Infantry

July-August 1996

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.

Infantry

COVER: Close combat has always been decided by the Infantry, and the battlefields of tomorrow will be no exception. In this issue, we open discussion of the close fight and what we must do to prepare for it. This issue's cover captures the essence of infantrymen in Vietnam as they prepare to maneuver against the enemy to their front.

Commandant's NOTE

MAJOR GENERAL CARL F. ERNST   Chief of Infantry

TRAINING FOR THE CLOSE FIGHT

It's great to once again return to Fort Benning and the Infantry. I am privileged to be in a position of helping to prepare our Infantrymen to meet the demands of the next century. During the past decade we have seen tremendous advances in the lethality, survivability, and deployability of the infantry force. Today our night fighting ability is unmatched. We can acquire—and hit—targets at far greater ranges and under worse conditions than ever before, and we can deploy combat-ready units into potential hot spots more rapidly than at any time in our history. But we cannot afford to lose sight of the basic mission of the Infantryman—to close with the enemy and repel his assault—and in this, my first Commandant's Note as Chief of Infantry, I want to talk about the reality of the infantry fight and what we must do to prepare for it.

Close, brutal combat will continue to be a critical aspect of infantry operations, and we are drawing upon the lessons of history as we examine the best ways to win the close battle. We have drawn upon the combat experience of our own and other nations in defining our missions and identifying the training we need to meet the demands of future deploying forces. Events in Grenada, Panama, the Gulf War, Somalia, and Bosnia have shown that the close fight—the fight within rifle range—is still a significant factor of the Infantry mission. Whether we are initiating or repelling an assault, the U.S. Infantryman must be mentally, physically, and logistically ready to win in the melee of close combat.

We are rapidly expanding our expertise in the area of military operations on urban terrain (MOUT) and other close terrain environments, and we must continue to do so if we are to be ready to successfully execute the array of combat, stability and support operations that we are likely to face in the coming decades. Armies in the past have long regarded urban operations with concern, due to the heavy casualties, difficult command and control, limited fields of fire, restricted maneuverability, logistical difficulties, and poor communications that have always characterized MOUT. Technological advances are enabling us to overcome many of these and other related problems, but we must continue to develop the ranges, training facilities, and tactics that will ensure quick, decisive victory in this aspect of the close-in battle.

When you look at where we are and where we are going in respect to the close fight, there is cause for both optimism and urgency. We can indeed take pride in the technological, materiel, and doctrinal progress to date, and—above all—in the quality of the Infantry in today's Army. But we cannot overlook the urgency necessitated by the proliferation of high-tech weapons and support systems around the world on the part of states and factions that wish to assert national identity or redress perceived wrongs. Whatever their motives, we must reach—and sustain—a level of credible readiness that will both reassure our allies and deter would-be adventurist states and groups.

This is a responsibility that I gladly accept as Chief of Infantry: to draw upon our legacy and our technological, doctrinal, and training base to train and support the finest infantry leaders and soldiers in the world, who can deploy quickly, kick in the door, deliver the decisive blow, and return safely. As we enter the next century, we must train and equip all five types of Infantry to execute a far more diverse array of missions than at any other time in our history, and to do that during a period of constrained resources. That is the challenge, and we must meet it if we are to continue to represent the interests of our nation, at home and abroad.

INFANTRY LETTERS

INFILTRATION

I must add an important aspect to the article "Infiltration Attack," by Lieutenant Colonel Martin N. Stanton, in INFANTRY's March-April 1996 issue. Colonel Stanton, who has seen many such attacks fail during his tenure at the National Training Center (NTC), addresses the most complex and important form of infantry maneuver. (For that matter, heavy forces must deal with this tactic to align with the style of fighting that TRADOC Pamphlet 525-5, Force XXI Operations, is calling for us to conduct tomorrow.)

Colonel Stanton also provides several valuable techniques but omits another critical factor, which is *trust*. Due to its inherent complexity, infiltration (instead of infiltration attack, which derives a different meaning) demands a level of trust that only solid teams can build by executing this mission several times—not the one or two times a company commander has to conduct it during his short tenure as a commander.

Infiltration tactics are as the name implies. Soldiers, in small groups or as individuals, seek small gaps in enemy lines and slip through undetected. The first intimation the enemy should have of our presence is once we are behind him.

Although I can conceive of infiltration tactics being used in a context of methodical battle (as Colonel Stanton implies through the use of such terms as "formations" and "control"), and other non-maneuver warfare styles of fighting, it is fitting that I discuss these tactics in addition to and not in contrast to what Stanton considers critical.

For one thing, infiltration tactics were conceptualized historically along with maneuver warfare, and as TRADOC Pamphlet 525-5 is repeating today. For another, it is difficult to imagine infiltration tactics working very well unless "command" is highly decentralized, and

unless those at the lowest level exercise high initiative, such as we find in *Auftragstaktik* or mission tactics. Also, in infiltration tactics we see concepts discussed in the TRADOC pamphlet, especially identifying enemy soft spots and weaknesses and using several thrusts.

Slipping undetected through enemy lines is certainly not a new idea. What is new is that in the U.S. Army we are now—for the first time since the War for Independence—seeing infiltration tactics as an option for large-scale forces and as an alternative to our longstanding preference for attrition warfare. Earlier, infiltration was viewed as a technique for reconnaissance work, and as tactics for Rangers or guerrilla forces and other small units that had no other choice. As Stanton says, it is rare. The opposing force at the NTC has used its augmentee infantry companies in this role for years.

The tremendous power of infiltration tactics derives not from assaulting strongpoints but from having our troops suddenly appear behind the enemy. Using even the oldest, least imaginative definition of maneuver—"gaining a position of advantage over the enemy"—the force that has worked its way into the enemy's depths has outmaneuvered its opponent in the strongest sense. When the enemy has oriented his "security zone or positions," we probably do not want to be in front of him. If we can be in back of the enemy's defenses before he has any inclination to reorient them, we defeat his plans before he can execute them. (Something that simulators and MILES cannot show is the stress of reacting and making decisions under real combat conditions.)

Like many aspects of Force XXI Operations, infiltration tactics require high-quality soldiers. To begin with, the soldier or leader described in the pamphlet must make his own decisions and do it

on the spot. Tiny gaps in enemy lines cannot be seen in advance and mapped out ("infiltration lanes"). Their very existence may be fleeting. Also, extreme physical courage is demanded, because fighting inside enemy lines is fighting close! The soldier who has infiltrated can enjoy a tremendous psychological advantage because it is he who has the initiative while his opponent has no idea how many enemy he is confronting or where they are coming from. It requires tremendous moral toughness to realize this psychological advantage. The soldier who has infiltrated is, after all, surrounded.

German assault units of World War II did not use formations. There was a mutual trust between individuals, and each employed the best method of supporting his fellow rifleman or squad leader. In contrast, our mission training plans demand exacting places for our infantrymen, and for that matter, tanks and a specific reaction to prescribed enemy actions.

Colonel Stanton is correct in implying the importance of using the numerous techniques to facilitate infiltration. But no checklist or procedure will ever take the place of units that have high-quality soldiers who come with cohesive units that build trust, and understand the true high-tempo required on the battlefield of tomorrow.

DONALD E. VANDERGRIFF
MAJ, Armor
Operations and Evaluation Command
Woodbridge, Virginia

EDITOR'S CORRECTIONS

The authors' biographical data that accompanied the article "Direct Fire Planning: Platoon and Company Sector Sketch" (January-February 1996, pages 39-41) were not entirely accurate:

Captain Matt La Chance is not as-

signed to the 2d Battalion, 75th Ranger Regiment. He is assigned to U.S. Army Readiness Group, Fort Meade, Maryland.

Captain Christopher S. Hart served as a platoon leader and company executive officer in the 2d Battalion, 5th Cavalry—not in the 11th Infantry.

Our apologies for the confusion.

IMPORTANT CONTRIBUTIONS

I read with great interest and enjoyment your May-June 1996 issue and would like to offer a comment on the two articles on military operations on urban terrain: "Bradleys in the City," by Captains John L. Miles, III, and Mark E. Shankle; and "M113 Lessons from Operation *Just Cause*," by Captain James B. Daniels.

In both articles the authors cite a paucity of guidance in FM 90-10-1, *An Infantryman's Guide to Combat in Built-*

up Areas. As the officer who was primarily responsible for the creation of that manual, back in the late 1970s, I would like to assure these authors, as well as INFANTRY's general readership, that the information in FM 90-10-1 was researched as well as was possible at the time. The primary sources were training experiences in Europe, especially with the Berlin Brigade; historical accounts from various actions in built-up areas; and test data of infantry weapons, including the Bradley's 25mm gun, against typical urban targets. Unfortunately, the one source not available to us was actual combat experience of modern U.S. infantry units operating in cities. As a result, we were careful to include in the manual only the data we felt the evidence could support, and to avoid any guidance of a speculative nature.

As Captains Miles, Shankle, and Daniels point out so effectively, the Army today can draw on the combat lessons learned from a number of operations. Articles such as theirs are important contributions to the literature of urban combat, and merit the attention of the doctrinal community, not only at the Infantry School but throughout the community.

I am very gratified that three young Infantry officers have advanced the work I started almost 20 years ago.

ADOLF CARLSON
Colonel, Infantry
Department of Corresponding Studies
U.S. Army War College
Carlisle Barracks, Pennsylvania
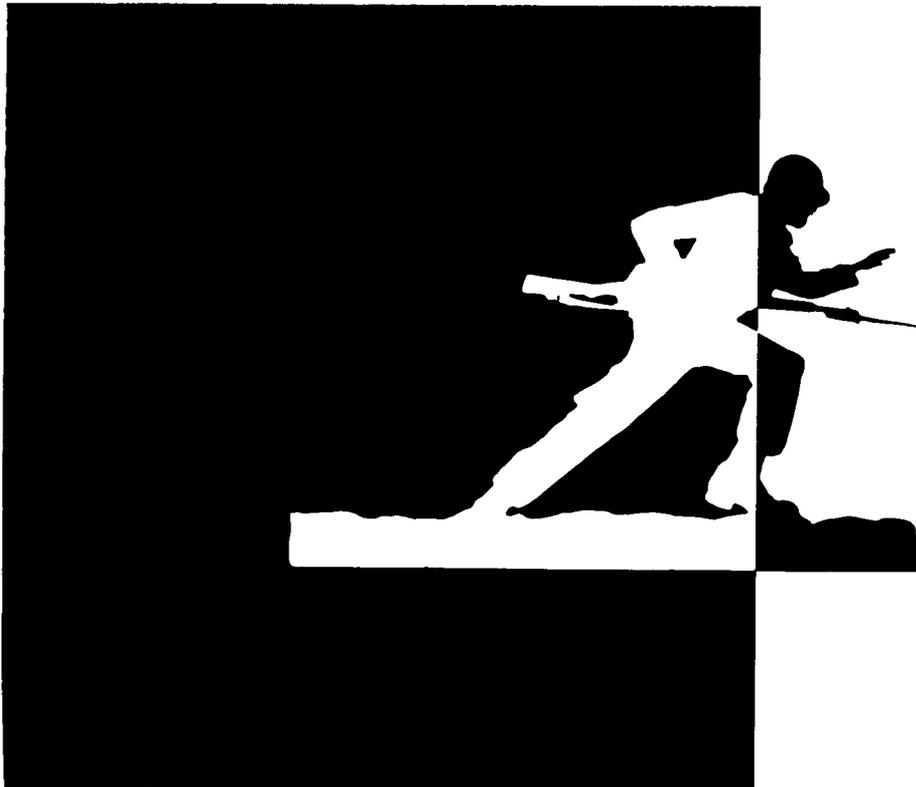
INFANTRY NEWS

PROBLEMS WITH THE 60-kilowatt tactical quiet generator have led to the production of a video tape, "Operation and Set-up of the 60KW Tactical Generator." The tape was produced through a joint effort of the Combined Arms Command Training Directorate and the U.S. Army Ordnance Center and School.

The purpose of the tape is to provide training to soldiers in the field that will help prevent damage to the generator sets and avoid the cost of repair parts and man-hours.

The tape, TVT 9-312, PIN #710844DA, is available through Army-wide distribution.

THE SOLDIER SYSTEM Command recently approved two product improvements conducted under the Soldier Enhancement Program:

Enhanced Tactical Load-Bearing Vest. This vest improves the weight distribution of the soldier's load and reduces the encumbrance of the load-bearing equipment. It also offers more flexibility in carrying fighting load components, which can vary according to the quantity and mix of ammunition, type of weapon, and specific missions requirements. The vest's nylon mesh material allows for better ventilation, thus reducing heat stress and fatigue for the soldier.

Improved Combat Butt Pack. This new pack gives soldiers an efficient way to carry a small sustainment load for short missions and to carry more equipment on the ALICE (all-purpose lightweight individual carrying equipment) rucksack.

Improvements include an ability to attach the standard pistol belt to the ALICE system and the enhanced tactical load-bearing vest, as well as quick-attachment rings and a quick-release opening. The pack is in a woodland camouflage pattern and has a water resistant lining.

Both items will be phased into the supply system as present stocks are depleted.

A PROTOTYPE OBJECTIVE Individual Combat Weapon (OICW) will be produced under a recently awarded contract. The weapon is one of several advanced technology demonstration efforts in the 21st Century Land Warrior program for the combat soldier of the future.

The combined rifle—using 20mm high-explosive (HE) bursting ammunition and standard NATO 5.56mm kinetic-energy (KE) rounds—will substantially increase engagement range, hit probability, lethality, and survivability for the infantry soldier.

At less than half the weight of comparable systems, OICW has a range three times that of the M203 grenade launcher. Its 24-hour day-night and bursting-munition capabilities provide versatility in all combat environments, including the ability to attack targets in structures and behind obstacles.

Program requirements derived from the Small Arms Master Plan were developed jointly by the Army, Air Force, Navy, Marine Corps, Coast Guard, and Special Forces.

BRADLEY CORNER

After Operation *Desert Storm*, the need for a Bradley 25mm gun barrel with greater accuracy and life expectancy was identified. Barrels were tested at Aberdeen Proving Grounds throughout Fiscal Year 1992.

The 107-pound fluted barrel provided better accuracy and 20 to 30 percent longer life expectancy than the Bradley's 89-pound barrel, but it was also more expensive.

A chrome-plated fluted barrel initially proved to be better. An estimated 10 percent increase in life expectancy over the previous fluted barrel seemed promising. As testing continued, however, the chrome barrel weakened and proved less effective than initially projected. The 107-pound fluted barrel is now the primary BFV barrel.

Ballistic tests have determined that different types of ammunition wear a barrel in different locations, but the Army's current bore gage measures only the breech life of the barrel, not wear along its entire length. The British BG-10 bore gage does measure wear along the entire length, but it had to be modified from the British 30mm gun to fit the Bradley's 25mm barrel. Two systems have been completed and are in the U.S. Army today, one of which is in the 29th Infantry Regiment at Fort Benning. The gage is being tested during range operations, and barrels will be fired during all live-fire tables to obtain an accurate assessment. Enough barrel wear information should be obtained after four or five gunneries, which should be completed in February 1997.

Peacekeeping Operations
One Infantry Leader's Experience

CAPTAIN THOMAS GOSS

When I was alerted in July 1994 to prepare my company for deployment to the Former Yugoslav Republic of Macedonia, I had to do what many U.S. Army leaders find themselves doing nowadays—get an atlas to find out where in the world we were going.

My company of the 3d Battalion, 5th Cavalry, deployed for a six-month rotation in support of Operation *Able Sentry III* as one of two rifle companies in the battalion task force. For all the leaders in the company, but especially the junior noncommissioned officers, this mission of United Nations duty was both rewarding and challenging. Although our mission and the threat may have been unique, it will illustrate tasks and leadership challenges that an infantry company can expect to face in today's peacekeeping missions.

The Former Yugoslav Republic of Macedonia declared independence from Yugoslavia early in 1992 after the fall of the communist central government. The military forces in Macedonia at that time were mostly ethnic Serbians who, after the declaration, took their equipment and most of the military assets north to join the Serbian Army in the Former Republic of Yugoslavia. The Serbian leadership in that region had periodically threatened military action against Macedonia and

against the ethnic Muslims in Kosovo, a region of southern Serbia. Under the threat of ethnic violence spreading into Macedonia and the possibility of a flood of refugees from Kosovo, the UN undertook its first preventive deployment of peacekeeping troops to maintain stability in Macedonia.

Soldiers from Finland, Norway, Denmark, and Sweden—later joined by a U.S. Army task force—maintained a presence

The success of an observe, monitor, and report mission can depend upon the quality, timeliness, and accuracy of your reporting.

along the Macedonian side of the border. The mission of the UN force was to observe, monitor, and report any activities in the border area that could undermine confidence and stability in Macedonia or threaten its territory. Permanent squad size UN observation posts (OPs) and temporary team size OPs and patrols monitored the border area.

The daily situation for the UN soldiers was mostly peaceful, with a low level of threat from both sides of the border. The only major event that threatened the success of the mission was a military con-

frontation in July 1994 between Yugoslav and Macedonian army units at the strategic border location of Hill 1703. The UN commander negotiated a settlement that led to the establishment of a UN monitored buffer zone called the "Blue Zone." Because the Blue Zone was in my company's sector, and because of the Serbs' sensitivity to the U.S. Army presence, this zone was monitored during our rotation by a Scandinavian squad OP under my tactical control.

Company A monitored UN Sector East in the U.S. battalion area, approximately 60 kilometers from the border. We manned either four or six OPs (depending on the platoon rotation) all within 100 to 2,000 meters of the Serbian border. The company CP or forward command post was on a hilltop on the main logistical route 25 kilometers from the border and 70 kilometers from the task force base camp called Camp *Able Sentry*.

At the base camp, the rifle platoons performed one of three platoon activities: base camp guard/force protection, reaction force/quick reaction force, or were on leave or pass status.

The nine-man rifle squads, each with an attached medic, had the primary task of manning their OPs while they were in sector. The daily schedule, which the squad leaders had to manage and control,

was almost completely filled for all of the soldiers who were not currently preparing for or on patrol with OP support and maintenance. Each OP was assigned six patrols per week from a battalion patrol matrix. Each squad conducted a mix of the four types of patrols: route reconnaissance, community patrol, helicopter screen, and establish temporary observation posts (called OPTs). All but the helicopter screens were directed as either mounted or dismounted patrols, depending on the distances involved.

The company commanders certified every patrol leader before his first patrol on his knowledge and execution of the patrol drills, rules of engagement (ROEs), reaction drills, patrol standards, and operations order (OPORD). This was done in Macedonia on a full patrol with OPORD and pre-combat inspection (PCI) run from the OP to which the team leader was assigned. This process was demanding but beneficial in preventing accidents, incidents, injuries, or border violations in more than 750 patrols.

We learned valuable lessons in several areas during this operation that I would like to share with you:

Leader Location on the Battlefield. Our doctrine clearly states that leaders should go to the location on the battlefield from which they can best command their forces. Although this simple guidance is also true for a peacekeeping mission, it is different in its application.

In peace operations, the unit sectors can be large and the units widely dispersed. This gives rise to the temptation to remain at the CP for control and communication purposes, which we discovered to be the opposite of what was required. At the first hint of trouble (spotting a non-UN patrol, reports of gunfire, a vehicle accident, irate local people), go to that location immediately. Moving toward a trouble spot is not a sign that you don't trust the subordinate leader on the scene. You are just commanding action on the basis of what you know to be true, not what someone else is describing, or worse, what someone assumes is happening. Even if the event will be over by the time you arrive, you (in whatever position in the chain of command) are the one

who will have to tell the boss what happened. You can report confidently only if you have all the facts. During routine activities (which is 95 percent of the time), get out, visit soldiers, inspect road conditions, security, force protection, maintenance. At the first hint of trouble, go see the ground yourself, and interview everyone involved. In this context, it is important for all leaders to plan all movements to reduce the chance of losing radio contact.

Interaction with Local Authorities. This interaction must occur at all levels. I had periodic face-to-face meetings (at least monthly) with the mayor of the local city, the Macedonian army border battalion commander from my sector, and adjacent UN unit commanders. This was vital to success, but it paled in importance when compared to my squad leaders' periodic meetings with their local village mayor, the closest border station's platoon leader, and UN small-unit leaders oper-

> *We had a hard time initially with doing our peacekeeping tasks and sustaining at the same time. The key, we discovered, was to establish a simple SOP and enforce it vigorously.*

ating near their OP. It was this interaction that led to cooperation and a quiet and troublefree sector. It defused numerous incidents that could easily have led to highly visible mission-threatening incidents.

Reporting Standards. The success of an *observe, monitor, and report* mission can depend upon the quality, timeliness, and accuracy of your reporting. We had a lot to learn on SALUTE reports and should have done more training on accurately reporting what was observed. This is simple squad-level training that can be done over and over again without any resources.

We started out with the level of accuracy required by SALUTE reports in combat operations of "two tanks at checkpoint three" and continued training (and retraining) until all soldiers were virtually able to recreate a picture of what they were seeing.

An acceptable spot report would be:

Size—Three bravo-twos. (Codes help brevity and communications security.)

Activity—Moved south along route echo four, halted at road intersection, looking down roads, talking on radio.

Location—EM123456 (off the global positioning system) *at road intersection of routes golf two and echo four.*

Uniform—Brown and green pattern BDUs, black boots, black berets, subject two has round silver emblems on front of beret and black pistol belt.

