducting vehicular and personnel searches incorporates skills used by military police and those taught in antiterrorism courses. Units may be required to teach antiterrorism techniques to their soldiers twice a year, but the need to teach them techniques for checking cars for bombs, caches, and contraband is more specialized. The military police are the best source of information on this type of training. The car bomb that destroyed the Marine Barracks in Lebanon was an example of the ability of a radical insurgent to inflict staggering casualties on a less-than-vigilant peacekeeper. The first intent of a checkpoint should be the survivability of those manning it--to keep any vehicle from running the checkpoint or delivering a bomb that could kill U.S. soldiers manning it-and the second purpose should be to man it with qualified personnel and equipment to locate and neutralize insurgents. The site selected should be under the control of the friendly force three dimensionally.

Training for urban counter-insurgency operations requires centralized planning and decentralized execution.

Snipers should be employed in support of the operation. Military police bomb detection dogs may be used during checkpoint operations. The checkpoint should be moved, avoiding set patterns. The assistance of engineers will be necessary when constructing obstacles to be negotiated by vehicles approaching the checkpoint. The collective and individual skills necessary to conduct urban counterterrorism training are diverse and require new and innovative techniques, but knowing your enemy is probably the most difficult.

The incorporation of armored vehicles and Army helicopters is an essential psychological tool in defeating an enemy in an urban environment. During Operation *Just Cause*, the M551 Sheridan saw extensive use, including simply showing its presence during cordon and search operations. While the M1A1 tank cannot always fire its main gun due to the rules of engagement, it can provide cover for infantry forces attempting to establish a foothold. The M1A1's .50-caliber heavy-barrel machinegun and 7.62mm coaxial machinegun, when properly zeroed, can provide extremely accurate fire against snipers. In riot control operations, a crowd can be dispersed by the exhaust heat from an M1A1, backing up along the street and revving its engine.

Army reconnaissance aircraft can assist cordon forces in the vertical dimension of the urban battlefield. The battalion S-3 Air can be aloft during cordon operations to relay information directly over the command net, thereby helping coordinate command and control. This gives the commander a full view of his battle space. All infantrymen realize that the best method of clearing a building is from the top down. With the precision nature of urban counterinsurgency operations, the need to conduct aerial insertions by helicopter may become necessary for inserting clearing teams, snipers, and overwatch elements.

The insurgent is the wiliest of enemies. His knowledge of the local terrain and population is his greatest asset. He gains the support of the local population either by force (as in Vietnam), by popularity, or, for example, when the peacekeepers lose the support of the local population by choosing sides in a civil war. By day he may be a worker or student, but by night he may participate in ambushes on convoys, sniper attacks on checkpoints or patrols, or surveillance activities. Since his uniform is the local attire, with a weapon and possibly a bandolier, he can easily blend into the local population. His safe houses and routes of escape are numerous and his hiding places unseen by our technological advantage in air assets or thermal imagery. He will cover his escape with cleverly hidden booby traps. He will hide his weapon in the most ingenious places--such as elevator shafts, inside a mattress, under garbage, or in a false wall. To defeat such an adversary, we must break his will by tenacious and innovative forces and tactics. We must conduct frequent and random cordon and search operations; checkpoints that were at one location one day must suddenly appear without warning in a suspected area of insurgent activity on another day; patrols must be coordinated, must be supported by a quick reaction force, and must gather and report accurate intelligence.

U.S. forces conducting counter-insurgency operations must frequently vary the pattern and method of attack to keep the insurgent off balance and reduce his ability to anticipate our next move, instead of allowing him to dictate the terms of combat himself. The average soldier is the key to success in the urban environment.

The form, scope, and development of the military commitment to counterinsurgency operations will depend upon the circumstances and seriousness of the situation.

If U.S. peacekeepers in Sarajevo or Tuzla were to come under fire from a sniper, or if a convoy were suddenly ambushed and vehicles destroyed by a command-detonated mine, we must ensure that our soldiers would be prepared to deal with the insurgent force, aided by noncombatants from three separate ethnic groups, on urban terrain. With the proper training for their mission, and the right equipment to do the job, a U.S. force under such circumstances will be able to respond quickly and decisively, neutralize the threat, and continue to execute its mission.

Captain O. Kent Strader was assigned to the 2d Battalion, 505th Infantry, 82d Airborne Division, and he is now a senior platoon trainer for the Infantry Officer Basic Course at Fort Benning. He is a 1988 graduate of Liberty University and a 1992 ROTC graduate of San Diego State University.

The Moving Call for Fire

CAPTAIN JOSEPH J. MARTIN

Indirect fire support has always been a key element in maneuver warfare, and using computer technology to refine the fire support system will make the artillery a more effective killer on the Force XXI team. One of the most difficult missions for a fire support officer (FSO) is to engage moving formations of armored vehicles. In the defense, this requires emplacing a physical trigger point on the ground, which indicates when to call for fires.

Calculating a trigger point requires only that the FSO enter information into a simple formula, thereby computing the distance from the target to the trigger point. The formula is: time of flight in seconds plus estimated mission processing time in seconds times the enemy's estimated rate of march equals the distance from the target to the trigger point.

To mark the point, the fire support team (FIST) measures the distance on the ground from the target to the trigger point. At the trigger point, the FIST builds something that is visually recognizable from its overwatch position.

This procedure works fairly well at the National Training Center, where the enemy frequently follows a predictable course of action. Unfortunately, not all adversaries pass close to the trigger point, which forces the FIST to estimate when to fire the target. Even if the enemy does pass the trigger point, there is still no guarantee that the fire mission will arrive on target at precisely the right time. Two of the three factors in the formula are estimates--the enemy's rate of march and the mission processing time. The only factor that doesn't usually change is the time of flight, and even this one does when the firing unit has to reposition. There are simply too many variables in this formula to permit accurate prediction.

Using FIST equipment--a precise lightweight GPS (global positioning system) receiver (PLGR), a ground vehicular laser locator designator (G/VLL-D), and a digital message device (DMD)--it is possible to determine the enemy's location within ten meters and provide a snapshot of it. If the FIST equipment auto matically attached a PLGR time to the target location, then all the FIST would have to do is lase the same target twice. Using a simple mathematical formula (Rate times Time equals Distance), the computer uses the time it takes for the target to move between two known points to calculate the direction and actual rate of march. The FIST would send this information to the fire direction center (FDC) in a digital message format that could be called the "moving call for fire" (MCFF). The time factors the FIST attached to the MCFF would be identical to the time on the clock in the FDC computer, because both would run off satellite time.

Using FIST equipment, it is possible to determine the enemy's location within ten meters, providing a snapshot of his location.

The FDC would receive the MCFF and store it in its buffer. While members of the FIST waited for the FDC to process the mission, they could send updates to the FDC to keep the mission accurate (location, direction, and speed). When the fire mission reached the top of the buffer, the computer would calculate the mission. The computer would take the most current updates to the MCFF and calculate target location at mission processing time plus time of flight. This calculation would take the computer less than one second. This information would then be converted into firing data and sent to the guns. The guns would fire the mission and--ideally--hit the moving target.

The MCFF provides a moving picture of the enemy, which reduces the need for emplacing physical trigger markers in the engagement area. The MCFF requires that the computer have all the fire control measures and boundaries entered into its database, as well as positions of friendly units, to prevent fratricide. Eventually, maps would be a part of the FDC computer data base, allowing the computer to calculate altitude as well. The system could also incorporate the enemy template and friendly obstacles. Final revisions could incorporate the terrain and enemy situation template into its prediction formula. It could also compensate for the amount of time it is likely to take the enemy to breach obstacles.

The battlefield of the next century will be more deadly than ever, and using the moving call for fire will help the units of Force XXI maintain one more technological advantage over their enemies.

Captain Joseph J. Martin was a fire support officer with 3d Squadron, 3d Armored Cavalry Regiment, and participated in two NTC rotations. He is a 1991 ROTC graduate of Canisius College.

The Battle Captain Log

Managing Information

CAPTAIN ROBERT D. MURPHY

The success of a brigade or battalion tactical operations center (TOC) largely results from its ability to manage information. This is true both in combat and in peacekeeping or stability operations, and it is not an easy task, considering the mass of information that passes through it every day. It is easy for units to experience information overload if they do not have simple and effective systems in place for receiving and processing the data transmitted to them. The officer who is usually responsible for keeping track of all this information and knowing the current situation in the TOC is the battle captain.

The battle captain's job is similar to that of the executive officer, a major responsibility at brigade and battalion levels. The duties of the battle captain include the following:

- Supervising the efforts of the staff no ncommissioned officers within the S-3 section.
- Analyzing and assessing all available information.
- Helping review and dissemin- ate information within the TOC.
- Assisting in monitoring the location and activities of friendly units.
- Serving as the TOC officer-in-charge when field-grade officers are absent.
- Assisting the S-3 during the tactical decision making process.

Some units have developed battle captain logs—Smart Books—that summarize critical information displayed on charts throughout the TOC.

The battle captain must either know or be able to get this data to provide information to both higher and lower headquarters. Furthermore, many units that have not participated in stability operations may have battle captain logs that are oriented toward combat operations. Many of these logs can easily be adjusted to support stability operations. Such was the case in Bosnia. One brigade battle captain used his normal combat operations log and adjusted it to fit the stability mission of his brigade. The log worked well and enabled the battle captain to keep on top of the situation.

The log served a secondary purpose as a continuity book. It was used during shift change briefings to highlight changes and cover significant events. It expedited shift changes without any loss of information. It was also easy for another officer to step in and assume the battle captain responsibilities with this Smart Book in his possession. At the end of the day, the log could be photocopied and filed as a permanent record of events.

It is easy for units to experience information overload if they do not have simple and effective systems in place for receiving and processing information.

What should a battle captain log contain? Battle captains should look at their brigade or battalion TOCs and note the various charts used to monitor critical information. This is the information the commander, executive officer, and staff have deemed worthy of tracking. This is also the information the battle captain needs to access immediately to do his job while moving about the TOC answering questions from both higher and lower headquarters. Frequently, the battle captain cannot see various information displayed on charts or maps because of print size or obstructions, such as other soldiers working nearby. A battle captain log that can be carried in a folder at all times might be the answer to this problem.

An example of various TOC charts and the battle captain log used by one brigade in Bosnia will emphasize this point. The following are the major charts the brigade used to display critical information:

Mission Chart—for mission of headquarters two levels up.

Commander's Intent—two levels up.

Mission—headquarters, one level up.

Commander's Intent—one level up.

Unit Mission— brigade mission statement.

Unit Commander's Intent—brigade.

Mission Data 1—summarized mission data such as:

- Current orders in effect (division and brigade).
- Latest fragmentary orders in effect (division and brigade).
- Priorities of fire and fire sup-port coordination measures.
- Close air support sorties available.

OUTLINE FOR BATTLE CAPTAIN LOG

TIME:_____ TO:_____ AS OF:_____

1. ENEMY
   A. WEATHER/TERRAIN UPDATE
   B. ENEMY SITUATION
      (1) KEY RECENT ACTIVITIES:
      (2) PROBABLE COAs:

2. CCIR
   A. PIR:
   B. FFIR:
   C. EEFI:

3. FRIENDLY SITUATION
   A. ARRC:
   B. TFE:
   C. BRIGADE FOCUS ON KEY UNITS:
      (1) FLANKS:
         (A) LEFT:
         (B) RIGHT:
         (C) FRONT:
         (D) REAR:
      (2) BRIGADE AVN/ATK HELOS
                UNIT(S): EA(S):TOT: BDA:
         (A) LAST MSN:
         (B) NEXT MSN:

4. BRIGADE SITUATION:
_____ LOCATION _____ ACTIVITY _____ SLANT

	M1	M2
A. TF 8-27:		
HHC/8-27 IN:		
A/8-27 IN:		
C/8-27 IN:		
D/8-27 IN:		
A/6-61 AR:		
B. TF 6-61:		
HHC/6-61:		
B/7-27 IN:		
D/7-27 IN:		
B/8-27 IN:		
C/6/61 IN:		

	M1	M2	OH58D
C. 7-4 CAV (-)			
HHT/7- 4 CAV:			
A/7-4 CAV:			
B/7-4 CAV:			
C/7-4 CAV:			
D/7-4 CAV:			
E/7-4 CAV:			
F/7-4 CAV:			

	M109	COLT
D. 4-28 FA:		
A/4-28 FA:		
B/4-28 FA:		
C/4-28 FA:		

	ACE	AVLB	VOL	MC
E. 50 EN:				
A/50 EN:				
B/50 EN:				
C/50 EN:				

	BSFC	M2
F. B/6-2 ADA:		
2/B/6-2 ADA:		

	C&J	GSR	HUMINT
G. A/701 MI:			
1/A/701 MI:			
2/A/701 MI:			
3/A/701 MI:			

	10FK	S&P	AMB	ROP
H. 67 FSB:				
A/67 FSB:				
B/67 FSB:				
C/67 FSB:				

I. SIGNIFICANT LOG DATA
   (1) MSRs IN EFFECT:
   (2) REFUGEE/DC CAMPS:
   (3) NGO/PVOs IN SECTOR:
      POC/# SERVICE LOCATION
   (4) ROUTES:
      ACTIVITY/INCIDENTS STATUS (G/A/E/B)
   (5) LOSSES/PROJ REPLACEMENTS:

5. KEY RECENT EVENTS:
      TIME: FDLY: ENEMY: EVENT:
   A. KEY EVENTS:
   B. DEEP:
   C. CLOSE:
   D. RESERVE:
   E. SECURITY:
   F. REAR:

6. MISSION DATA:
H-HOUR:_____LAST UPDATE W/G3 _____W/TAC_____REAR_____
CURRENT ORDERS IN EFFECT: DIV: _____BDE:_____
LATEST FRAGOS IN EFFECT: DIV: _____BDE:_____
DTAC LOC:_____DMAIN LOC_____DREAR LOC:_____
BDE MAIN LOC:_____TAC LOC:_____REAR LOC: _____
PRIORITY OF FIRES: _____/_____/_____/_____
FSCMS CFL: _____HQ:_____DTG EFF:_____
FSCL: _____HQ:_____DTG EFF:_____
RFL: _____HQ:_____DTG EFF: _____
RIPL: _____HQ:_____DTG EFF: _____
CAS SORTIES:
DIV:_____1 BDE:_____2 BDE:_____4 BDE:_____DIV CAV:_____
ADA PRIORITIES:_____,_____,_____,_____
HIMAD COVERAGE TO:_____
ADA WARNING:_____WCS:_____
MOPP LEVEL IN EFFECT:_____
ENGINEER PRIORITY OF SUPPORT:_____,_____,_____,_____,_____
ENGINEER PRIORITY OF EFFORT:_____,_____,_____,_____,_____
CSS PRIORITY OF SUPPORT:_____
MEDICAL EVAC ROUTE:_____FREQ:_____

7. CP--BATTLE HAND OVER:
TIME OF MOVE:_____ETA NEW LOC:_____GRID:_____

•Air defense artillery priorities, warning, and control status.

• Status of mission oriented protective posture (MOPP) level.

Mission Data 2--summarized mission data such as:

• Engineer priority of support and effort.

•Combat service support prio-rity of support and main supply routes in effect.

• Medical evacuation data.

• Escort missions.

• Civil military missions.

Commander's Critical Information Requirements (CCIRs)--expressed in three different charts:

•Priority intelligence requirements (PIRs).

•Friendly forces information requirements (FFIRs).

•Essential elements of friendly information (EEFI).

Brigade Combat Power-- brigade rollup of combat power, including:

•Number of M1s and M2s assigned and fully mission capable.

•Status of classes III and V and personnel.

• Location of subordinate unit headquarters.

Battalion Combat Power--battalion rollup of combat power, including all items listed for brigade combat power chart.

Communications Status--summary of communications status by system and unit.

Checkpoint Status--summary of all checkpoint operations within the brigade, providing such information as:

• Checkpoint number.

• Location of checkpoint.

• Unit conducting checkpoint.

• Status or level of checkpoint.

• Remarks.

Zone of Separation Reconnaissance--summary of the zone of separation (ZOS); reconnaissance missions for the next 72 hours, providing such information as:

• Unit.

• ZOS block patrolled.

• Number of vehicles on patrol.

• Number of soldiers on patrol.

• Number of aircraft on patrol.

• Routes of patrol.

• Relevant control measures.

The purpose of this battle captain log was to capture this information in a format the battle captain could use as a Smart Book. Other types of information the battle captain deemed necessary--such as information on the current enemy situation--were added to the log.

A period of time is required to establish a battle captain log initially. The log should be made at home station in some sort of durable binder that will

last in the field. The binder should allow for pages to be added or taken away as needed. Pages can be acetated and the data written in a water-based or permanent marker, or pages can be plain paper with the data written in pencil. The key thing to remember is that the data in the battle captain log will change, and there should be a way to make these changes easily. The first attempt at designing a battle captain log may be frustrating because some information that should be put in will inevitably be absent. In addition, unit missions may change, and additional data may be needed.

Staff members should make note of the types of information not in the log that the battle captain needs to do his job. The log should then be updated to cover the missing information. The payoff for the time invested in establishing and maintaining a complete, easily used log will be apparent when all the critical information is available at the battle captain's fingertips. A properly maintained log will let the operations of the unit run smoothly and without interruptions, as efficiently in the heat of combat as in routine training exercises.

Captain Robert D. Murphy, a Military Intelligence officer, is assigned to the Center for Army Lessons Learned at Fort Leaven- worth. He previously served in the 10th Special Forces Group, the 107th Military Intelligence Battalion, and the 7th Infantry Division. He is a 1987 ROTC graduate of Virginia Polytechnic Institute.

Maneuver in the Defense

COLONEL WILLIAM J. MARTINEZ

The tactics of the United States Army have evolved and changed over the years for a number of reasons. Before the 1980s our Army was oriented to the defense and our tactics reflected that emphasis. Since that time, however, we have taken an offensive orientation, something seen in current tactical doctrine. The problem is that although our offensive doctrine and tactics have kept up with changes in technology, our defensive doctrine has not. Different equipment and organizations between light and heavy units cause us to fight differently. I believe we are at a doctrinal turning point in the way light units defend.

Heavy forces are able to conduct a linear defense. With their mechanized vehicles and heavy equipment, they can defend in relatively open areas. Light units, on the other hand, are forced to defend in restrictive terrain. Faced with a heavy enemy threat, their advantage lies in forcing mechanized units to dismount and then fight as dismounted infantry against dismounted infantry. When light units defend in open or nonrestrictive terrain, they only succeed in slowing the enemy down.

Although we know that light units must defend in restrictive terrain, we haven't modified our doctrine to fit this scenario. We still want a linear defense. With the combat power of a light infantry unit, this stay-in-place linear defense is difficult to execute effectively. We are trained to prepare our fighting position, stay in it, and fight from it as we always have done.

Although we know that light units must defend in restrictive terrain, we haven't modified our doctrine to fit this scen- ario.

This does not mean that fighting positions are no longer important. A soldier has to have a position with at least 18 inches of overhead cover--one that protects him from enemy indirect fire. It would be ideal if he could also fight from such a position, but this is where dismounted light infantry falls into a different category.

If light infantry forces are positioned correctly in the defense, they will be in built-up areas or some other type of restrictive terrain. They have to be positioned where they can survive against a heavy mechanized force. To operate in such terrain, the heavy mechanized force would then have to dismount to clear obstacles or neutralize the light forces defending before it could proceed. In making the heavy force dismount, the light unit forces a dismounted fight where it has the advantage.

Quite often, light forces use restrictive terrain to overlook or defend obstacles that impede or slow the movement of heavy forces. What we have done traditionally is to position our forces in a linear configuration overlooking the obstacle. Where we are defending several obstacles, we find ourselves even more dispersed on line, fighting from prepared positions. What happens (most of the time) is that the enemy forces will dismount, attempt to

turn to our flanks, or move to our rear and try to attack us at our weakest point. They seek to roll up our flanks and defeat our units piecemeal, and they can do this if we are linear and stay in our fighting positions. If the enemy wants an obstacle badly enough, he will mass his forces at one point and attempt to penetrate our linear defense before he begins to roll up the flanks. This has been our problem with light infantry. The problem is how to get everyone into the fight.

If we are given a piece of terrain that is too wide to cover or too large to put one fighting position every 10 meters, how then do we make sure we are covering the key avenues of approach? If we position around obstacles, with large gaps between positions, how do we ensure that if the enemy comes to one obstacle we can mass enough combat power to stop or defeat him? If we stay in our fighting positions, a large number of the force will never get into the fight. I propose, therefore, that we maneuver in the defense!

This concept is somewhat new in the sense that there is no doctrine for light infantry maneuver in the defense.

If we stay in our fighting positions, a large number of the force will never get into the fight. I propose, therefore, that we maneuver in the defense!

We must break the old pattern of the linear defense when defending in restrictive terrain. Let me use a rifle company as an example:

A company is given a piece of restrictive terrain to defend. There are three different routes along which a mechanized force can travel. The unit assigns one platoon to each of these three obstacles. The platoons form some kind of overwatch or defensive position so that they cover the obstacle by fire to keep the mechanized force from passing through. Depending on which corridor it chooses, the enemy unit will most likely send dismounted infantry to defeat the light infantry defending and clear the obstacle.

If they mass a company or more on one platoon defensive position, according to our current doctrine, that one platoon would fight out of its fighting positions, trying to defend against an entire company.

I propose that through observation posts, REMBASS (remotely monitored battlefield sensor system), or other early warning devices, we should determine which avenue of approach the enemy is using for his dismounted infantry. This would tell us which obstacle he is most likely to encounter. The defending unit would establish a trigger point with which to launch the other two platoons to mass assault, rush, or maneuver to predetermined positions. If there is time, they should move into pre-dug fighting positions with 18 inches of overhead cover. If not, the soldiers might just scratch out positions deep enough to gain some protection. The other two platoons have now moved to a position where they can get into the fight to defeat the dismounted enemy attack. This gets our entire company into the fight--not just one platoon that happens to be defending the obstacle the enemy decides to penetrate.

We need fighting positions with at least 18 inches of overhead cover to protect our soldiers from an artillery barrage or any indirect fires the enemy will use to help his advance. This overhead protection is necessary because the trigger point we establish will be well within range of the enemy's indirect fire. When the enemy is maneuvering to our positions, his indirect fires have either shifted beyond us or stopped altogether. We have to be prepared--and able--to get out of our fighting positions and maneuver to get into the fight.

This concept of maneuvering in the defense in restrictive terrain has several variables that must be considered. Enemy capabilities, number, size, type terrain, speed of movement are only a few of these. There is also the discussion of where light infantry should defend. Overwatching the obstacle with the entire force may not be the best idea. Positioning forces where they can best defeat the dismounted infantry attack should be the prime consideration. We must assume that the enemy reconnaissance elements will know where our obstacles are. The dismounted infantry will be deployed well in advance of their mechanized forces. Perhaps it would help to explain what happened to our brigade of the 101st Airborne Division during a rotation to the Joint Readiness Training Center.