Time—First sighting 1237; halted at 1245.

Equipment—Subject one: one AK-47, backpack radio unknown type, paper in hand possibly map. Subject two: pistol belt with pistol holster and pistol unknown type, binos on strap around neck, one canteen on belt. Subject three: one AK-47, one dark green backpack. Recorder's battle roster number is Alpha 1234, out.

A SALUTE report like this is a detailed, timely, and accurate rendering of the event. With anything less accurate or timely, you will get repeated calls from higher headquarters asking for more information— and then *more* repeated calls as your incomplete report goes higher.

Scenario Training. We found through experience that scenario training is the only reliable way to train for a peacekeeping mission. After classroom instruction on drills, ROEs, and the situation in the area of operation (report requirements, uniforms), each squad or fire team would have to execute a drill out of our task force SOP. At any stage of execution or any time after its completion, role players of any of the factions or even non-belligerent civilians might enter the drill lane. The squad or team would be evaluated not only on the drill execution but also on their reaction and their reporting.

We found that the key to this training was the preparation of the role players. They must have the freedom to react to the squads' actions, but they must behave in accordance with human nature and the expected threat, belligerence, and mission of the personnel they represent. This included role players during patrol training as well. *Before* his soldiers deploy, a commander must be confident that they will

react in accordance with the ROEs and his intent. We also conducted this training during our deployment to ensure that we did not get rusty in ROEs and force protection.

Communications and Maintenance. This sounds obvious, but if you're not doing communications and maintenance by your SOPs and by the regulations, you are sure to have problems on a deployment. The enlisted soldiers will have to do almost all the maintenance without supervision, and they must know how to do it right, the first time. We had a hard time initially with doing our peacekeeping tasks and sustaining at the same time. The key, we discovered, was to establish a simple SOP and enforce it vigorously. For example, even with the huge task force sector, every wheeled vehicle went back to the base camp weekly for a dispatch/safety check. It was a rule that we were all occasionally tempted to violate at times, but did not, and the payoff was a six-month deployment with no fatal accidents or major injuries.

Relationship with other UN forces. The workings of a UN organization are too complex to explain here, but we did discover one key to success: If you cooperate with other nations' forces informally, the trust and communications you build can save you when you don't have time for formal requests. We had a Danish company commander in a sector next to our company's sector. He and I became good friends (my executive officer and his second-in-command became friends, and so on down the line), and we never had to communicate through the liaison officer or have the UN commander tell us to coordinate our activities. We recovered each other's vehicles, used each other's facilities, conducted a popular weekly soldier exchange, and traded food items. All of this was coordinated at company level or lower, and all greatly benefited our company. But you must clearly understand your chain of command and the limitations of your authority with other non-U.S. forces as well as the non-U.S. leaders' authority over you. When in doubt, ask.

Force Protection and Safety. We were lucky to have a low threat from the factions in our area of the border, but this only increased our awareness of the everyday hazards we would face. Patrolling in the mountains, driving on poor roads, surviving weather extremes, and numerous other things all threatened our soldiers daily.

Talking about safety is not enough; you must incorporate safety as a part of force protection. Therefore, you need a safety plan or SOP, which for us included safety standards and checks and a system of inspections. Peace operations can become so routine that if there is no planned system of safety checks, soldiers can go on missions with vital checks forgotten. All the work on safety and force protection is easier than writing a letter to parents explaining why their son or daughter is not coming home.

Company and Squad Tactical Operations Centers (TOCs). This is a task that was vital to mission success and included training the company's NCOs and

If you cooperate with other nation's forces informally, the trust and communications you build can save you when you don't have time for formal requests.

soldiers on radio procedures, reporting standards, and basic TOC discipline. Each squad leader ran his OP's operations center and had to learn to manage a schedule to control his squad members' time. We were lucky to have a company master gunner whose previous S-3 and TOC training and strong organizational skills freed the first sergeant and me to run the company. He served as the company CP/OP commander and managed all TOC requirements and quality control for the entire sector's reporting.

The company "operations sergeant" position was critical to our success and was the first one filled in our planning—with a promotable staff sergeant who otherwise would have been a platoon sergeant. We realized during the deployment that all our problems in this area had one cause: accepting sub-standard reports, radio procedures, and time management from the NCOs during training. It may be painful to stop during training to correct simple reports, but it is easier than trying to correct real-world reports during a mission.

Continuous Operations. Only 30 days of our 179-day rotation were anything but routine, and 20 of those days were the first 20. It is tempting to lower your standards when the peacekeeping mission becomes tedious. We planned for this and set up our SOPs to be self enforcing. We established clear standards for the OPs and for patrols and gave each soldier a copy of the task force SOP. The task force commander personally briefed each squad to ensure that they understood the patrolling standards. During the mission, much emphasis was placed on inspections to enforce the patrolling standards.

For example, every patrol had a standard OPORD and set of rehearsals to be conducted daily, regardless of the number of times the team had conducted the same patrol. The TF SOP contained a detailed PCI, including layouts, briefbacks, and rehearsals that were required and inspected for every patrol. The squad leader was the lowest ranking person to conduct the PCI, and every team, at least once, had the task force commander and command sergeant major drop in to conduct their PCI. The TF commander also held the squad leaders (and above) personally accountable for any deficiencies.

The first sergeant and I would each conduct two to five PCIs a week. I may have inspected the same four pairs of socks 100 times, but every patrol was prepared in accordance with the PCI checklist and the TF standards. This was not micromanagement; it was the only way to guarantee that standards remained high in an area that could mean the difference between life and death for a patrol.

Task Organization. Tasks organization must be done at the lowest level and by ability, not by rank and military occupational specialty. It is not enough to assign a group of medics to the company; we required every patrol and convoy to have a combat lifesaver or medic with it at all times.

You can rapidly discover who is a good mechanic, who used to be an electrician,

who knows how to make radios work, who understands recovery techniques; this is the information to use in task organizing for missions.

A big lesson we learned is that if you plan for the worst course of action, you will rarely be surprised or unprepared. Ensure that every element has the equipment, expertise, and training to deal with accidents. Also remember that vehicle recovery is dangerous, and send the best team you can and prevent disaster.

Our company deployment to Macedonia was a challenge and a rewarding experience as well. The entire chain of command worked hard before and during the mission on these areas to ensure mission success and to meet every infantry commander's major responsibility to his leaders and his soldiers in peacekeeping operations—suffer no casualties.

Captain Thomas Goss has served with the 82d Airborne Division and the 1st Armored Division. He is a 1987 graduate of the United States Military Academy and is now pursuing a graduate degree at Ohio State University.

Urban Patrolling
Experiences in Haiti

LIEUTENANT EDWARD F. BOROWIEC, JR.
LIEUTENANT JOSHUA T. STEVENS

When our battalion of the 10th Mountain Division deployed to Haiti to participate in Operation *Uphold Democracy,* we all knew what our mission was: to provide a stable and secure environment in which ousted President Jean-Bertrand Aristide could safely return to the country and reestablish a democratic government. But the nature of the tasks we would encounter on the island was vague and undefined. As platoon leaders in that operation, we would like to share some of the unique characteristics of patrolling in an urban environment.

When we first arrived in Haiti, our role as a country-wide reserve was fairly simple. If something went wrong, anywhere, we were ready to respond. Instead of waiting for things to happen, we conducted operations that would support the overall mission of establishing a safe and secure environment. One of these activities was to conduct patrols in and around the city of Port-au-Prince.

Patrolling the streets served several purposes. The most apparent of these were providing security for the populace, conducting reconnaissance, gathering intelligence, confirming named areas of interest (NAIs), and demonstrating a U.S. presence in selected areas of the city.

During the first few weeks, we were sent out to the villages and slums to show the people that we were there to assist in the establishment of a new government. Their response to us ranged from neutral to positive. (On rare occasions, we ran into a person or group that was against the United States, and was quite vocal about it.) The overall positive interaction with the Haitian civilians, however, laid the foundation for a spirit of cooperation that would be the cornerstone of our intelligence gathering efforts.

The patrols created an atmosphere of trust just because we were Americans and were there to help. Many of the locals would openly approach the patrols and begin to divulge information about the *Attaches* (hired thugs who would commit random or planned acts of violence against the people), locations of headquarters of FRAPH (the political and paramilitary group of the party in power), and the locations of possible weapon caches.

A typical scenario would go like this: The patrol would stop, security would be established, and the interpreter would walk up to a group of Haitians and begin to ask questions about the area. Invariably, someone would come forward and provide a lead. At this point, the interpreter and the platoon leader would further question the group, using a sort of questionnaire that was developed by the intelligence people. The answers given enabled the platoon leader to make an onsite decision whether or not the lead was worth pursuing. Right there, we would set up a meeting between the Haitian source of information and the counterintelligence team and inform higher headquarters.

The Haitians were motivated to do this for several reasons: There were significant monetary rewards for recovered weapons (up to $800 for machineguns); and they would be helping rid their country of the perpetrators and their weapons that had created the current situations. Occasionally, some dubious types would give misleading information in an attempt to get back at someone for personal reasons. All of these "informants" would be processed through the counterintelligence teams, which would evaluate the validity of the information. Ultimately, this information would either prove noncritical or prove accurate, in which case

a cordon and search mission would take place. The patrols would also collect information on the disposition of the population and classify the roads and terrain for vehicular travel. The S-2 would template all this data for use in current and future operations. The result of our patrolling efforts was a noticeable decline in the level of crime and violence throughout the city.

Our linguists were our greatest asset and primary link to the people. Those attached to our company were all untrained as infantrymen but were nevertheless expected to act as such. The importance of having someone fluent in the native language cannot be overstated. If we could communicate on the streets, we became credible to the people. Because there were never enough linguists, we had to ensure that they were on the patrols, which had the highest probability of getting information. This was during the day and early evening when the markets and streets were full of people. Without them, our ability to exploit the assigned sector would have been significantly degraded.

Navigating in and around the city was a task that ranged from being extremely simple to comically difficult. Because of the potential hostility in certain areas, we had to know our precise location at all times. The combination of poorly updated maps and an eroding street system amplified the challenge of knowing where we were all the time.

The conditions of the patrol (day or night, mounted or dismounted) were significant factors, but were made easier by some technological wizardry and the 65 or so maps that were issued before we deployed.

The maps varied in size, and we had maps of the city that ranged from 1:50,000-scale all the way down to 1:12,500. Although a map as detailed as 1:12,500 should provide tremendous coverage and definition, in many cases they proved inadequate. The new precise lightweight GPS (global positioning system) receivers we were issued enabled us to confirm grid locations and navigate by putting in way points before moving out of the base camp. While this device could provide a 10-digit grid coordinate, it has a margin of error of up to 150

meters. This is where we had to rely on training and skill to navigate accurately.

The selected route the patrol was on also affected navigation. When moving in the slums and outlying areas, what appeared to be a well-traveled two-lane road on the map often turned out to be a dirt path wide enough for a bicycle and a goat to pass comfortably, or it was not there at all.

One technique was to have the interpreter talk with the civilians to confirm unmarked streets. Although we could do this just about anywhere (there were always onlookers), the locals often recognized streets by a name that neither corresponded with the map nor made any directional sense whatsoever. If we were going into unfamiliar territory for a night patrol, we would try to send out a reconnaissance to pinpoint some of the prominent terrain features in the area. We also used the combination of mounted and

This positive interaction with the Haitian civilians laid the foundation for a spirit of cooperation that would be the cornerstone of our intelligence gathering efforts.

dismounted patrols to cover the serviceable roads with the trucks while the foot patrol worked in the less developed areas. After a while, we adapted our navigational techniques to this MOUT environment by accepting the handicap and using all our assets to negotiate the mazes in which we often found ourselves.

The keys to a successful patrol in this urban environment were solid planning, platoon standing operating procedures, and accurate navigation. The time of the patrol, whether it was mounted or dismounted, the route, the size of the patrol, and contingency plans were all critical elements to consider before moving out. Nothing was more frustrating than missing a start point time because our vehicles were suddenly committed to another mission. Last-minute follow-up became a normal part of the pre-combat inspection checklist.

Time became a driving factor in the

conduct of our patrols, and we made a tremendous effort to avoid creating any patterns. Line companies usually performed two per day, one during daylight hours and one during hours of limited visibility. If the situation dictated, the number of patrols was increased. For example, a few days before the arrival of President Aristide, our company team located itself at the ministries complex adjacent to the National Palace. We tried to saturate the area with patrols at all hours of the day to thwart any possible violence from the growing crowds that began gravitating toward the palace.

After patrolling in the city, we could predict the type of activity we would observe at different hours of the day. Contrary to popular belief, many of the heinous acts of violence did not occur at night. The *Attaches* seemed to carry out their crimes during the daytime when large groups of Haitians gathered at the markets or for political rallies. As people became more comfortable with a U.S. armed presence, they began to venture out later in the evenings. From 0500 to 1300, the city was extremely busy, and during the hottest part of the day (around 1400), it slowed down a bit. This was a particularly unpleasant time to patrol in full combat gear. From 1800 to 2400, many people were still conducting business in the more concentrated areas of the city.

The neighborhoods in Port-au-Prince were a diverse mixture of shanties on dirt roads and middle-class homes with paved streets that were nice by any standard. Along with the citizens, the Haitian streets were filled with homeless dogs, pigs, cows, chickens, goats, and an occasional donkey. Moving undetected at night was nearly impossible in the villages as every dog within a quarter mile would start to howl as soon as we set foot in the area. Along with the animal life, people sleeping in the streets and all-night parties were all sights, sounds, and smells that we became accustomed to when patrolling at night.

We effectively used either mounted or dismounted patrols or a combination. Our patrols began almost exclusively on foot, using several different techniques. Generally, each patrol consisted of two squads with the headquarters section and

the platoon leader with his radiotelephone operator. Once the company commander gave us the patrol overlay, we would decide how to employ the two squads to cover our assigned area most effectively.

At times, we would stagger the start time by 15 or 30 minutes, and sometimes we would move two squads together. Another technique was to run one squad in one direction and the other on a counter-route. We did this for several reasons: First, it would be more difficult for someone to detect a pattern, simply because there was none. Second, each SP and movement technique had its own advantages. The common denominator for these techniques was backup. There was always at least one squad nearby for immediate response in case a squad made contact. Additionally, there was an initial ready platoon at the airport. It was convenient having our own battalion as the joint task force quick-reaction force. We always knew that if a patrol ran into trouble and needed support, the battalion was already on alert and ready to roll.

Movement formations on foot patrols were strictly dictated by the size and condition of roadways, which ranged from major two-lane roads to the labyrinth of goat paths that weaved through the slums of the city. Another problem that affected patrols during the day were the crowds, which were a problem for the first month or so of our deployment. Curiosity seekers would mass in numbers up to a few hundred. Their presence would channel the element into the middle of the street and drive it into a file. Command and control became a factor when the squad could not remain dispersed, since the greatest threats we faced were snipers and possible grenade attacks.

Initially, mounted patrols were introduced for the rifle companies to drop us off deeper into the city to increase our range. When we first began using vehicles, they would pick up the patrol and either drop it off at the SP and return to base camp or pick up the patrol at the end of its route. The use of HMMWVs (high-mobility multipurpose wheeled vehicles) instead of 5-ton trucks was a marked advantage simply because of maneuverability.

As our area of operation (AO) ex-

panded to the north and south of the airport, we began using vehicles strictly for mounted patrols. The advantages and disadvantages of mounted patrolling are obvious: Vehicles can move quickly for extended distances, but they make quite a bit of noise and quickly alert would-be aggressors to our presence; and a group of soldiers in the back of a vehicle makes an inviting target. But the vehicles did enable us to put a lot of soldiers quickly into the outer fringes of the city.

Adapting our SOPs to the vehicles took little time, and certain actions were so reflexive that they almost seemed like battle drills. An example of this was that whenever the vehicles stopped for at least one minute, we would dismount and establish a perimeter. Such simple things as this paid dividends over time: It con-

---

The keys to a successful patrol in this urban environment were solid planning, platoon SOPs, and accurate navigation.

---

ditioned the Haitians to stay away from the HMMWVs, thus reducing the opportunity of an attack, and it kept the panhandlers away as well.

Finally, we experimented with a combination of both mounted and dismounted patrols. This usually consisted of one squad plus M60 machinegun teams for security on the vehicles and one or two squads moving on foot. At the completion of a patrol, the dismounts would be picked up by the vehicles and returned to base camp. This proved quite successful so long as communications were maintained.

We were given quite a bit of freedom in selecting routes for our patrols. The S-2 told us the area in which we would be operating and for the most part allowed the company commander and platoon leaders to develop the route. We would be given specific NAIs and potential targets on a map, and we would develop the overlay in an attempt to cover as many NAIs as possible. If we were out on a patrol and found a location that was identified as a possible weapons cache, we could plan another patrol later to continue

our presence in the AO.

One example of this was a police company (one of the primary instigators of the coup that had ousted President Aristide) located about four kilometers southeast of the airport. Another was a large warehouse about one and one-half kilometers south of the airport. We intentionally included these areas in the patrol plan, as much to send a message as to observe activity.

The length of routes increased as we became more familiar with our AO and acclimated to temperatures in the high 90s. A six-kilometer movement through the hills of Port-au-Prince at three o'clock in the afternoon with full combat gear was still uncomfortable.

The size of patrols and the contingency plans were closely related. A general rule was that any patrol that went out the gate was composed of at least two squads, and whether they moved together or separately was left to the platoon leader's discretion. As a contingency plan, one squad remained at the camp with the squad leader, who had been completely briefed and monitored the radio and tracked the patrol. His squad was dedicated to providing support for the front line ambulance if it needed to roll out to pick up a wounded soldier.

Although the intricacies of this type of patrolling are not addressed in any of our field manuals, we were able to adapt quickly because of the foundation that had been laid during pre-deployment training. Assimilating conventional methods with an unconventional approach enabled us to accomplish our daily missions and successfully contribute to the massive U.S. military effort in Haiti.

Lieutenant Edward F. Borowiec, Jr., was a platoon leader in the 3d Battalion, 14th Infantry, 10th Mountain Division, during Operation *Uphold Democracy.* The battalion has since been reflagged the 4th Battalion, 31st Infantry, of which he is now adjutant. He is a 1992 graduate of Southern Illinois University at Carbondale, and was commissioned through the Officer Candidate School in 1993.

Lieutenant Joshua T. Stevens also led a platoon in the same battalion in Operation *Uphold Democracy.* He was later assigned to the 1st Battalion, 75th Ranger Regiment, at Fort Stewart, and is now S-3 of the 2d Battalion, 58th Infantry, Infantry Training Brigade at Fort Benning. He is a 1993 ROTC graduate of the University of Maine.

Course of Action Analysis
How to Wargame

LIEUTENANT COLONEL RICHARD P. McEVOY

At the Joint Readiness Training Center (JRTC), unit staffs must produce clear, logical orders under harsh conditions and time constraints. The most misunderstood step of the estimate of the situation is course of action (COA) analysis. Current field manuals and the Command and General Staff College (CGSC) Special Text (ST) 101-5, *Command and Staff Decision Processes,* provide excellent guidance on how to conduct the COA analysis, but most commanders and staffs have not developed techniques for translating this doctrine into practice. The approach offered here may help.

Wargaming is defined in ST 101-5 as the disciplined process for visualizing how a battle might unfold. By the end of a wargaming session, the commander and staff should have a common clear mental picture of the flow of the battle. To achieve this end, the wargame must consider all battlefield operating systems (BOSs) and must *facilitate* the visualization of the battle.

The eight steps from ST 101-5 help describe some techniques for wargaming:

Gather the tools. The commander must first decide which enemy and friendly COAs to wargame. The S-2 should have developed one or more enemy scenarios during his mission analysis, and the staff should have developed corresponding friendly options during the COA development phase. Depending on the time available, the commander may choose to wargame each friendly COA against each of the enemy's; try to thoroughly wargame only one friendly COA against one enemy COA; or more if time permits.

To prepare for the wargame, the operations sergeant posts a map or sketch of the operational area in the planning sec-

tion of the tactical operations center. If possible, a blow-up map is used so the staff can easily see what is happening during the wargame. If a sketch is used, it must be to scale and must include terrain features. Otherwise, the wargaming could tend to disregard terrain. Highlighting various contours with different colors (light colors for low altitudes, dark for higher altitudes) helps depict the terrain.

Next, the operations sergeant posts the basic graphic control measures for the COA on the planning map. (The staff should have established some basic control measures during its COA development.) The S-2 NCO then posts the enemy situation template on this planning map using unit symbols two levels down. Small yellow stick-on notes work well, with the enemy units drawn in red. Finally, the operations sergeant hangs at least two large acetate-covered wargame worksheets next to the planning map.

List friendly forces. During this step, the operations sergeant makes unit symbols for every maneuver unit two levels down, along with other attached elements (Stinger teams, engineer squads, ground surveillance radar teams). Again, small stick-on notes with unit symbols drawn in blue can be used. This method of showing units provides an inventory of available assets and helps ensure that all forces are assigned appropriate tasks at the correct locations and times.

List assumptions. The staff members should have derived most assumptions when they conducted their estimates during the mission analysis. They must use their best judgement in making assumptions about terrain, enemy strength, availability of assets, availability of supplies, personnel replacements, maintenance sta-

tus of weapons and vehicles, and the success of other units.