This concept of maneuvering in the defense in restrictive terrain has several variables that must be considered.

We had been given a mission to defend in sector against a mechanized force. We conducted a good terrain analysis and determined the corridors along which the enemy could maneuver. Since we had a battalion of AH64s in overwatch, we discarded the open corridors. We believed the enemy would avoid open areas for fear of being destroyed by Hellfire missiles. We felt he would probably skirt the woodline and go where we would least expect him to go, because this would be his best chance of penetrating our sector.

From our terrain analysis of the ridge, we found several trails that the enemy could follow. We knew we would not be able to place obstacles on each of these trails. Walking the ground we identified the ones he was most likely to take and built obstacles blocking these avenues of approach. The battalion commanders then placed their companies, and in some cases platoons, to overwatch the obstacles. This did not mean an entire platoon was overwatching the obstacle; a portion of the platoon--a fire team or squad--had eyes on the obstacle with the ability to call indirect fire while the rest of the platoon was placed to defend and defeat the dismounted attack.

The company commander then walked from platoon to platoon looking for routes and alternate positions each could assume if it had to maneuver to get into the fight. We designated the triggers that would launch a platoon to maneuver. Units conducted rehearsals in which each platoon maneuvered to another position. We confirmed and timed routes and began preparations of alternate positions. Fires were coordinated, target reference points established, and control measures emplaced to eliminate the probability of fratricide if the maneuver occurred at night.

We had read the ground correctly: The enemy chose to breach the obstacles we wanted him to attempt to breach. As predicted, he launched a dismounted force to destroy the light infantry in overwatch of the obstacles, but to our surprise the enemy moved completely around us and attacked from the rear.

One company was not successful, because the company commander was still focused forward, defending to the front. He missed the trigger points to launch the other platoons' maneuver and failed to get them into the fight. It was

The company commander then walked from platoon to platoon looking for routes and positions each could assume if it had to maneuver to get into the fight.

no surprise that the enemy company defeated one platoon then moved to the next, rolling up the company's flank, and defeated them piecemeal. They successfully cleared the obstacles, which allowed a portion of the mechanized force to pass through.

In another company sector, the company commander successfully launched his platoons at the proper trigger points to maneuver them and get them into the fight. He successfully defeated the dismounted attack. He was able tooverwatch the obstacle with two soldiers, who continued to call indirect fire on the obstacle to prevent the enemy from clearing it. He was able to deny the mechanized force passage through his sector, which supported the brigade plan.

Light infantry must perform several critical tasks when defending in restrictive terrain. As in any defense, the most important task may be conducting a thorough terrain analysis and walking the ground to find the best defensive positions. You must force the enemy to dismount. Because you are defending to defeat the dismounted infantry attack, the positioning of your crew-served weapons (machineguns in particular) is critical. An analysis of METT-T (mission, enemy, terrain, troops available, and time) will determine whether you defend forward, rearward, or all around. The enemy will try to find your weakness. Light infantry alone is no match for a heavy force. If you select your defense correctly, you will have the advantage of knowing the terrain, having rehearsed fighting positions, routes, or lanes for maneuver, and--if it is a night engagement using night vision goggles.

Other critical tasks include rehearsing your maneuver. Time your maneuver day and night to see how long it takes. Make sure you have several means of determining the direction of the enemy's movement, and identify accurate trigger points to launch your maneuver. Early-warning devices, booby traps, observation posts, and REMBASS are some of the tools at your disposal. Making the right call, at the right time, to launch your maneuver and get your entire force into the fight could be the difference between success and failure.

Light infantry commanders must break the pattern of defending in a purely linear defense or fighting from a fixed position in restrictive terrain. We can say that if we have time we will dig primary, alternate, and supplementary positions, but reality and normal defense times tell us we will be lucky to complete one position to standard. We may not even have time to scratch out a position. We may have to maneuver to a place where we fight from a prone position with little cover. Still, the greatest advantage--and imperative--is that we get our entire force into the fight on time and place effective fires where they are needed.

Look at restrictive terrain from a light infantry viewpoint. You are digging your fighting positions and building obstacles to channel the enemy to

Making the right call, at the right time, to launch your maneuver and get your entire force into the fight could be the difference between success and failure.

enter your established engagement areas. In restrictive terrain, the engagement areas we are talking about are aimed at defeating dismounted infantry. The obs- tacles will stop vehicles only if we defeat the dismounted infantry. I can't stress this enough: Light infantry must focus on the dismounted infantry threat in restrictive terrain. Light infantry must train on defensive tasks correctly and realistically. Review what has to be done to succeed. If you don't have enough time to train on the defense completely, break up the tasks into smaller pieces. There is more to the defense than just digging your fighting position. Train as you will fight, and don't expect to defend as a light force against a heavy force in open terrain. I am confident that light forces, if used properly in restrictive terrain, can effectively restrict, stop, and defeat a heavy enemy force.

Colonel William J. Martinez commanded the 3d Brigade, 101st Airborne Division, and is now G-3/Chief of Staff, U.S. Army Forces, Central Command. He previously commanded a battalion in the 10th Mountain Division and served in the 1st Infantry Division and the 82d Airborne Division. He is a 1974 graduate of the United States Military Academy and holds a master's degree from Indiana University.

At the Breach
Task Force Combat Health Support

CAPTAIN PHILLIP L. HOCKINGS

Many task forces training at the National Training Center (NTC) have trouble evacuating casualties from the battlefield in a timely manner and have high died-of-wounds rates throughout their rotations. As a result, soldiers in the unit lose faith in the casualty evacuation system. They begin to believe that if they are wounded on the battlefield they will have little chance of surviving. This article outlines a technique based upon published doctrine for the employment of combat health support (CHS) assets in support of a task force deliberate breach.

The breach of a complex obstacle presents a significant challenge to the task force battle staff and combat service support (CSS) planners. To further complicate planning, no doctrinal templates or published techniques are available to employ forward oriented unitlevel CHS assets in support of a task force deliberate breach.

Units training at the NTC encounter a battalion defensive area three to five kilometers wide and up to two kilometers deep. The obstacles consist of several different types of barriers, each designed to complement the effects of the others. The linear obstacles consist of belts of surface-laid, antitank mines with antihandling devices, and possibly antipersonnel mines, supplemented by a tank ditch and several wire obstacles. The fighting positions are backed up by antiarmor weapon systems.

Once the task force commander determines that the breaching operation is beyond the means of a single company or team, he must task organize to conduct a deliberate breach. The task force designates subordinate companies or teams to serve as the support force, breach force, and assault force.

Accordingly, the medical platoon leader must organize his platoon to support the deliberate breach. The treatment squad is split to form treatment teams A and B. The medical platoon leader then organizes the rest of his organic ambulance section and the direct-support ambulances from the forward support medical company (FSMC). The ambulances are distributed between the two treatment teams.

At the company or team level, there is no change to the doctrinal employment of medical assets. Each task force company is allocated one armored ambulance (M113) and combat medics. If the commander assigns the engineer company to serve as the breach force, he should consider positioning an armored ambulance and medics with it. The task organization influences this decision. The company CSS assets move as the fourth platoon, led by the company first sergeant. This fourth platoon may move in the company formation for increased protection, or trail this formation by 500 to 1,000 meters, depending on mission, enemy, terrain, troops, and time available (METT-T).

If the company is the assault, support, or breach force, the fourth platoon remains close enough to provide immediate support. As the companies move through the breach lane, the fourth platoon should follow. Staffs and commanders at the NTC often claim that company trains and elements of the task force combat trains are too far forward. These CSS assets are normally directed to remain on the near (friendly) side of the breach until all the maneuver forces have passed through. This thinking leads to an increased morbidity rate as evacuation routes and times lengthen.

Elements of the task force medical platoon need to be positioned forward to provide rapid casualty evacuation and treatment. Locating ambulances and a treatment team forward shortens lines of support and facilitates quick medical intervention, enabling medical officers to provide advanced trauma management. There is a need for stabilizing care on the far side of the breach until a second or third lane is established and rearward evacuation begins.

At the Line of Departure

As the task force crosses the line-of-departure with its CHS assets, the treatment teams are prepositioned within the task force formation. This prepositioning helps medical assets in their move forward to the breach and enables them to synchronize their actions with those of the maneuver elements they are following and supporting.

Treatment team A, led by the field medical assistant and the physician assistant, follows one of the support companies and establishes the treatment team approximately one terrain feature behind the company. The support force usually deploys into support-by-fire positions to bring direct fires on enemy forces overwatching the obstacle. After establishing its treatment site, treatment

team A is now prepared to support the near side of the breach.

Treatment team B, led by the battalion surgeon (medical platoon leader), follows the task force formation. This team must remain uncommitted so that it is prepared to move through the breach once a lane has been opened. When enough maneuver space is created, the treatment team moves through the breach and establishes a treatment site on the far side of the obstacle.

The ambulance exchange point (AXP), operated by the FSMC, must be integrated into the task force scheme of maneuver. The AXP, augmented with a treatment team and wheeled ambulances, should move forward with the task force combat trains. The combat trains and the AXP should move, preferably within four kilometers (no more than 10) behind the lead elements of the task force. If this AXP is not planned for and integrated into the scheme of maneuver, task force medical elements will lose their ability to move forward, as casualties awaiting evacuation collect at the treatment locations of teams A and B.

CHS Assets at Execution

The positioning of CHS assets is necessary during the synchronization of the breach and assault. This allows the task force to maintain the flexibility to establish a treatment team on each side of the breach. The decision of when to send treatment team B through the breach lane to support the fight on the enemy side is critical, because the team must be given maximum protection if it is to survive and do its job. This move must be tied to a maneuver event and clearly spelled out in the task force operations order.

Support Force. As companies begin to occupy positions in preparation for the breach, the task force CHS assets begin to move into position. Treatment team A establishes a treatment site behind the support element it has followed to its support-by-fire position. From this position, the treatment team is preparing to support the near side of the breach. Treatment team A assists the company medics by dispatching its remaining ambulances in an area support role. After casualties have been treated and stabilized by team A, they are evacuated to the AXP for further evacuation to the brigade support area where the medical company is located.

Breach Force. While the breach force is trying to reduce the obstacle, the only medical assets forward at the breach site are those task organized in the fourth platoon of the breach company. The company medics, in an M113 ambulance, establish a casualty collection point near the entrance to the breach lane but out of the fire sack. Casualties from the breach element are moved to the company collection point where they are prepared for evacuation to treatment team A. If the number of casualties at the breach company collection point exceeds the evacuation capability of the company ambulance, treatment team A can help by dispatching its area support ambulances. When a damaged vehicle is removed from the lane, the casualties can be extracted and evacuated to the company collection point at the lane entrance. As the breach force reduces the obstacle and opens a lane, the company medics follow the company through the lane to a planned collection point on the far side of the breach.

Assault Force. When the obstacle has been breached, the assault force moves through the lane to destroy the enemy forces defending the obstacle. The assault force may continue to attack, expanding the lodgement area and rolling the flanks of the enemy. The assault force medics must be prepared to establish a casualty collection point on the far side of the breach, where they will treat and stabilize casualties until treatment team B can move forward. As the task force begins to move through the breach, treatment team B moves forward and travels through the breach lane behind the second company through the obstacle. This treatment team establishes a task force casualty collection point near the breach lane exit and sends out its area support ambulances to begin collecting casualties from the company collection points. Depending upon the number of lanes created, the task force should not plan on evacuating casualties through the obstacle until all task force maneuver elements have moved to the far side.

After treatment team B has established a position on the far side of the breach, treatment team A prepares to move forward. Treatment team A will not displace from its location, however, until all casualties have been evacuated, or until the AXP comes forward to team A's location to assume responsibility. After evacuating the casualties or transferring responsibility for them to the AXP, treatment team A moves forward and follows the task force to its objective, providing continuous support.

All leaders in a unit are charged with the welfare of their soldiers. Leaders must ensure that systems are functional and soldiers trained on them. The casualty evacuation system and methods of employing CHS assets are historically poorly understood and receive little training emphasis as a system. Leaders must start with doctrine, apply it on the basis of METTT, and incorporate casualty evacuation into their training events.

Task force medical assets must be positioned forward to provide timely and effective forward-oriented CHS. The CSS planners must be integrated into the task force planning process to ensure that the support elements are synchronized with the maneuver elements. The movement of the treatment teams is driven by events. If the task force is to succeed, the teams must be positioned forward where they can quickly react to change as in the tactical situation.

Captain Phillip L. Hockings served as an observer-controller on the mechanized training team at the NTC, commanded a forward support medical company in the 2d Infantry Division and a medical company at the Presidio of San Francisco, and is now battalion S3, 2d Forward Support Battalion, 2d Infantry Division. He is a graduate of Western Illinois University.

Forward Logistical Element

CAPTAIN ROBERT S. DIXON

Supporting the light infantry dur-ing certain combat and peacekeeping operations can become logistical nightmares for the combat service support (CSS) units that attempt to monitor and manage operations solely from the rear. A light infantry battalion can significantly reduce these logistical problems by having a forward logistical element (FLE). A FLE is a task force of selected CSS assets from the forward support battalion (FSB).

Understandably, logistical support is difficult for an infantry battalion when its brigade is dispersed over a large area--as when the brigade deploys its battalions in echelon, or when a battalion operates separately from its brigade, as is often the case at the National Training Center. Attaching a FLE is essential in providing direct support to the light infantry.

The use of an FLE eliminates most of the problems the infantry battalion faces when it deploys the trains in echelon. The battalion deploys both the combat trains and the field trains forward from the brigade support area (BSA) when it uses the FLE, instead of employing echeloned trains. At the same time, the FLE deploys with the trains and provides logistical assets directly to the supported battalion. When the brigade commander employs the FLE, he projects critical support forward to the battalion commander, enabling the battalion to sustain its CSS operations much better and the brigade to disperse over more of the battlefield.

Current light infantry doctrine for CSS calls for the BSA to provide logistical support to the forward units. In environments where the battlefield covers a larger area, the light infantry faces numerous logistical problems as a result of conducting CSS operations out of the BSA. The current doctrine also calls for the battalion trains to deploy in echelon, which splits the trains. Problems develop because this split also separates key personnel.

Establishing the battalion trains in echelon fails to achieve three principles: unity of effort, unity of command, and security.

Unity of effort is not maintained when the battalion operates two logistical sites. The S-1 and S-4 shops must run two command posts. This separates these two staff officers from their noncommissioned officers (NCOs) in charge and from half of their personnel and equipment as well. The personnel of the battalion maintenance section, communications platoon, and support platoon are also split between the two trains. In the end, these sections must do twice the work with fewer soldiers. The CSS assets of the infantry battalion are thus prevented from operating to their maximum effectiveness.

When the brigade commander directs the use of the FLE, he projects critical support forward to the battalion commander.

Unity of command is lost in two ways: First, the headquarters and headquarters company (HHC) commander and the S-4 end up doing similar tasks at two different locations. Each is in charge of his own element. Both of them command and control CSS operations and assets. Their actions, which are intended to be synchronized, are often contradictory or repetitive. These two officers spend time tracking the battle, coordinating and planning CSS operations, securing their perimeters, and quartering and jumping their own elements.

Second, unity of command is threatened by having the HHC commander operate the field trains from the BSA. Although the CSS assets are from the infantry battalion, the field trains become part of the BSA and fall under the responsibility of the FSB commander. Thus, the HHC commander works for two different battalion commanders. He receives guidance and orders from the infantry commander to support the battalion, and he receives directions from the FSB commander on how he is to establish the field trains in the BSA. The HHC commander must secure part of the BSA perimeter, follow the FSB SOPs, and displace on order. These requirements are difficult to achieve even under ideal conditions. The HHC commander, in the end, has no unity of command when he's trying to satisfy two battalion commanders.

Security is often lacking on the combat trains perimeter and along the battalion supply route. While the combat trains are usually established three to five kilometers from the FLOT (forward line of own troops), the S-4 has only 15 to 25 soldiers conducting sustainment operations and securing their perimeter. The soldiers in the combat trains focus primarily on conducting continuous CSS operations, not on security. Often limited security is provided by a CSS operator during his "down" time. The result is that a weak perimeter is established; the combat

trains must depend on two or three observation posts and hope their passive security measures work. In reality, the trains become a vulnerable target for the enemy.

The battalion supply route is very difficult to secure. It tends to stretch 20 to 30 kilometers from the BSA to the lead companies. The traffic on it constantly presents the enemy with many lightly-defended targets from which to choose. More often than not, combat units are not tasked to secure the supply route. Although aviation, military police squads, and TOW sections are capable of providing sec-urity, other missions and requirements prevent them from covering such a long route. Usually, security is left to the drivers and track commanders of the support platoon. The logistical packages (LOGPACs) face the constant threat of ambush and the loss of critical supplies and valuable CSS assets.

The FLE is a tailored company-sized task force of CSS assets from the FSB that aids the battalion's CSS operations.

Longer supply routes often cause delays and lost LOGPACs. The turn-around time between LOGPACs is such that only one can be successfully run per day for sustained periods of time.

The brigade commander and the FSB commander can eliminate these prob- lems by deploying the FLE along with the infantry battalions. Having the FLE places a logistical unit forward in a secure area with the combined trains.

The FLE is a tailored company-sized task force of CSS assets from the FSB that complements the battalion's CSS operations and enables the battalion to operate more independently. It is attached directly to the battalion it supports. Its mission is to provide direct support to augment the infantry battalion's organic CSS elements. The FLE collocates with the combined trains of thc infantry battalion. The trains and FLE deploy five to eight kilometers behind the FLOT and provide all CSS to the battalion with reduced support provided from the FSB.

Two officers (first lieutenants or captains) are assigned from the FSB to provide command and control for the FLE. The senior of these is the FLE commander; he works with the infantry battalion HHC commander, who is in charge of the trains/FLE site. The second officer is the support operations officer in charge of the FLE, who works directly with the battalion S-4 and the support platoon leader in planning and coordinating logistical operations. He is also responsible for coordinating with the FSB support operations section for support. He keeps the FSB informed of the CSS operation and the battalion's status of the classes of supply. The FLE support operations OIC and the battalion S-4 forecast and plan all CSS operations and resupply for the infantry battalion and the trains/FLE. The infantry battalion S-4 continues to track CSS and remains responsible for overall CSS operations.

The FLE is composed of detached elements from the various support units in the FSB. While the breakdown varies according to METT-T, a basic package is as follows:

From HQ and Company A (FSB Supply Company):

- Class I distribution site and personnel (two days of supply [DOS]).
- Class III Bulk (tank and pump unit).
- Classes II, IV, VII (limited on-hand supply).

From Company B (FSB Maintenance Company):

- Maintenance support team with limited prescribed load list.
- Class IX exchange point (limited on-hand).
- Evacuation point for communications, weapons, generators, and automotive equipment.

From Company C (FSB Medi- cal Company):

- One or two ambulances (dedicated as ambulance exchange point for evacuation).
- Class VIII resupply.

From Transportation Company (FSB or MSB truck company):

- Truck master.
- Three to four 5-ton trucks.
- One 3-ton forklift.

The means of receiving support is altered when the FLE is used. The

CLASSES OF SUPPLY

CLASS	
I	Subsistence, gratuitous-issue health and welfare items.
II	Clothing, individual equipment, tentage, organizational tool sets and kits, hand tools, administrative and housekeeping supplies and equipment.
III	Petroleum fuels, lubricants, hydraulic and insulating oils, preservatives, liquids and gas compounds, components and additives of petroleum and chemical products, and coal.
IV	Construction materials including installed equipment, and all fortification and barrier materials.
V	Ammunition of all types (including chemical, radiological, and special weapons), bombs, explosives, mines, fuses, detonators, pyrotechnics, missiles, rockets, propellants, and other associated items.
VI	Personal demand items such as candy, cigarettes, soap, and cameras (nonmilitary sales items).
VII	Major end items such as launchers, tanks, mobile machine shops, and vehicles.
VIII	Medical material, including repair parts peculiar to medical equipment.
IX	Repair parts and components to include kits, assemblies, and subassemblies (repairable or nonrepairable) which are required for maintenance support of all equipment.
X	Material to support nonmilitary programs such as agriculture and economic development (not included in Classes I through IX).
Misc.	Water, maps, salvage, and captured material.

trains/FLE maintain one to three DOS on hand. The most supplies the FLE has is two DOS while the trains always maintains one. This allows the battalion to operate independently while still being able to move quickly. The trains/FLE is resupplied by running LOGPACs to the BSA. The FLE support operations officer, through prior coordination, requests the neces-sary classes of supplies. LOGPACs from the BSA to the trains/FLE would be needed once every two or three days. This reduces the traffic on the supply route and limits unnecessary traffic in the BSA. The battalion backhauls personnel and trash, and evacuates unserviceable equipment during the LOGPACs. It remains the battalion support platoon's responsibility to draw Class V from the ammunition transfer point. The support operations officer coordinates quantities and times.

The quality of CSS in the infantry battalion improves with the use of the FLE. The battalion finds there is a unity of effort with their FLE counterparts. Logistical support is provided directly to the battalion and becomes a consistent support relationship, much like the other slice elements in the battalion.

The problems encountered when conducting a split trains operation are reduced if not eliminated. Unity of command is returned when the HHC commander and the battalion S-4 operate together. The S-4 concentrates on logistically supporting the battalion and tracking the battle. The HHC commander can then focus directly on establishing the trains. He becomes responsible for implementing a security plan, maintaining the perimeter, and quartering and jumping the trains/FLE. He no longer has to manage with two commands. He is freed from the constraints of the BSA while retaining the logistical support provided by the FSB.

The CSS assets of the infantry battalion are no longer divided between two sites doing the same tasks. The battalion can mass its CSS operators. In return, more personnel are available to conduct CSS operations and maitain the perimeter. The quality of logistical support provided to the infantry battalion commander is greatly improved. CSS can be pushed to the companies instead of being pulled from the BSA and is much more responsive with shorter supply lines. LOGPACs can be conducted more frequently, and the demand for supplies can be forecast better.

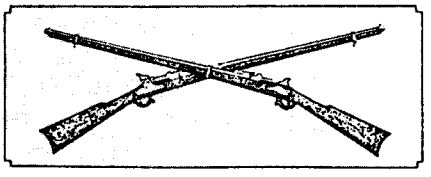
The HHC commander is freed from the constraints of the BSA while retaining the logistical support provided by the FSB.

Security is improved significantly with the combination of the trains and the FLE. They are slightly farther back than the combat trains would be, which puts more space be-tween the logistic assets and the enemy. With more personnel freed from duplicating work and various organic assets now combined,the HHC commander can run a stronger perimeter. The trains/FLE, in the end, has a better manned perimeter and more firepower. The supply route is less hazardous for the LOGPACs moving forward and rearward because it is traveled less often. The shorter route forward is faster to travel and presents a smaller area for possible enemy ambush attempts. The route from the BSA to the trains/FLE is used only once every two or three days, pre-senting fewer targets to the enemy with less frequency. Meanwhile, the need for a TOW section or a military police squad to reconnoiter the route before LOGPACs or to provide security would be reduced. Security missions can be executed without excessively diverting assets from the primary mission.

The FLE does not cure all of an infantry battalion's logistical problems, but it does allow the battalion to manage and operate its assets more efficiently. Additionally, the FLE does not place excessive strain on the FSB. The FSB commander benefits by having a smaller BSA to manage. Because the field trains are no longer part of his perimeter, he can have fewer supplies on hand, which significantly increases his mobility.

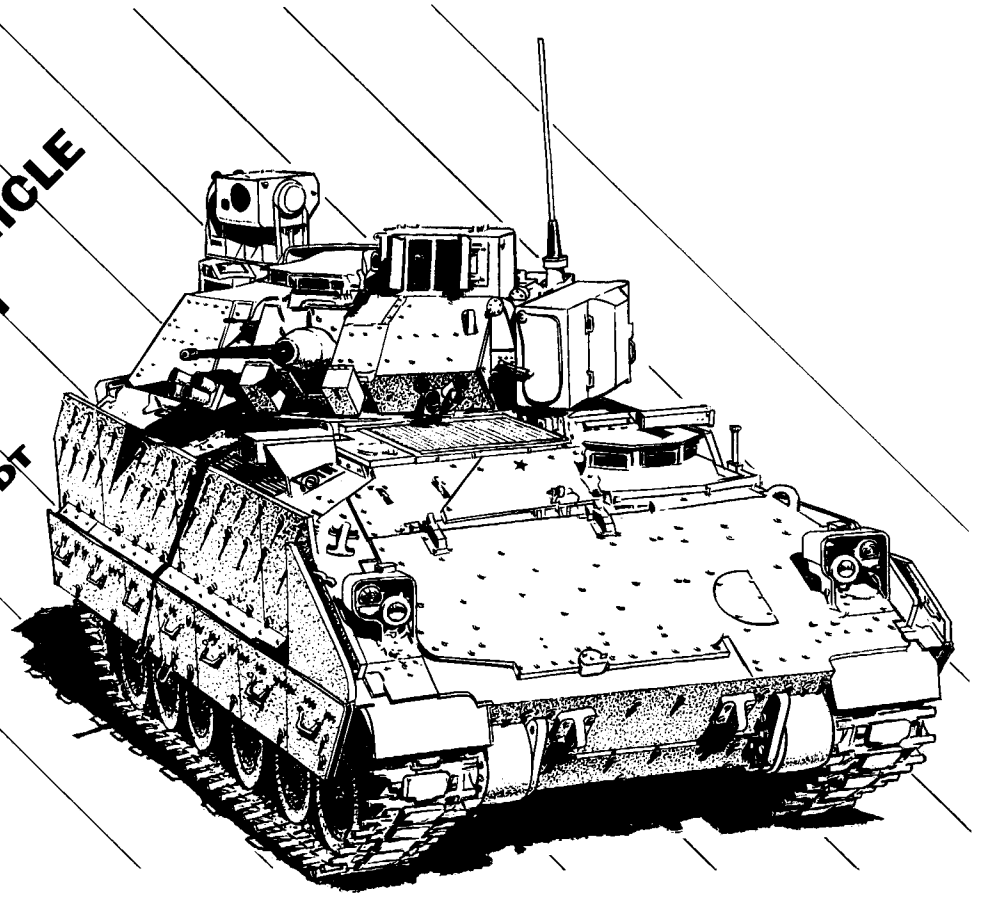
The FLE can best be used on battlefields where a light infantry brigade is dispersed over great distances or where a battalion task force is operating independently of the brigade or is attached to a heavy brigade, as at the NTC. The infantry battalion can significantly improve CSS operations by running combined trains, and the forward logistical element makes this possible. The end result is an organization that can better sustain the fighting force.

Captain Robert S. Dixon served as support platoon leader and HHC executive officer in the 6th In-fantry Division. He also served as squadron motor officer and an-titank company commander in the 2d Battalion, 11th Armored Cav-alry Regiment, the opposing force at the National Training Center, where he now commands an OPFOR motorized rifle battalion. He is a 1989 ROTC graduate of the University of Iowa.



BRADLEY M2A3/M3A3
THE ARMY FIGHTING VEHICLE FOR THE 21st CENTURY

MAJOR TODD R. WENDT



The Bradley M2A3/M3A3 is the latest in a series of upgrades to the Bradley Fighting Vehicle System (BFVS) designed to keep the U.S. Army mechanized force ahead of all potential threats well into the 21st Century.

Past upgrades, which began with the original Bradley A0, were hardware oriented. The A0 offered significant advantages in maneuver, armor protection, and firepower over the M113 armored personnel carrier. The A1 version, which began fielding in 1988, included the improved TOW II missile, a gas particulate filter unit (GPFU) for the crew, an improved fire suppression system, and improved equipment stowage. In 1990 the A2 version offered improved survivability with an additional layer of armor protection, a spall liner, attachments for armored tiles, an upgraded power train (engine and transmission), and ammunition storage that reduces vulnerability from the impact of enemy munitions.

Lessons learned from Operation Desert Storm led to the A2 Operation Desert Storm (ODS) version of the BFVS, with an eye safe laser range finder, a digital compass system coupled with a precision lightweight global positioning system (GPS) receiver (PLGR), a driver's vision enhancer (DVE), a battlefield combat identification system (BCIS), a missile countermeasure device (MCD), and equipment restowage. The 3d Infantry Division at Fort Stewart, Georgia, is currently drawing the first M2A2 ODS vehicles.

The Bradley A3 program is a leader in the Army's Force XXI modernization effort. The A3 builds on the capabilities of the A2 ODS and significantly upgrades the BFVS in command and control (C2), fire control, survivability, mobility, sustainability, and training. The A3 also derives most of its enhancements from the use of digital technology, and every A3 vehicle, from the squad leader's to the battalion commander's, will have the same capabilities. Improvements incorporated into the A3 variant will enable the infantry soldier to defeat the projected threat for many years ahead and make him fully compatible with all other modern digitized C2 systems on the battlefield.

Command and Control

Improvements in command and control provide greater situational awareness and operational flexibility so that units equipped with M3s can adjust rapidly to changing tactical situations. The enhanced C2 produces digital interoperability, along with greater operational effectiveness and lethality in mechanized infantry units, while at the same time, reducing the potential for fratricide. Through digitization, all elements of the vehicle system (C2, fire control, combat identification, communications) are integrated to work as a whole, with C2 as the controlling element. The Bradley A3's C2 capabilities also make it a vital link in the tactical internet.

Key to the A3's success into the 21st century are its compliance with the Army Technical Architecture (ATA) and its adherence to the Defense Information Infrastructure (DII) and Common Operating Environment (COE), which

set the basic standards for Army digital communications, mapping, user interfaces, operating environments, data rates, and the like. Compliance with the ATA and DII COE makes the A3 fully functional with all other digital platforms – other M2/M3A3s, M1A2 Abrams tanks, helicopters, and artillery and integrates them with the Army-wide digital C2, communications, intelligence, and logistics networks.

The A3 processes voice and digital data communications through the on-board SINCGARS (single channel ground air radio system and the EPLRS (enhanced position location reporting system) to maintain a near real-time data link for reporting and receiving operational overlays, graphics, and friendly and enemy positions.

The commander's station has a flat panel display and keyboard that enable him to send and receive messages and reports. Force XXI adopted the Bradley A3 screen design as the baseline for all systems included in its digitization integration effort.

M2/M3A3 C2 meets the standards of MIL-STD 188/220, which means it can send and receive messages in variable message format (VMF). The vehicle commander uses his keyboard and flat panel display to scroll through a menu of pre-formatted reports (spot report, logistics report, call for fire) or to create a free-text message that is instantly linked with the appropriate digitized communication, C2, intelligence, or logistics networks. He can store and retrieve messages much like e-mail to help him manage the flow of information. And if it becomes necessary, he can instantly purge the data to prevent its capture.

With the integrated C2, intelligence, and logistics networks, the commander always has up-to-date information on the location and status of adjacent vehicles, units, and enemy forces. Graphics and orders can be updated instantly and distributed throughout the force. Through the use of a industry standard Type II/III PCMCIA card, the crew can load Defense Mapping Agency digital map products and display them for operational use. These capabilities will substantially reduce the preparation and adjustment time required to reorient the force to react to or take advantage of a change in the tactical situation.

Operational graphics and maps can automatically scroll on the display to stay current with the vehicle's location or can be moved or zoomed in and out to observe other areas of the battlefield. As the vehicle changes direction, the commander can choose to have his display rotate so that he views it in the direction of travel. The graphics will also remain oriented for easy recognition and reading.

Integration into the tactical digital C2 network enables the commander to transfer target data to other digitized platforms. The commander can observe and mark a target in the commander's independent viewer (CIV) and instantly send accurate target information to the appropriate weapon system, such as attack helicopters or his supporting artillery and mortars. (The CIV is the large sight box on the left of the turret as you look at the vehicle.)

GLOSSARY OF ACRONYMS

AGTS	Advanced Gunnery Training System
ATA	Army Technical Architecture
BCIS	Battlefield Combat Identification System
BDT	Bradley Desktop Trainer
BFVS	Bradley Fighting Vehicle System
CCTT	Close Combat Tactical Trainer
CIV	Commander's Independent Viewer
COE	Common Operating Environment
COFT	Conduct-of-Fire Trainer
DII	Defense Information Infrastructure
DVE	Driver's Vision Enhancer
EPLRS	Enhanced Position Location Reporting System
FLIR	Forward Looking Infrared
GPFU	Gas Particulate Filter Unit
GPS	Global Positioning System
HOTT	Hands-on Turret Trainer
IBAS	Improved Bradley Acquisition System
INU	Inertial Navigation Unit
ISU	Integrated Sight Unit
LRU	Line Replaceable Unit
MCD	Missile Countermeasure Device
ODS	Operation *Desert Storm*
PGS	Precision Gunnery System
PLGR	Precision Lightweight GPS Receiver
PNS	Position Navigation System
SINCGARS	Single Channel Ground and Airborne Radio System
SPORT	Soldier Portable On-System Repair Tool
VDMS	Vehicle Diagnostic Management Software
VIDS	Vehicle Intergrated Defense System
VMF	Variable Message Format

In the back of the vehicle, the squad leader can view the same graphics and messages as the commander on his flat panel display. He can switch views between the CIV, the commander's flat panel display, the improved Bradley acquisition system (IBAS), and the DVE, when it is operational, and see the picture that is currently on that device. Thus, the squad leader can stay current with the situation and orient to the terrain before he dismounts.

Lethality

A primary technology for improving M2A3 lethality is the second-generation forward looking infrared (FLIR). With this FLIR, the crew has a day-and-night target acquisition and identification capability that far exceeds the maximum effective range of any on--board weapon system. With an improved ability to identify vehicles at such distances, the crew can better prepare for the engagement, or conduct a more effective target hand-off to the appropriate weapon system, or identify the target as friendly and avoid fratricide.

The crew can use the eye safe laser range finder to make sure the target can be engaged. If the target is outside the effective range of the selected weapon and ammunition, the range finder will provide a lighted warning signal in the sight reticle. Because the laser range finder is eye safe, the crew can use it during all training scenarios.

The M2/M3A3 fire control system uses the new FLIR hardware in two separate but integrated sight systems--the

IBAS gunner's sight and the commander's independent viewer (CIV). The IBAS replaced the integrated sight unit (ISU) and has a primary sight reticle, a back-up through-sight reticle in case the IBAS becomes inoperative, and a video picture to view the battlefield on a TV screen image.

The IBAS also provides the gunner with 4-power and 12-power magnification, a ballistic solution to compensate for weapon and ammunition characteristics at the determined range, and a kinematic lead capability that automatically compensates for a moving target. With the kinematic lead, all the gunner has to do is hold the reticle on the center mass of the target while engaging. The IBAS automatically compensates for a moving target's speed and direction.

The CIV gives the commander his own set of optics, separate from the gunner's optics—a biocular sight and through-sight optics to engage targets. He can view a day TV or FLIR image of the battlefield through his biocular sight.

The integration of the CIV and the IBAS makes the crew a "hunter-killer" team. The commander can designate a target in his CIV and hand it off to the gunner for engagement through the IBAS; he can continue to scan for additional targets through his CIV, as the gunner engages the first target.

Survivability

The Bradley A3 includes a number of improvements and additions that better protect the crew and the squad from battlefield hazards. The turret and the top of the chassis have additional armor plating for increased protection against air burst artillery munitions. The upgraded GPFU gives each of the crew and squad members a ventilated face-piece and a quick–disconnect hose for easy access. The GPFU is compatible with the individual protective mask for dismounts. As an additional measure for reducing fratricide, the latest BCIS, as it is developed for the Army, will be fully integrated into the C2 and fire control systems.

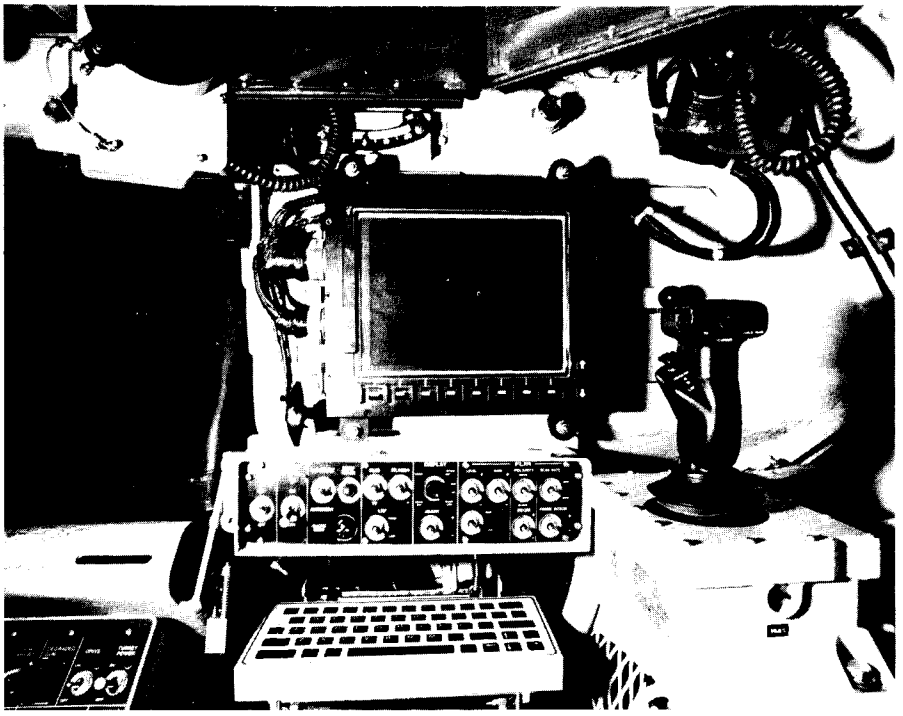
Still under development are the vehicle integrated defense system (VIDS) and a covert missile countermeasure device (MCD). VIDS will give the crew a laser warning when the vehicle is acquired by a laser range finder, laser designator, radar, or millimeter wave, or when it is being interrogated by a combat identification system.

VIDS will be fully compatible with MILES 2000 to eliminate the need for MILES belts on the outside of the vehicle. When fully developed, VIDS will also be integrated with the MCD, a multi-salvo smoke grenade system, the C2 system, and the BCIS. The multi-salvo grenade launcher will contain multiple smoke canisters to eliminate the need to reload after each use. With VIDS, the crew receives an instant warning of a laser, its type or source, and its direction. The crew can then automatically engage with the appropriate weapon system, or it can fire smoke and evade the threat.

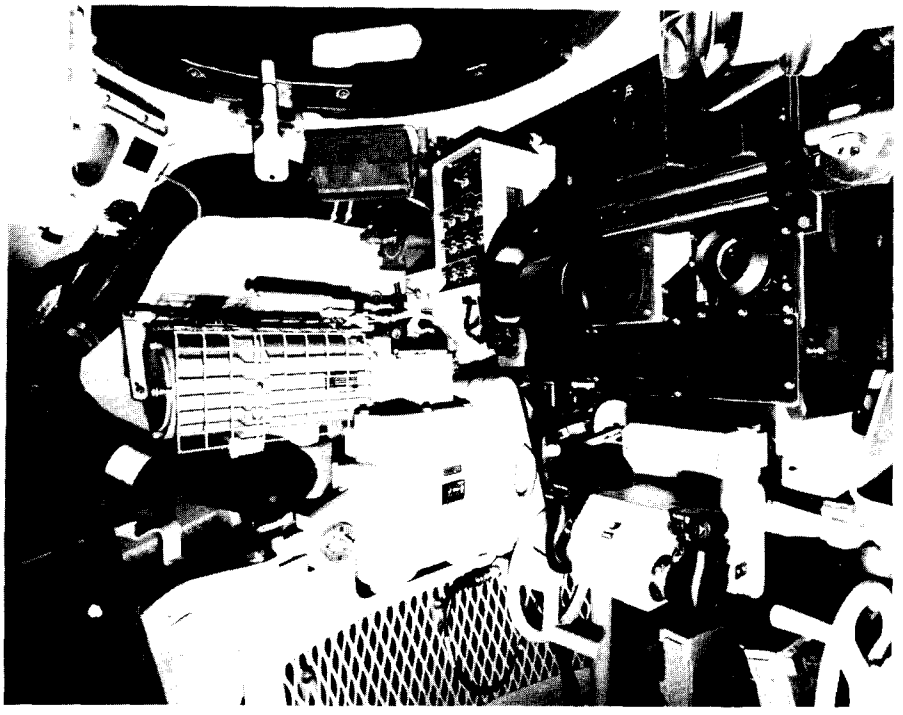
The MCD is an upgrade to the one currently mounted on the M2A2 ODS vehicle. The covert system under development will be integrated into the IBAS to reduce the MCD signature and increase the number of types of missiles it can defeat.

Mobility

A significant improvement to the navigational aids is the position navigation system (PNS), which includes an inertial navigation unit (INU) integrated with the GPS. The INU continuously updates the vehicle position based on its movement speed and direction. GPS uses satellites in space to triangulate vehicle positions. The GPS and INU work



The commander's station. The flat panel display swings out for access to the COAX, and the keyboard slides in when it is not needed.



The gunner's station. The toggle switch box to the upper left of the sights provides FLIR and day sight controls and adjustments.

together as a cross-check on position location and back-up should one or the other fail.

The commander, driver, and squad leader all have position readouts generated by the PNS. The system provides navigational data that include present location, vehicle heading, multiple waypoint and route capability, distance and bearing to waypoint, and steer-to commands. When the GPS is either denied or nonfunctional, the PNS provides a free inertial (dead reckoning) navigation capability. The PNS is fully integrated into the fire control system to support target hand-off to other weapon systems. It also supports fire control with data on vehicle attitude (pitch, roll, and yaw).

The DVE's thermal imagery gives the driver a flat panel display image that allows him to see clearly out to 150 meters and to assist in target detection at even greater distances. The DVE is a significant improvement over the AN/VVS-2; it improves the driver's depth perception and provides enhanced vision capability in all weather, day or night, and through battlefield obscurants such as smoke, haze, dust, blowing sand, rain, snow, sleet, and fog.

Sustainability

The M2/M3A3 has a complete built-in test system that queries all vehicle electronic subsystems for functionality when the vehicle is first powered-up. During operation it conducts a background sensing of the vehicle systems as they operate to give the crew a real-time vehicle status and indicate component malfunctions as they occur. When the built-in test detects a malfunction, maintenance personnel can activate the vehicle diagnostic management software (VDMS) to positively detect and isolate the fault.

VDMS will be able to isolate faults to the mission critical line replaceable unit (LRU) or cable 95 percent of the time. Some of the electronic faults and most of the automotive faults will require additional testing to accurately isolate the source of the problem. In those cases, the soldier-portable on-system repair tool (SPORT) diagnostic system will augment the vehicle's extensive on-board built-in test and help the VDMS identify these faults.

SPORT, a laptop computer equipped with additional instrumentation, is used by the organizational mechanic to diagnose vehicle malfunctions. SPORT replaces the STE-M1/FVS test equipment currently used on the Bradley fleet. Although some of the cables and transducers from STE-M1/FVS are still needed to interface with the vehicle power train, more than 85 percent of this equipment is no longer needed. A mechanic plugs SPORT into the hull or turret data port and, in a few minutes, the VDMS has a complete vehicle diagnosis.

In the future, the mechanic will also use SPORT to load software upgrades into the vehicle LRUs as the hull and turret subsystems continue to develop and mature.

Training

Training and training devices will include all the best in training technology:

The advanced gunnery training system (AGTS) is the newest training device initiative under development. AGTS replaces the conduct-of-fire trainer (COFT) as the crew gunnery simulation trainer.

With AGTS, the commander and gunner work their way through a matrix of increasingly tough gunnery engagements in a simulated battlefield environment. The system will be mobile and deployable, a need identified during *Operation Desert Storm*. It permits training in normal, emergency, and degraded gunnery modes. It also simulates operational procedures, and target acquisition,

identification, and engagement using the primary and alternate sights. AGTS can be networked to conduct section and platoon level gunnery training in a free-play environment.

Another new feature on the Bradley A3 is a training device port that will allow the crew to use some devices from inside the turret.

One device that will use the training device port is the precision gunnery system (PGS)--an eye safe laser system that superimposes the ballistic flight of the ammunition onto the IBAS sights. The crew can observe ballistic flight characteristics and adjust sights on the basis of the resulting round dispersion. PGS simulates the main gun, the TOW, and the 7.62mm coaxial machinegun and can be used in maneuver training with MILES or other PGS-equipped systems.

The Bradley A3 is MILES-compatible and will be capable of integration with the MILES II and MILES 2000 upgrades. Again, once the VIDS is operational, the vehicle will not require MILES belts to sense MILES engagements.

Also in development is the Bradley desktop trainer (BDT), which will simulate the functions found on the commander's flat panel display. The BDT will help train vehicle commanders and unit leaders in battlefield situational awareness and the use of digital communications while in a classroom environment. BDTs can be networked to conduct unit leader training.

The close combat tactical trainer (CCTT) will provide full crew simulator modules that can be networked to battalion task force level. It assists in conducting battlefield coordination and maneuver training against a computer generated opposing force. Each crew station will create realistic weapon capabilities in a realistic battlefield scenario to test the complete task force C2, intelligence, and logistics systems.