The operations sergeant compiles and posts these assumptions in a conspicuous place in the planning area, where the staff can review the assumptions they used during COA development. The wargaming will identify opportunities to confirm or refute these assumptions. Additionally, the assumptions often identify the need for commander's critical information requirements (CCIRs).

List critical events. This step is crucial to efficient wargaming. The commander or S-3 must take some time to reflect on the COAs and determine the critical events in chronological order. Critical events are the tasks that are essential to the accomplishment of the overall mission, and these require detailed analysis.

The following are some examples of critical events that can take place during offensive operations:

- Conduct reconnaissance.
- Conduct forward passage of lines.
- Defeat enemy counter-reconnaissance.
- Conduct river crossing.
- Defeat enemy combat outposts.
- Breach the objective.
- Assault the objective.
- Defeat enemy counterattack.

In the defense, critical events might be the following:

- Defeat division reconnaissance.
- Defeat regimental reconnaissance.
- Defeat dismounted soldiers.
- Defeat main body.
- Pass friendly unit forward.

Selecting critical events is important because they serve as the focal points for wargaming.

List significant factors. Significant

CRITICAL EVENT DEFEAT MAIN BODY

START TIME	ACTION	REACTION	COUNTERACTION	END TIME	LOSSES (FRIENDLY/ENEMY)	DPs	REMARKS
H+10	SCOUTS SEE 10 T-828 AT NAI 1	ARTY PREP ON CO A	COUNTERBATTERY FIRES TGT AB0001 / CALL INDIRECT TAI 1 TO SUPPRESS / DETONATE MOPMs OBST 111	H+20	CO A - 20 PAX / ENEMY - BUTTON UP AND LOSE SOME COMMO	1	PRIORITY CL IV TO CO A / PRIORITY OF SEE TO CO A / ATLS W/ CO A
H+40	10 T-82s HIT MINEFIELD AT VE123458	CALL FOR SMOKE AND INDIRECT SOUTH OF MINEFIELD / ATTEMPT TO BYPASS NORTH	CALL INDIRECT TAI 2 TO SUPPRESS / CO A ENGAGES W/ AT FIRES	H+1 HR	CO A - 20 PAX / ENEMY - 3 T-828	2	PRIORITY CL V MINES TO CO A / EXTRA AT-4s TO CO A
H+1:15	7 T-82s HIT OBSTACLE AT VE234587	CALL FOR SMOKE AND INDIRECT AROUND OBSTACLE / ATTEMPT TO BREACH WITH MINEPLOW	CO B ENGAGES W/ AT FIRES / COLT ENGAGES W/ COPPERHEAD / INDIRECT BEHIND TANKS TO SUPPRESS	H+1:30	CO B-20 PAX / ENEMY-4 T-82s		CO B 2ND PRI CL V MINES / EXTRA AT-4s TO CO B
H+1:45	3 T-82s HIT OBSTACLE AT VE345878	CALL FOR SMOKE + HE AROUND OBSTACLE / ATTEMPT TO BYPASS TO SOUTH	TM D ENGAGES W/ TOWs AND DRAGONS / INDIRECT ON TAI 3 TO NEUTRALIZE	H+2:10	TM D-3 TOWs -20 PAX / ENEMY-3 T-82s	3	2ND PRI FOR SEE TO TM D

factors are the evaluation criteria used to determine advantages during the wargame. These same criteria are used to compare COAs during the COA comparison step of the estimate process. Evaluation criteria must be observable and measurable. Most of the significant factors listed in Field Manual (FM) 7-20, *The Infantry Battalion,* and CGSC ST 101-5 are not sufficiently detailed and are neither observable nor measurable. The commander must provide useful evaluation criteria when he gives his planning guidance at the end of the mission analysis.

The essential component of the commander's planning guidance is his initial intent statement. This statement should discuss desired end states in terms of friendly forces, enemy forces, terrain, and time. These categories of end states give the staff a clear vision of the way the commander wants the battlefield to look at the conclusion of the operation. When wargaming, the staff uses this guidance to determine the advantages and disadvantages of each COA. Reaching a desired end state within a category provides an advantage for that COA. Failure to do so is clearly a disadvantage.

An example of an evaluation criterion within the enemy forces category could be the remaining enemy combat power. In his guidance, the commander should tell the staff the amount of combat power he wants the enemy to have left at the conclusion of the operation. For example,

the commander might state that he wants the enemy to have no more than 40 percent of his original combat power remaining. During the wargame, the staff will determine enemy combat power. If the enemy has less than 40 percent of his combat power remaining at the end of the wargame, then the COA rates an advantage in that category. If the remaining enemy combat power is more than 40 percent, then it becomes a disadvantage for that COA, and the commander must examine another course of action.

Select the wargame method. Both FM 7-20 and CGSC ST 101-5 list three wargame techniques: belt, avenue-in-depth, and box. Both references also state that the belt technique is preferred because it ensures the simultaneous consideration of all forces that affect a particular event. Although this is true, the staff should not spend time trying to decide which technique to use. If the staff methodically wargames each critical event, it will probably use a combination of methods. For example, if the selected critical event is "defeat regimental reconnaissance," the wargamers will probably use the box technique as they analyze actions at a specific location, and the avenue-in-depth technique as the enemy reconnaissance element is defeated through a series of actions along a specific avenue.

Select a recording technique. The two references list several techniques for recording the results of wargaming. Most

staffs attempt to use the synchronization matrix to record wargaming. Although the matrix is a great tool for final synchronization, I do not believe it to be an efficient wargaming tool because it does not facilitate the action, reaction, counteraction methodology. Staffs tend to get bogged down trying to fill in all the blocks instead of concentrating on visualizing the battle. Most staffs lose focus and do not come up with a clear and common vision of the battle.

A better tool is the wargame worksheet, an example of which is shown here. Although some may argue that this is just one more chart, the wargame worksheet is designed to help the staff make the process clearer and simpler. Normally, the use of this worksheet will save time and give the staff a clearer understanding of the flow of the battle. Anything that brings clarity and simplicity to the process is worthwhile.

Wargame the battle, and assess the results. There are two critical components to this final step: the focus and involvement of the staff and the clear visualization of the way each critical event unfolds. The planners should be in an environment that is conducive to thinking. When conditions allow, the planning area should be separated from the main command post to reduce noise and interruptions.

The best technique to ensure clear visualization of the battle is for the S-2 and S-3 to move enemy and friendly forces

WARGAMING
WHO DOES WHAT

PREPARING FOR THE WARGAME:

Operations Sergeant:
Post planning map/sketch.
Post basic graphic control measures (from COA development).
Post wargame worksheets next to planning map.
Prepare movable unit symbols for all assets available, (down to platoon level for maneuver units).
Post list of assumptions.
Post list of specified and implied tasks.

Intelligence Sergeant:
Post enemy situational template (with movable symbols).

S-3:
Choose critical events in chronological order.

EXECUTING THE WARGAME:

XO:
Ensure that everyone stays focused. Be the honest broker. Ensure the execution is disciplined and methodical, and that it keeps moving.

S-3:
Fight friendly forces. Be specific. Show movement of units and describe the who, what, where, when, and why for each friendly action and counteraction.

S-2:
Fight enemy forces. Be specific and true to the enemy COA. Show the movement of enemy units and describe the who, what, where, when, and why for each enemy reaction.

S-3 Air:
Record actions, time, losses, on the wargame worksheet.

Assistant S-3:
Note:
- Targeted areas of interest (TAIs).
- Locations and times for decision points.
- Lost friendly assets and capabilities.
- Refinements to task organization.
- Possible locations or events for commitment of reserves.
- Additional tasks to maneuver units.
- Estimated duration of events.
- Additional requirements for combat support.
- Commander's critical information requirements (CCIRs).
- Maneuver advantages and disadvantages.

Assistant S-2:
Note:
- High-payoff targets (HPTs).
- Named areas of interest (NAIs).
- Lost enemy capabilities and enemy forces defeated.
- Potential points for enemy use of nuclear, biological, chemical weapons.
- Time, location, tasks for collection assets.
- Additions or refinements to priority intelligence requirements/information requirements (PIRs/IRs).
- Intelligence advantages and disadvantages.

S-4:
Note:
- Critical weapon systems lost.
- Ammunition expenditure.
- Fuel requirements.
- Expected demands for supply and maintenance.
- Transportation requirements.
- Location for logistics release points.
- Supply routes.
- What soldiers should carry.
- Expected times and supplies in logistics packages.
- Logistic advantages and disadvantages.

S-1/Medical Platoon Leader:
Note:
- Location, time, and number of expected friendly casualties.
- Location and time that treatment and evacuation assets will be required.
- Location of casualty collection points.
- Evacuation routes.
- Personnel and medical advantages or disadvantages.

Fire Support Officer:
Note:
- Location, time, and desired effects for fire support assets.
- Assets to fire each mission.
- Who will control fires.
- Control measures required.
- Target selection standards.
- Fire support advantages and disadvantages.

Air Defense Officer:
Note:
- Priority of protection (based on criticality, vulnerability, recuperability, and threat).
- Potential locations for ADA assets.
- Primary target lines (based on air intelligence preparation of the battlefield).
- Air defense advantages and disadvantages.

Engineer Officer:
Note:
- Location, time, and tasks for engineer assets.
- Requirements for breaching assets, mines, Class IV supplies.
- Engineer advantages and disadvantages.

Signal Officer:
Note:
- Specific ways to best communicate through radio, pyrotechnics, markings, signals, wire, mobile subscriber equipment.
- Communications advantages and disadvantages.

(the stick-on notes) on the map as they fight each action, reaction, counteraction drill. This allows the entire staff to see the anticipated movement of friendly and enemy forces and gain an appreciation for time-distance factors. At the same time, a recorder captures the action and results on the wargame worksheet. Each critical event is fought through a series of friendly action, enemy reaction, and friendly counteraction drills, and these drills are repeated until the critical event is complete.

While the S-2 and S-3 fight the battle at the map, each officer must focus on the way the assets he controls can best contribute to the battle. After each drill, the executive officer asks each officer to describe how his BOS contributes to that piece of the fight. Staff officers must describe their contributions in enough detail to make them clear. For example, the fire support officer should quickly describe where he will put indirect fires, what weapon will fire the mission, the desired effects (suppress, neutralize, de-

stroy), and who will control the fires at each target. An example of what each staff officer's focus should be during wargaming is shown in the accompanying box.

In addition to the things the recorder writes on the wargame worksheet, each staff officer must keep detailed notes. The notes help the staff refine their estimates. Armed with a clear vision of anticipated events during the battle and a refined estimate, each staff officer now has the depth of understanding he needs to spell

out a logical recommendation to the commander. And if the commander questions the staff's recommendation during the COA decision brief, the staff officers have details readily available to support their recommendations.

After the staff has conducted wargaming and the commander has decided on a COA, a synchronization matrix can be used to fine-tune the selected COA. This synchronization becomes smooth and efficient after a disciplined wargame has been conducted, because the information is easily transferred from the worksheet and the staff officers' notes to the matrix. Additionally, the staff has "seen" the battle fought, and has already determined how, when, and where each BOS will contribute to it.

One of the most common problems is conducting the tactical decisionmaking process when time is limited; at such times, staffs routinely eliminate wargaming from the process. But units can produce better plans even if the commander and staff develop only one friendly COA and then conduct detailed wargaming and synchronization of that COA. A second way to speed up the process is for the commander to stay with the staff and personally influence the planning.

Although the time required depends upon the nature of the operation and the level of staff training, a staff should be able to wargame one friendly COA against one enemy COA in about an hour. To accomplish this, however, the commander or XO must usually keep the process moving.

What can happen when the staff officers feel the pressure of a short planning timeline is that they sit around the map, toss out ideas, then produce an operations order. This process lacks focus and discipline and relies heavily on tactical ex-

pertise. Lengthy brainstorming and debate on COAs are fine when there is enough time, but when there is not, wargaming should become *more* focused and disciplined, not less.

COA analysis is a crucial step in the planning process, yet one with which many staffs struggle. Methodical, disciplined wargaming arms each staff officer with a clear vision of anticipated events on the battlefield. This enables the staff to make clear, knowledgeable, and logical recommendations to the commander and to craft specific plans that support what they have envisioned during the wargaming.

Lieutenant Colonel Richard P. McEvoy served as an observer-controller and command group XO at the JRTC and now commands 2d Battalion, 87th Infantry, 10th Mountain Division. He previously served in the U.S. Southern Command, the 9th Infantry Division, and the 7th Special Forces Group. He is a 1980 graduate of the United States Military Academy.

Built-Down Fighting Positions

CAPTAIN ROGER F. CAVAZOS
CAPTAIN ROBERT M. SMITH

Today's technology allows the enemy to engage targets as far away as he can see them. If we want to protect our soldiers in the defense, we should develop fighting positions that are much harder to detect.

The most important functions of a fighting position are to protect a soldier from the effects of fire and conceal him from observation. Normally a position should provide a soldier with 36 to 78 inches of frontal cover and at least 18 inches of overhead cover. It should allow the soldier to engage the enemy within his assigned sector of fire all the way to the maximum effective range of his weapons, and with minimum dead space. The position should also be diffi-

cult to detect. All of these give the soldier protection and concealment and enable him to engage enemy forces on his own terms.

The old infantry fighting position (Figure 1) meets most of the criteria for an effective fighting position, except that it rises 24 to 27 inches above ground, and is therefore easier to see and easier to destroy.

The built-down series of fighting positions dramatically reduces detection and increases survivability. This series of positions includes the following:

Built-Down (BD) Fighting Position. This position (Figure 2) is best used in flat, open terrain such as deserts or plains. It has no frontal, flank, or rear parapets

to cast shadows. It is dug down to chin level instead of the usual armpit level. This helps make up for frontal and flank positions.

The BD position is constructed in four stages:

• Measure and mark the outlines of the position; emplace the permanent sector stakes and grazing logs.

• Measure and mark the outlines of the overhead cover, and dig it out to a depth of 23 inches (18 inches plus the depth of the U-shaped pickets). Dig the shelf, which the soldier uses as an elbow rest and to store magazines and grenades. Finally, dig out the platform that will allow the soldier to cover his arms while firing to the front. Make sure the rifle

muzzle is two to three inches above ground.

• Complete the overhead cover and the grenade sumps.

• Camouflage, and continue to improve.

The BD position's main advantages over the built-up position are its ability to escape enemy detection and an infinitely thicker frontal cover. The main disadvantage is that it has no parapets.

Low-Profile (LP) Positions. The LPs include the best parts of the built-up and built-down positions. It is the most adaptable and protective of the positions, and it is difficult to detect. It offers infinite frontal cover, 18 inches of overhead cover, and parapets. This version can be used in almost any terrain.

The LP always has 18 inches of overhead cover. The main difference is that some of the cover (six to 12 inches) is above ground level, and the parapets slope from the top of the overhead cover to ground level at a gentle angle to be less noticeable. All the positions in the low-profile series are constructed using the same five steps:

• Measure and mark the position. Emplace grazing logs and sector stakes.

• Dig down to chin level. Extend sandbags from the sector stakes along the limits of fire. This forms the outer edge of the parapets as well as the limits of fire.

• Fill in the area from one set of sandbags to the other with the spoil to flesh out the parapets. Make sure not to cover the area where you will dig down the overhead cover. Also, ensure that the overhead cover is wide enough to cover two soldiers. Dig the grenade sumps.

• Emplace the overhead cover. Carve out a shelf as an elbow rest. Start gradually, sloping the parapets from the overhead cover to the ground, using the row of sandbags to form the edges of the parapets.

• Camouflage, and continue to improve.

The variations on this position include the amount of overhead cover that sticks out of the ground, the depth, the width of the angle of the sector of fire, and most important the type of weapon.

Low-profile M60 (LP60). The M60 position is basically an L-shaped position
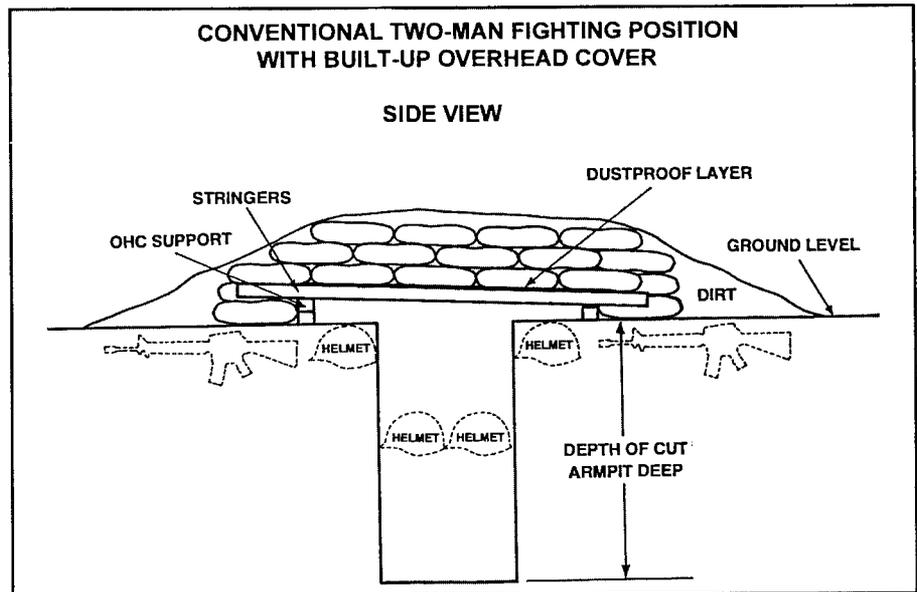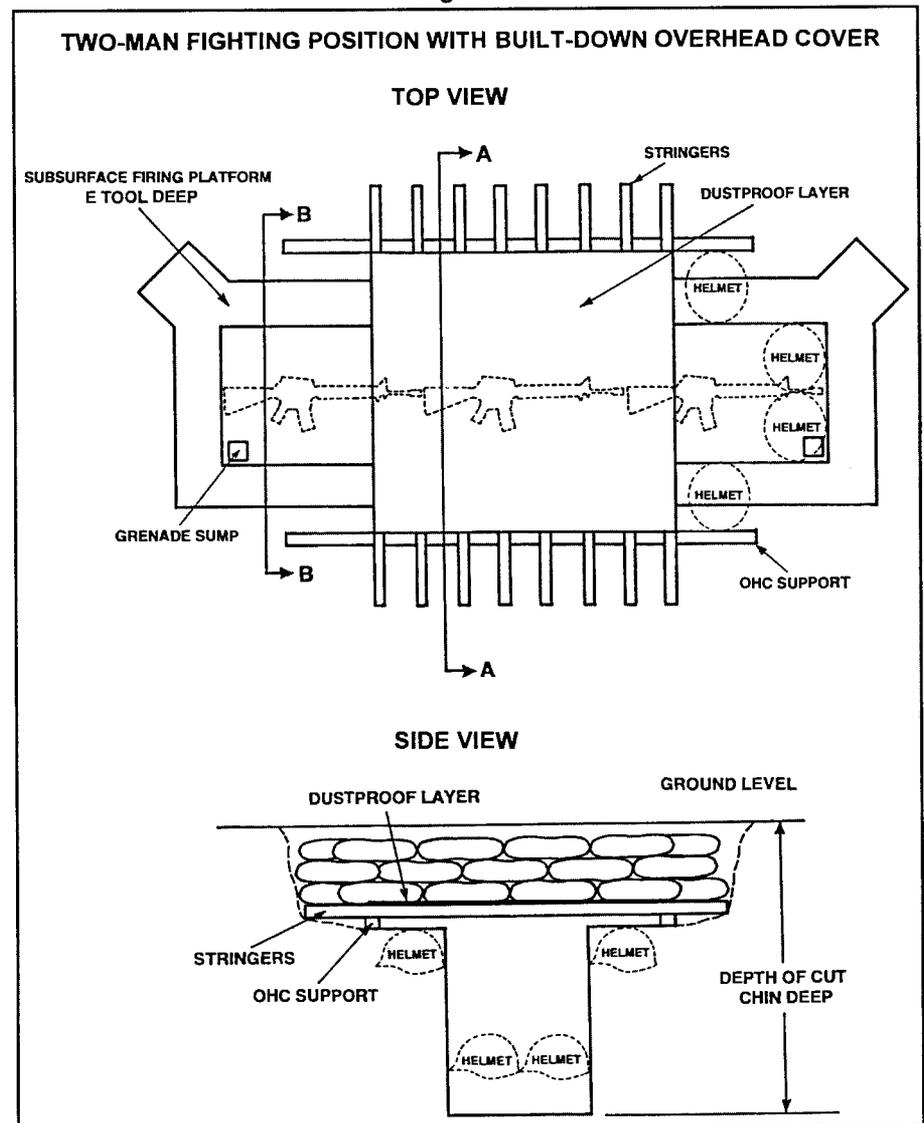

Figure 1

Figure 2

formed around the firing platform that holds the tripod. The gunner gets behind the gun on the longer axis of the L. The assistant gunner is left of the M60 on the shorter axis.

Low-profile Dragon Position. The Dragon position differs from the others in that it has an additional position that is only waist deep and a shelf for the Dragon feet. This firing position is dug only waist deep to give the missile 24 inches of clearance and to keep the backblast from bouncing off the back of the position and injuring the soldier.

The chief advantage of the built-down series of positions is increased survivability through concealment, which allows the soldier to escape enemy detection and subsequent destruction, and an infinite amount of cover from the chin down. One of the shortcomings is that these positions cannot be used everywhere. They are ineffective when not dug deep enough; for example, in permafrost or shallow bedrock areas. They are also less effective in jungle terrain.