The Bradley armor tiles training set will give crews an opportunity to practice emplacing tiles on the vehicle. The system will include a complete set of vehicle tiles and a video tape for instructions.

For maintenance training, the M2A3 system will have two supporting training aids-the hands-on turret trainer (HOTT) and the maintenance trainer console system. HOTT is a stand-alone turret trainer that can be programmed to simulate both normal conditions and malfunctions in the turret. A trainee can conduct all maintenance actions, including troubleshooting, replacing, or adjusting as the set conditions dictate.

The maintenance trainer console system provides simulted operating and malfunction conditions for the weapons, turret drive, IBAS, CIV, and C2 systems. Display panels graphically represent the appropriate stations in the vehicle and provide operational controls and indicators. Like the HOTT system, the console system can be programmed to imitate normal and malfunction modes in the vehicle and provide realistic system responses to the trainee's actions.

Bradley M2/M3A3 digitization provides an integrated C2, communications, fire control, and logistics system that gives the infantry soldier significantly more situational awareness and the ability to react quickly to changes. The improved fire control technology will help him see farther in all visibility conditions and to identify and engage targets more quickly and accurately.

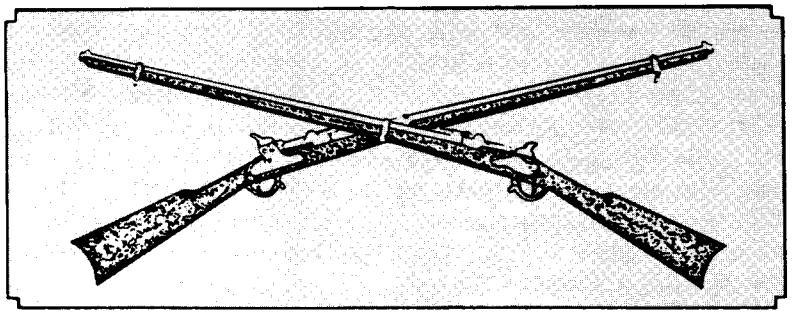
With the integrated fire control and C2 systems, an infantry soldier will constantly know his location and that of the adjacent vehicles and units on the battlefield. Should the situation dictate, he can efficiently hand off a target to a weapons platform that is better suited to engage it

The improved survivability suite will better protect the vehicle crew and squad from the effects of direct, indirect, and chemical weapons. It will also help the soldiers react effectively to modern laser engagement systems as well as identify friend or foe.

The M2A3/M3A3 is a complex system, but the automated training devices and accurate maintenance diagnostic systems will improve the infantry soldier's performance and readiness with this vehicle.

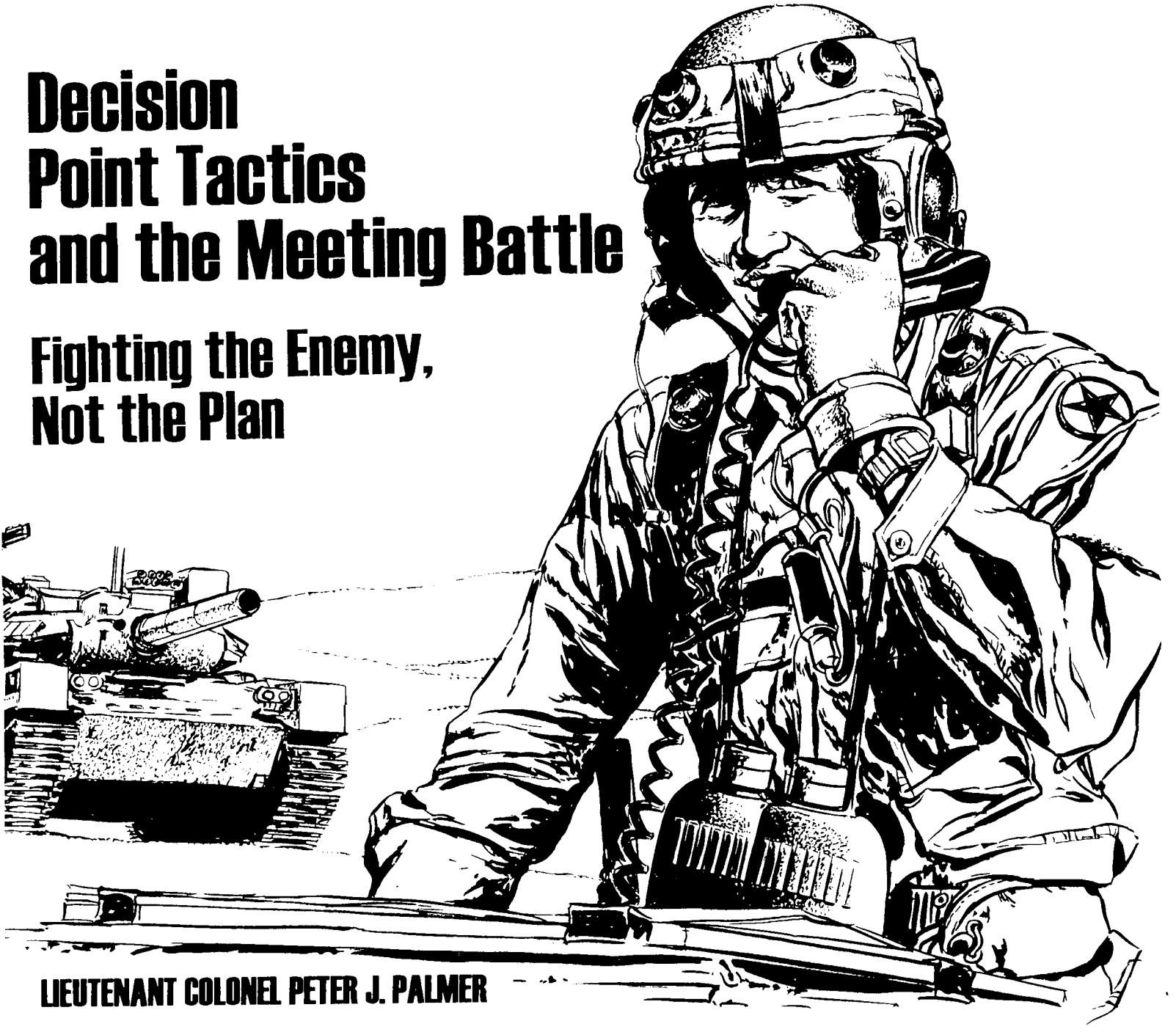
The technology for the 21st Century battlefield is here today in the Bradley M2A3/M3A3. Infantry soldiers who are in the first unit equipped in the year 2000 will have a set of advantages never before seen on the mechanized battlefield. The Bradley M2A3/M3A3 is the infantry's fighting vehicle for the 21st Century.

Major Todd R. Wendt is an Infantry officer and member of the Army Acquisition Corps currently assigned as the Assistant Product Manager, Bradley M2A3/M3A3 in the Bradley Project Office, Warren, Michigan. His experience in Bradley units includes company command. He is a graduate of the United States Military Academy and holds a master's degree from Babson College in Wellesley, Massa- chusetts.



Decision Point Tactics and the Meeting Battle

Fighting the Enemy, Not the Plan



LIEUTENANT COLONEL PETER J. PALMER

In June 1996 the National Training Center (NTC) at Fort Irwin, California, began executing full-time brigade operations. This significant change in training focus was accompanied by an even more revolutionary change in the fighting doctrine of the opposing force (OPFOR).

Field Manual 100-2-1, *Soviet Army Tactics and Doctrine;* FM 100-2-2, *Soviet Army Specialized Warfare;* and FM 100-2-3, *Soviet Army Organization and Equipment,* were replaced by DA Pamphlet 350-1, *Heavy OPFOR Organization;* DA Pamphlet 350-14, *OPFOR Operational Art,* and DA Pamphlet 350-16, *OPFOR Tactical Handbook.*

Much of the equipment, organization, and basic formation remains similar to the old Soviet model. The truly revolutionary change involves the application of these assets on the NTC battlefield. Instead of applying brute force and a strict timeline, the OPFOR now maneuvers forces in accordance with the factors of METT-T (mission, enemy, terrain, troops, and time) involved with the operation. In essence, OPFOR commanders are no longer tied to executing rote doctrinal tenets but are free to practice maneuver warfare more in line with the U.S. way of fighting.

Besides operations and training systems, upgrades have further changed the way the OPFOR executes its operations. The OPFOR regiment is manned and equipped to train battalion-size forces. Increasing to brigade-size operations has significantly affected force ratios and sector sizes. For example, the average force ratio for a regimental

attack against a brigade in a prepared defense is now 1.3:1 instead of the doctrinal 3:1. For a motorized rifle battalion (MRB) defense, the average force ratio is 1:3 in favor of the Blue Force (BLUFOR), but the more significant factor is the sector size. Instead of defending a doctrinal frontage of 3 to 5 kilometers, today's MRB defends a frontage of 10 to 15 kilometers.

System upgrades have also changed the battlefield environment. Some of the more significant upgrades are the MILES II and simulated area weapons effect (SAWE) systems. The MILES II upgrade has significantly changed the performance roles of most of the direct-fire systems. For example, the BMPs are now less effective while other systems are more effective. The SAWE system has decreased the role of artillery destructive fires.

As the OPFOR studied its new doctrine and learned the nuances of the system upgrades, it became apparent that the old way of doing things would no longer work. Extensive planning, experimentation, and simple trial and error became the focus of OPFOR training. This process led to tactics that relied more on maneuver and finesse than on firepower. It was through this training and learning process that the concept of decision point tactics for the OPFOR was developed.

Decision Point Tactics

Although not specifically titled decision point tactics, the basic concept and technique of using decision points is embodied in our current doctrine. The OPFOR defines decision point tactics as *the art and science of employing available means at a specific point in space and/or time where the commander anticipates making a decision concerning a specific friendly course of action (COA). This decision is directly associated with threat force activity (action/reaction) and/or the battlefield environment.*

Decision point style tactics, like any other tactical technique, still require effective troop leading procedures and proper execution. From the OPFOR perspective, four imperatives ensure the success of decision point tactics:

- Battlefield vision.
- Successful reconnaissance and counterreconnaissance operations.
- Well-trained crews and platoons.
- Effective deception operations.

Battlefield Vision

The commander and his staff must have a shared vision of the battlefield and its many permutations throughout an engagement. Besides the inherent experience factor, the primary means of gaining battlefield vision is through the use of the deliberate decision making process (DDMP).

From an OPFOR perspective, the DDMP is absolutely necessary to understanding and visualizing the battlefield. Through the process, and especially the wargaming portion of the process, the OPFOR attempts to visualize all possible situations and subsequent reactions during an upcoming battle. To gain a shared vision at all levels, all commanders and battlefield operating system (BOS) representatives (or as many of them as possible) must be included in the process. Because the OPFOR gets to practice the DDMP repetitively in its numerous rotations, it has been able to go beyond the science and into the art of planning.

The key point is that the OPFOR always does the DDMP in full and considers it the primary means of gaining shared battlefield vision. Summarized below are some of the more critical aspects of DDMP:

METT-T Analysis. Although a full intelligence preparation of the battlefield process is necessary to fully appreciate decision point tactics, the relatively simple tool of METT-T analysis can summarize many of the important OPFOR considerations for decision point tactics. This analysis is critical in determining the basic conditions and norms used in the wargaming process. Obviously, an inaccurate analysis leads to invalid results. Analysis should therefore include several alternatives and options, all of which should include the enemy perspective.

- Mission Since the meeting battle is force oriented, decision points are developed to fix and destroy the enemy force. All maneuver options are specifically geared to enemy formations and their maneuver options.

- Enemy The enemy is the most important factor and during the meeting battle one of the easier ones to analyze. Like the OPFOR, the BLUFOR has a set doctrine that advocates leading with the smallest possible force to facilitate maneuver options for the main body. The OPFOR knows that during a movement to contact the BLUFOR will normally move with an advance guard company or team, with one task force up and one back. (Some units attack with two task forces abreast, normally in an attempt to assume a hasty defense. This formation is easy to identify and, from the OPFOR perspective, easier to defeat. By coming two abreast, the BLUFOR units are easily fixed and lose their maneuver options, thus surrendering the initiative to the OPFOR).

- Terrain Although the terrain at the NTC does not change (Figure 1), its effects on the battle, especially in terms of time and space, should be completely reviewed. Time and space are especially important for the meeting battle. Critical to success is the identification of when and where initial contact will take place and the location of the subsequent main battle area. The OPFOR will attempt to visualize these areas and then determine how to make the best use of the terrain to destroy the enemy. Some of the more significant terrain factors the OPFOR examines during the meeting battle include identifying all possible maneuver routes, choke points, and intervisibility lines; the effect of weather on the employment of special munitions (smoke and chemical agents); and most important, key terrain features that could help in fixing and then enveloping enemy forces. The way the enemy will use this same terrain is always considered as well.

- Troops Like other units, OPFOR units go through changes in personnel, training levels, and equipment; the OPFOR is also augmented by many different types of units

that vary in training level and expertise. Consequently, every battle has to take into consideration the capabilities and limitations of the units involved. Upgrades to OPFOR and BLUFOR battlefield systems are in a state of flux, and units are still trying to determine the capabilities and limitations of these new systems. Since future training system upgrades will continue to change the analysis, units must fully understand the systems they are fighting. They must also remember that these new system upgrades do not fully replicate the actual systems' capabilities and limitations.

• Time An analysis of different aspects of time is absolutely critical in determining proper decision points. Some key considerations for the OPFOR include movement times for both enemy and friendly forces on specific routes; the effects of time of day and weather on the employment of special munitions such as smoke and chemical agents; and most important, a realization of how long it takes to conduct a battle. For example, most meeting battles take five to eight hours, giving units more than enough time for deliberate envelopment options. Tactical patience is a key concept for the OPFOR.

Wargaming. Wargaming is the most important step of the DDMP. Regardless of the number of battles the OPFOR fights, the next one will always be different, and extensive time and effort are invested in wargaming.

The wargaming process places the METT-T analysis in a situation that fully incorporates enemy actions. The most significant aspect of wargaming is that it gives the players involved a better vision of the upcoming battlefield.

Instead of applying brute force and a strict timeline, the OPFOR now maneuvers forces in accordance with the factors of METT-T (mission, enemy, terrain, troops, and time) involved with the operation.

For this reason, OPFOR wargames include commanders and special platoon leaders. This enables commanders at all levels to relate battlefield events to some aspect of the wargame and understand their commander's intent for subsequent actions.

This process builds on itself. The more battles you fight the better able you are to contribute to the wargaming process, and consequently the better you are at visualizing the battlefield. It is important to note that the wargaming and planning process continues through the preparation and execution of the battles as more information becomes available.

For example, during one operation, OPFOR reconnaissance determined that the enemy's defense was completely different from any of the wargaming scenarios. The command group and tactical operations center (TOC) personnel conducted a hasty wargame to determine the effect of these new dispositions on current COAs and decision

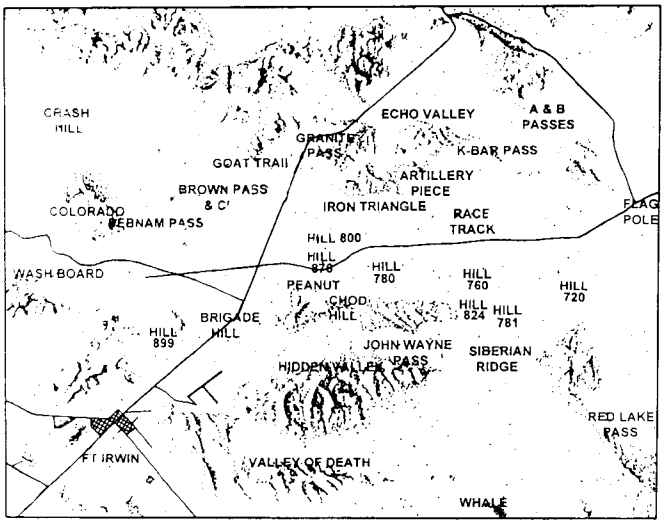


Figure 1. NTC Terrain Features

points. Once the changes were identified, it was easy to communicate them because the participating commanders had an initial point of reference from which to adjust their plans. The battle was highly successful because of these adjustments and also because the subordinate commanders fully understood the changed battlefield and had a shared vision of it.

Basic OPFOR wargaming techniques include the following:

•The commander provides planning guidance and initial acceptable risks to serve as a point of departure for the wargaming process--for example, preferred maneuver routes, use of special munitions, use of deception and commitment of forces to achieve it, the risk of placing artillery forward to reach a specific target, and the risk of going through a specific choke point. The wargame examines the initial guidance and risks and determines whether they need to be changed or rejected.

•The S-2 develops in advance three or four potential enemy COAs and all IPB products and overlays (for example, route overlay with time and distance factors, and intervisibility line overlay).

•The belt wargame technique is the most common. The commander or S-3 determines two to four areas in which a battle might be fought or zones of penetration the enemy might employ, and then wargames these areas in detail.

•The wargame analyzes action/reaction with emphasis on determining ways to make the enemy react in the manner that will best support OPFOR maneuver options; for example, using artillery scattered mines (FASCAM) or persistent chemical agents to shape the battlefield or sending a fixing force that can free the main effort to maneuver.

•The OPFOR harmonizes other BOSs with the maneuver plan. Given all the potentially different COAs, branches, and sequels, it is difficult to synchronize all BOS options. Instead, the wargaming process attempts to maximize the use of other BOSs to cover more than one option; for example, placing the persistent chemical to

isolate two maneuver corridors supports options in both corridors. That way, if the OPFOR attacks down one or the other, the forces on either side will be isolated. In some cases, several BOSs may not be used because the risk would outweigh their benefits for that particular COA.

- The staff determines decision points for each COA, branch, and sequel along with the conditions that must exist to execute that option. Conditions for executing the option are essentially the criteria for choosing a particular decision point.

A meeting battle, by definition, involves two moving forces; therefore, identifying the exact location where the battle will be fought is critical. To compensate for this uncertainty, the OPFOR wargames using the belt technique and uses movement timelines to determine three likely zones of battle--base (the expected zone), deep, and short. METT-T analysis assists in this process. The initial decision point is based on the zone where the battle is most likely to take place.

Products of the Planning Process. From an OPFOR perspective, operations orders, synchronization matrices, decision matrices (including decision point conditions), and other staff tools are necessary evils. They capture the wargaming data and put it into a recognizable form that can be communicated to those who do not attend the wargaming session. These tools are also useful in the rehearsal process. OPFOR orders, in matrix form, are one or two pages long with a cartoon sketch. Unit standing operating procedures cover most of the other administrative and operational areas.

At the command post level, the most significant piece of information is the conditions identified for executing each COA. These are annotated on the TOC data boards and checked off as conditions are met. The tactical command post and command group also maintain this data. Synchronization and decision matrices are more detailed but are primarily used to assist other BOS representatives who need detailed information to support maneuver operations. These matrices must be as flexible as the maneuver plan itself.

Rehearsals. More emphasis is placed on rehearsals than on the actual order because more of the participants have derived a complete vision of the battle from the wargame. As a decision point is reached during the rehearsal, the commander checks the conditions and makes a decision that generates the next phase of the rehearsal. The process is repeated for each COA. This ensures that all commanders and staffs completely understand the conditions, as well as the subsequent actions.

Rehearsals ensure that each soldier understands his role in the plan and the critical decision points. Unit staff and commanders rehearse each potential zone of battle in preparation for a meeting battle.

Successful Reconnaissance Operations

It is impossible to execute decision point tactics without good reconnaissance, and conducting counterreconnaissance operations helps keep a capable opponent from effectively employing the same tactics. OPFOR reconnaissance uses named areas of interest, targeted areas of interest, and all the other standard Army doctrine planning techniques to produce the reconnaissance collection plan and counterreconnaissance plan. What is more important is that OPFOR scouts, who also participate in the wargaming process, know the operational concept, the decision point criteria for their named areas of interest, and the commander's overall intent. If the battlefield doesn't look like the wargame, the scouts make sure they communicate the differences to the commander. OPFOR scouts are also given the latitude to recommend changes in their tactical employment. The OPFOR scouts and S-2s who collect the information can help the commander's decision process by deciphering what is important and what is not.

Decision point style tactics, like any other tactical technique, still require effective troop leading procedures and proper execution.

Since many of the decision points occur late in the actual execution of the battle, the OPFOR reconnaissance reporting process must be continuous. Because both forces are maneuvering in a meeting battle, it is absolutely critical that reconnaissance assets identify the enemy forces' reaction either to the OPFOR's maneuver or to its deception operations. This process will trigger subsequent decision point maneuver options. Counterreconnaissance operations by regimental reconnaissance are also necessary to hinder the enemy's decision process and further enhance deception operations.

Well-Trained Crews and Platoons

Since decision point tactics require decentralized execution, crews and platoons must be able to react on short notice and execute simple battle drills. Most BLUFOR units have excellent commanders and staff members who develop plans that match or even rival those of the OPFOR. The key difference is in training. If BLUFOR platoons are not trained, no plan will succeed, and it will be impossible to execute decision point tactics. As in the reconnaissance effort, full understanding of the options and the commander's intent is critical at the company and platoon levels. Through the orders process and, more important, the rehearsal process, OPFOR platoons gain full understanding of their role in each of the different maneuver options.

To achieve decentralized execution, every unit must have crews and platoons that can react on short notice and execute simple battle drills, terrain navigate, and report accurately. The OPFOR's success in executing meeting battle maneuver doctrine is based primarily on its well-trained crews and platoons.

Effective Deception Operations

Given the scenarios, sectors, and combat ratios, most

BLUFOR units should be able to react to any OPFOR maneuver, assuming they understand what the OPFOR is really doing. A number of OPFOR defeats have shown this to be true. The OPFOR must maximize its use of deception to gain that slight tactical edge necessary to success. Like a head fake in basketball, or a brush block in football, the OPFOR needs to deceive the enemy commander as to its real intentions just long enough to gain that tactical advantage.

The OPFOR achieves its deception goals primarily by reinforcing the BLUFOR S-2's most likely template and conducting good counterreconnaissance. To achieve this, the OPFOR is willing to commit up to an MRB maneuver force, artillery, close air support, electronic warfare, and smoke assets. During the wargaming process, OPFOR S-2s highlight the way BLUFOR dispositions correspond to possible OPFOR maneuver options. During offensive operations, OPFOR reconnaissance confirms or denies BLUFOR dispositions and consequently what the BLUFOR thinks is the most likely OPFOR COA. All OPFOR offensive COAs have options designed specifically to reinforce possible BLUFOR perceptions on OPFOR COAs. During defensive operations, false positions are placed to portray an S-2's possible BLUFOR COA. The OPFOR then establishes an alternate defense. In some cases, deception also causes the BLUFOR commander to commit his BOS assets against unimportant targets. In summary, deception operations are essential to the success of decision point tactics because they cause an opposing commander to surrender the initiative, waste BOS assets, and react to OPFOR maneuver.