For a quick guide to a built-down position, see Graphic Training Aid 7-6-1, and look soon (in six months to a year) for a video tape on the built-down series. Also in the works is a three-dimensional model, which instructors can use as an example when describing the positions.

The positions in the built-down series offer more protection than the built-up fighting position. The most important thing is for the commander to see that his troops dig in every time they are not moving.

Captain Roger F. Cavazos commands a company in the 1st Battalion, 19th Infantry, Infantry Training Brigade, at Fort Benning. He previously led a long-range reconnaissance platoon in the V Corps and a Bradley platoon in the 3d Infantry Division and served as a platoon trainer for the Infantry Officer Basic Course. He is a 1989 graduate of the United States Military Academy and holds a master's degree from Troy State University.

Captain Robert M. Smith is also assigned to 1st Battalion, 19th Infantry, Infantry Training Brigade. He previously led a platoon in the 1st Battalion, 16th Infantry, commanded a company in the battalion, and served as S-3 of the Infantry Training Brigade. He is a 1987 ROTC graduate of the University of Alabama.

FIFTY YEARS AGO IN HISTORY July-August 1946

Tensions among former Allies had not abated by the summer of 1946; in fact many had steadily worsened. Friction between Nationalist and Communist Chinese factions was at the breaking point; Yugoslav gunners regularly fired on U.S. aircraft crossing that nation's airspace, and the Soviet Union attempted to align Turkey against the United States. At the same time, the United States was taking its first tentative steps into the atomic age with testing and legislation aimed at harnessing and administering the power of the atom.

These and other highlights of the postwar years have been provided by Mr. Bud Hannings, in preparation for his upcoming chronology of the Korean War.

1 July — The Russians send a message to Turkey, suggesting that only Black Sea nations have access to the Dardanelles, and that the straits be placed under joint Russian-Turkish defense. Fearing the advantage this would afford the Russians, and not wanting Russian troops on Turkish soil, the Turkish government seeks advice from the Truman Administration, and subsequently rejects the plan.

1 July — The United States detonates a 20-kiloton atomic bomb over the Bikini test site, in the Marshall Islands. A second, underwater, detonation will take place on 25 July.

7 July — The Chinese Communist Party issues a manifesto criticizing U.S. policy toward the Nationalist Central Government of Chiang Kai-shek.

13-27 July — Chinese Communists ambush and capture seven U.S. Marines, but their safe return is negotiated without retaliatory action.

21 July — At a meeting with the United Nations Atomic Energy Commission, Bernard Baruch announces that the United States will endorse an international inspection team to oversee the production of atomic bombs.

29 July — Chinese Communist troops ambush a small Marine patrol, killing three and wounding others.

10 August — President Truman dispatches a letter to Chiang Kai-shek, expressing dissatisfaction at the inability of the Nationalists and the Communists to form a united government, and blaming both factions for the escalating chaos. General George C. Marshall has previously advised President Truman that the Communists will prevail if all-out civil war takes place.

21 August — The U.S. delivers an ultimatum to the Yugoslav government following the shooting down of two unarmed T-47 transport aircraft enroute to Italy. Yet another C-47 is shot down on 23 July, resulting in the death of five crewman. Tensions ease somewhat with the arrival of an official Yugoslav apology.

The COMBAT INFANTRYMAN-BADGE

LIEUTENANT COLONEL ALBERT N. GARLAND, U.S. ARMY, RETIRED

The Combat Infantryman Badge, or CIB, is the infantryman's most prestigious award, next to the Medal of Honor. With U.S. infantrymen once again serving in a potentially "hot" zone of operations, questions are sure to be raised about their possible eligibility for the badge—such questions as award requirements and the number of times the badge may be awarded.

For several years, I have been gathering information about the CIB and its running mate—the Expert Infantryman Badge (EIB). With the assistance of several knowledgeable individu-als, I have amassed a considerable amount of information that I would like to share with you.

In August 1943, Lieutenant General Leslie J. McNair's Army Ground Forces (AGF) headquarters conducted a survey of sol-diers then assigned to AGF's 11 arms and services. His people discovered that among those soldiers the infantry was by far the least popular branch, even with its own members. In brief, few infantrymen at the time were happy with being in the in-fantry or with their current assignments.

The results of the survey were given to General George C. Marshall, the Army's Chief of Staff and an old-line infantryman himself. In mid-1943, we still had a long road to travel and many battles to fight to reach final victory, and those battles would require motivated, well-trained combat soldiers, particularly infantrymen.

Marshall asked McNair to recommend ways the infantry's prestige could be boosted and its importance as the Army's premier combat arm could be recognized. By this time, our infantry units were doing 70 percent of the fighting and dying in all active theaters of operations, and Marshall knew the road ahead would require even greater sacrifices from the combat infantrymen. Something had to be done to improve their morale and effectiveness.

One of McNair's proposals called for a "fighter badge" that would be awarded to infantrymen who could meet certain standards, which were to be developed by Marshall's headquarters. Marshall approved the concept but eventually decided that instead of having one "fighter badge," there would be two individual combat badges—the EIB and the CIB.

Section I, War Department (WD) Circular 209, 27 October 1943, spelled out the details. The circular begins by stating:

The present war has demonstrated the importance of highly proficient, tough, hard, and aggressive infantry, which can be obtained only by developing a high degree of individual all-around proficiency on the part of every infantryman. As a means of attaining the high standards desired and to foster esprit de corps in infantry units, the Expert Infantryman and Combat Infantryman badges are established for infantry personnel.

It is interesting to note that both badges were initially considered *combat* badges. The EIB could be awarded to infantrymen, including officers, who either attained "the standards of proficiency established by the War Department" or satisfactorily performed "duty in action against the enemy." The CIB had stricter requirements; to be awarded a CIB, infantrymen, including officers, had to demonstrate "exemplary conduct in action against the enemy" or satisfactorily perform "duty in action against the enemy in a major operation as determined and announced by the theater commanders."

The award of the badges had to be made in unit orders and at an appropriate ceremony, whenever possible. The circular

Infantrymen did much of the fighting and dying in all theaters of operation during World War II. Here, PFC Carl Pierce is seen working on his light machinegun during a lull in the prolonged, bitter fighting for Okinawa in 1945.

Infantrymen have long had the unenviable task of seeking out the enemy on his own terrain, something they are seen doing here in the Republic of Vietnam. A patrol from the 1st Cavalry Division's Troop B, 1st Squadron, 9th Cavalry, pauses while the point man moves ahead of the unit.

stressed that "only one of these badges will be worn at a time," and that "the Combat Infantryman badge is the higher award." Although the War Department circular was dated 27 October 1943, the EIB was not officially authorized until an executive order was issued on 11 November 1943; the CIB was officially authorized four days later, by an executive order dated 15 November 1943.

As Lieutenant Colonel William K. Emerson, U.S. Army Retired, wrote recently, the last CIB category—participation in a major operation—"was to allow for all infantrymen to receive the CIB if they participated in major invasions, although today the distinction is not clear." (See *The Trading Post,* January-March 1995, pages 17-18.)

To the best of my knowledge, no infantryman received an EIB for "duty in action against the enemy," and subsequent regulations specified the EIB would be restricted to infantrymen who satisfactorily completed certain stringent training requirements, while the CIB was restricted to infantrymen who satisfactorily performed their duties while in combat.

WD Circular 408, 17 October 1944, pulled together information contained in several previously issued WD 1944

circulars and spelled out further details for awarding both badges, including a provision that authorized "during the present war and for 6 months thereafter" additional compensation to those infantrymen who were awarded either the EIB or the CIB. This additional compensation amounted to $5.00 per month for EIB holders and $10.00 per month for CIB holders. A soldier could draw payment for one or the other but not for both at the same time. Officers were not authorized this additional compensation. These payments came about as a result of an act of Congress that was approved 30 June 1944. This act also made the payments retroactive to 1 January 1944. (A March 1944 change to the basic regulation made eligibility for the award of a CIB retroactive to 7 December 1941.) As near as I have been able to determine, such monetary awards to holders of either badge were not authorized after the stated term had expired.

Circular 408 also spelled out in greater detail the requirements individuals had to meet to be considered for the award of either badge. First, the award of the EIB and the CIB was to be "restricted to officers, warrant officers, and enlisted men assigned to infantry regiments, infantry battalions, and elements

thereof designated as infantry in tables of organization or tables of organization and equipment."

The EIB could be awarded to infantrymen who "attained the standards of proficiency established by the War Department," while the CIB could be awarded for "satisfactory performance of duty in ground combat against the enemy." The latter was a distinct change to the original 1943 standards, and an attempt to clarify them.

Despite the opinion of many combat infantrymen, Army regulations issued during World War II never prescribed a specific period of time a man had to serve in combat in an infantry unit to be eligible for the CIB. This has not prevented some from believing there was a specified time involved; the usual time I have heard is 30 days. I have not been able to find a reference to such a period in any official regulation I have seen.

Today, these are the requirements an individual must meet to be considered for a CIB:

• The CIB may be awarded only to members of the United States Army.

• A soldier must be an Army infantry or special forces officer (CMF 11 or 18) in the grade of colonel or below, or an Army enlisted soldier or an Army warrant officer with an infantry or special forces MOS. He must satisfactorily perform his duty while assigned or attached to an infantry, ranger, or special forces unit of brigade, regiment, or smaller size during any period of time the unit is engaged in active ground combat.

• A soldier must be personally present and under fire while serving in an assigned infantry or special forces primary duty position in a unit actively engaged in ground combat with the enemy. The unit in question can be of any size smaller than a brigade. As an example, a soldier with an infantry MOS serving in a rifle squad of a cavalry platoon in a cavalry troop would be eligible for the CIB, provided his squad had been in active ground combat with the enemy during the period of time for which the award was made.

• The infantry or special forces Special Skill Identifier (SSI) or MOS does not necessarily have to be the soldier's primary specialty, so long as he has been properly trained in infantry or special forces tactics, has the appropriate skill code, and is serving in that specialty when engaged in active ground combat against the enemy. Commanders are not authorized to make any exceptions to this policy.

• General officers and members of headquarters companies of units larger than a brigade cannot be awarded a CIB.

As of this writing, a separate award of the CIB has been

authorized for qualified soldiers who took part in any of these three conflicts:

• World War II (7 December 1941 to 3 September 1945).
• The Korean Conflict (27 June 1950 to 27 July 1953).
• The Vietnam Conflict (1 March 1961 to 30 April 1975).

Service in any one of these conflicts, combined with qualifying service in Laos (19 April 1961 to 6 October 1962), the Dominican Republic (28 April 1965 to 1 September 1966), Korea on the demilitarized zone (DMZ) (after 4 January 1969), Grenada (23 October to 21 November 1983), Panama (20 December 1989 to 31 January 1990), the Persian Gulf War (17 January to 11 April 1991), and Somalia (5 June 1993 to 3 March 1995), is recognized by one award, whether a soldier served one or more tours of duty in any or all of those areas.

To clarify: An infantry soldier who earned a CIB during World War II could earn a second CIB for combat service during the Korean Conflict and a third for combat service during the Vietnam Conflict. But if he earned a CIB during the Vietnam War, he could not be awarded a second CIB for service in the Dominican Republic or in any of the other listed operations. Additionally, an infantryman who was awarded a CIB for combat service in the Grenada operation could not be awarded a second CIB for service, say, in the Persian Gulf War or in Somalia.

In brief, no combat infantryman has yet been awarded more than three CIBs. To earn these three awards, an infantryman would have had to see combat service in World War II, the Korean Conflict, and the Vietnam Conflict. It remains to be seen whether service in Bosnia will qualify for a fourth award. (As of 31 August 1994, the National Infantry Museum had a total of 297 names on its list of three-time CIB recipients.)

(Some people have asked me what the CIB would look like if a future infantryman earned a *fifth* award. For the fifth through the eighth awards, the regulations state that the outline of the badge, the musket, the wreath, and the color of the stars would change from silver to a gold. The fifth award, then, would be "a polished gold musket on a rectangular blue background $\frac{7}{16}$-inch high and 3 inches long in front of an oak wreath of shaded gold." The sixth through eighth awards would be indicated by the addition of gold stars to the gold-hued badge.)

Special provisions in the regulations apply only to service in Laos, the Republic of Vietnam, and Korea on the DMZ. For example, in Laos for the period from 19 April 1961 to 6 October 1962, an infantryman must have served as follows:

• As an assigned member of a White Star Mobile Training Team while the team was attached to or working with a unit or regiment (*groupment mobile*) or smaller size of the *Forces Armee du Royaume* (FAR), or with irregular type forces of regiment size or smaller, or

• As a member of MAAG-Laos, he must have been assigned as an advisor to the FAR region or zone or as an advisor to irregular forces of regiment size or smaller.

• In both of the above cases, the infantryman must have been personally under hostile fire while performing his duties as spelled out above.

• Any officer, warrant officer, or enlisted man whose branch was other than infantry who, under appropriate orders, was as-

signed to a White Star Mobile Training Team or to MAAG-Laos was considered eligible for the award of a CIB provided he met all of the other requirements.

The special provisions in the regulations concerning duty in the Vietnam Conflict for which a CIB could be awarded include the following:

• Subsequent to 1 March 1961, an infantry soldier assigned as an advisor to the Vietnamese infantry unit, ranger unit, infantry-type unit of regimental or smaller size of the civil guard, an infantry-type unit of regimental or smaller size of the self-defense corps—or to an irregular force comparable in size to those listed above during any period that unit was engaged in actual ground combat—was eligible for the CIB. The advisor, however, must have been personally present and under fire while serving in an assigned primary duty as a member of a tactical advisory team while the unit participated in ground combat.

• Any officer whose basic branch was other than infantry but who, under appropriate orders, commanded a line infantry (other than a headquarters) unit of brigade, regimental, or smaller size for at least 30 consecutive days was deemed to have been detailed to the infantry and was eligible for the CIB. Of course, he had to meet all the other award requirements.

• Any officer, warrant officer, or enlisted man whose branch was other than infantry and who, under appropriate orders, performed advisory, liaison, or training duties with Vietnamese, South Korean, or Thai units was considered eligible for the CIB, provided he met all the other requirements.

For duty in Korea on the DMZ subsequent to 4 January 1969, these are the special requirements found in the regulations:

• An infantry soldier must have served in the hostile fire area for at least 60 days and be authorized to draw hostile fire pay.

• He must have been assigned to an infantry unit of company or smaller size and be an infantry officer in the grade of captain or lower, or a warrant officer or enlisted man with an infantry MOS. An officer whose basic branch was other than infantry who, under appropriate orders, commanded an infantry company or smaller size infantry unit for at least 30 days,

could be awarded a CIB if he met all the other requirements.

• He must have been engaged with an enemy involving an exchange of small arms fire at least five times.

• He must have been personally recommended by each commander in his chain of command and approved at division level. If a soldier was killed as a result of enemy action, the five-engagement rule and the 60-day requirement were waived. If a soldier was wounded, the two requirements were waived if it could be clearly established that his wound was a direct result of overt hostile action.

Another special requirement in the regulations should be of interest to some:

• After 1 December 1967 for the Vietnam Conflict and after 4 January 1969 for Korea on the DMZ, noncommissioned officers serving as command sergeants major of infantry battalions and brigades for at least 30 consecutive days in a combat or hostile fire zone could be awarded a CIB if they met all the other award requirements.

Perhaps it is because of these kinds of time provisions in the regulations that some combat infantrymen believe a specified time period governs the award of all EIBs in all situations.

Many of the young infantrymen in Bosnia today would undoubtedly like to have CIBs. One can only hope they will not have the opportunity to prove their combat worth, for the cost of the blue badge with wreath is never cheap. More than 200 U.N. Protection Force soldiers died in Bosnia and some 1,200 more were wounded during the four years of "humanitarian" operations. Many of those U.N. soldiers were infantrymen.

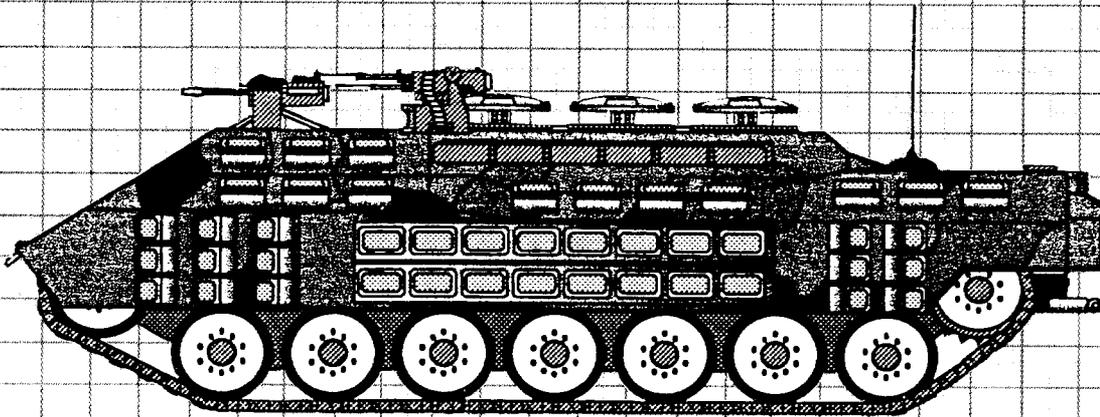The 1993 battle in Mogadishu, Somalia, should serve as a stark reminder to U.S. infantrymen of what can happen in faraway places while serving on what are supposed to be missions of peace.

DESIGNING THE NEXT INFANTRY FIGHTING VEHICLE

GREGORY A. PICKELL

The design of armored vehicles for transporting infantry has been debated almost since the inception of armored warfare itself. Immediately after the introduction of tanks on the Western Front in 1917, attempts were made to transport infantry in compartments in the rear of some vehicles. These attempts were less than successful, and the debate over tank-infantry tactics and the required technologies continues today.

In many respects, this study represents the latest chapter in the long-running debate over the design of infantry fighting vehicles (IFVs). The end of the Cold War, instead of simplifying things, made IFV development more difficult, with more competing requirements than ever before. Compounding these new design parameters has been a series of design mistakes dating back to the early stages of the Cold War period. The cumulative result is current generation IFVs that are generally unsuitable in both low-intensity and high-intensity scenarios.

This study begins by examining requirements for current and next generation IFVs—not a simple task: Attributes that are seen as essential by those with combat experience are sometimes at odds with other requirements that have largely driven IFV development since the end of World War II. The addition of low-intensity conflict operational requirements adds to the already long list of attributes an IFV must have.

On the basis of IFV requirements, the study then examines existing or new designs for suitability. Finally, a candidate design is chosen, and the study looks briefly at the feasibility of such a system in terms of engineering and cost factors that would affect its development and deployment.

A clear understanding of the relationship between tactics and technology is important to any discussion of present-day IFV tactics, requirements, and candidate technologies.

In cases where revolutionary technologies are initially introduced, these technologies naturally drive tactics. In most other cases—including those that involve the development of revolutionary technologies—tactics generally drive that development. Put another way, *revolutionary* technologies drive tactics; *evolutionary* technology development should be driven *by* tactics. Tactical requirements drive the process of IFV development in most cases.

Once the relative primacy of tactics in IFV development is established, the next challenge involves differentiating valid tactical requirements from those that are unfounded. Although it is a problem that defies simple solution, most would agree that tactical requirements developed in combat tend to be "good requirements" far more often than those developed during peacetime. If it is not feasible to develop tactical requirements through combat experience, peacetime requirements generated by organizations or individuals with combat experience may be the next best thing. Finally, tactical requirements generated in peacetime and without significant input from those with rel-

evant experience are generally the least effective pattern.

IFV development reflects a common weapon system development phenomenon—an evolutionary technology influenced by a revolutionary technology. The first modern IFV, the Soviet BMP-1, was a direct product (in terms of design) of the Soviet attempt to evolve in reaction to the atomic bomb. Subsequent IFV development in the East and West reflected the influence of the BMP-1 design, even after it was clear that the influence of atomic weapons at the tactical level was no longer an overriding consideration.

Worldwide IFV development in the 1960s, 1970s, and 1980s proceeded almost solely in peacetime and with less and less input from individuals and organizations with actual mechanized combat experience. The result is not surprising: Current generation IFVs are largely based upon a revolutionary influence (nuclear war fighting) that was overemphasized, to be used in a conflict that did not occur (the cold war), and requested by tacticians working largely without the benefit of combat experience.

One problem with using input from organizations and individuals with mechanized infantry combat experience is that extensive experience of this type is increasingly scarce. Moreover, much of the available data is of limited value, and it is also possible to draw incorrect conclusions from combat. Still, ample data is readily available in the form of various limited conflicts and contingency operations, many of which have involved mechanized operations of some kind.

In its analysis of tactical IFV requirements, this study depends heavily upon such conflicts—and the organizations and individuals involved. Significant weight is also given to combat experience gained during the closing months of World War II, whose massive mechanized operations can bring still relevant input to the discussion.

Without doubt, the Israeli Defense Force (IDF) has had more mechanized combat experience than any other military organization in the world today. Its experience in Lebanon in 1982 provides rare data on mechanized operations in a low-to-medium intensity environment.