Although deception is critical for all battles, during the meeting battle, it only needs to be maintained for a short period of time. In the fluidity of the meeting battle, a deception of five to ten minutes can be important to an opposing commander's decision cycle.

Risks are always inherent in operations against a potentially superior force. The most significant of these risks include:

- Poor decentralized execution.
- Poor BOS synchronization.
- The enemy's failure to react as planned.
- Invalid decision point conditions.
- Rapid and flexible BLUFOR reaction.
- Well-trained BLUFOR crews and platoons.

Although decision point tactics may increase these risks substantially, they improve the chances of success at the same time. Training and battlefield experience can reduce the risks, but the enemy is always the unknown factor and the most difficult one to anticipate.

Sample Battle

The following is a sample decision point battle (meeting battle scenario):

Mission: *32d Guards Motorized Rifle Regiment (MRR) attacks from the march 090700XXX96 to destroy enemy forces and secure MRR objective vicinity NK5815 to facilitate the passage of follow-on divisional forces.*

Enemy Courses of Action (COAs): *The wargame templated three basic BLUFOR COAs:*

COA 1--Brigade attacks with one task force leading; second task force follows and maneuvers north or south of the lead task force.

COA 2--Brigade attacks with one task force leading; second task force commits along the same avenue as the lead task force.

COA 3--Brigade attacks with two task forces abreast.

Concept: The basic maneuver concept is simple. The MRR attacks in the advance guard formation. The forward support element (FSE) moves, finds and destroys the advance guard company/team. The advance guard main body (AGMB) moves, finds and defeats the lead task force. Upon commitment of the second task force, the main body MRBs maneuver to the opposite flank to envelop and destroy the second task force and the forces remaining in the first task force. The second echelon MRB (minus) can reinforce the FSE, AGMB, main body, or continue the attack to secure the regimental objective. Decision points are developed to facilitate these maneuver options.

OPFOR Courses of Action:

COA 1 (Base Plan--Zone 2):

Advance Guard MRB attacks (Figure 2) through Brown Pass (NK337162) with an attack orientation Hill 780/Iron Triangle (NK423162) to fix and destroy the lead task force. On order, facilitates passage of the main body and assists in the destruction of the second task force. Assists deception effort by dispersing and portraying the main body.

Main Body:

Option North: MRBs attack abreast through Brown Pass (NK337162) with an attack orientation to Iron Triangle (NK423162), Artillery Piece (NK443173), and Race Track (NK463141) echeloned right. Right side (south) MRB (supporting effort) guards left side (north) MRB (main effort) southern flank by seizing firing lines and reducing the second task force. Main effort MRB envelops and destroys second task force/brigade reserve. On order, continues attack to secure MRR objective.

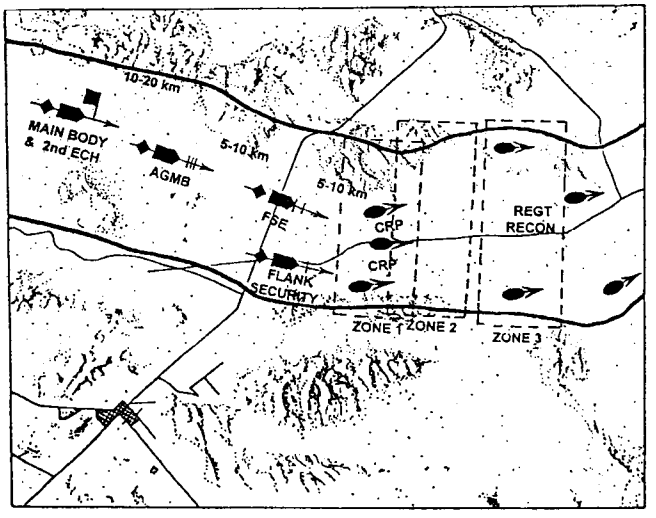


Figure 2. Course of Action 1

Option South: MRBs attack abreast through Debnam Pass (NK302151) with an attack orientation to Peanut/Chod/Hill 876, Hill 780, Hill 760, echeloned left. Left side (north) MRB (supporting effort) guards right side MRB (main effort) northern flank by seizing firing lines and degrading second task force. Main effort MRB envelops and destroys second task force/brigade reserve. On order, continues attack to secure MRR objective.

Antitank Battalion (ATB)

Option North: Guards MRR southern flank.

Option South: Guards MRR northern flank.

2d Echelon MRB follows and assumes main effort or reinforces FSE or AGMB. On order, exploits main effort success.

Decision Point Conditions for COA 1:

- *Battle zone will be vicinity Hill 876, Hill 780, and Iron Triangle.*
- *Option North: Second task force attacks along the south wal*
- *Option South: Second task force attacks along the north wall.*

COA 2 (Deep--Zone 3):

Advance Guard MRB attacks through Brown Pass (NK337162) with an attack orientation Hill 780/Artillery Piece (NK443173) to fix and destroy the lead task force. On order, facilitates passage of the main body and assists in the destruction of the second task force. Assists deception effort by dispersing and portraying main body.

Main Body:

Option North: MRBs attack abreast through Brown Pass (NK337162) with an attack orientation to Iron Triangle (NK423162), Artillery Piece (NK443173), and Race Track (NK463141), echeloned right. Right side (south) MRB (supporting effort) guards left side MRB (main effort) southern flank by seizing firing lines and reducing second task force. Main effort MRB envelops and destroys second task force/brigade reserve. On order, continues attack to secure MRR objective.

Option South: MRBs attack abreast through Debnam Pass (NK302151) with an attack orientation to Peanut/Chod/Hill 876, Hill 780, Hill 760, Hill 720, echeloned left. Left side (north) MRB (supporting effort) guards right side MRB (main effort) northern flank by seizing firing lines and reducing second task force. Main effort MRB envelops and destroys second task force/brigade reserve. On order, continues attack to secure MRR objective.

ATB:

Option North: Guards MRR southern flank.

Option South: Guards MRR northern flank.

2d Echelon MRB follows and assumes main effort or reinforces FSE or AGMB. On order, exploits main effort success.

Decision Point Conditions for COA 2:

- *Battle zone will occur vicinity Hill 760 and Race Track. Option North: Second task force attacks along the south wall.*
- *Option South: Second task force attacks along the north wall.*

COA 3 (Short-- Zone 1):

Advance Guard MRB attacks through Brown Pass (NK337162) with an attack orientation Brigade Hill (NK353086), Chod Hill (NK411104), 114 Wadi to fix and destroy lead task force. On order, facilitates passage of main body and assists in the destruction of the second task force. Assists deception effort by dispersing and portraying the main body.

Main Body:

Option North: MRBs attack abreast through Brown Pass (NK337162) with an attack orientation to 114 Wadi, Iron Triangle (NK423162), Artillery Piece (NK443173), and Race Track (NK463141), echeloned right. Right side (south) MRB (supporting effort) guard left side MRB (main effort) southern flank by seizing firing lines and reducing second task force. Main effort MRB envelops and destroys second task force/brigade reserve. On order, continues attack to secure MRR objective.

Option South: MRBs attack abreast through Debnam Pass (NK302151) with an attack orientation to Brigade Hill, Peanut/Chod/Hill 876, Hill 780, Hill 760, echeloned left. Left side (north) MRB (supporting effort) guards right MRB (main effort) northern flank by seizing firing lines and reducing second task force. Main effort MRB envelops and destroys second task force/brigade reserve. On order, continues attack to secure MRR objective.

ATB:

Option North: Guards MRR southern flank.

Option South: Guards MRR northern flank.

2d Echelon MRB follows and assumes main effort or reinforces FSE or AGMB. On order, exploits main effort success.

Decision Point Conditions for COA 3:

- *Battle zone will be vicinity Brigade Hill, Hill 876, and Iron Triangle.*
- *Option North: Second task force attacks along the south wall.*
- *Option South: Second task force attacks along the north wall.*

Execution of Decision Point Tactics

First Decision Point (Figure 3). Division reconnaissance reported that the advance guard company/team and lead task force moved west centered in axis of advance and would make contact with the FSE in the vicinity of zone 1. Given the rate of march, they could reach Hill 876/Iron Triangle before the FSE. Based on this information, the regimental commander made the decision to execute COA 1. Additionally, the regimental commander fired persistent chemical agents, non-persistent chemical agents, smoke, and FASCAM to delay the lead task force and allow the FSE to secure initial firing lines in the vicinity of Hill 876/Iron Triangle. The special munitions forced the brigade to commit either north or south, giving an early indication of its intentions. Regimental reconnaissance then focused on

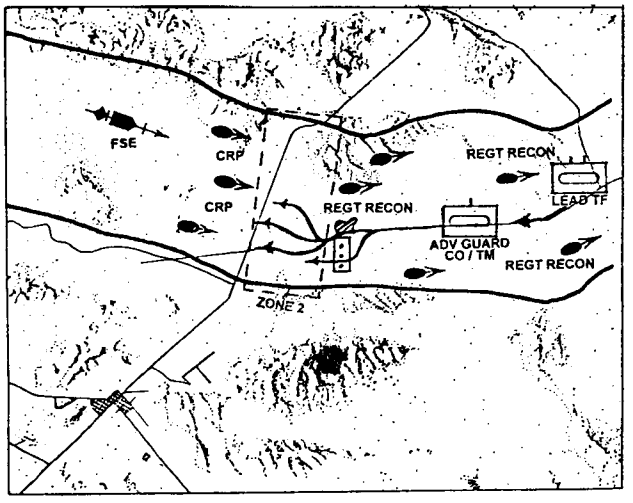


Figure 3. First Decision Point

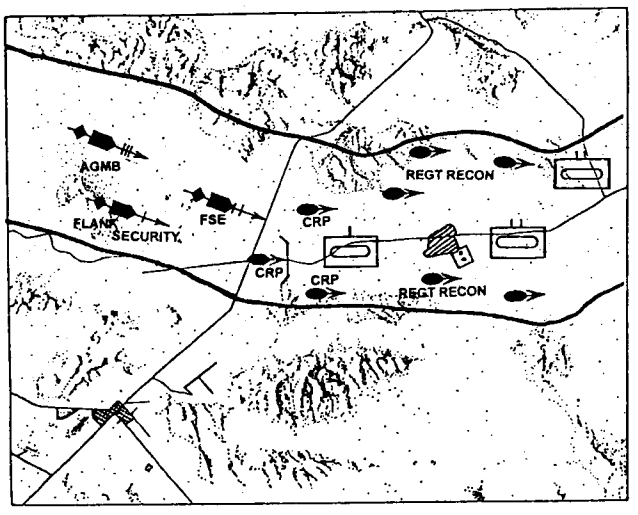


Figure 4. Second Decision Point

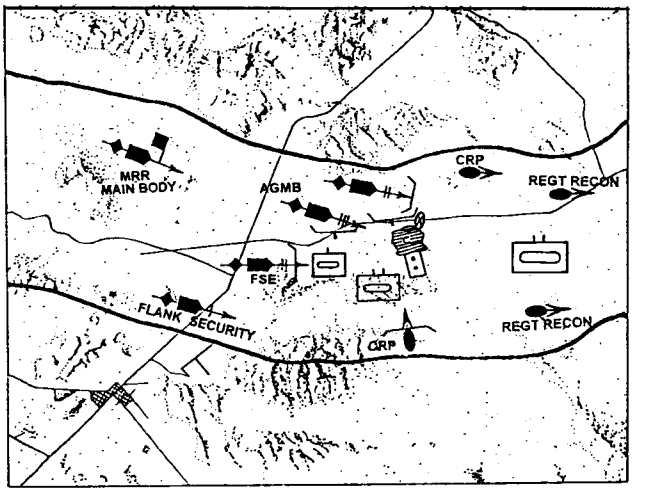


Figure 5. Third Decision Point

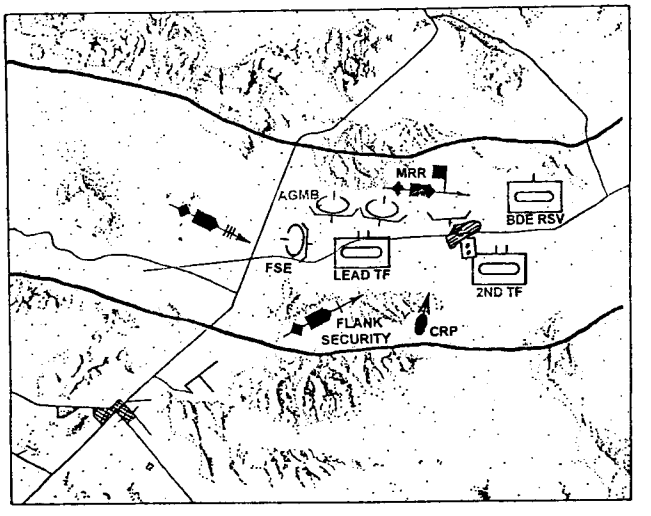


Figure 6. Fourth Decision Point

confirming or denying the northern or southern option criteria.

Second Decision point (MRB Level) (Figure 4): Regimental reconnaissance reported the lead tank-heavy team had committed south toward Hill 780/876. The advance guard's center combat reconnaissance patrol (CRP) made contact with the BLUFOR advance guard team vicinity Hill 780/876. The center CRP then established firing lines vicinity Hill 876 and attempted to fix the lead team. The northern and southern CRPs continued to maneuver along the north and south walls to find the flanks of the lead team and the remainder of the first task force. The MRB commander then committed his FSE to Hill 876 and oriented the AGMB to Hill 800 and the Iron triangle.

Third Decision Point (MRB Level) (Figure 5): The regimental reconnaissance reported that the lead task force (which was delayed by the special munitions) had committed south to reinforce its advance guard team. The second task force was north of Hill 720, still centered up, had not committed north or south. The FSE had defeated the lead team and was fixing the lead task force. The MRB commander then committed the AGMB to envelop the lead task force from the north, in the vicinity of Hill 800 and the Iron Triangle. The MRB commander also committed an MRC to the vicinity of the Artillery Piece to secure his northern flank in case the second task force committed north. The regimental commander slowed the main body forces to prevent their early commitment before the BLUFOR committed the second task force.

Fourth and Final Decision Point (MRR Level) (Figure 6): The regimental reconnaissance reported commitment of the second task force south toward Hill 760/780 to reinforce the lead task force. The AGMB had defeated the lead task force and forced the second task force to assume a hasty defense in the vicinity of Hill 780. The regimental commander then committed his main body to the northern option. Additionally, the regimental commander directed the second echelon to reinforce the FSE, which had suffered severe attrition from the lead task force.

MRB Execution (Figure 7). At this point, the regimental commander turned over the execution of the operation to the MRB commanders; the regimental CP

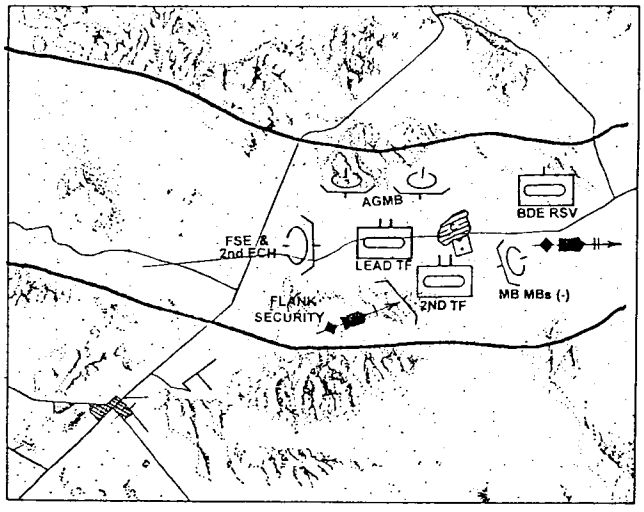


Figure 7. MRB Execution.

continued to support the MRB commanders with fires and other combat multipliers. Seeing the commitment of the main body, the brigade committed its reserve in an attempt to block the OPFOR attack north of the Race Track. Main body forces destroyed the brigade reserve and continued to envelop and destroy the lead task force. Main body forces destroyed the brigade reserve and continued to envelop and destroy the lead task force. The 2d Echelon attacked through the FSE, completing the destruction of the lead task force and assisting in the destruction of the second task force in the vicinity of Hill 760. End state: The regiment successfully destroyed both task forces and moved to its objective with two MRBs (plus) remaining.

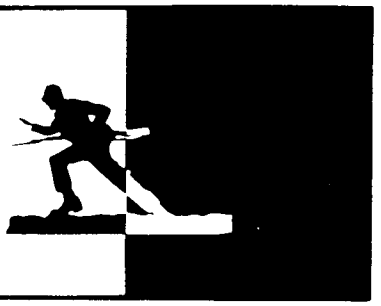
Decision point tactics are essential to fighting the fluid battlefield conditions that exist during the meeting battle. From the OPFOR perspective, however, they are the primary means of achieving success on a rapidly changing battlefield. The essence of decision point tactics is a flexible plan that focuses on enemy actions and reactions, along with the four imperatives:

- A unit must have good battlefield vision to clearly identify the conditions necessary to execute a specific course of action. The simplicity of the meeting battle maneuver plan, coupled with a solid wargame and rehearsal process, helps the commander achieve such a battlefield vision.
- Successful reconnaissance and counterrecon-naissance efforts by both regimental and CRPs are essential to identifying the decision point conditions and denying the same to the enemy.
- The OPFOR's highly trained crews and platoons are the foundation for the execution of decision point tactics.
- Deception operations in support of the meeting battle, although not as resource-intensive as other operations, are essential to gaining the time needed to get inside the enemy commanders' decision cycle.

Although decision point tactics are neither new nor unique, they form the foundation for successful execution during the meeting battle.

Lieutenant Colonel Peter J. Palmer commands the 2d Battalion, 11th Armored Cavalry Regiment and the 32d Guards MRR (OPFOR) at the NTC. He previously served in the 1st Armored Division, the 197th Infantry Brigade, and the 3d Armored Division. He is a 1977 graduate of the United States Military Academy and holds a master's degree from California State University, San Bernardino.

TRAINING NOTES



Walk and Shoot Training

COLONEL DAVID H. PETRAEUS
MAJOR ROBERT A. BRENNAN

When an infantry company conducting a movement to contact in training makes contact with the enemy and comes under direct fire, the immediate response is often a headlong rush to close with and destroy the enemy. No thought is given to the fire support plans that have been developed and rehearsed to support the operation. Combat patience is rejected--along with the use of indirect fires to support movement and develop the situation.

In many cases, of course, infantry units should turn to artillery and mortar fires (among others) before rushing soldiers into harm's way. In other words, an infantry leader should not attempt to close with and destroy the enemy until advantageous conditions have been created-that is, until many of the enemy soldiers have been killed or wounded and the rest have their heads down and are no longer offering stiff resistance. Such situations always depend, of course, upon an analysis of METT-T (mission, enemy terrain, troops, and time available), and there are many cases, particularly in a movement to contact, where infantrymen should aggressively close with the enemy, maintain contact, and kill him with direct fires. Nonetheless, when the bullets are real and the penalties for "MILES courage" are more than a loud ringing noise, movement is much slower and indirect fires figure much more prominently.

Although we generally accept that fact, we don't always integrate fires into our training the way we should. We talk about using live artillery and mortars in relatively free-play maneuver exercises, but more often than not our training of company commanders and platoon leaders is little more than sitting on an observation post (OP) or in a defensive position and adjusting fires into an impact area to our front.

When the bullets are real and the penalties for "MILES courage" are more than a loud ringing noise, movement is much slower and indirect fires figure much more prominently.

Seeking a way to overcome this challenge and to train company commanders, platoon leaders, and their fire supporters on fighting with indirect fires, the 1st Brigade of the 82d Airborne Division conducted a "Walk and Shoot" tactical exercise without troops (TEWT) at Fort Bragg. The exercise--and the preparatory training for it--involved the company commander and his fire support officer (FSO), the platoon leaders and their forward observers (FOs), and all associated radiotelephone operators (RTOs). The exercise was conducted in an area adjacent to and extending into one of the post's impact areas. During the course of the training we probably just scratched the surface of a challenging training task, and we made plenty of mistakes; but we also learned a number of lessons worth sharing with others.

We offer here the objectives, train-up, training conditions, execution, and (most important) the major lessons learned in what turned out to be a great training exercise on the employment of indirect fires.

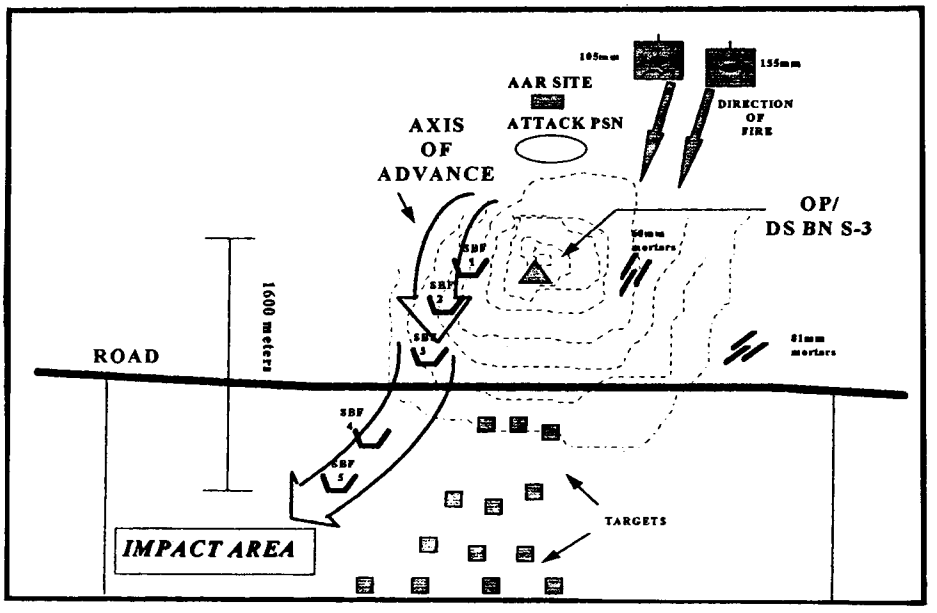
Training Objectives

The objectives of the brigade's Walk and Shoot were to train company commanders and platoon leaders on:

- Planning and executing a movement to contact (approach march).
- Planning and employing 60mm and 81mm mortars and 105mm and 155 mm howitzers in support of an approach movement to contact.

These objectives remained our

focus throughout the development of the training, and they kept us from trying to incorporate too many other tasks and assets (such as close air support, attack helicopters, and the like). Whenever one of us had another "good idea" on how to improve the training, we tested it by asking whether it contributed to the accomplishment of the established objectives.