If learning through failure is an effective source for tactical IFV requirements, the Russian Army and its Soviet predecessor can provide significant data from experience in Afghanistan and more recently in Chechnya. Chechnya, in particular, provides invaluable data on the effectiveness of current generation IFVs and future tactical requirements. And the Soviets turned tank-infantry tactics into an art form in the World War II campaigns of 1944 and early 1945.

U.S. experience with mechanized warfare since the end of World War II has been somewhat limited, in spite of an impressive list of campaign credits. Although operation *Desert Storm* lacked the effective opposition to put U.S. Bradley IFVs to a real test, the conflict still provides valuable data.

U.S. experience in Operation *Restore Hope* in Somalia—the antithesis of *Desert Storm*—also provides clues to IFV requirements, despite the absence of U.S. IFVs during much of this unfortunate episode. U.S. operations in Northern Europe during 1944 and early 1945 yield relevant data on mechanized operations in a high-intensity conflict environment. (This study

uses only two conflict levels. In a non-nuclear environment, conflict is generally low or high; *medium* only confuses the issue.)

Several individuals have also contributed to this discussion:

Major General Michael Lynch (U.S. Army, Retired), a veteran of World War II, Korea, and Vietnam, may be the most experienced U.S. mechanized infantry officer alive today, having commanded mechanized forces in combat at levels from squad to brigade. General Lynch himself counts his mechanized experiences during World War II as among the most valuable.

Brigadier Richard Simpkin, who served more than 30 years as an officer of the British Royal Tank Regiment, was one of the few writers to seriously examine the role of IFVs on the modern battlefield during the period after World War II. His books *Mechanized Infantry* and *Tanks* represent the best in analytical literature in the field of IFV development during the past 40 years. (If a reader notes similarities between this article and the writings of Brigadier Simpkin, this is no accident—his work is inherently tactical in both its approach and its largely inevitable conclusions.)

In addition, General Barry McCaffrey, as commander of the 24th Infantry Division during the Persian Gulf War, led his troops on the most rapid, far-reaching operational maneuver conducted by mechanized forces. More than any other commander on the scene, General McCaffrey was in a position to assess the effectiveness of current U.S. IFV systems and to draw conclusions regarding current and future requirements.

Establishing Requirements

The question of the *purpose* of an infantry fighting vehicle deserves far more intense scrutiny than it usually receives. Without an understanding of the functional role of an IFV, it is impossible to derive technology requirements from a focused perspective. While there are many potential operational requirements for an IFV, just two make up its functional role:

• To provide protected transport for infantry.
• To provide fire support for infantry during combat.

With these two fundamental requirements in hand, a careful analysis of various technologies will enable the developer to choose components that best satisfy these mission needs.

The primary components of an IFV design include *crew capacity, firepower, protection,* and *mobility.* From the standpoint of the dismounts, *spatial awareness* is another consideration that cannot be overlooked. The LIC environments encountered with increasing frequency in the 1990s have added yet another requirement to this group—*system flexibility.* Financial considerations add still another issue—*commonality of components.*

The four primary components—each heavily interrelated with the others—must be examined first, along with spatial awareness. Then the list of candidate technology requirements can be reviewed in light of flexibility and commonality.

Crew Capacity

Any analysis of IFV requirements must begin with a determination of appropriate crew size. As a start point for the dis-

cussion, Table 1 provides a sampling of current IFV capacities. Unfortunately, this table does not answer the most important question of how many dismounted infantrymen are necessary, and this must be addressed before any discussion of other characteristics can take place.

This study is a significant departure from generally accepted practice in that crew requirements determine vehicle capacity. The M113-to-Bradley evolution, like the armored personnel carrier (APC)-to-IFV evolution generally, illustrates the more conventional approach to this issue.

While the M113 APC carries 11 in addition to the driver and the vehicle commander, the M2 Bradley IFV carries six in addition to the two-man crew, resulting in an entirely new modified table of organization and equipment for the mechanized infantry squad organization. Anyone who might be tempted to criticize a decision leading to the downsizing of the mechanized infantry squad from 11 to 6 should first carefully evaluate dismounted infantry requirements.

While there is considerable variation in the crew sizes of various current generation IFVs, the difference between IFVs and APCs appears to lie with the intended functional role of the IFV in relation to its dismounted element. While an APC such as the M113 is too vulnerable to be of much help to dismounted infantry in combat, a new IFV such as the M2 Bradley is intended to function as an additional fire team. This accounts for the decrease in crew size from 10-12 in most APCs to an average of 6-8 among current IFVs. This also explains Simpkin's IFV design, which envisions a six-man dismounted element.

Unfortunately, while the six-man squad with an IFV acting as a second fire team seems reasonable, several factors undermine the validity of this approach. The loss of one or two members of a six-man squad in combat quickly renders it ineffective. In a more practical vein, day-to-day mission requirements typically reduce a six-man squad to four or five soldiers, or less, before operations even begin.

Finally, if the IFV is to provide the support of a second fire team, the vehicle must be survivable in this role, and most are not. Current generation IFVs such as the M2 Bradley and the BMP-3 are in many respects as vulnerable to antiarmor weapons as the M113 and BTR-60 APCs of 20 years ago. The end result, given current IFV design, is a squad that is often combat ineffective from the outset and a vehicle that is not survivable in the "second fire team" role.

In order to be most effective, an IFV and its dismounted infantry element must be both robust and survivable. While a six-man dismounted squad may work well in theory, operational considerations argue for an element of eight or more. At the same time, even this size requires that an IFV act as a supporting fire team, which in turn argues strongly for an IFV that can survive in this role. In terms of the dismounted element the IFV will carry and support, more is almost always better.

Firepower

Vehicle-mounted firepower is easily the most debated aspect of modern IFV design, and this distinction is well-deserved.

VEHICLE	ORIGIN	CREW SIZE
M2 Bradley	United States	2 Crew + 6 Dismounts
BMP 2	USSR/Russia	3 Crew + 6 Dismounts
Marder	Germany	9 (No Breakout)
AMX10P	France	3 Crew + 8 Dismounts
Warrior	United Kingdom	3 Crew + 7 Dismounts
Achzarit	Israel	3 Crew + 7 Dismounts

Table 1

Most design experts agree that the choice of a weapon system is a typical start point, because weapon size tends to drive most other critical vehicle dimensions. Technical design issues aside, most discussions focus on which tasks IFV-mounted firepower should accomplish on the battlefield.

Given the fundamental missions of an IFV—protected transport of infantry on the battlefield and fire support for dismounted infantry during combat—the key functions required of IFV armament include the following:

• Suppression of enemy infantry or antitank guided weapons (ATGWs) in the open or within soft cover.

• Suppression of infantry or ATGWs in hard cover or entrenchments.

• Suppression or defeat of soft transport and light armored vehicles.

Note that the ability to fight tanks is not on this list. As the body of this analysis will demonstrate, the belief that IFVs should be armed with weaponry designed to engage enemy main battle tanks (MBTs) is the single greatest misunderstanding of IFV mission requirements. As Simpkin and others have pointed out, engaging an enemy MBT with vehicle-mounted firepower places the dismounted element at avoidable risk. Tanks fight tanks. IFVs must be prepared to survive encounters with enemy tanks as they go about performing their primary tasks.

As with the analysis of IFV requirements in general, an examination of IFV armament options begins by establishing the legitimate tactical requirements. Then an analysis of the various armament options can be conducted.

General categories of IFV armament include the following:

High velocity gun/missile. Gun and missile designs, typified by the BMP-1, suffer from two deficiencies, both of which detract from primary IFV missions. The inclusion of both a gun and a missile system requires that the IFV carry large stocks of ammunition at the expense of space for infantry. Storing this ammunition close to the infantry squad is inherently dangerous (many of the BMP-1 kills during the Gulf War were catastrophic due to its thin armor and vulnerable ammunition stowage). Finally, the requirement for a large turret to house the cannon detracts from the vehicle's mobility, heightens its profile, and further decreases crew capacity.

Gun. In a perfect world, the development of an IFV with a 75mm-120mm gun would seem to represent an ideal hybrid between tank and IFV. Unfortunately, experience suggests that this combination falls short in one key area—crew capacity—and the ability to carry a full infantry squad into combat is essentially non-negotiable.

To date, the only army that has developed a gun-armed MBT/IFV is the IDF, and in this regard the Israelis have also come up short. Although the Merkava is an extremely innovative

design with much to offer in both protection and firepower, its rear crew compartment is too small for more than five or six soldiers. Indeed, the Israelis do not use this compartment in an infantry carrier role but use it to stow additional supplies and ammunition. Simpkin takes an approach similar to the Israelis in his proposal for a gun—armed IFV, but his design suffers from the same flaw—it carries just six dismountable infantrymen because of the space taken by the turreted high-velocity gun.

Autocannon/missile. A combination of autocannon and missile systems is a step in the right direction. The autocannon provides both enemy infantry suppression and the ability to engage thin-skinned vehicle targets that an IFV might encounter in performing its infantry support mission. Because of the relatively small caliber of the weapon, considerable ammunition can be stored without an unacceptable loss of space for the infantry squad. Finally, the turret required to house the autocannon can be relatively small, or even nonexistent.

Unfortunately, the inclusion of a vehicle-mounted antitank missile system reflects an imperfect understanding of IFV mission requirements. The desire to give the IFV the ability to engage tanks is based upon two concepts that combine to render IFV-mounted missile technology inappropriate, even dangerous: the tactical IFV-MBT relationship and gun-missile engagement characteristics.

The tactical disconnect behind IFV-mounted missile technology is relatively simple. AirLand Battle doctrine dictated that IFVs operate with tanks. Among other implications, this means that friendly tanks deal with any enemy tanks encountered. The disconnect occurs in those unusual situations where IFVs operating *without* tanks encounter enemy MBTs; if these tanks stand in the way of accomplishing the infantry missions, the dismounted squad, not the vehicle, tackles the threat with antiarmor systems. Placing the antiarmor system on the IFV just encourages the vehicle commander to engage the tank, possibly disregarding the IFV's primary missions. As Simpkin points out, "It is quite simply that moving or siting the IFV to make use of its vehicle-mounted firepower puts the maneuver team at avoidable risk."

The division of labor is much the same as the MBT/IFV interrelationship—IFVs get the infantry where it needs to go and provide suppressive fire once it dismounts. As its contribution, infantry helps provide suppressive fire for the IFV while on the move, fights the enemy infantry threat when dismounted, and uses its specialized antiarmor systems to defeat the occasional armored threat.

The Israelis have come to grips with this essential IFV philosophy. In a largely desert environment (with engagement ranges that might suggest a TOW system), they have opted for

an IFV with no significant antiarmor capability. The division of labor between infantry and IFV is critical; trying to make an IFV capable of all things makes it incapable of most.

The second and most compelling argument against an IFV-mounted missile lies in its engagement characteristics. While the range and accuracy of missiles such as the TOW IIB are obvious, their value in tactical combat is open to question. The single greatest advantage the IFV gets from a TOW launcher is the ability to destroy enemy armor at ranges beyond 3,000 meters. Indeed, because of the guided missile's classification as a "slow firer," this range advantage is the only engagement "envelope" that gives the IFV any chance of surviving such an engagement, let alone winning it.

Unfortunately, many gun and missile engagements take place at ranges of much less than 3,000 meters. In fact, most engagements actually take place at 500 to 1,000 meters. While a number of long-range kills were made in the Gulf War, desert terrain is not necessarily representative of future operating environments. Future conflict scenarios suggest the Balkans or the Korean peninsula as likely and far more constrained operational areas. Finally, because a missile is a slow firer, launching at maximum range in a restrictive environment is worse for the IFV, in that it gives the enemy tank the greatest opportunity to return fire. From the perspective of range-based engagement characteristics, missile technology is appropriate in relatively few cases.

Once engagement range constraints are understood, the IFV-tank engagement problem is clear: A tank lying within effective range of the IFV will probably fire back, with predictable results. In short, if an IFV intends to engage a tank in a doctrinally appropriate environment, it must be capable of "fast firing" and of surviving return fire. Current IFVs armed with autocannon and missile do not meet these critical requirements.

Autocannons are an appropriate IFV armament for a variety of reasons. The turret space required is significantly less than that of a larger gun. Ammunition storage requirements are also reduced, and there are other benefits as well. Ironically, one important advantage is that the autocannon eliminates the temptation to engage a tank with a TOW at 2,000 to 3,000 meters. Most important, the autocannon provides effective suppressive fire for dismounted infantry, which speaks directly to the second fundamental IFV requirement—fire support for infantry during combat.

Automatic grenade launcher (AGL). Of all the weapon options available as IFV armaments, the AGL may be the most suitable. It occupies the least space of all the options except the machinegun. At the same time, AGLs—typified by the U.S. Mk 19—have rounds capable of engaging troops, lightly armored vehicles, and various fortifications and other hard targets with highly satisfactory results. One subtle but important advantage of AGLs is their relatively low muzzle velocity; this allows them to engage troops in dug-in positions largely immune to higher velocity weapons with flatter ballistic trajectories. Finally, AGLs can place smoke more effectively and efficiently than any of the other options, an often overlooked yet vital aspect of the infantry mission.

Machinegun. The machinegun is also a very appropriate

form of IFV armament. Selecting the machinegun over an autocannon is a tradeoff between space and suppressive firepower. The Israelis, in mounting a single 7.62mm machinegun on their revolutionary Achzarit heavy infantry fighting vehicle (HIFV), have clearly chosen more crew capacity at the expense of firepower, perhaps because of the relatively limited space available in the T-55 chassis that is the basis for the vehicle. The German Marder IFV represents an opposing point of view, with firepower taking relative precedence over crew space. Both cases are essentially appropriate; discussions regarding crew size demonstrate that so long as a dismount element of at least eight soldiers can be accommodated, the choice between machinegun and autocannon is best left to the engineers and the physical characteristics of the vehicle chassis itself.

Protection

Protection can be classified as either passive or active:

Passive Protection. Passive protection refers to the survivability offered by conventional, non-reactive armor systems. These systems—which include ceramics, composites, titanium, and other materials—can be qualified in terms of the equivalent protection they provide in millimeters of rolled homogenous armor (RHA). As an example, Chobham composite/ceramic armor (along with depleted Uranium) provides the U.S. M1A1 tank with about 1,300mm RHA equivalent protection against high-explosive antitank (HEAT) rounds. Passive armor protection is the primary protection afforded an IFV.

The degree of passive armor protection an IFV offers its internal infantry squad is a central factor in mission capability. If, for example, an IFV is designed for a tactical exploitation role in a nuclear environment—as was the case with the Soviet BMP-1—it requires a minimum of protection. Similarly, if an IFV is dedicated to performing rear area security functions, protection against small arms fire may be enough. On the other hand, if an IFV must operate in a more dangerous environment, more protection is needed. In each case, armor protection should be commensurate with the IFV's anticipated mission profile.

U.S. AirLand Battle doctrine was clear in its implications for IFV protection. It described a high-intensity environment in which MBTs and IFVs operate together to apply fully synchronized combat power against an opponent. This intimate tactical operating relationship is not new. U.S. combat formations have been operating in a functionally similar manner since the formation of the first U.S. armored divisions before World War II. U.S. doctrine explicitly requires that IFVs operate close to the tanks they support and are supported by.

It follows then that IFVs acting in this role should be protected to the same degree as tanks. Simpkin noted in his landmark study *Mechanized Infantry* that "if the IFV is to lead and stand a high chance of survival in a tank versus tank engagement, it must have the same protection as the tank over its frontal arc." The IDF has embraced this concept, adding an estimated 14 tons of armor to its HIFV. Finally, the Russians, smarting from their experience in Chechnya, have noted the requirement for an IFV with MBT—level protection. From the perspective of those with recent experience, the require-

ment is obvious, even fundamental.

From a broader perspective, however, the protection requirement is far from fundamental. Added protection means added weight, which in turn brings the up-armored IFV into conflict with a variety of competing requirements—ground mobility, air transportability, and swim capability. Before any protection requirement can be generated, the added armor the tacticians advocate must be reconciled with the mobility requirements viewed as necessary for broader military missions.

Ground mobility with regard to weight boils down to the ability of heavy vehicles to use the bridges and roads in an area of operations. The Soviets have long recognized this important issue, designing MBTs weighing less than 50 tons. In contrast, NATO countries have accepted the limitations imposed by much heavier designs, rationalizing this approach in part on the axis of the well-developed roads and bridges of Western Europe.

While the wisdom of these different approaches is open to debate, operations in areas with less developed roads and bridges require that an IFV weigh much less than the 60+ tons of many western MBTs. Such a reduction in weight is clearly feasible—a limit of perhaps 50 to 55 tons for an up-armored IFV still offers significant design flexibility in view of current IFVs weighing 20 to 30 tons. While constraints imposed by ground mobility must be recognized as an important factor in IFV design, there is still considerable flexibility within these constraints.

The single greatest force behind IFV weight restrictions may derive from the requirement that IFVs be air transportable. U.S. strategic planning is predicated to a large extent upon the number of C-141 equivalent aircraft sorties required to deliver specific force packages to various destinations. Organizational as well as technological weapon system decisions are often driven by aircraft sortie restrictions instead of any tactical requirement.

Given the apparent importance of this competing requirement, the issue of sufficiency must be addressed from a strategic lift perspective to derive realistic airlift-driven weight restrictions. Notably, top-end weight is not an issue. Aircraft, including the U.S. C-5 and C-17, are capable of transporting 67-ton M1A1 tanks and even heavier loads. The issue is numbers: How many IFVs does one *plan* to airlift? This is extremely important, in that it allows a determination of weight restrictions to be based on real-world strategic requirements.

The answer to the "how many" question is, in short, *few if any*. IFVs and tanks are rarely transported by airlift, and in cases where they are, the numbers are extremely limited. Evidence of this can be found in the numerous U.S. contingency operations of the past 40 years. At no time during this period has armor been air transported in significant quantities. Even during the earlier stages of the Gulf War, when the need for armor of any kind was greatest, other priorities were deemed more important. In Somalia, armor was airlifted after the fight in Mogadishu, but in small quantities. Notably, the unwillingness to airlift armor applies to *all* armor; strategic deployment planners are no more willing to ship 25-ton M2 IFVs than 67-ton M1A1 tanks. In short, airlift-based restrictions on IFV

weight and protection are largely inappropriate, if not entirely irrelevant.

The requirement that IFVs be capable of swimming water obstacles may be the least valid of the mobility-based weight restrictions, from both doctrinal and practical standpoints. U.S. AirLand Battle suggested that IFVs act in concert with tanks, and tanks cannot swim. As Simpkin noted, "Swimming is super, but too bad if IFVs and tanks have to cross at widely separated sites because one swims and the other snorkels or needs bridging."

Another strong argument against this requirement is the fact that it is rarely used. From the standpoint of both doctrine and practice, a swim capability is unnecessary and, if used as envisioned, could separate the IFVs from the tanks with which they are teamed.

In summary, then, the level of passive armor protection in IFV design is of paramount importance in mission capability, and given the relative lack of importance of both air transportability and a swim capability, this protection should take precedence in any analysis of relative value. In addition, trafficability in less developed areas requires that weight be restrained because the bridges are often rated at 50 tons or less. At the same time, the level of protection should be at or near that of the MBTs with which IFVs operate. For the U.S. Army, this means a weight of 50 to 55 tons with protection at or near that of the M1A1 tank.

Active Proximate Protection. Active proximate protection refers to measures taken to defeat threats near the vehicle. This relatively new field includes two primary technologies: reactive armor and proximity defense systems.

Reactive armor technology uses exploding armor blocks to defeat both chemical energy and, to a lesser extent, kinetic energy penetrators. Reactive armor explodes upon contact with the incoming round, deflecting the energy stream or kinetic penetrators and degrading penetrator effectiveness enough that it can be defeated by the conventional armor to which it is attached. Initially developed by the IDF, this technology is quite effective against chemical energy rounds.

Most current generation MBTs do not use reactive armor. They rely instead on compound armor, which embodies many of the properties of reactive armor blocks, though at a much higher cost in weight. IFV weights are often significantly less because they use aluminum or RHA with reactive armor added as needed. Even this is an imperfect solution—reactive armor provides imperfect coverage and can add as much as 10 tons to vehicle weight, as in the case of the M2A1 Bradley.

Proximity defense systems (PDSs) are an important innovation in active armor protection. They consist of command-detonated antipersonnel devices fixed to the sides, front, and rear of an IFV for protection against dismounted infantry. While the requirement for such protection has existed since the inception of armored vehicles themselves, the end of the Cold War and the resurgent LIC environment have lent renewed urgency to the need. Chechnya provides graphic evidence of such a requirement, as do the photographs of the destroyed German-made Condor APCs in the aftermath of the fighting in Mogadishu. The need for such a system has not gone entirely

unnoticed; it is believed that the IDF is experimenting with a rudimentary PDS by affixing claymore antipersonnel mines to the sides of their MBTs and IFVs.

Mobility

From a tactical perspective, mobility requirements for IFVs are generally based on the speed of the MBTs with which they operate. Performance requirements for the M2 Bradley were based in part on a requirement to keep up with the M1A1 tank. Notably, the requirement was not purely based on miles per hour—even the M113 is capable of relatively high speeds in favorable terrain. The Bradley mobility requirement centered instead upon equivalent speeds over broken terrain in an operational environment, something far beyond the capabilities of the M113. This requirement was further validated in view of the AirLand Battle doctrine outlined earlier.