Pre-Execution Training

Pre-Walk and Shoot training was conducted to ensure that company commanders, platoon leaders, their FSOs/FOs, and the RTOs, as well as the observer controllers (OCs), were properly trained before the actual live fire exercise. The exercise repeatedly reminded us that RTOs are key members of company and platoon command posts (CPs) and should be included in all preliminary training and the TEWT.

The preliminary training consisted of a class on fire support fundamentals and training in the forward observer trainer simulator. We soon realized that a third event, conducted on a sand table or on suitable terrain, would have reinforced the basics and allowed a smoother transition to the event itself. In the future, we will ensure that pre-Walk and Shoot training consists of a fire support fundamentals class, training in the FOTS, and a dry-fire TEWT or a sand table exercise.

Fire Support Fundamentals Class. The fire support fundamentals class should include a number of topics and should be scheduled for at least a three-hour block of time. It should cover the ranges, capabilities, and limitations of the various indirect fire weapon systems, including the types of rounds and fuses and a discussion of what situation or target array requires which shell and fuse combinations—such as variable time (VT) fuse for troops and other soft targets in the open.

The class should also include:

- The basic elements of the different calls for fire and when each of them should be used.
- A discussion of the techniques for determining target and observer location, and range and direction to a target using the precision laser GPS (global positioning system) receiver (PLGR) and the new AN/PVS-6 range finder, along with a map and compass.
- A description of the fire support coordinating measures (FSCMs) and their uses and effects on maneuver operations and use of fires.
- A discussion of all weather command and control aids and map boards that leaders should use to record information, track locations of friendly and enemy units, and maintain proper locations of FSCMs.

Forward Observer Trainer Simulator (FOTS). The FOTS gives leaders, fire supporters, and RTOs practical experience in calling for and adjusting fires. Companies should conduct FOTS training with all their leaders at one time, ideally using the same radios they use during tactical operations.

Additionally, the 60mm and 81mm mortar fire direction centers (FDCs) and their radios, the 105mm and 155mm FDCs with their radios, and the battalion fire support element with its radios should set up in a separate room or outside the FOTS building. This will ensure that the training audience is trained not only on the mechanics of calling for fire and making proper adjustments, but also on the procedures that must be followed and the different radio nets they will have to use to clear, request, and adjust the fires of all the indirect systems that support an infantry unit.

Dry-Fire TEWT of Sand Table Exercise. A dry-fire TEWT or sand table exercise conducted in addition to our work in the FOTS would have allowed leaders to further develop and practice the skills needed to control a tactical operation and to employ indirect fires. The old Dunn Kempf terrain board would be ideal for this, as would a large sand table; or a unit could conduct the training on the actual terrain or on any other terrain that provided enough maneuver space and observation. As with the FOTS training, the mortar and field artillery FDCs and the artillery fire support element should be present to ensure the exercise of the radio nets and communications skills that are critical to getting fires rapidly.

Execution

As with any other training event, setting the training conditions is critical to the success of a Walk and Shoot. We took the following steps to ensure that the training conditions were as good as we could make them.

First, several months before the training date we walked the ground, developed the general scenario, and submitted it to range control for approval. We then marked five support-by-fire positions on the ground along the route we thought the units would

follow, which we would use as reference points in developing the detailed scenario. We used these positions to determine which weapon systems could engage which targets in the impact area on the basis of the minimum safe distances (MSD) for each system. (We did not, however, restrict the units to those positions during the exercise. We occasionally steered them a bit, but generally tried to leave them free to maneuver as they saw fit.) Once the detailed scenario was finalized, we submitted it to range control for approval as well.

We coordinated well in advance for the howitzers and the mortars, and we ensured that the entire fire support structure—up to the direct-support (DS) artillery battalion tactical operations center—was prepared to support the exercise. We also worked with the firing units to determine the number of rounds available and then built that number into the tactical scenario.

Several months before the exercise, we asked the Fort Bragg emergency ordnance disposal unit to surface clear and mark a lane about 20-30 meters wide for 500 meters into the impact area. This was done shortly before the exercise, and it allowed the leaders to experience calling for fire on targets observed at ground level that were literally all around us; it also extended the length of our "lane" to about 1,600 meters. During the final weeks before the exercise, we also conducted the pre-Walk and Shoot training described earlier.

At the end of that training, about one week before the exercise, we issued a battalion operations order to give the company commanders the basis for the company plan they would develop and brief to the brigade commander during the first phase of the exercise itself.

Several days before the exercise, to ensure proper control and a suitable training environment, we established an after-action review (AAR) site in a GP medium tent. This site was complete with sand table, blow-up maps of the area, butcher paper, chairs, lights, and containers for hot soup and coffee. (We conducted the exercise in January and recognized that our leaders would not get much out of the pre-TEWT backbrief and the AAR if they were cold, hungry, or in the dark.)

Finally, the day before the first iteration we conducted a rehearsal with all Walk and Shoot indirect fire assets, the OCs, and the fire support system in place. (The OCs were the brigade commander—who walked with the company commander during the exercise—and the brigade S-3, FSO, and DS artillery commander—each of whom went with a platoon leader.) This not only helped us refine our scenario and our control concept but also completed the certification of the OCs on the training they would conduct.

Two companies per day participated in the actual live-fire Walk and Shoot. The exercise, which took six or seven hours per company, was conducted in three phases:

Phase I was the order backbrief by the company commander and his FSO to the brigade commander and the infantry and DS artillery battalion commanders at the AAR site. The backbrief included the company commander's task organization, assessment of the enemy situation, mission, and concepts for maneuver, fire support, command and control, and risk reduction (the latter focusing on the prevention of fratricide from both direct and indirect fires). The backbriefs proved to be excellent training for the company leaders, FSOs, and RTOs, particularly as the OCs' frequent interjections prompted discussions of the tactics, techniques, and procedures for the task at hand.

As with any other training event, setting the training conditions is critical to the success of a Walk and Shoot.

Phase II was the actual live-fire Walk and Shoot TEWT. Tactically, this portion consisted of the unit—upon completion of final pre-combat checks—moving along an axis of advance (which took them toward and then into the lane that was cleared into the impact area) as the supporting effort in a battalion whose main-effort company was conducting a movement to contact on the exercise unit's flank. The exercise company's mission was to destroy enemy elements in zone to prevent them from inter-fering with the main effort. The company did not have priority of 105mm artillery fires in the battalion but was given priority of the battalion 81mm mortars.

To create the initial situation requiring the use of indirect fires, the OC with the lead element would point out a close target in the impact area and tell the platoon leader that he was receiving direct fire (usually machine-gun fire) from a suspected enemy OP at that location. The correct response was to report the contact on the command net and call an immediate suppression mission to the 60mm mortars on the company fire support net.

This was basically the pattern followed for all the subsequent actions: An element would move in response to instructions from the company commander; the element leader would be told by a controller that his element was under fire from the vicinity of one of the hulks in the impact area and would then take the appropriate actions. The controllers varied the scenarios to create situations that required the use of each of the different fire support means available and to exercise the element in the use of each of the different types of calls for fire.

The company commander was required to report as he normally would to his battalion commander (who had his RTO with him as well) and, as required, controllers would ask the battalion commander to give tactical instructions by radio to his company commander in order to prompt the unit to move or take other actions to facilitate the training ("need you to move out, the main effort is getting too far ahead of you").

The exercise control linkage was maintained through the use of a separate control net. The brigade commander, the DS artillery commander, and each of the other OCs,

along with the battalion commander of the exercise company, communicated over a control net using hand-held radios. (The battalion commander was included so that we could use him to prompt the company to take particular tactical actions.) The DS artillery battalion S-3, in the OP bunker with the battalion FSO, monitored each of the key fire support nets to ensure safety. The control net enabled us to ensure that, at least in the early stages of each iteration, we were not generating more fire missions than the tactical unit commander and his FSO could track. (We did tend to "pump up the volume" later as the unit's proficiency increased.) Additionally, it allowed us to keep track of the number of rounds remaining for each system, coordinate our actions, confirm the instructions the elements were receiving through their tactical nets, and mention other items to each other that should be brought up in the AAR (such as whether the unit shifted the priority target as needed and confirmed that fires near a no-fire area were properly cleared).

Phase III was the conduct of the AAR. The brigade commander conducted all but one of the AARs, and they proved to be great vehicles for reinforcing the many lessons the unit learned while preparing for and conducting the exercise. We always concluded by asking everyone who went downrange, starting with the junior man and working up to the senior man (OCs included), what major lesson he learned that day. That portion was always worthwhile. The structure of the AAR generally paralleled the organization of the following lessons-learned:

Maneuver:

• Movement formations and techniques must be in accordance with doctrine and appropriate to the enemy situation. Simplicity should generally be the order of the day; the more exotic formations (such as the company vee) prove difficult to control even in the daytime and should not be used unless the unit is quite proficient in dismounted movement.

• Given that an element should not bound farther than the range of the direct-fire weapons of the element overwatching its movement (no more than about 300-500 meters, terrain permitting), bounding at company level can be a slow process. Hence, a company should not begin bounding prematurely if it must keep up with units on its flanks that are moving fairly fast. (The movement technique, of course, depends on the likelihood of enemy contact that calls for bounding at squad or platoon level.)

•Sufficient graphical control measures are essential to the conduct of a movement to contact. Included among them should be objectives to orient unit movement, phase lines (which can help trigger the shifting of priority targets), checkpoints, axes or directions of attack, and so on. But these should be put on the map in such a way that leaders can still read the contour lines.

•Situational awareness is critical to ensuring speedy indirect fire support. Leaders, FSO/FOs, and RTOs must constantly be aware of their location and those of other friendly units, the location of the preplanned priority targets for each weapon system, and the enemy location in relation to friendly units and targets.

As a general rule, targets should be plotted about one per grid square, or slightly more, along the route of a movement to contact.

• We must use terrain to ensure force protection (using cover and concealment to go around a hilltop instead of skylining the element by going over the top) and to gain a position of advantage relative to the enemy.

Fire Support:

• As a general rule, targets sh-ould be plotted about one per grid square, or slightly more, along the route of a movement to contact. Additional targets should be planned around locations where the unit may consolidate, defend, or conduct an attack.

• Leaders must understand the importance of priority targets--the targets on which the tubes of each system are laid when not firing other missions. Moreover, leaders must know which target is the priority target for each system at any given time.

• Priority targets must be shifted before friendly units are closer to the target than the minimum safe distance of the particular weapon. As a general rule, 300, 400, 500, and 600 meters are reasonable and easily memorized MSDs for the 60mm, 81mm, 105mm, and 155mm, respectively. Using these MSDs, priority targets should be shifted as the unit progresses, based on the caliber of the indirect fire system and its MSD. (One technique is to have a 155mm priority target become the 105mm priority target and to have the 105mm priority target become the 81mm target). To ensure that targets are shifted as required, good triggers (such as phase lines or terrain features) must be established as part of the fire support plan. The key, of course, is to keep targets out far enough that the MSD for the system does not preclude their use and yet not so far out that they will be of little use if the unit should make contact with the enemy.

• If compasses are not already set to account for the declination constant, the grid-magnetic angle must be subtracted from (or added to, as appropriate) the compass reading before giving the observer-target direction

• Leaders, their FOs, and their RTOs must work as a team and must double-check every direction, location, and other piece of information before it is called to the higher headquarters or an FDC.

• The PLGR and the AN/PVS-6 laser range finder, together with a precise direction to a target taken off a good compass, can result in first-round hits using the polar plot method of calling for fire.

• Since FSOs and FOs often must communicate long distances when talking to FDCs or FSOs in higher headquarters, their radios should generally have long-whip antennas mounted. (Platoon leader radios, on the

other hand, can get by with short whips in most cases.)

• Fire support rehearsals, with radios, are critical to the smooth execution of a fire support plan on the ground, and leaders should take part in these whenever possible.

• The 60mm mortars, if not moving (or if moving with the lead element) are the most responsive fire support available to infantry platoons, but they have the fewest rounds available and are typically the least accurate and slowest to make adjustments. The 81mm mortars are the next most available, are more accurate, and generally have more available rounds than 60mm mortars. Artillery is the most accurate and quickest to make adjustments, but more work is required to get artillery support if the unit does not have priority of fires. Needless to say, the larger the round, the greater the effect.

• The quickest way to get several rounds on the ground is to fire the 60-mm mortar priority target as an immediate suppression mission; any required adjustments can then be made from this one.

•Everyone who can should observe the first round fired at any planned target; it tells observers where subsequent rounds fired at that target will land and which way the wind is blowing in the vicinity of the target.

• When using white phosphorus as a marking round, it is not necessary to adjust the round to the enemy location; the observer merely announces to the element that requested the marking round a cardinal direction and an estimated range from the point of impact to the enemy.

•Getting rounds on target can take time, but leaders can speed the process by having a well-rehearsed battle drill for situations requiring indirect fire. This will prevent them from getting rattled in such cases and will ensure that ranges, directions, and locations are determined as quickly and as accurately as possible–with all parties in the CP coordinating closely and confirming that the others' work.

Command and Control:

•The development of all-weather "heads-up" displays for leaders, FSOs /FOs, and RTOs is very important. Critical to the success of an element's CP are acetated maps, memory joggers, checklists for recording information such as friendly locations and the number of rounds of 60mm mortar ammunition remaining, overlays that contain critical information (checkpoints, targets, objectives, boundaries, enemy information) but do not obscure the map, and boards for recording fire mission adjustments and locations.

• Putting two handsets on a radio enables the RTO to keep one to his ear at all times and hand the other to his leader as required. This helps ensure that the RTO answers calls immediately and hears conversations when his leader is on the radio, which helps him maintain situational aware-ness and contribute more to the CP as a result.

• To further foster the concept of the leader, his FSO/FO, and his RTO as a team, each of the three should attend orders and participate in backbriefs and rehearsals.

• The importance of concise but thorough SALT (size, activity, location, time) reports on enemy activity must be emphasized and practiced.

• Brevity on the radio is a virtue, as is the elimination of unnecessary phrases (such as "anything further" and "how copy"). Beyond that, there is no need to insert "breaks" in transmissions when using frequency-hopping radios. Finally, we should refrain from using complicated lists of code words (also generally not needed with frequency-hopping radios).

• Leaders must be where they can best control their elements. That location is often one from which they can best see the battle. There is no reason to put a company CP down in a hole from which visibility is nil when 50 meters away there is a location from which the CP, without additional risk, can see the entire unit front.

Leader Business:

•Thorough pre-combat inspections, as always, are critical to a successful operation. In this case, checks that proved critical included radio checks on all command and fire support nets (60mm and 81mm mortar nets; FD1, 2, and 3; and the 155mm net) and presetting those nets on the appropriate radios; verification that all PLGRs are set on the correct grid zone indicator; and confirmation that radios, PLGRs, and PVS-6 rangefinders have fresh batteries.

• Leaders, their fire supporters, and their RTOs must work together as a team. Each must continually ask three questions (which should be stressed during each of the preliminary training sessions):

Where are we and where are other friendly units?

Where is the enemy?

Where are priority and other targets relative to the enemy and friendly units?

This Walk and Shoot exercise (including the preliminary training) did more to achieve the identified training objectives than any other training the participants had experienced. Training down to platoon level is key, because that is the level at which indirect fires are often requested and adjusted. Movement also added immeasurably to the learning achieved in this exercise, as it provided the dimension of maneuver and the resulting exercise of movement reports, shifting of formations and movement techniques, and even the use of land navigation skills. The end result was excellent training for the leaders and troopers who would be at the point of the spear in such a tactical operation--the leaders on whom the burden of fighting with fires would really fall.

Colonel David H. Petraeus commands the 1st Brigade, 82d Airborne Division. He previously commanded the 3d Battalion, 187th Infantry and served as G-3, 101st Airborne Division. He is a 1974 graduate of the United States Military Academy and holds a doctorate from Princeton University.

Major Robert A. Brennan was fire support officer, 1st Brigade, 82d Airborne Division, and is now executive officer of the 3d Battali- on, 319th Airborne Field Artillery Regiment, in the 82d Division. He previously served in the 8th Infantry Division. He is a 1981 ROTC graduate of Kean College.

National Training Center
OPFOR Insight

CAPTAIN JEFFREY D. CHURCH

For any unit conducting a rotation at the National Training Center (NTC), it is important to understand how the opposing force (OPFOR) plans and executes a mission on that bat-tlefield. It is also important to un-derstand that the OPFOR regiment is good, but it is not invincible.

When the OPFOR regiment attacks, its normal strength is about 50 tanks, 116 BMPs, 9 AT-5s, and 300 infantrymen. Often the total force ratio is 1:1 at best. The OPFOR may be assigned a penetration mission or a force destruction mission. Either way, it will try to make contact in an area where it can isolate enemy forces and achieve a local superiority of 3:1.

Units training at the NTC must also understand that the OPFOR regi- ment will stop for nothing. If you have not planned and rehearsed the repositioning of your forces, the regiment will find you and pile on. The OPFOR rehearses and drills its motorized rifle platoon and company battle drills in great detail before every rotation and every mission. Thus, it can react and redirect quickly, penetrate your unit and destroy your force. You must learn to identify, observe, and act upon decision points if you ever hope to get inside the OPFOR regiment's decision cycle.

This article is based on an actual mission planned and executed by the OPFOR regiment, and it offers several generic lessons that can be applied to all units. These are lessons the OPFOR has learned and used during every mission it has planned and executed.

The Mission

The 32d Guards Motorized Rifle Regiment (MRR)(-) attacks from the march to penetrate defending enemy forces and secure the MRR objective in the vicinity of grid NK6011.

The 3d Motorized Rifle Battalion (MRB), 32d Guards MRR, attacks from the march as an enveloping detachment along the division's southern avenue of approach to destroy enemy second echelon battalion, brigade reserve, artillery, command and control assets, and logistics bases.

Courses of Action

COA 1 (Base Plan). *Task Force Destroyer leaves line of departure (LD) 081900XXX95 to seize Hill 899, Brigade Hill, and Chod Hill.*

The 3d MRB attacks through the Valley of Death, north over the Siberian Ridge, and seizes Hill 781 East and Hill 760 to facilitate the penetration of the advance Guard MRB and MRR main body in the vicinity of the Peanut/Chod gap by destroying or fixing enemy forces in the vicinity of Hill 760. Task Force Angel lands in the vicinity of John Wayne Foothills, seizes Hill 824, and orients fires on Hill 760.

The advance guard MRB attacks through Debnam Pass to the Peanut/ Chod gap to destroy enemy forces, clear enemy obstacles, and seize Hill 780. Advance guard MRB continues attacking east until combat ineffective.

Main body MRBs attack abreast through Peanut/Chod gap and Peanut Hill 876 gap, echeloned right. Left side MRB, supporting effort (SE) screens right side MRB's, main effort (ME), northern flank by seizing Hills 780 and 760. Right side MRB penetrates enemy forces along southern wall of central corridor and seizes MRR objective. ATB screens MRR northern flank.

Reserve follows and assumes main effort or exploits main effort success.

The following are the conditions that must be present to execute COA 1:

- *Enveloping detachment successful at Hill 760.*
- *John Wayne Pass held or blocked by enemy forces.*
- *More than one company team that can influence the Alpha and Bravo Passes in the northern corridor.*

COA 2:*Task Force Destroyer crosses LD 081900XXX95 to seize Hill 899, Brigade Hill, and Chod Hill.*

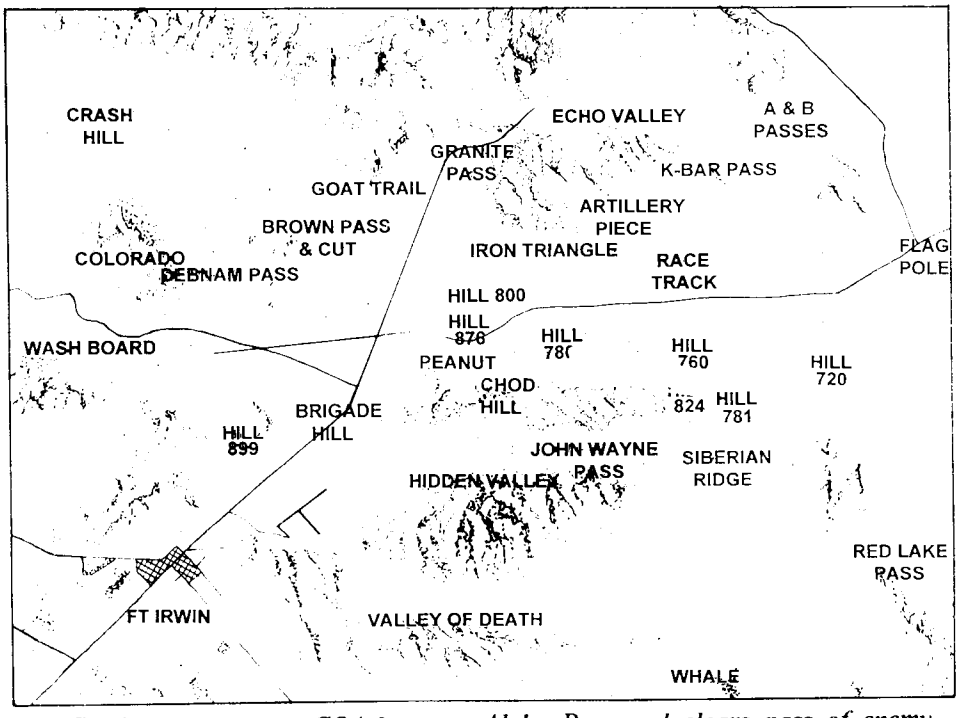
The 3d MRB attacks through the Valley of Death, north over the Siberian Ridge, and seizes Hill 781 East and Hill 760 to facilitate the penetration of the advance guard MRB and MRR main body vicinity the Peanut/Chod gap by destroying or fixing enemy forces vicinity Hill 760. Task Force Angel lands vicinity John Wayne Foothills, seizes Hill 824, and orients fires on Hill 760.

The advance guard MRB attacks through Debnam Pass to the Peanut/ Chod gap to destroy enemy forces, clear enemy obstacles, and seize Hill 780. Advance guard MRB continues attacking east until combat ineffective.

Main body, left side (SE), MRB attacks to reinforce advance guard at Peanut/Chod gap. On order disengages and follows main effort MRB through Hidden Valley and John Wayne Pass, and over Siberian Ridge. Main body, right side (ME), MRB attacks through Hidden Valley, John Wayne Pass, and over Siberian Ridge to seize MRR objective.

ATB screens MRR northern flank.

Reserve follows and assumes main effort or exploits main effort success.