While cross-country IFV mobility is certainly important, little attention has been paid to the question, "How much is enough?" During Operation *Desert Storm,* the 24th Infantry Division advanced 75 miles on the first day of the ground war, "traveling at sustained speeds of 25-30 mph against light opposition" (according to the Defense Department's final report to Congress). Even disregarding the discrepancy between "sustained speeds" and 75 total miles (25mph in 12 hours equals 300 miles), the actual sustained speed of the division was significantly less than the rated speed of either the M1A1 MBT or the M2 Bradley. Other evidence bears out the idea that the relevant speed requirement for heavy mechanized forces is that required *off-road and in formation.*

The objective in establishing a relative speed benchmark is to allow an analysis of available power plants for use in a given IFV design. Notably, it is almost as serious an error to overpower an IFV as to underpower it. In addition to the tactical dangers noted by Simpkin, a power plant that generates horsepower significantly in excess of power-to-weight requirements probably detracts from an optimum vehicle design, in both excess weight and space requirements. The most favorable power plant is one that provides the required power-to-weight ratio and resultant mobility while reducing powerplant space and weight.

Determination of the required speed and the ratio of horsepower to weight for a U.S. IFV is relatively clear: The IFV must have speed and maneuverability comparable to those of the M1A1 tank it will accompany. The standard M1A1 has off-road speed rated at 30.18 mph, thereby providing a benchmark comparable to the 25 to 30 mph noted earlier. A power-to-weight ratio comparable or identical to the M1A1 is not necessary; the M2 Bradley has essentially equivalent mobility characteristics while generating just 20.8 HP per ton compared to the M1A1's 27 HP per ton. With a benchmark of 20 to 22 HP per ton needed to generate the required mobility characteristics, and a vehicle weighing 50 to 55 tons, a power plant in the 1,100 HP class is enough.

Spatial Awareness

Spatial awareness refers to an awareness of surroundings in a given environment. In the case of an IFV, it is critical that a

dismounting infantry squad be able to orient rapidly to its surroundings upon leaving the vehicle. This requirement may not be clear outside the user community, but among those with experience, it is critical. Taking this requirement into account, the Israeli Achzarit provides for excellent fields of fire for infantrymen riding inside. At the same time, conventional IFV spatial awareness allowances range from marginal for the Bradley to little or none for the Condors that saw action in Mogadishu. A tactically appropriate IFV design must include excellent fields of fire for mounted infantry, allowing these personnel to retain awareness while riding "buttoned up."

As anyone who has ridden in a buttoned-up IFV will attest, the awareness provided by vision blocks is limited at best. Closed-circuit video devices, built into the IFV hull, can give the vehicle commander and the leader of the dismounted element excellent 360-degree visibility. Integration with night vision technology and thermal imaging systems would further enhance this important aspect of IFV design. Such technology does not, however, obviate the need for vision blocks.

Finally, General Lynch adamantly argues that true spatial awareness can be achieved only by operating without either vision blocks or high technology video. He points out that the risks of operating with open hatches in the crew compartment are more than justified by the significantly increased effectiveness of the mounted infantry. NBC protective requirements do not rule against such an approach. When operating in a contaminated environment, the infantry squad in question typically dons protective gear while inside the vehicle in any event. The development of hatches used in the Merkava series of vehicles contributes to the feasibility of this idea, allowing soldiers to operate completely unbuttoned, partially covered, or fully buttoned up as the situation requires (Figure 1).

System Flexibility

The single greatest impetus for change in tactical IFV requirements results from the end of the Cold War. Flawed as many Cold War IFV development requirements may have been, the U.S.-Soviet confrontation resulted in an essentially one-dimensional conflict pattern that drove all IFV development. The end of the Cold War and the dramatic reemergence of "small wars"—variable intensity conflicts such as Somalia and Bosnia—have resulted in numerous competing requirements, each valid for a given intensity level. Recent experience strongly argues for flexible designs that can rapidly adapt to changing levels of conflict. The evidence also strongly suggests that current IFVs do not always measure up to these new requirements.

There is clearly a requirement that the IFV of the 21st century be capable of operating effectively in low and high intensity conflict. A more subtle requirement is that this IFV be capable of rapid reconfiguration to meet the requirements of high-intensity "spikes" within low-intensity conflict. These spikes represent the inevitable bursts of violence that naturally occur in a counterinsurgency environment. Failure to consider these spikes will result in the design of equipment well suited to low-end violence but utterly vulnerable to bursts of intense combat. Attention to this vital aspect of LIC will result in an IFV that boasts a degree of reconfigurability not seen in conventional IFV design.

The U.S. experience in Somalia is an excellent example of an intensity spike, as well as the hazards of confronting such a spike with inappropriate technology. *Operation Restore Hope* was, by any contemporary description, a low-intensity conflict over 99 percent of its duration. Unfortunately, the 18 hours that made up the other one percent were clearly high-intensity.

The armored vehicles available were designed for low-end violence. The Malaysians' Condor APCs unquestionably saved the day for the U.S. troops involved, but only at grievous cost to the vehicles and crews. The battle was nearly lost in spite of these vehicles. The APCs' nemesis was the RPG-7, a system just as lethal to most current generation IFVs in a built-up area like Mogadishu. IFVs will often represent the high end of ground combat capability in low-intensity conflict; they must be designed to be adaptable to multiple intensity levels.

The requirement subset that includes low-intensity conflict centers primarily on protection and firepower as they pertain to appropriate threat scenarios. In low-intensity conflict, armor must be proof against 7.62mm small arms, up to 23mm KE/HE heavy weapons, and chemical energy up to 100mm HEAT. During a high-intensity spike, armor must protect against heavy weapons up to 125mm KE/HE and chemical energy up to 150mm tandem charge HEAT.

The importance of political considerations in LIC provides an interesting case in point for flexibility. While it may be attractive to deploy heavily armed combat vehicles in anticipation of a high-intensity spike, political considerations can and often do prevent such measures. U.S. intervention in Haiti saw limited use of heavy armor, with M2 Bradley IFVs but no tanks visible during the critical early days of the intervention. UN protective force deployments in Bosnia may represent the logical extreme in this dangerous game, with lightly armed IFVs operating in a scenario with frequent high-intensity spikes, due to political considerations. U.S. experience in Somalia is an example of the political dimensions of decisions whether or
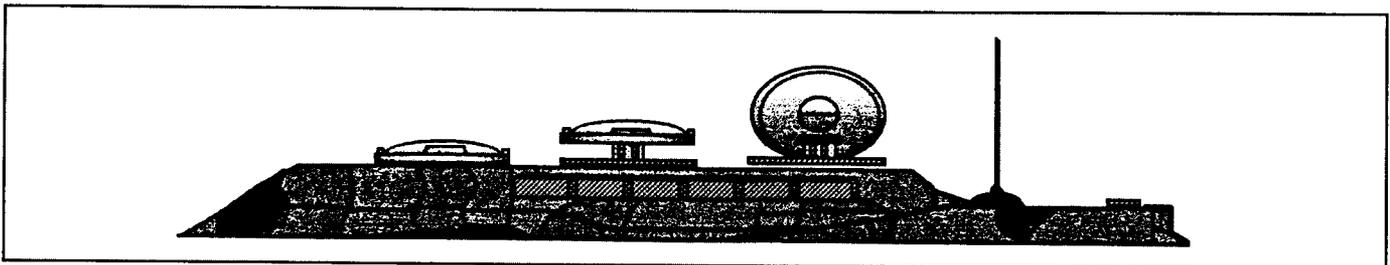
Figure 1. Hatches like these allow 360-degree view for dismount element.

Mk-19 Automatic Grenade Launcher (AGL)   **7.62MG (2)**   **Cargo Rack**

M1A1 Chassis   **Rear Exit**

PDS Module Array

Rear View (Weapons Removed)
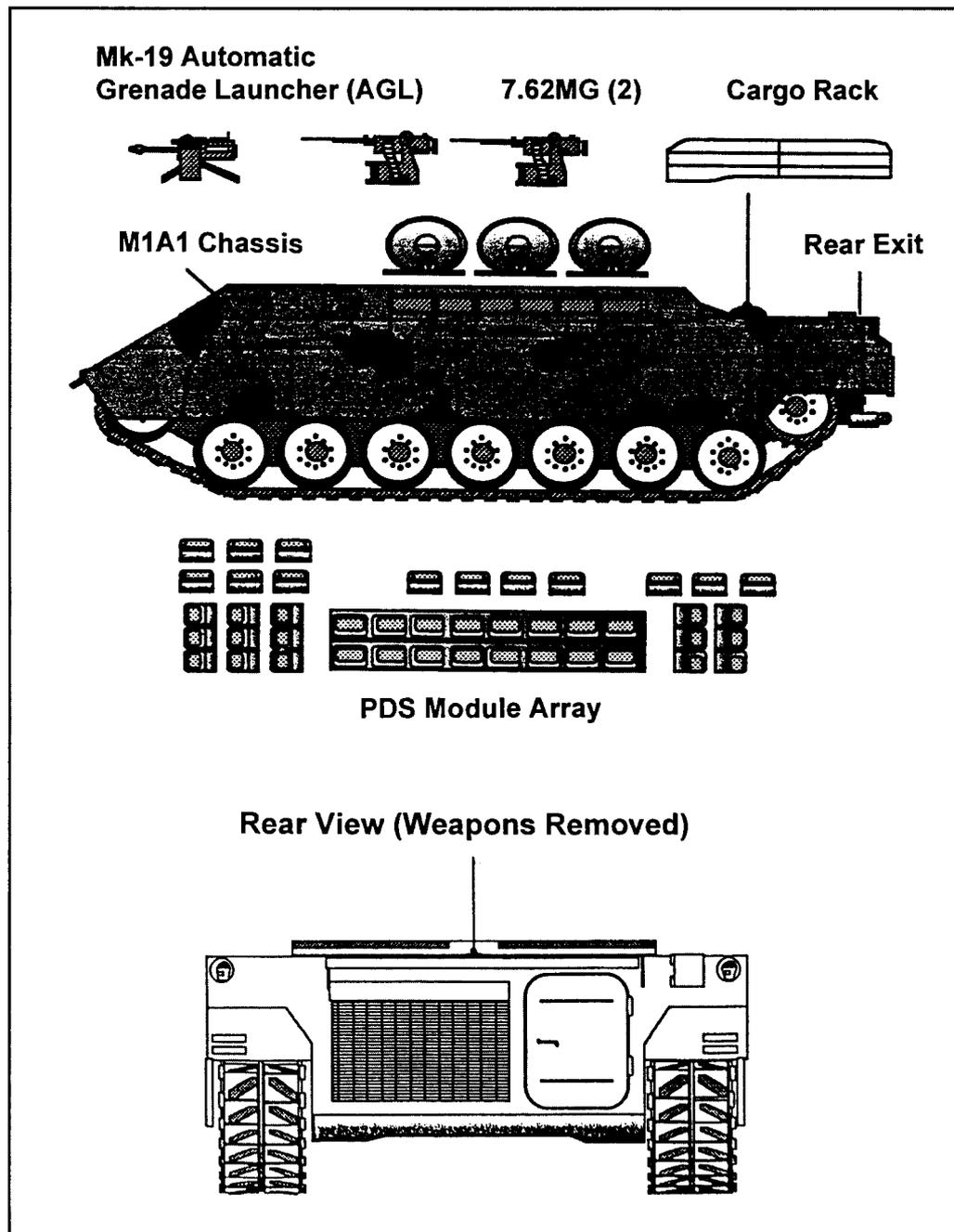
Figure 2. XM4 Candidate RIFV System Components.

not to deploy heavy armor and the disaster that can result. Interestingly, the single greatest determinant in these deployment considerations is in appearance: Tanks connote a high-intensity combat environment that political issues cannot allow, while IFVs seem to imply a gentler form of conflict.

Firepower in humanitarian assistance (HA) is an often-ignored issue that is far from contradictory; many missions that begin this way end as LIC scenarios. Most HA missions retain at least the possibility of open conflict, as demonstrated during Operation *Provide Comfort* in Iraq and the Rwandan relief mission in Central Africa. In such missions, it is often better to provide vehicles without significant firepower of any kind. At the same time, the vehicle must be able to protect passengers and support them with heavier firepower when necessary. In

short, the truly flexible IFV must be reconfigurable, with armament that can be upgraded or downgraded as the situation requires.

Component Compatibility

The compatibility of MBT and IFV components offers many obvious advantages in cost as well as logistics. An IFV based on an MBT hull significantly reduces the developmental costs of new vehicle design. Once the vehicles are deployed, the commonality of components can greatly reduce the logistical burden imposed on combat and combat support formations.

Despite these advantages, however, the development of common-chassis MBTs and IFVs has not taken place. In a notable exception, the IDF experimented in this area using a de-tur-

reted Merkava for its design. Although the result may be the best IFV ever designed, the expensive chassis forced the IDF to look elsewhere to meet its IFV requirements. The eventual development of the Achzarit IFV, based on a surplus T-55 hull, represented the best low-cost solution available to the Israelis. For other Western armies that do not suffer from the same tremendous budget constraints, IFV development using chassis or other components common to indigenously produced MBTs offers significant savings over specialized, noncompatible designs.

Before examining candidate systems, a summary of technology requirements generated by this tactical analysis is in order. The following are the tactically derived requirements for the next generation U.S. infantry fighting vehicle:

Crew Capacity: Minimum eight dismounted personnel.

Armament: Automatic grenade launcher and machinegun (7.62mm-12.7mm).

Passive Protection: 1,300mm against chemical, 600mm against kinetic penetrators over frontal arc.

Weight: 50 to 55 tons.

Proximity Protection: Reactive armor and PDS.

Ground Mobility: Maximum speed 30 mph off-road, 45 mph on-road.

Spatial Awareness: 360-degree field of view for vehicle commander and dismount commander. Partial view for each infantryman when operating buttoned-up.

Component Commonality: MBT component compatible.

System Flexibility: Reconfigurable for multi-level conflict intensity.

Existing Technology Options

Few, if any, existing IFVs meet these technology requirements. A summary of these requirements along with the latest U.S. IFV, the M2 Bradley, illustrates the point (Table 2).

At present, only one IFV in existence satisfies most of the requirements outlined in this study. The newly revealed Israeli Achzarit is an innovative answer to an up-armored IFV requirement. While it does not necessarily fit U.S. needs, it does provide an excellent conceptual starting point for any U.S. design (Table 3). The Achzarit, with its excellent protection, appropriate firepower, and adequate crew capacity—is presently the only true HIFV in existence.

The Candidate Reconfigurable IFV

Given the inability of most existing systems to meet the tactics driven specifications for a candidate reconfigurable infantry fighting vehicle (RIFV), one must look elsewhere to satisfy these requirements. The XM4 system shown in Figure 2 is one potential design that meets the technical requirements outlined. This system, based on a de-turreted M1A1 chassis, provides the mobility, crew capacity, protection, and weapon systems to handle a variety of threat scenarios.

It accommodates a maximum of 10 soldiers (two crewmen, eight dismounts). It is armed with two 7.62mm machineguns and a 40mm automatic grenade launcher.

The XM4 uses a new type of PDS that combines the functions of conventional reactive armor with antipersonnel capa-

Crew	CANDIDATE IFV	BRADLEY IFV
Crew	Minimum 8 Dismounts	6
Armament	MG Autocannon	Autocannon Missile
Passive Protection[1]	600mm - KE 1300mm - CE	30mm - KE 500mm - CE[2]
Ground Mobility		
Road:	45 mph	41 mph
Ground Pressure:	.96 kg/cm(sq)	.54 kg/cm(sq)
Weight :	50 tons	22.5 tons
Spatial Awareness	360-degree field of vision	Limited
System Flexibility	Reconfigurable for HA/LIC/HIC	None
Component Commonality	M1A1 Compatible	Limited

[1] The first value refers to protection against kinetic energy penetrators, the second value to chemical energy penetrators, both over vehicle frontal arc. (From *Desert Shield Factbook*, by Frank Chadwick, p. 19.)

[2] From *Desert Shield Factbook*, p. 19.

Table 2

	CANDIDATE IFV	ACHZARIT HIFV
Crew	Minimum 8	8
Armament	MG Autocannon	7.62mm MG
Passive Protection	60mm - KE 1300 mm - CE	Approx. 14 tons RHA*
Active Protection	Reactive/PDS	Blazer/Claymore
Ground Mobility		
Road:	45 mph	41 mph
Off-road:	30 mph	??
Ground Pressure:	.96 kg/cm(sq)	.54 kg/cm(sq)
Weight:	50 tons	44 tons
Spatial Awareness:	360-degree field of vision	360-degree field of vision
System Flexibility:	Reconfigurable for HA/LIC/HIC	None
Component Commonality	M1A1 Compatible	None

Table 3

*Precise RHA equivalent unavailable.

bility. The tiles are mounted on the sides, rear, and top of the vehicle to provide CE protection in areas that lack compound armor protection. The primary role of PDS tiles is antipersonnel, offering a capability equivalent to an enhanced claymore antipersonnel mine. PDS elements are mounted in rows with individual rows angled to provide high-angle and low-angle coverage.

The XM4 power plant is a 12-cylinder Detroit Diesel engine that develops 1,200 HP. With an estimated vehicle weight of approximately 50 tons, this results in a very satisfactory power-to-weight ratio of 24 HP per ton and ground pressure of slightly less than that of the M1A1. Speeds are compatible with M1A1 performance at about 45 mph on-road and 30 mph off-road. The diesel was chosen over the turbine because of the turbine's excessive space requirements and fuel consump-
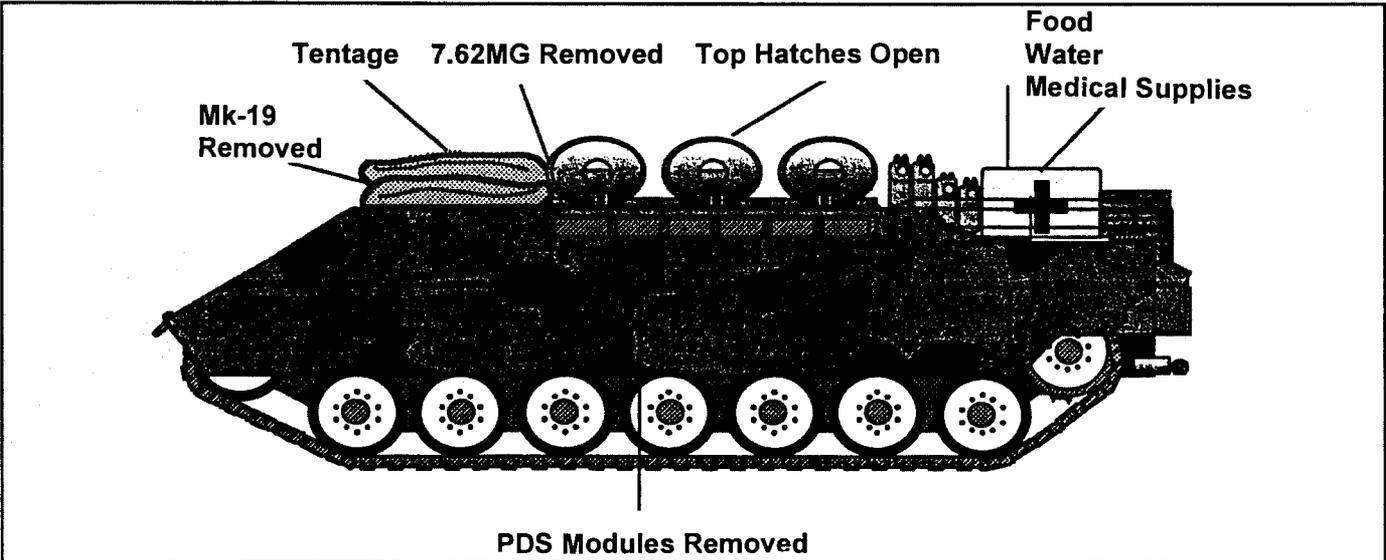
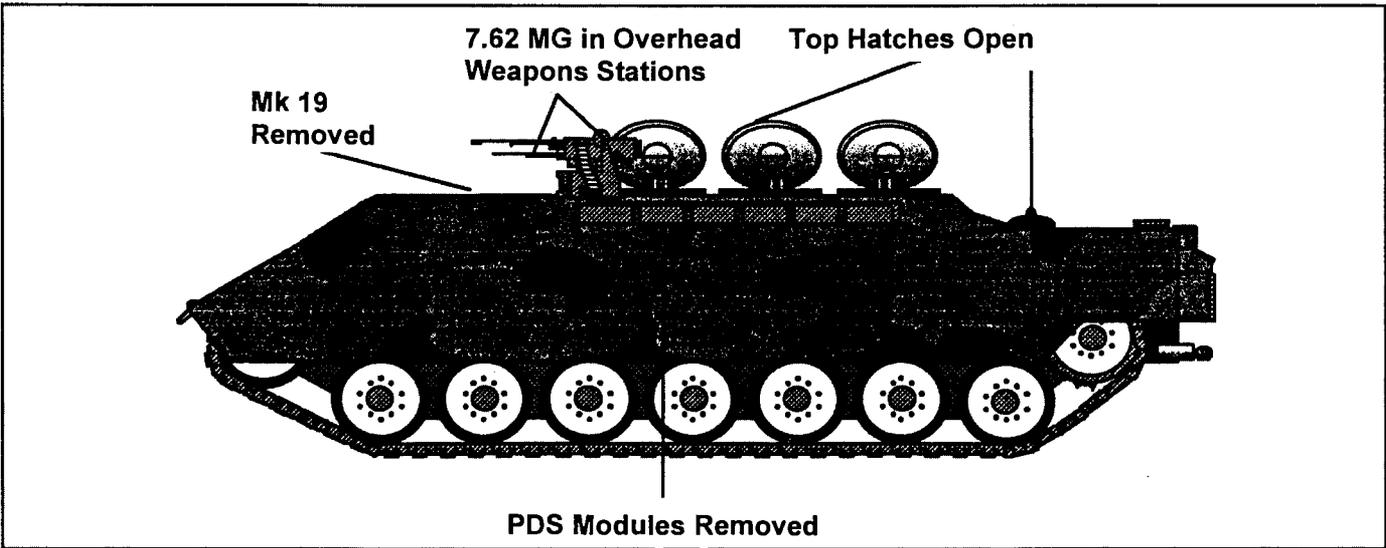**Figure 3. XM4 Humanitarian Assistance Configuration.**