The following are the conditions for executing COA 2:

- *Enveloping detachment successful at Hill 760.*
- *John Wayne Pass clear of enemy forces and obstacles.*
- *Hidden Valley defended by less than one mechanized platoon.*
- *Enemy forces strong around Hill 876, Peanut, Chod, and Hill 780.*

COA 3: *Task Force Destroyer LDs 081900XXX95 to seize Hill 899, Brigade Hill, and Chod Hill.*

The 3d MRB attacks through the Valley of Death, north over the Siberian Ridge, and seizes Hill 781 East and Hill 760 to facilitate the penetration of the advance guard MRB and MRR main body vicinity the Iron Triangle by destroying or fixing enemy forces vicinity Hill 760. Task Force Angel lands vicinity John Wayne Foothills, seizes Hill 824, and orients fires on Hill 760.

The advance guard MRB attacks through Brown Pass to the Iron Triangle to destroy or fix enemy forces. Advance guard MRB continues attack through the Artillery Piece and Racetrack and continues east until combat ineffective.

Main body MRBs attack abreast through the Brown Cut and Brown Pass, echeloned left. Right side MRB (SE) screens left side MRBs (ME) southern flank by seizing the Iron Triangle, Racetrack, and continues setting rolling firing lines to the east. Right side MRB (ME) penetrates high along the north wall of the central corridor and seizes the MRR objective.

ATB screens MRR southern fla nk.

Reserve follows and assumes main effort or exploits main effort success.

Conditions to execute COA 3:

- *No more than one company team at Iron Triangle.*
- *Brigade reserve south of Hill 7 20 or north of Range 23 flagpole.*
- *Two or more company teams defending in the northern corridor's Echo Valley.*
- *Enemy forces strong around Hill 876, Peanut, Chod, and Hill 780.*
- *Enveloping detachment little or no success.*

COA 4: *Task Force Destroyer to seize Hill 899, Brigade Hill, and Chod Hill.*

The 3d MRB attacks through the Valley of Death, north over the Siberian Ridge, and seizes Hill 781 East and Hill 760 to facilitate the penetration of the advance guard MRB vicinity the Iron Triangle by destroying or fixing enemy forces vicinity Hill 760. Fixes or destroys enemy reserves in central corridor to prevent enemy repositioning into the northern corridor.

Task Force Angel lands vicinity Alpha Pass and clears pass of enemy obstacles and forces.

The advance guard MRB attacks through Brown Pass to the Iron Triangle to destroy or fix enemy forces. Advance guard MRB establishes firing lines and secures main body's southern flank as it attacks through Granite Pass and penetrates through Alpha Pass.

Main body MRBs attack abreast through the Brown Cut and the Goat Trail, echeloned right. Neither MRB is designated the main effort yet. Whichever MRB enters the northern corridor through Granite Pass first becomes the supporting effort. Once in the corridor the lead MRB seizes firing lines to support-by-fire the assault through Alpha Pass by the trail MRB. If the pass is lightly defended or undefended, the lead MRB will penetrate and secure the eastern side to pass the trail MRB through to the MRR objective.

ATB screens MRR southern flank. One ATC remains with advance guard,

TASK ORGANIZATION

1st MRB (Advance Guard)	2d MRB (Main Body)	3d MRB (Enveloping Det.)	4TH MRB (Main Body)	RESERVE	ATB (Antitank)	TF Angel (Air Assault)	TF Destroyer (Dismounted)
10 T-72	10 T-72	10 T-72	10 T-80	10 T-72	12 AT-5	100 INF	100 Inf
29 BMP-1	29 BMP-1	29 BMP-1	28 BMP-2		6 MT-12	3 AT-5	3 AT-5
1 MSD	100 Inf	6 Mortars			2 MOD		1 Mortar
4 TDA-M	1 MSD						

two ATCs move with main body to facilitate penetration in Alpha Pass.

Conditions:

- *No more than two company teams in northern corridor; includes Granite Pass.*
- *No more than one company team that can influence Alpha Pass.*

Execution

The enveloping detachment was extremely successful in destroying and fixing enemy forces around Hill 760. Scouts reported at first light that no enemy forces were defending Alpha or Bravo Pass but that one mechanized company team was defending Granite Passes East and West. This company team was primarily above ground due to the destruction of its bulldozer by an OPFOR scout BMP-1 on the night of 08XXX95. Its infantrymen were dismounted and defending in both Granite East and Granite West Passes. One enemy company team was reported vicinity the Iron Triangle. John Wayne Pass was reported blocked and defended by enemy forces. The remainder of the enemy brigade was defending primarily from Hill 876 to Hill 780 to Hill 760 and along the southern wall of the central corridor.

The OPFOR regimental commander ordered that COA 4, the attack through Granite Pass and penetration through Alpha Pass, be executed at 090700XXX95 as the advance guard MRB crossed the LD. Minor modifications were made during the attack based on enemy disposition and action. The advance guard MRB was ordered to clear Granite Passes East and West with one motorized rifle company (MRC). The ATB would assist in this task with its long-range fires. Task Force Angel was ordered to land north of Granite Pass West and clear through to the south. The advance guard's MRC and Task Force Angel knew they would be converging with each other. Purple smoke had been designated during the MRR operations order to mark friendly positions. No additional coordinated fire lines were developed because both forces were executing on the move.

Close air strikes were directed at the enemy around the Peanut/Chod gap and Hills 876 and 780 during the first sortie to aid in the deception that the regiment would attack there. All subsequent sorties were directed at the company team around the Iron Triangle. Artillery smoke was fired continuously at the Iron Triangle to screen the main body's turn to the north. Artillery scat- tered mines were fired vicinity the Range 23 flagpole to slow enemy repositioning into the northern corridor. The attacking force employed electronic warfare jamming against the enemy's artillery nets and on the company team defending the Granite Passes once the advance guard cleared Brown Pass.

Task Force Angel landed north of Granite Pass West and began clearing to the south. The second lift of Task Force Angel was shot down by enemy M-2s in the Granite Pass. Those soldiers already on the ground continued to attack and clear south. The Advance Guard's MRC clearing the passes to the north sustained loses but still gained a foothold in Granite Pass East. Both Task Force Angel and the MRC reported many dismounted enemy infantry in the rocks along Granite Passes East and West.

You must be able to modify your course of action on the basis of enemy action and you must be able to do so quickly if you are to stay inside the enemy's decision cycle.

The advance guard main body was successful in seizing firing lines that allowed it to secure the southern flank of the MRR's main body. It also employed its organic mortars to add to the artillery-delivered smoke line.

The combat reconnaissance pa-trols (CRPs) of the MRR main body MRBs cleared Brown Cut, Brown Pass, and the Goat Trail to ensure that no enemy artillery delivered mines had been fired along the advance guard's route of march. All routes were clear. The CRP of the right MRB was directed to clear and mark Granite Pass East for passage of that MRB. The CRP of the left MRB was directed by its MRB commander to clear and mark Granite Pass West. Additionally, this CRP was directed by its MRB commander to clear and mark Gold Pass because of the reports of dismounted infantry in Granite Pass West. These CRPs reported that Granite Passes East and West were still defended by enemy forces, now primarily dismounted infantry. Gold Pass was reported cleared and undefended. Based on these reports, and the the attack of Task Force Angel in Granite Pass West, the right MRB commander ordered an assault through Granite Pass East. The left MRB commander ordered a march through the undefended Gold Pass. One CRP BMP remained behind to guide the left MRB into Gold Pass.

The left MRB entered the northern corridor first while the right MRB assaulted through Granite Pass East. The left MRB remained in march formation in order to reach and secure Alpha Pass as quickly as possible. This MRB's CRP reported that Alpha Pass was undefended and continued to push east looking for repositioning enemy forces. As the lead MRC of the left MRB cleared Alpha Pass, the right MRB entered the northern corridor after completing the destruction of the defending enemy company team in Granite Pass East. The left MRB cleared Alpha Pass and pushed to the southeast, setting rolling firing lines to destroy any enemy forces that were repositioning. The right MRB and the reserve cleared Alpha Pass and continued to the east to seize the MRR objective.

The regimental commander now ordered the enveloping detachment to begin an attack to the northeast to consolidate the regiment on the objective. The right MRB secured the northern side, the left MRB secured the west side, the enveloping detachment secured the south side, and the reserve secured the east side of the regiment's objective.

There are several lessons to be learned from this mission:

- A plan must include more than

one course of action. Rarely will any one plan anticipate all of the enemy's actions. The OPFOR regiment did not think it would be executing COA 4 because of the easily defensible terrain in the northern corridor. The "Blue Force" (BLUFOR) brigade also must have believed that the OPFOR would not be executing COA 4 since they did little to prevent it.

• You must defend your entire sector. At least you must have a plan to move to another point in your sector if you choose to accept risk there. A capable enemy will find where you have accepted risk and strive to exploit your weakness. The OPFOR expects its scouts to find just these areas. If you saw the Needs Practice and Untrained ratings on OPFOR scout METL assessments, you would think someone was joking. Units perform to the level and standard they are trained and expected to perform.

• A plan must be simple. It must be understood and rehearsed by those who will execute it. This includes all of your courses of action. If it is not simple, understood, and rehearsed, it is inflexible and will not survive the first contact with the enemy. You must be able to modify your course of action on the basis of enemy action and you must be able to do so quickly if you are to stay inside the enemy's decision cycle. To do this you must build your plan based on crew, squad, platoon, and company battle drill proficiency. If these units cannot execute drills quickly, your battalions and brigades will continue to be destroyed by the OPFOR.

• You can develop courses of action that are based solely upon your anticipated mission, terrain analysis, enemy doctrine, and past actions. This is exactly how every OPFOR course of action is first developed. Then you develop a reconnaissance and surveillance plan that will confirm or deny your templated courses of action. You must therefore know your enemy and the way he fights. You must seek to destroy his scouts while at the same time positioning your own.

•Always remember that reconnaissance is not a unit. It is a missio. Stinger teams, TOWs, combat observation lasing teams, and other platoons, as well as scouts, can all be tasked to perform reconnaissance as well as counterreconnaissance missions. Pilots can also be an immediate source of intelligence if you ask.

• Once you begin refining your template, adjust your courses of action accordingly or even discard some. The OPFOR generally develops four courses of action for both offensive and defensive missions but rarely hits LD time with more than two that are still options.

• You must give your subordinates mission-oriented orders all the way down to individual track commanders, squad leaders, and team leaders and trust them to execute those orders. This gets back to your soldiers and crews being proficient in executing their battle drills. But if they don't know the plan, haven't rehearsed the plan, or haven't even been briefed on the concept, what can you trust them to execute? The OPFOR empowers its track commanders to take action within the framework of each course of action. Leaders can die all the way down to individual vehicles and someone will still know and execute the plan. If all else fails, all OPFOR soldiers understand their commander's intent, "Kill the BLUFOR!"

Leaders can die all the way down to individual vehicles and someone will still know and execute the plan.

• The OPFOR requires all of its track commanders to attend MRB orders and rehearsals. These rehearsals occur after MRB commanders rehearse the regiment's courses of action on a terrain model. While MRB commanders are rehearsing at regiment, MRCs are issuing orders and rehearsing generic battle drills such as bypassing or breaching minefields and mines; defile drills; gun tube orientation; 360-degree security; setting firing lines; and action left, right, and rear. At least one OPFOR MRB lives by boresight, battle drills, and detailed rehearsals. These orders and rehearsals occur for every battle, every rotation. Every enemy is a little different, and so is every OPFOR mission plan. If these rehearsals and battle drills are that important to a regiment that fights every month, they must be important for everyone else as well.

• Although secure radio nets may not be monitored, they can be detected and therefore jammed. Certain nets are always active at certain times– scout nets at night, command nets around EENT (end evening nautical twilight) and at BMNT (beginning morning nautical twilight). Fire support nets are easy to identify once enemy calls for fire are answered with rounds down range. Other critical nets, such as a company team defending Granite Pass, can be prompted to become active by creating activity that will cause them to transmit. To avoid these problems, alternate nets must be used before the anticipated battle time. At LD time or the defend no-later-than time, switch command and fire support nets, at a minimum, to "battle command" nets. The OPFOR has no secure nets and is very well trained at using the battle command net technique as well as fighting through jamming and jumping frequencies.

• A 20-page OPORD is ridiculous So is a 10-page one. Subordinate commanders cannot remember or comprehend so many ideas and tactics all at once. The standard four-COA, OPFOR regimental OPORD consists of a one-page (front and back) handwritten execution matrix. The same is true for MRB and MRC OPORDs. Granted, some units will need to include another page for logistics requirements that do not always burden the OPFOR. But the OPFOR units too must recover and repair its vehicles at the end of every fight, so they do include the essential paragraph four information in their one-page OPORDs.

• OPORD graphics have no overlays on them. The maneuver, fire support, engineer, and air defense graphics are all included on a one-page,

black-and-white photo-copied map. This makes it much easier to remember such things as minefields and indirect fire targets, and easier to see how they all relate to the maneuver plan. These graphics are given to every track commander. A BLUFOR maneuver commander should have only the maneuver and engineer graphics on his map, at the most. His forward observer or fire support team is there to call the fires he wants (or he can just use grids), his XO or first sergeant is there to run the logistical support, and his air defense artillery soldiers can conduct the air defense. Of course, he must also have access to these other graphics in case he needs to refer to them. Again, the point here is that subordinates can do their jobs if they know and understand the plan and can execute their battle drills. These abilities—once developed, trained, and expected in a subordinate—free just enough of the commander's time to let him command the fighting of his unit instead of just his vehicle.

Finally, not all the fighting is done at the pointy end of the sword. Many logistics elements such as maintenance facilities and fuel, water, and ammunition convoys are often left alone and uninformed as to what is happening forward on the NTC battlefield they are supporting. Consequently, they often fall prey to OPFOR soldiers raiding in brigade rear areas and along the main supply route. These logistics people are soldiers who perform a vital function keeping the pointy end sharp. If you ignore them for too many nights in a row; you'll find they're all dead along your fuel-strewn, watered-down main supply route, and you have no ammunition or food in your tactical assembly areas.

The National Training Center OPFOR is a tenacious, innovative force, and it likewise takes tenacity and innovation to defeat it. The principles that determine success at the NTC are not new ones, and this article illustrates their proper application. The enemy that the U.S. forces face at Fort Irwin employs the tactics and techniques any present-day adversary may use against us, and if we learn—and learn well—from the NTC experience, victory will be ours.

Captain Jeffrey D. Church comm- ands a company in the OPFOR 4th Motorized Rifle Battalion, 32d Guards Motorized Rifle Regiment, at Fort Irwin. He previously led rifle and antiarmor platoons and served as a company executive officer in the Berlin Brigade. He is a 1989 ROTC graduate of Brigham Young University.

The Team Leader's
Principles of Tactical Movement

SERGEANT FIRST CLASS LAURENCE C. JOHNSON

Regardless of a unit's size, formation, or movement technique, its team leaders are the single most vital key to its successful tactical movement.

The deliberate attack at the Joint Readiness Training Center (JRTC) offers an example. Units training there often display a marked difference in tactical field discipline between the time they cross the line of departure and the time they make decisive contact. During the deliberate attack, the units with fire teams that are proficient in moving tactically are more likely to finish their movement and complete the mission.

Sometimes, units performing these missions fail because of a lapse in security, stealth, dispersion, or control. Little clusters of tired soldiers become less inclined to step off the trail during halts and rest. Soldiers become more inclined to speak aloud across the formation or to doze in place as the man ahead picks up and moves out. Separated from their elements in the dark, disoriented soldiers wander about in the formation. In the pre-dawn hours, lying down on rucksacks becomes contagious.

Units need team leaders who know how to fix the little problems before they can become big ones.

These problems usually are not caused by soldiers who are totally ignorant of proper tactical movement principles but by leaders who fail to enforce those principles. Units that allow this to occur risk detection and sudden enemy contact, disproportionate casualties from indirect fire and mines, and breaks in formation from which they never recover. Units need team leaders who know how to fix the little problems before they can become big ones.

Fundamentally, the same tactical movement principles that may apply to a

large unit also apply to that unit's fire teams. These principles in turn define the actions a team leader must take to conduct the proper tactical movement of his fire team while part of a larger force:

Security

While moving, soldiers can see--and be observed by--their team leader, and he makes sure they maintain a heads-up posture and watch their sectors of observation. During halts, soldiers follow the team leader's example and kneel to rest; or he may put them in the prone position. At long halts, he assigns their sectors of fire. He is responsible for his team's sector and is always thinking 360-degree observation. The team leader checks soldiers for alertness and ensures that they use night vision devices during darkness. He constantly checks camouflage.

A team leader who learns and enforces security provides maximum protection for his element, and this develops the habit of considering firepower in anticipation of enemy contact.

Stealth

The team leader has conducted a "jump check" during his pre-combat inspection to detect noisy equipment, and during movement, he ruthlessly enforces both noise and light discipline and quickly corrects any violation. He sets the stealth example by using proper hand-and-arm signals and night walking techniques to control the unit while on the march.

The team leader learns that a unit in which the soldiers maintain good operational security can exploit concealment, visibility, and enemy weakness. He also learns that a unit using poor operational securty can attract the unwanted attention of enemy forward observers and be ambushed or come under indirect fire befor they ever see the objective.

Dispersion

The team leader considers terrain, vegetation, visibility, and speed of movement to determine the proper interval between team members. Soldiers tend to bunch together at night, even when illumination is adequate. On the other hand, too much space between soldiers can lead to a break in contact.

The team leader must learn to achieve maximum dispersion without losing either control or momentum. He must also consider the consequences and his reaction of the unit's being engaged at any time.

Control

Besides leading from the front, a team leader's function is to help the squad leader maintain security and control, and element control begins long before the mission does. The team leader cannot control his team unless they understand the purpose and types of control measures, particularly as stressed in battle drills and unit standing operating procedures. He is better able to control the team when they are familiar with the mission and have rehearsed their part in it until they are thoroughly confident.

During movement, the team leader applies positive control to his troops to enforce security, stealth, and dispersion. He takes action to prevent breaks in contact. He checks personnel during halts, and this is one of his most critical contributions to the unit. The team leader is the individual soldier's direct link to the will of the commander. If he does not check his people, most likely nobody will, and the result is often a JRTC deliberate attack "movement to daylight" scenario, in which a unit becomes disoriented, misses the objective, and wanders around until sunup.

For team leaders who are skilled in the tactics and control measures of their units, executing these principles becomes an automatic response. As role models and teachers, they pass these habits on to the junior soldiers.

The most successful infantry team leaders tend to have an aggressive leadership style, while at the same time projecting a positive attitude and leading by example. A commander whose unit is having trouble with the nuts and bolts of tactical movement should make a sustained and vigorous effort to cultivate and reinforce these attributes in his young leaders. And a unit that has many of these team leaders is more likely to survive a tactical movement and accomplish its mission right, the first time.

Sergeant First Class Laurence C. Johnson served as a team leader and squad leader in the 3d Battalion, 22d Infantry, 25th Infantry Division, and as a company analyst and squad observer-controller at the JRTC. He is now assigned to the 101st Airborne Division.

The Battalion TACSOP

A New Approach

LIEUTENANT COLONEL FRANK R. CARLINI

When I assumed command of an infantry battalion, I faced a situation common to many new commanders. The battalion tactical standing operating procedure (TACSOP) volume was more than ten years old. To complicate matters, the version the battalion was using (1986) did not have a supersession statement or a letter of promulgation. Therefore, many in the battalion were still using the even older 1983 version. Clearly, the time had come to republish the TACSOP.

As we began to rewrite the TACSOP, the staff came to the conc-

TABLE OF CONTENTS

SECTION II: REPORTS

SECTION III: CHECKLISTS

lusion that most TACSOPs followed basically the same standard format. This format usually involved going into successive tabs, appendices, annexes, to extract the needed information or report, which seemed both time-consuming and difficult. I therefore charged my staff to develop a TACSOP format that was easy to use while still containing all the items we needed to accomplish our combat mission. What we developed is, I believe, a unique way to structure the standard TACSOP.

Our TACSOP is divided into three major sections: the TACSOP it-

self, reports, and checklists. Each major section is subdivided into nine sections based on what we call the BOS (battlefield operating systems) Plus: Command and control, Maneuver, Fire Support, Intelligence, NBC, Engineer, Air Defense, Logistics, and Personnel and Administration. These sub-sections appear in the same order in each of the three major areas. The sub-sections are structured roughly in the order of importance required for combat operations.

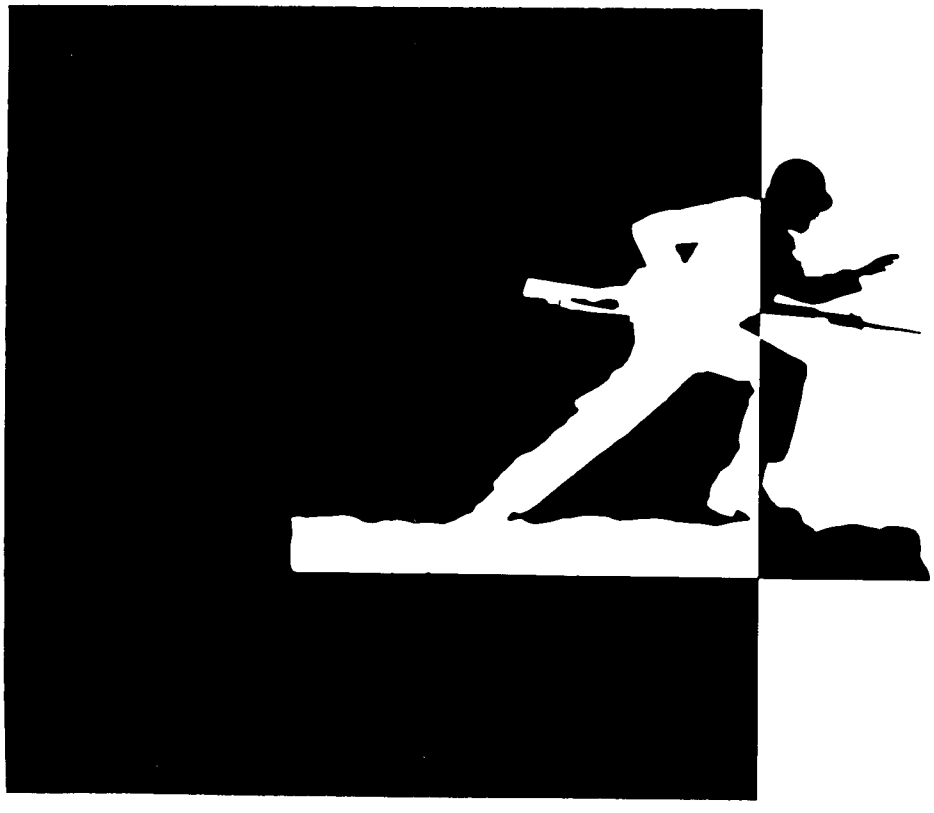
Examples of the table of contents for each major section are shown here. This TACSOP allows a user to go to the sections needed immediately without having to read through text to find the needed information, reports, or checklists. For example, a commander who wanted to know how the battalion uses engineer assets would turn to Section I F. If that same commander needed to know the engineer reports required, he would go to Section II-F, and checklists for engineer operations would be found in Section III-F.