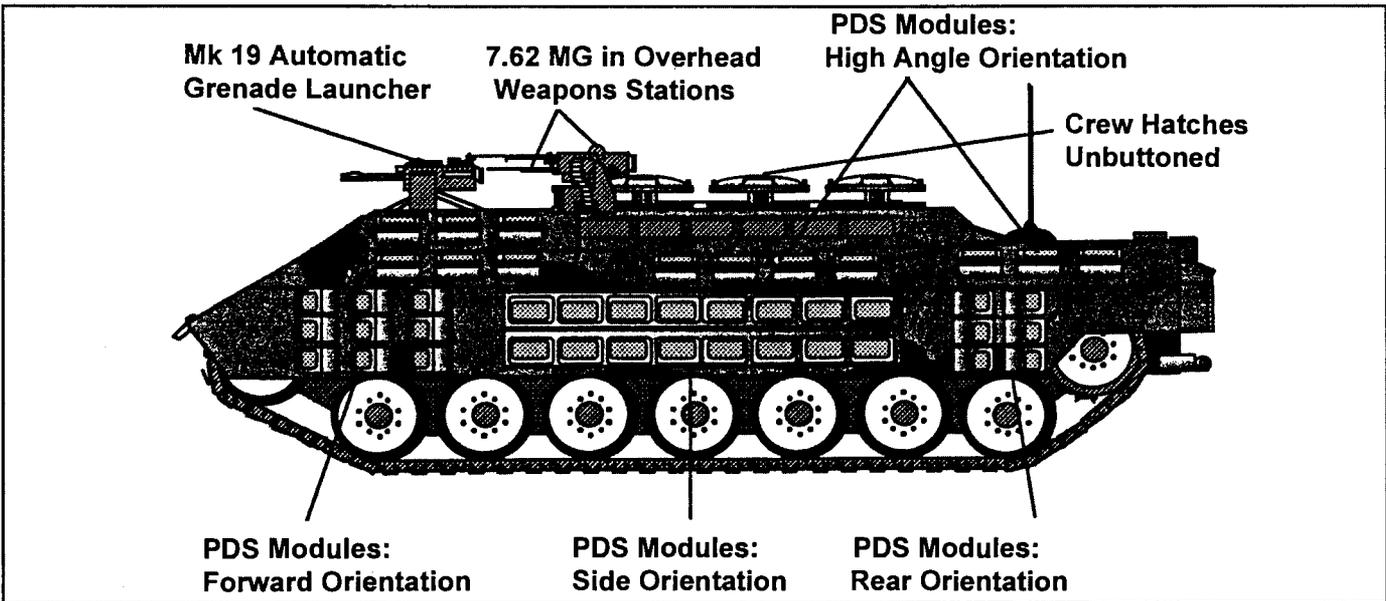**Figure 4. XM4 Low-Intensity Conflict Configuration.**

Figure 5. XM4 High-Intensity Conflict Configuration.

tion. Replacement of the turbine with the diesel enables developers to design the vehicle's rear exit.

The XM4 offers unsurpassed spatial awareness for vehicle-mounted infantry and crew. Inexpensive TV technology allows excellent flexible views for crew members and infantrymen operating buttoned up. Additional options available using this technology include integral night-vision and even thermal devices. Finally, back-up vision blocks allow 360-degree vision for the mounted infantry.

The XM4 is fully reconfigurable for HA, LIC, and HIC missions (Figures 3, 4, and 5). It is approximately 75 percent M1A1 compatible. Chassis components are fully interchangeable. (The engine plant is a primary contender for the U.S. Marine Corps advanced amphibious assault vehicle.)

XM4 Tactical Impact

While the flexibility of the XM4 design affects all threat levels, its most significant tactical effect lies in a high-intensity environment (as well as high-intensity spikes in other scenarios). The primary debate concerning conventional IFVs focuses on the internal infantry squad's dismount point relative to the objective, which is necessary for a vehicle that is vulnerable to antiarmor weapons. With the XM4, this discussion is no longer necessary—the infantry element dismounts *on* the objective, shortly after the surrounding area is saturated by PDS antipersonnel devices.

Viewed from the enemy's perspective, the XM4's advantages are striking: At long range, the vehicle is almost impervious to conventional antiarmor weapons. At close range—long the domain of the well-trained soldiers who wield sophisticated
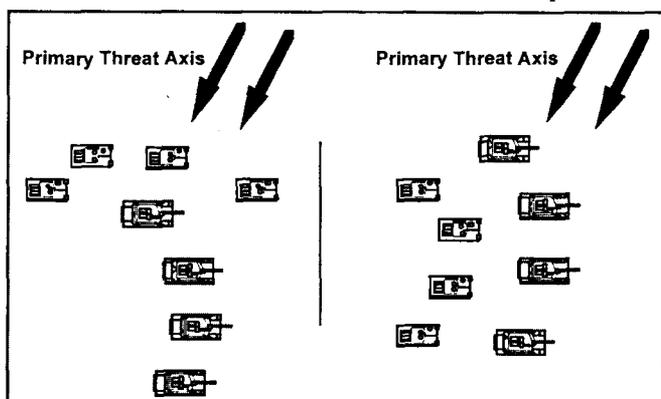

Figure 6. Tactical flexibility of the XM4 compared to that of the Bradley M2.

portable antiarmor systems—the enemy is faced with a withering hail of fragments from claymore-like devices, detonated at irregular intervals as the XM4s work their way to the objective. Psychologically, the effect is devastating; even the best enemy infantry will not stand against armor that they believe cannot be defeated.

The tactical flexibility provided by the XM4 is just as striking when it is acting with the MBT because it has equivalent protection. Heavily armored IFVs such as the XM4 are capable of escorting MBTs on the primary threat axis (Figure 6). Conventional IFVs cannot provide this protection without extreme risk. Instead, U.S. doctrine has M2 Bradleys traveling

under the protection of the M1A1s they are supposedly supporting. Worse still, if conventional IFVs attempt to provide primary threat axis security, the infantry squad ends up providing protection to its own IFV instead of the tanks. Paradoxically, current IFVs can provide added antiarmor capability in the non-threat axis configuration but are of relatively little use in suppressing enemy infantry in this role.

Unfortunately, organizational considerations and overall budget constraints would probably rule out the deployment of XM4s in large numbers. The Bradley, while lacking much of the XM4's flexibility, still has significant capabilities in all but the highest intensity scenarios. Additionally, the large fleet of Bradley IFVs is relatively new and represents an enormous financial and logistical investment.

The potential integration of XM4s in a heavy division structure might see one of the Bradley battalions designated the divisional RIFV battalion and refitted with XM4s. Other divisional mechanized battalions would retain the M2s. The RIFV battalion would fulfill the assault role, acting with one or more armor battalions to effect breakthroughs and stiffen defenses where needed. Bradley-equipped battalions would act in a tactical and operational exploitation role and provide essential rear battle support as well.

XM4 development and acquisition would benefit from existing component commonality, but the costs associated with the deployment of such a vehicle would be considerable. The principal contributors to cost would be the integration of a diesel power plant, redesign of the vehicle interior, development of a rear exit, and integration of the modular 25mm weapon system.

The cost could be expected to approach that of a conventional M1A1, although perhaps not that of an M1A2. Given the current and projected budget climate, it seems unreasonable at present to expect a complete transition from the Bradley IFV to the XM4 design. Fortunately, the organizational considerations outlined earlier do not point to such a requirement. A limited number of XM4 RIFVs, concentrated in divisional battalions, would provide the requisite capability without excessive cost.

The most important aspect of the IFV requirements developed in this study may be that it began without preconceptions or preconditions. First, the preeminence of tactical rather than technological requirements was established at the outset, allowing the design to proceed from a firm conceptual perspective. Using available combat experienced organizations and individuals as resources has allowed system attributes to be derived without interference from various competing technologies. Finally, once system requirements were firmly and legitimately established, available technologies could be analyzed. The result of this process, the conceptual XM4, is the most survivable and operationally flexible infantry fighting vehicle in the world.

Gregory A. Pickell is a captain in the U.S. Army Reserve, serving as S-2 of the 404th Civil Affairs Battalion at Fort Dix, and a full-time consultant to the Institute for Defense Analysis. He is a graduate of the United States Military Academy and holds a master's degree in national security studies from Georgetown University.

Dismounted Mechanized Infantry
In the Deliberate Attack

CAPTAIN DAVID B. BATCHELOR

In his *Third Army Standing Operating Procedures,* General George S. Patton, stated the following on the use of infantrymen:

The heavy weapons set the pace. In the battalion the heavy weapons company paces the battalion. In the regiment the cannon company paces the regiment, but it is the function of the rifles and light machine guns to see that the heavy weapons have a chance to move. In other words, the rifles and machine guns move the heavy weapons in to do the killing.

This concept of integrating the dismounted elements into the heavy task force scheme of maneuver is not new or strange to our doctrine. Several manuals address to some degree the integration of dismounted and mounted forces into the fight. In a desert environment such as that at the National Training Center (NTC), can a dismounted element instead be used to "do the killing" as General Patton described it? If adequate planning and preparation are conducted at all levels from task force to fire team, the answer is Yes. But a dismounted operation forward of the FEBA (forward edge of the battle area) that is not properly planned and coordinated, and beyond the range of mounted element support, is doomed to failure. Many task forces at the NTC

try to conduct dismounted operations but fail to plan and prepare adequately for them.

The following are some of the most obvious planning, preparation, and home-station training problems as observed during several rotations at the NTC, along with some recommended solutions:

Seeing the terrain. When defining the battlefield environment for a dismounted

Some company commanders don't use the task force situational template and don't adequately conduct IPBs at their level.

element of the task force, some commanders and staffs fail to consider that the area of operations and interest for the dismounted element may differ from that of the rest of the task force.

Terrain analysis as a part of describing battlefield effects is often overlooked as a part of the intelligence preparation of the battlefield (IPB) process. The military aspects of terrain are rarely considered during planning. Usually, a planner of the operation asks only, "How much of a walk will the mission require?" re-

gardless of how steep or open the terrain may be or where the enemy may be positioned in relation to that terrain. The effect in the end is a unit that does not reach the objective area early enough to achieve the assigned purpose. Or the soldiers may get to the objective but are not combat effective because they have spent the night climbing up and down mountains along the route. Or worse, they may have been compromised when they blindly stumbled into an enemy position.

Additionally, light data may play an important role in the dismounted element's scheme of maneuver. Obviously, moving under cover of darkness offers some concealment to the dismounted element. The time-distance factors involved in this move, the available darkness, and the mounted element's time-distance factors must all be carefully considered.

Especially important to the dismounted element are the time of moonrise, the percentage of illumination, and the time of BMNT (beginning morning nautical twilight). The dismounted element needs to understand how dark it will be during its movement and especially what the light conditions will be in relation to the time it plans to engage the enemy or could be engaged by the enemy. Careful consid-

eration must be given to the likelihood of premature disclosure to the enemy.

Seeing the enemy. Some company commanders don't use the task force situational template and don't adequately conduct IPBs at their level. Dismounted infantry elements are frequently expected to conduct night movements of more than eight kilometers forward of the battle area without detailed knowledge of the enemy composition, disposition, or strength in the objective area. Essentially, the deliberate attack becomes an unsupported search and attack.

Dismount and remount points along the route must be carefully planned to avoid detection or direct enemy fire in case the dismounted element must remount quickly for some reason. With the exception of the M220 TOW system, all dismounted antiarmor weapons must be employed within the ranges of the enemy tanks and BMPs the dismounted element is trying to find or destroy. Therefore, commanders should consider the avenues of approach they will use to move into the objective area and the positions from which the assault will begin, whether mounted or dismounted.

Many commanders, however, do not consider the likely disposition of enemy forces when planning their units' operations. They simply use the task force S-2's platoon position templates instead of actually trying to template vehicles on the objective in relation to the terrain. Terrain-based computer products from the S-2 may help the company commander in his analysis. Company commanders simply must conduct IPBs at their level and template down to individual vehicles for their companies.

The final step in the IPB process, determining enemy courses of action, is sometimes overlooked as well—in particular, the question of actions the enemy may take if a dismounted attack is launched against his flank early in the morning. If launched too early without the support of the mounted section, even a perfectly executed dismounted attack can easily be repulsed and defeated through an enemy counterattack. Commanders should consider using air and ground-delivered munitions and scatterable mines to tie the enemy's defense to the restrictive terrain. The dismounted element could be used to confirm or deny the enemy's use of special munitions; at the very least, it should not be surprised by this type of action from the enemy.

Seeing yourself. The infantry's traditional affinity for dismounted operations sometimes leads a commander to believe his unit is at a level of physical conditioning that it has not really reached. As he conducts terrain analysis and route selection, the commander must understand what the dismounted soldiers can realistically accomplish. Otherwise, even a highly motivated element may not make it to the objective.

Also tied to the commander's understanding of a unit's capabilities is the combat loads it can carry and the loads required to achieve a specific purpose. Field Manual (FM) 7-10, *The Infantry*

If launched too early without the support of the mounted section, even a perfectly executed dismounted attack can easily be overcome through an enemy counterattack.

Rifle Company, is a good source of information on this subject. Frequently, dismounted infantry elements carry more equipment than they need for their assigned purpose, especially if the link-up with their Bradley fighting vehicles is planned and rehearsed. The extra equipment simply compounds the problems encountered at night and frustrates soldiers who may have started an operation with high motivation. A dismounted patrol with a mission that is tied to the task force reconnaissance and security effort probably does not need all of the antiarmor systems it can carry.

Task organization must be carefully considered. A task force may create a consolidated dismounted element and put it under the leadership of one platoon leader or company team commander who has not previously trained with the unit. Squads from different companies and platoons in the task force are suddenly thrown together for the first time, and if they are to function properly, their individual standing operating procedures (SOPs) must be merged into one set of procedures.

The problem is then one of time management for the leader of this newly created dismount element. How does he establish one set of procedures for this element while also continuing to plan and prepare it for a combat operation that is to begin that same night? Any task force that would not place a mounted element in this predicament—even if it had been training cross-attached *mounted* elements for months before deployment to the NTC—should not place its precious few dismounts in this situation either. If consolidating the task force elements into one or two elements is the way the task force commander wants to use this force, then he should see that they train together at home station. The problem is compounded if the time and location of link-up for these elements is left to the company team commander. The task force can save precious time for the dismounted element if the task organization is done as early as possible during the planning process, and if the task force dictates the time for the linkup.

Some task force and company team commanders are almost totally removed from the planning and preparation of the dismounted mission—in some cases leaving new second lieutenants to plan and prepare on their own. The task force dismounted effort must be given the same attention as any other effort.

Limiting tasks and specifying purposes. Task forces tend to assign too many tasks to the dismounted element, and then fail to link those tasks to a specific purpose the task force commander wants that element to achieve. It is not unusual for a dismount element of 20 to 30 soldiers to receive tasks such as *Clear a route, Reduce an obstacle, Destroy a combat security outpost,* and *Conduct detailed reconnaissance* for the task force—all during one mission over a wide geographic area in five to eight hours. The result is usually a dismounted element that does not know which task to focus on or lacks a clear understanding of the result it is to achieve.

The task force commander must ask himself what it would cost the task force to lose all or part of its few dismounts. Is the potential gain from using the dismounts worth the risk of their loss, or is there a place on the battlefield where their use may be more critical later on? If the task force commander decides that the use of the dismounted element is important enough that he is willing to risk its loss forward of the task force, then the element should be properly focused on a clearly defined and achievable purpose. The dismounted element's purpose should be linked to the task force main effort and the accomplishment of the task force purpose at the decisive point.

Coordinating attacks. Units rarely consider a coordinated attack in which the dismounted element attacks an objective along with the mounted force, or in which the dismounted element clears a route along a flank of an enemy position to guide or help the mounted element get into the position of advantage. Too often, however, the dismounted element conducts an attack forward of the task force, hours before the mounted forces leave the line of departure (LD). Even if it is successful, this attack gives the opposing force ample time to reposition.

An approach more in keeping with General Patton's idea of using the infantry to get the heavy weapons into a position to kill is to have the dismounted element begin its attack on the enemy's flank at the same time the mounted forces are making contact with the enemy. If the dismounted element leaves the LD early enough the night before the attack, the element can see an assailable flank along the dismounted avenue of approach and conduct a thorough reconnaissance, and the attack can begin while it is still dark enough to protect the dismounted force. The end result can be an attack conducted on one enemy force using converging routes or a dismounted attack supported by the mounted element, which forces the enemy to fight in two directions at once.

Another technique is to use the dismounted element as a reconnaissance force with the mission of guiding the mounted elements into attack-by-fire or support-by-fire positions. Having reconnoitered these positions, the element has

determined that they provide protection for the mounted force and the best fields of fire onto the enemy vehicle positions. If at all possible, these positions would be established along the enemy's assailable flank with covered routes as close to the positions as possible.

In this situation, even if the dismounted force cannot identify a clear route for the mounted force, the confirmation of the enemy template can tell the task force commander whether or not that is a viable flank against which to begin his mounted attack.

Clearing defiles. Some units intended for the conduct of offensive operations do not plan for and conduct defile drills. Generally, the fundamentals of the drill are understood, but the commanders at task force and company team level do not give the dismounted element enough time

---

Squads from different companies and platoons in the task force are suddenly thrown together for the first time, and their individual SOPs must be merged into one set of procedures.

---

to properly clear a defile. As a force begins to clear the defile with the dismounted element on the ground, the commanders involved lose patience and order the mounted force to move through the defile. The result is usually the loss of all or most of the company team.

Detailed rehearsals of this drill will give commanders at all levels a good idea of the amount of time it takes. A key to success in all of these operations is the ability of the dismounted element to remain uncompromised until the fires of both the mounted and dismounted forces can be brought to bear against an enemy if the need arises.

Planning fire support. Some task force fire support officers (FSOs) tend to concentrate on planning fires for the mounted elements only. But if the task force commander has decided to use the dismounted element forward of the mounted line of departure, this element

certainly warrants the planning of indirect fires that support its scheme of maneuver.

The company team FSO must fully understand the dismounted element's scheme of maneuver in order to plan and refine targets, and he must carefully consider his role in the dismounted mission as well. If he is to travel with the dismounted section, he must not neglect the planning of fires for the company's mounted elements to support their assigned mission, nor can the observation plan be overlooked for the company fire support team traveling with the mounted element.

Coordinating locations. All task force units and applicable brigade elements—the task force security company, scouts, brigade combat observation lasing teams, air defense, and electronic warfare assets—that are positioned forward must be aware that there are friendly dismounted elements in the area and know where they are. At the same time, the dismounted element must understand the locations of these other friendly elements that may be in its zone of attack.

Restricted-fire and no-fire areas must be established and the information disseminated. The direct-fire plan specific to the dismounted unit and the supporting mounted company team must be understood. If the mounted element is to work in support of the dismounted element, measures for controlling fires must be established. Care must be taken to ensure that the dismounted element avoids the sabot arc of both the Bradleys and the supporting tanks. Link-up and remount points must be planned, and detailed rehearsals conducted. The most critical rehearsal is probably the direct-fire fight of the dismounted and mounted elements and the way they position and orient their fires into the objective area with respect to each other. The rehearsals must be true rehearsals, not simply coordination meetings or a place where fragmentary orders are issued.

If dismounted infantrymen are to be inserted into the area by air—especially if their unit SOPs lack information on air assault-airmobile operations—leaders should refer to the air mission briefing and air assault operations order formats

in FM 90-4, *Air Assault Operations*.

Planning communications. Means of communication between the dismounted element and the company or task force must be planned in detail. The task force signal officer must be a part of the planning process and must predict the element's ability to communicate, given its scheme of maneuver and the terrain. Then he must offer solutions to any potential communications problems. A task force retransmission or a company relay may be the technique to use in order to ensure effective communications. If the plan calls for the relay of dismounted radio traffic through a company team, the company command post must be prepared to execute this mission. The commander, executive officer, or first sergeant must be able to operate on the net to provide clear command and control.

Planning casualty evacuation. Detailed planning concerning the treatment and evacuation of casualties from the dismounted element helps reduce the died-of-wounds rate for this element. Units must plan for the use of company wheeled vehicles positioned forward to help the evacuation of dismounted casualties or the use of the company's attached M113 ambulance or the first sergeant's M113, if so equipped. If the company

does not use the ambulance forward, the task force medical platoon leader should plan to support the company's mounted element and request support through the forward support battalion's medical company. The dismounted element should include as many combat lifesavers as possible, along with properly stocked lifesaver bags.