Each section has its own, more detailed, table of contents with bullet comments that correspond to paragraphs in the sub-sections. The pages for each BOS sub-section are numbered sequentially. New or updated reports and checklists can easily be inserted without disturbing the rest of the TACSOP.

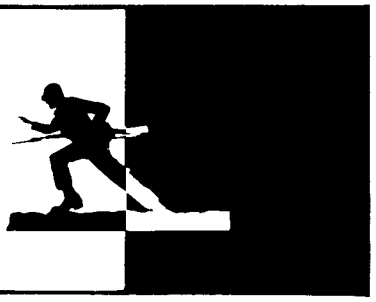
With this format, a new company commander who receives a change of mission in the middle of the night can go quickly to the applicable checklist, begin the troop leading procedures required for that mission, render any report necessary, and then go to the text for more detailed information on that operation.

The battalion TACSOP is so central to all operations that the ease of use can partly determine the success of a mission. What is presented here for consideration by commanders is another way to structure the battalion TACSOP to make it a more accessible combat reference.

Lieutenant Colonel Frank R. Carlini commands the 1st Battalion, 114th Guard. He previously held the pos- itions of brigade S-3, Assistant Chief of Staff, and G-3 of the 50th Armor Division (since deactivated), and served with the 2d Battalion, 1st Infantry, 23d Infantry Division, in the Republic of Vietnam. He holds a master's degree from Rider University.



BOOK REVIEWS



INFANTRY highly recommends the following reference volumes: ***The Armies of George S. Patton.*** **By George Forty. Arms & Armour Press (Distributed by Sterling Publishing, 387 Park Avenue South, New York, NY 10016-8810), 1996. 336 Pages. $29.95, Hardcover.**

The Armies of U.S. Grant. **By James R. Arnold. Published in hardcover in 1995. Arms & Armour Press (Distributed by Sterling Publishing, 387 Park Avenue South, New York, NY 10016-8810), 1996. 320 Pages. $19.95, Softbound.**

The Army of Robert E. Lee. **By Philip Katcher. Published in hardcover in 1994. Arms & Armour Press (Distributed by Sterling Publishing, 387 Park Avenue South, New York, NY 10016-8810), 1996. 352 Pages. $19.95, Softbound.**

Guide to Louisiana Confederate Military Units, 1861-1865. **By Arthur W. Bergeron, Jr. Originally published in 1989. Louisiana State University Press, 1996. 229 Pages. $12.95, Soft- bound.**

Sappers in the Wire: The Life and Death of Firebase Mary Ann. **By Keith William Nolan. Texas A&M Press, 1995. 225 Pages. $24.95.** Reviewed by Dr. Joe P. Dunn, Converse College.

In his seven books about soldiers in combat in Vietnam, Keith William Nolan, a master of the personal interview, has established himself as a neo-S.L.A. Marshall chronicler of combat actions. This time he focuses on a small event in 1971 that several authors cite as a microcosm of the waning years of the war, even though the action had not been studied in depth previously.

During the night of 27-28 March 1971, a Viet Cong sapper company infil-trated Firebase Mary Ann, the forward-most position of the 23d Division (Americal), and killed 30 American soldiers and wounded 82 while suffering only 15 casualties.

At a time when American combat action had declined mightily and combat troops were confined to firebases or rear areas; when drugs, racial tension, and breakdown of discipline were rampant; and when a miasma of laxity and cynicism afflicted a growing percentage of the Army in Vietnam, this incident seemed to characterize the last years of the war.

Historians have excoriated the defenders of Firebase Mary Ann, and it is one of the two instances of dereliction of duty (along with My Lai) that William Westmoreland cites in his memoirs. In an earlier work, Nolan sharply criticized the unit that occupied Mary Ann. Now, however, he says that he and others were far too harsh. The book is an intensive minute-by-minute recreation of what happened at the firebase before, during, and after the 45-minute attack, placed in the context of the operations over the prior months. The story contains elements of both heroism and disaster. Nolan used declassified unit records and interviews with more than 50 survivors to recreate the events.

The final chapter tells of the discipline that was imposed after that fateful night, upon everyone from the division commander to officers at the firebase. Finally, Nolan brings the reader up to date on the current lives of the survivors.

Nolan does indeed depict a microcosm of the war at a particular stage, but one that is somewhat different from that presented in earlier accounts. One may agree or disagree with his interpretation; but as in all his previous books, Nolan has an uncanny ability to tell the story of men in combat. This is a book well worth reading.

Drawn With the Sword: Reflections on the American Civil War. **By James M. McPherson. Oxford University Press, 1996. 253 Pages. $25.00.**

Ken Burns's The Civil War: Historians Respond. **Edited by Robert Brent Toplin. Oxford University Press, 1996. 204 Pages. $24.00.**

Lee the Soldier. **Edited by Gary W. Gallagher. University of Nebraska Press, 1996. 620 Pages. $45.00.** Reviewed by Dr. Charles E. White, Infantry School Historian.

These books illustrate three reasons why popular interest in the American Civil War endures. Each is a collection of essays, lectures, speeches, and special studies in short form that have not become books. Most works like this never reach more than a limited audience. Fortunately, James McPherson, Brent Toplin, and Gary Gallagher have provided Civil War enthusiasts with three examples of fine historical research and writing.

After reading the collection of 15 essays in *Drawn With the Sword*, one can easily see why McPherson is widely recognized as one of America's most distinguished students of the Civil War era. These essays attest to the originality, sweeping range, and compelling views of their author. All but the final essay have been published before. Nevertheless, McPherson has revised and updated these, adding the 15th to give his book "thematic coherence."

McPherson begins by dismantling several old arguments: that the South was truly a distinctive region; that Harriet Beecher Stowe's controversial novel *Uncle Tom's Cabin* had a real impact; and that the North was the aggressor by forcing the South to fire the

first shot. The author then addresses the effects of the Civil War on American society and discusses why interest in this truly first "total" war continues even today.

Perhaps the most interesting portion of this book is in the section titled "Why the North Won," in which McPherson examines the reasons for Northern victory. Among the most thought-provoking essays is "Lee Dissected," in which the author presents the most objective evaluation of Robert E. Lee to date. While not denying Lee's splendid battlefield success, McPherson maintains that "Lee's victories prolonged the war until it destroyed slavery, the plantation economy, the wealth and infrastructure of the region, and virtually everything else the Confederacy stood for. That was the profound irony of Lee's military genius." In short, Lee more than any other Confederate leader was responsible for the ruination of the South.

This book is James McPherson at his best. For those seeking a book that combines a summary of recent scholarship on the Civil War with the brilliant insights of a master historian, this is clearly the one to read.

Another superb work is Toplin's edition of *Ken Burns's* The Civil War: *Historians Respond.* In 1992, Burns's documentary *The Civil War* captivated American audiences and made television history, breaking all viewing records for a Public Broadcasting Service series. Indeed, more than 40 million people saw the series, more than the populations of the Union and the Confederacy combined.

Because this documentary may have represented the best modern American example of film's potential to teach history on a mass scale, historians wanted to hold Burns's production to high scholarly standards. Thus, before the haunting "Ashokan Farewell" ceased to echo in the ears of those who watched, historians found problems. Some felt there was far too much emphasis on slavery and freedom, while others voiced their concern that the series was too anti-Southern. Still others complained that it reflected the Northeastern liberal establishment viewpoint.

The criticisms seemed endless: Burns did not focus enough on the military aspects; the series slighted Reconstruction; women and other minorities were not properly represented. Even the American Historical Association established a "Film Review" section in its journal, ostensibly to monitor film makers and their propensity for distorting history. It seemed that every special interest group felt that the focus of its particular specialty or viewpoint should have commanded center stage. Clearly, the critical response to *The Civil War* demonstrated the kind of scholarly interest this subject evokes in U.S. academia today.

Thankfully, Robert Toplin has captured these "evaluations" in this thoughtful book. The Burns series brings together supporters, detractors, and even Ken Burns himself. Readers will find a refreshing interpretation of the way television portrays history, and the problems Burns and others encounter when putting together documentaries. Are documentaries art, history, entertainment, or a combination of all three?

Finally, perhaps no other general in American history has been so universally revered as Robert E. Lee. More has been written about this Southern icon than any other American warrior. In this massive edition, *Lee the Soldier,* noted historian Gary W. Gallagher has put together in one volume the most important writings by and about Lee. Gallagher's purpose was to provide "... convenient access to assessments of Lee's generalship that reflect the interpretive sweep of literature." Readers will not be disappointed. Virtually every aspect of Lee's remarkable Civil War career is covered in this book.

To achieve his objective, Gal-lagher has divided the book into four sections. Part One, "Testimony of R.E. Lee," comprises a series of 1868 conversations in which Lee spoke candidly with former associates about his campaigns. These especially valuable transcripts provide the foundation upon which Gallagher builds the remainder of his book. One of the best lines is Lee's response to his critics: They "talked much of that they knew little about." Interestingly, Ulysses S. Grant made a similar remark in his famous *Memoirs.*

Part Two, "Assessments of Lee's Overall Generalship," contains 11 essays from Lee's contemporaries and from leading Civil War scholars such as Douglas Southall Freeman, Charles P. Roland, Albert Castel, Alan T. Nolan, and Thomas L. Connelly. These discus sions cover the entire spectrum of opinions about Lee's generalship.

Part Three, "The Great Campaigns," narrows the focus to specific battles, with particular emphasis on Gettysburg. Here the reader will see how Early, Longstreet, and Porter Alexander viewed that fight. Also included in this section are discussions of Lee during his initial six weeks in command,at Antietem, Chancellorsville, and from the Wilderness to Appomattox Court House.

Finally, Part Four, "The Written Record," contains a list of the top 200 essential books on Lee's military career.

Lee The Soldier is the best collection of its kind anywhere.

When the Odds Were Even: The Vosges Mountains Campaign, October 1944-January 1945. **By Keith E. Bonn. Presidio, 1994. 294 Pages. $24.95.** Reviewed by Lieutenant Colonel Albert N. Garland, U.S. Army, Retired.

If you want to be a politically correct U.S. military historian writing about World War II in Europe, you must state unequivocally that the U.S. fighting man was no match for his German adversary, and that the only reason the U.S. soldier was able to come out on top so many times was that he had an unlimited amount of supplies and number of tactical air sorties at his beck and call. Or you can fall back on the saying I first heard many years ago after returning from fighting the Germans: "It's a good thing you weren't fighting the German Army of 1941."

The author of this book is a serving U.S. Army officer who holds a doctorate in history from the University of Chicago. He is not politically correct and disagrees strongly with historians who have followed and still follow the PC line.

To refute the PC-types, notably Martin van Creveld and the late Trevor N. Dupuy, and to advance his thesis that the U.S. fighting man was the equal of and perhaps better than his German opponent, Keith Bonn set out to find and *study the combat operations of the American and German armies in a situation in which tactical air power is absent or its effectiveness obviated, a situation in which American logistical advantages are nullified by higher headquarters' alternative priorities or by the realities of weather and terrain, and a milieu in which the manpower circumstances of both sides are adequate for the fulfillment of their respective doctrinal requirements and expectations.* Bonn goes on to say, *In other words, it is necessary for accurate appraisal of the relative combat proficiency of the German and American armies in the ETO, to find a time and a place when the odds were even.* Bonn's choice for that place is the Vosges Mountains during the autumn and winter of 1944-1945, specifically the campaign in the High and Low Vosges from 15 October 1944 to 15 January 1945.

Because his book grew out of his doctoral dissertation, Bonn has probably done more research in primary source material–both German and U.S.–than most military historians writing today. He explains some of his research methods early (on pages 7-12) and lists many of his sources in a selected bibliography near the end of the book. Each of his five chapters includes numerous footnotes, all grouped together between pages 235-268, and many of these contain important information.

After an introductory chapter, Bonn discusses the battleground--"never before in the history of modern warfare had an army fought its way successfully through opposition in the Vosges"; the opposing forces, including lengthy discussions of U.S. and German doctrine, organization, and training; the battle for the High Vosges, 15 October-4 December 1944; and the battle for the Low Vosges, 1 December 1944-15 January 1945. He then offers a wrap-up chapter in which he discusses the effects of training, organization, and doctrine on the campaign's outcome.

The two operational chapters contain detailed orders of battle and numerous maps. A grouping of photographs is inserted after page 138.

The battle was far from easy on the opposing ground forces. It was particularly difficult for the American soldier, who was usually called on to attack prepared defensive positions. The weather was atrocious, with freezing temperatures, almost daily rain, and considerable winds. Both sides paid dearly.

Bonn seldom goes below regimental level when discussing the infantry and armor battles. It was not his intent to show how individual soldiers fared on a day-by-day basis. But he does include enough of the sights and sounds of battle to keep the reader's interest in the campaign's overall progress.

I noted only two minor errors: A U.S. division artillery battalion had 12 tubes, not 18 (page 57), and the U.S. M1919A4 (later the A6) machinegun was classified as a light weapon, not medium. The M1917A1 machinegun was the heavy weapon; it was not the M1917A4, by the way, as Bonn indicates (page 24).

Bonn notes that "very little effort has been expended on the campaign by the historical community." He's right, of course. In fact, the official Army "green series" volume that includes the campaign did not appear until 1993.

Our current crop of infantrymen should become familiar with this campaign, for there is much they can learn from its study.

***Terrible Innocence: General Sh- erman at War.* By Mark Coburn. Hippocrene, 1993. 248 Pages. $22.00.** Reviewed by Major Don Rightmyer, U.S. Air Force, Retired.

During the past five years, several worthwhile (although controversial) biographies have been published about the Civil War service of General William Tecumseh Sherman. These have included Michael Fellman's *Citizen Sherman*, Charles Royster's *Destructive War*, and John Marszalek's *A Passion for Order*. Mark Coburn's *Terrible Innocence* weighs in on the lightweight side of the recently published Sherman biographies.

Mr. Coburn presently teaches English at Fort Lewis College, and this is his first published volume of military history.

This book will serve the general reader best as an overview and general introduction to Sherman's Civil War career and the campaigns in which he participated. This book is undocumented with only a two-page "Suggested Reading" at the end of the text. It is obvious from the quality and depth of the narrative overall that this was a subject that intrigued the author and motivated him to bring together a rather superficial, general assessment of Sherman from his early problems in the military command of Kentucky through his triumphal victories in the Carolinas.

If you can find this book on a library shelf, pick it up for an easy read. It is not one of the "must read" Civil War histories and certainly not one of the better ones dealing with Sherman.

RECENT AND RECOMMENDED

***Iron Fist: Classic Armoured Warfare Case Studies.* By Bryan Perrett. Arms & Armour, 1996. 240 Pages. $14.95, Softbound.**

***Operation Iceberg:* The *Invasion and Conquest* of *Okinawa in World War II–An Oral History.* By Gerald Astor. Dell, 1996. 560 Pages. $5.99, Softbound.**

***The War North of Rome, June 1944 May 1945.* By Thomas R. Brooks. Foreword by Senator Bob Dole. Sarpedon, 1996. 432 Pages. $27.50.**

***The Last Year of the Kriegsmarine: May 1944 May 1945.* By V.E. Tarrant. Sterling, 1996. 288 Pages. $14.95, Softbound.**

***Over the Battlefronts: Amazing Air Action of World War One.* By Peter Kilduff. Sterling, 1996. 256 Pages. $29.95. *Disaster on Green Ramp: The Army's Response.* By Mary Ellen Condon-Rall. U.S. Army Center of Military History, 1996. (GPO S/N 008-029-00328-7.) 145 Pages. $8.00, Softbound.**

From The Editor

PASS IT ON

Our Army and its leadership often look to the lessons of history to guide their efforts. The experiences and reactions of men under fire have been captured from every American war since the Revolution, and today we can retrieve and apply that information as we design and field our doctrinal, materiel and training products. In short, we can now draw upon the lessons of the past as we attempt to field the types of support the Army will need as we enter the 21st Century; this is absolutely essential if we are to conserve lives and wring the most value from our ever-diminishing dollars.

Operations at the National Training Center and the Joint Readiness Training Center are likewise getting higher visibility in recent months, as we attempt to hone the fighting edge of a shrinking force. We have come a long way toward overcoming the logistical, training, and materiel shortcomings that doomed Task Force Smith in 1950, but we cannot let our guard down as we prepare to deal with future adversaries. Today we have a force that can hit the ground, deliver the decisive blow, and return with minimal losses in men and materiel. Our readers continue to send us articles on their experiences in Haiti, Bosnia, Somalia, Macedonia, and other regions that were not even in our range fan a decade ago. We have also learned many valuable lessons that need to be remembered and shared.

Those lessons can be of tremendous benefit to other Soldiers and leaders, and you can help us pass that information along. Your experience and perceptions are unique, and we always need articles ranging from tactics and administration to such logistical subjects as refueling on the move, field maintenance, and rear area security. Logistical operations–for example–continue to present problems for units at the National Training Center, and a unit that cannot secure its CSS assets, refuel and rearm itself, and maintain its vehicles will be no more effective than one that has been overrun by the OPFOR.

So how do you submit your articles? As a minimum, send us a typewritten, double-spaced draft. If you can provide a disk in Microsoft Word, DisplayWrite 4, or ASCII, so much the better. Please do not send articles by e-mail; the system is overburdened, and it will not get you published any sooner.

What about art? Along with your draft, send only those maps, sketches, or tables that are needed to clarify the text. The text is–after all–the heart of the article, and art work should be used only when absolutely necessary. Please use standard FM 101-5-1 terms and symbols, and submit black-on-white camera-ready maps, charts, or diagrams.

Finally, please explain any acronyms that you use. In just the past two years, many new terms have come into the Army vocabulary, and many of our readers will not have seen terms in common use in your division or theater. (We spend more time than you'd believe trying to track down homegrown acronyms, only to find that a standard one already exists.)

In the past, I have tried to let authors know within 30 to 60 days whether or not we have accepted an article, but the present workload has rendered this turn-around time unrealistic. If you really need an answer, call me and inquire as to the status of your submission if you have not received a response within two months.

A final note, and one that applies to all publications: Please do not submit an article to more than one magazine at a time. While I understand that an inexperienced author may do this to improve the chances of getting published, we–like the staffs of the other branch magazines–must reject such multiple submissions.

We are headed for some exciting times, and the United States Army of the next century will have a big job to do. Deploying units may not still have the luxury of making mistakes, learning from them, and bouncing back. We will have to do it right the first time, because that is what our people and our allies expect of our nation's forces, and because we cannot afford to do otherwise. Send us your ideas and we'll help you share them with the entire Infantry force.

RAE

SUBSCRIPTION INFORMATION

INFANTRY is available to subscribers at $12.00 for one year and $23.00 for two years. Foreign (non-APO) subscribers must add $4.00 per subscription per year to cover the cost of surface mailing and handling. Foreign air mail rates will be furnished upon request. Single copies are $2.50 each if sent to a U. S. address.

Payment must be made in U. S. currency, by international money order, or by a check or draft drawn on a U. S. bank. For best service, payment should accompany each order, because we cannot start a subscription until we have received full payment for it. Checks, money orders, or drafts should be made payable to INFANTRY.

One-year subscriptions are not refundable; two-year subscriptions are refundable, but service and handling charges will be deducted.

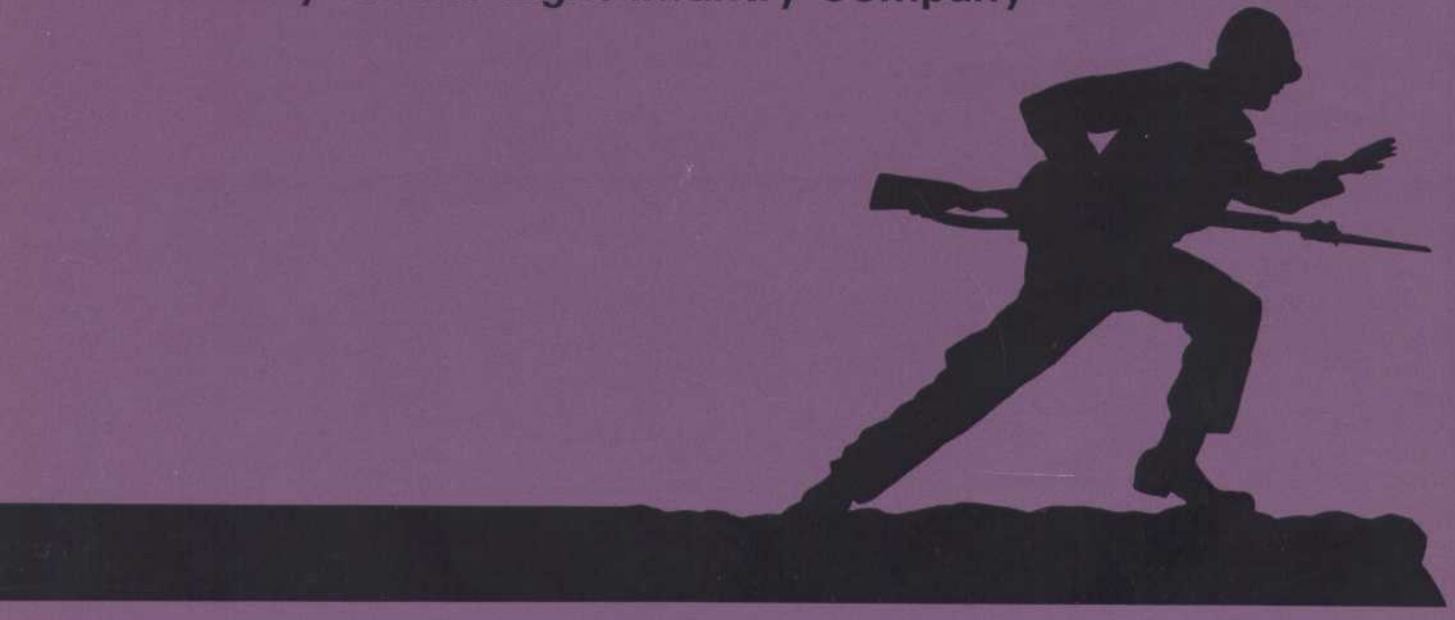
DEPARTMENT OF THE ARMY
INFANTRY (USPS 370630)
U.S. Army Infantry School
ATTN: ATSH-OTI
Fort Benning, Georgia 31905-5593

PERIODICALS POSTAGE PAID
AT COLUMBUS, GA., AND AT
ADDITIONAL MAILING OFFICE

OFFICIAL BUSINESS

Coming Articles:

Decision Point Tactics During the Defense
Fixing the Enemy
Shortstop Electronic Protection System
Task of the Quarter
Gunnery for the Light Infantry Company



PIN: 075382-000