At the NTC, some units have had the task force physician's assistant move as part of the dismounted element. This choice should be carefully considered, however, in light of the limited amount of Class VIII supplies he could physically carry with him as well as the effect his loss would have on the task force.

Predictions of potential casualties for the operation should include the number that would make it impossible for the dismounted element to achieve its purpose. The dismounted soldiers must understand at what point they should go to ground and conduct casualty evacuation instead of continuing with the assigned mission.

Inadequate planning, preparation, and home-station training for employment hampers the dismounted infantrymen's ability to accomplish their assigned task and purpose. Commanders must focus their training efforts on the ability of the dismounted soldiers to move and fight at

night and also on the ability of the task force staff and the company team commanders to plan adequately for their employment.

Specifically, the training must include conducting an IPB, planning direct and indirect fires, conducting unit coordination, and giving the element a clear and achievable task and purpose. Units should task organize and conduct consolidated dismounted operations as early as possible during train-up for an NTC rotation. One set of SOPs for the entire element should be developed if the intent will be to consolidate squads "on the fly." A clear chain of command for the element must be established.

This kind of focus on the precious few dismounted infantrymen in the heavy task force will set them on the path toward accomplishing their assigned task and purpose.

Captain David B. Batchelor served as a mechanized infantry team observer-controller at the NTC. He previously commanded a company in the 1st Infantry Division and led a platoon in the 10th Mountain Division and is now an Infantry Officer Advanced Course small group instructor. He is a 1996 ROTC graduate of Campbell University.

Bradley Gunnery Tips

CAPTAIN STEVEN A. SHELBY

We in the Army have always had to manage our training resources carefully, but now it is imperative that we make every training round and every vehicle mile count. With tighter budgets and higher personnel turnover rates, it is increasingly difficult to develop and sustain combat-ready Bradley crews.

To win the first engagement of the next

war, wherever and whenever that may be, our crews and units must be lethal, and we must be able to protect our force— two key elements of combat power. Meeting these challenges will require both determined leadership and innovative gunnery training techniques.

The updated Field Manual (FM) 23-1, *Bradley Fighting Vehicle Gunnery*, offers

several excellent techniques for training in today's resource-constrained environment. These include the unit conduct of fire trainer (U-COFT), the Bradley Gunnery Skills Test, the Bradley Crew Proficiency Course, and turret manipulation boards (worm/snake boards). All of these are essential before a gunnery density. But the manual does not address in ad-

equate detail the practical techniques and procedures that will turn inexperienced personnel into effective, fully integrated crews. This is especially necessary for leaders with light infantry backgrounds or soldiers new to the 11M military occupational specialty.

The following techniques and procedures offered here can help improve gunnery training for all crew members, and particularly for soldiers new to the Bradley fighting vehicle:

First, the following information should be posted in every turret:

• A crew coordination checklist (posted on the 25mm gun guard). Crews will use this checklist before every engagement, thus eliminating most crew cuts.

• A coaxial machinegun cheat card (on the coax door) with arrows pointing which way to adjust the coax—left down, right up, and clockwise for right and counterclockwise for left corrections.

• A GTA 17-2-12 (Gunnery Flag Signals) card.

Once the company occupies the range, the following should be done before loading ammunition, and should be verified by the platoon master gunner in the company motor pool or assembly area:

• Make sure weapons are boresighted. After initial boresight, do not recheck with boresight adapter. Do not boresight again unless there is a serious change to the gun system.

• Display proper range flags.

• Conduct prefire checks. (Ninety-eight percent of all malfunctions are crew induced.) Prefire checks must be done in accordance with a unit's gunnery standing operating procedures (SOPs) or FM 23-1, with the gunner and Bradley commander (BC) present.

• Rehearse fire commands and possible scenarios.

• Rehearse misfire procedures.

• Conduct communication checks, including NBC (nuclear, biological, chemical).

• Take NBC mask and gloves out and store them in an accessible spot. Do not hang the mask on the BC's hand station.

• Cool thermal sights.

• Use snake boards or any other training aid to warm up turret manipulation

skills before moving to the ammunition point.

• Clean NBC mask lenses with an anti-fogging cloth.

• Tape up low-ammunition override switch.

After drawing ammunition, crews move to the ready line, where the following actions should be conducted:

• Make sure the coax forward access door is closed to prevent binding and breaking of links.

• Make sure thermal sights are ready for day or night engagements. Since target signatures vary in intensity, crews must be ready to switch quickly with minimal loss of time.

• Check jump radios. Avoid leaving a microphone keyed on the jump frequency.

CREW COORDINATION CHECKLIST

TOW up, TOW test complete.
Driver in gear.
Review possible scenario.
Review fire commands.
Ammo count (how many rounds for engagement).
Ammo select (remember ammo switchover).
Select range.
Misfire procedures.
Stabilizer on.
Null drift.
NBC system on.
Crew check.
Off safe.
Report SET to tower.

Communication problems are the most frequent cause of delays, and they disrupt the firing crews' concentration.

• Ensure that ammunition is properly loaded (check feed chutes) to prevent avoidable malfunctions.

• When on the ready line make sure the ammunition tension is released after it is put into the feeder, to prevent binding and breaking links.

• Ensure that every crew member knows how many rounds are on board and reviews how many there are for each engagement. Drivers are responsible for keeping the round count for each engagement and for keeping crews informed of how many rounds are left. This enables the gunner and BC to make decisions on the number of rounds to fire.

After the ready line, crews are ready to begin zeroing. The following should be done during zeroing:

• Ensure that the gunner is indexed on 1,200 meters for the 25mm gun and 600 meters for the coaxial machinegun.

• Fire one round to warm up the barrel.

• Adjust after that first round.

• After zero is confirmed, tape down the reticle, flip down the cover guard, and tape a card over the thermal sight knobs to prevent the gunner from accidentally hitting the zero knobs during the switch from high to low magnification.

• Refer the auxiliary sight. Remember to loosen the prelude nut before making adjustments and to tighten it once zeroing is complete.

• After zeroing the auxiliary sight, touch the auxiliary spring to see how far zero has moved.

• Check thermals and refer the night sight.

After zeroing, crews are ready to fire engagements. The following should be done before any engagement:

• Go through the entire crew coordination checklist.

• Erect the TOW launcher in defensive positions (failure to do so will result in a 30-point crew cut).

• Lower the TOW launcher before beginning offensive engagements.

• Check the "low-ammunition" light.

• Adjust reticle brightness so it does not obscure target or sensing rounds.

During engagements, the following steps should be taken:

• Make sure the gunner locks the MAG SWITCH all the way into the HIGH position; listen and feel for the click. Failure to lock the switch will result in loss of the reticle during the engagement.

• During *defensive* engagements, when the vehicle is firing from a platform, the driver should put the vehicle in reverse in anticipation of the BCs command, "Cease fire, driver back."

• Throughout *offensive* engagements, drivers must maintain a steady platform and constant speed.

• Sensing-round and burst-on-target (BOT) adjustments must be quick and accurate.

• Ensure that the gunner and the BC use the proper firing sequence. The following is a recommended technique:

- Fire commands, adjustments, kill tar-

get. For example, fire command BC: "Gunner, sabot PC 1200." Gunner: "Identified." BC: "Driver up fire." BC: "Fire." Gunner: "On the way."

- In the scenario in Figure 1, a total of eight rounds were fired—the standard number allocated for most engagements. This scenario will work if the first sensing round is close. If the BC has to make a correction of more than two target forms, up/down or right/left, the gunner has to fire a second sensing round. Then the BC makes corrections and the gunner fires a three-round burst. If the sensing round is not observed, the BC should have the gunner check his range select and bump up or down—BC: "Gunner bump up one (1,200 meters to 1,400 meters), fire sensor." Gunner fires one sensing round, and BC makes corrections.

• On multiple targets, always shift back to low magnification to identify the second target. Otherwise, there is a chance of losing the target.

• If a gunner does not identify a target after the BC issues his fire command, the BC must slew the turret onto the target. Do not yell out "Right, right, right" or "Left, left, left." The BC needs to pick an aim point on top of the turret to use as a sight.

• Always scan bumper to bumper.

Aim points for offensive engagements are shown in Figure 2.

Use the following low ammunition strategy:

• Kill trucks with the coaxial machinegun.

• Fire on single shot when only a few rounds are left.

• During multiple engagements when the first target is destroyed and the second cannot be identified, the BC should call cease fire to receive 50 points instead of taking crew cuts for going over time. (Remember, there is a six-point penalty for every second over the allotted time.)

• Fire all engagements on low rate, especially if the gunner is inexperienced. This will allow him to walk the rounds onto the target and save ammunition in the process.

Miscellaneous tips:

• Priority of engagements: RPG team, movers (if BMP-2), BMPs, BRDMs, trucks, and dismounted infantry.

Gunner fires one sensing round.
BC makes adjustment (up 1/2 target form, left 1/2 target form).
Gunner fires a two-round burst.

BC adjusts (up 1/2 target form).
Gunner fires three-round burst.
If not on target after adjustments, check range.

BC: Each time a round hits the target, respond with TARGET. (If you're not sure all three rounds hit the target and the sensing vehicle has not responded with KILL, KILL, KILL, have the gunner fire two more rounds.)

BC: Respond with, TARGET, TARGET, CEASE FIRE, DRIVER BACK. If you have a good sensing vehicle, he will say KILL, KILL, KILL. Respond with CEASE FIRE, DRIVER BACK. If you have a slow sensing vehicle, BC will have to make the call to cease fire to prevent crew cuts for time and ammunition expenditure.

Figure 1

AIM POINT OFFENSIVE: If stationary BMP and you are moving toward him, aim center low.

AIM POINT OFFENSIVE: If moving BMP and you have to shoot off right side, aim right of target (reverse lead).

AIM POINT OFFENSIVE: If stationary BMP and you are moving and have to shoot off left side, aim left of target (reverse lead).

REAR-DECK ENGAGEMENTS: Aim high.

SLOW MOVERS: Use point lead.

MOVER

AUXILIARY SIGHT ENGAGEMENTS:
Boresight to 1200 meters using crosshairs.
During engagements, use crosshairs and BOT for both 25mm and coax.
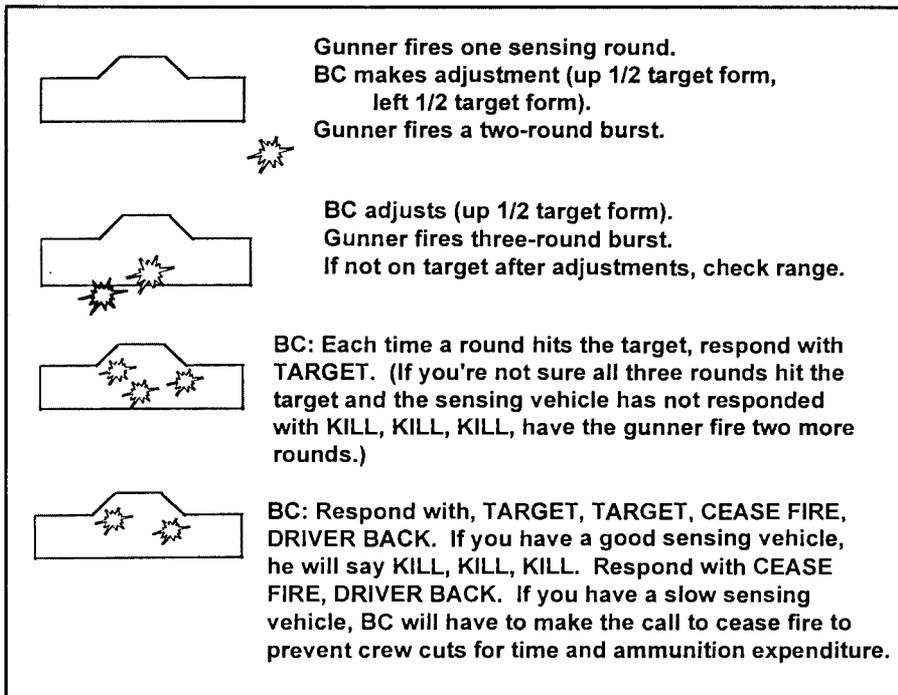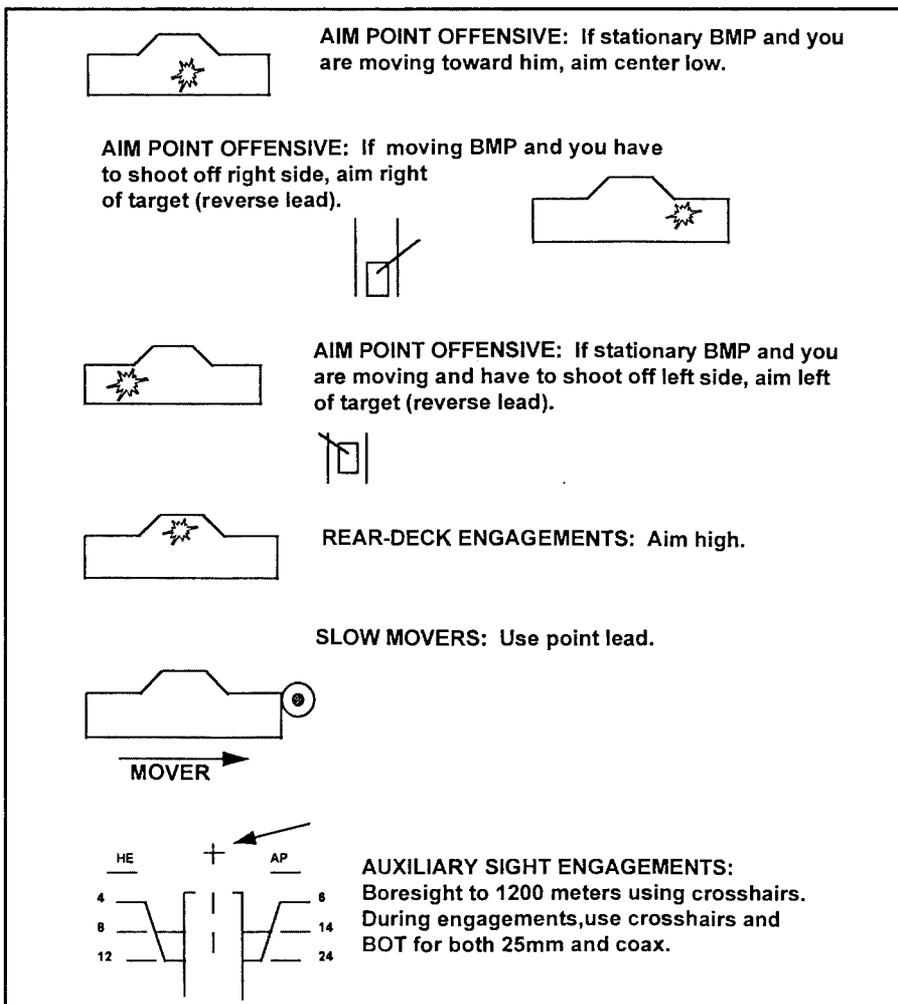
Figure 2

- For a high-explosive (HE) area troop engagement—done on low rate of fire—kill one target, then make a Z pattern.

- For HE area trucks, done on low rate, remember to kill all the trucks.

- For coax engagements, you have two different types of scenarios: a point target, an RPG team between 300 and 500 meters, and dismounted infantry between 400 and 600 meters. You must use a good Z pattern, or a 15-point crew cut will be assessed.

- For helicopter engagements, 20 rounds are allocated. This is the best engagement in which to save rounds for future engagements. Gunners should fire this engagement on low rate to conserve ammunition, because it only takes five rounds to get a kill.

- The BC should always have his head out of the turret with binoculars scanning for targets in the opposite direction from the gunner. At night, the BC scans for Hoffman devices going off.

- During BC engagements, the gunner should have his head out of the turret scanning for targets and have one hand on the selector switch to switch the BC into HIGH MAG. The BC should try to have the target in the middle of the sight before the gunner switches to HIGH MAG so he won't lose the target during the switch.

- Gunners and BCs must be able to state how to conduct misfire procedures and ammunition switchover.

- The BC must not say "cease fire" before achieving target kill; he must be sure. If the sensing vehicle is slow, the BC has to make the call.

- On Bradley Table VII, after a crew completes a run, park the vehicle in a spot overlooking the range, monitor the fire frequency and practice engagements. Practice fire commands and BOT by using the crew that is firing. Try using thermal sights and auxiliary sight, and if the BC is new have him track from the BC's position.

- After every engagement, sweep and clear the plenum chamber to prevent malfunctions.

The driver can make or break a crew; he is responsible for the following:

- Keeping round count.

- Keeping time. If the crew has a misfire during a defensive engagement and there is confusion in the turret, the driver should say "Driver back" to remind the

crew that he is pulling back the vehicle. Any time there is a pause, the driver should recommend pulling back to keep the vehicle from being exposed.

- Keeping the gunner and the BC calm and relaxed during a run.

- Spotting targets, especially at night when Hoffmans go off.

- Helping spot sensing rounds.

- Always maintaining a steady platform.

With fewer resources today, commanders are challenged in training their new crews. By using the updated FM 23-1 and these gunnery tips, commanders should be able to prepare their crews to succeed in any upcoming Bradley gunnery training. More important, these skills will carry over to combat, where the firing range is unforgiving and the stakes are considerably higher.

Captain Steven A. Shelby is a mechanized infantry company team observer-controller at the National Training Center. He previously served with the 9th Infantry in Korea and at Fort Ord, and commanded a Bradley company in the 1st Battalion, 12th Infantry, at Fort Carson. He is a 1985 ROTC graduate of Ohio State University.

Light Infantry Company Defense

CAPTAIN MATTHEW M. CANFIELD

Like everything we do in the Army, the defense is a procedural operation. It is built upon certain fundamentals that are shaped by an analysis of mission, enemy, terrain, troops, and time (METT-T). Regardless of the specifics of a situation, the basic purpose of the defense rarely changes: Cause the enemy attack to fail, and create conditions favorable to a counterattack.

Companies conduct defensive operations to accomplish the following goals:

- Defeat an enemy attack.

- Gain time to prepare for other operations.

- Allow a higher commander to concentrate forces elsewhere.

- Control key enemy forces as a prelude to offensive operations.

- Retain key or decisive terrain.

While the defense is rarely decisive in itself, it can be used to set up the condi-

tions for a decisive *offense.*

For example, during the U.S. Civil War, Confederate General Robert E. Lee incorporated one or more of these purposes into his strategy in moving from the defense to the offense in the Battle of Fredericksburg (13-15 December 1862) and the Battle of Chancellorsville (1-3 May 1863) in Northern Virginia.

When the Union and Confederate forces met at Fredericksburg, Lee estab-

lished a defensive position on the heights above the Rappahannock River in and just east of the city. The Union Army, under Major General Ambrose Burnside, formed on the opposite bank, forced a river crossing, and conducted a frontal attack up the high ground. Lee defended (the *task*) to destroy (the *purpose*) enemy forces to defeat the enemy attack.

While the battle was an overwhelming victory for Lee, it was not total because the river precluded a counterattack. Because of Lee's success in the defense, however, the Union Army withdrew and ceased offensive operations for the remainder of the winter, allowing Lee to rest his own troops and plan future campaigns. Burnside was subsequently relieved, and General Joe Hooker was placed in command.

Four months later, in April 1863, after the ground began to thaw, Hooker began a march taking the bulk of his troops from the vicinity of Fredericksburg north and west in an attempt to gain the Confederate rear. Lee reacted to this maneuver by leaving a portion of his army of approximately 10,000 men under Major General Jubal Early in Fredericksburg and moving the rest of his troops west to meet the Union threat. Early's mission was to continue to defend (the *task*) to fix the enemy (the *purpose*) in Fredericksburg to

---

Regardless of the specifics of a situation, the basic purpose of the defense rarely changes: Cause the enemy attack to fail, and create conditions favorable to a counterattack.

---

prevent enemy forces from concentrating against Lee near Chancellorsville. Early successfully accomplished his task and purpose and, on 4-5 May, transitioned to the attack when a Union force threatened the Confederate right flank during the exploitation phase of Lee's attack. The result of the battle was a total victory for Lee in one of the most brilliant campaigns ever fought.

The following is a systematic approach a company commander can use in build-

ing his defense. It is not all-inclusive, and it can be modified according to METT-T:

When fighting from a deliberate defense, the commander should incorporate a synchronization matrix into his plan. This matrix will provide his platoons and squads with a detailed script for methodically fighting the enemy according to the way the commander believes the battle will unfold. The plan must allow for maximum flexibility and lethality. The key to success is the effective employment of all fires. This can best be achieved through rehearsals and solid detailed planning. Every soldier in the company should understand which targets he is going to engage (based on his weapon), where and when he will engage them, and what signals will be used.

Receive the battalion warning order (WARNORD). The battalion order must include enough detail to begin planning. Then issue the initial company WARNORD. Include details for movement, rehearsals, pre-combat inspections (PCIs), and security of the company, as appropriate.

Conduct initial commander's estimate (map reconnaissance): In the initial mission analysis:

• Identify company task and purpose.

• Identify implied, specified, and critical tasks.

• Consider enemy situation, intelligence preparation of the battlefield (IPB): What is the area of operation or interest? Enemy force type, size, mission? Avenues of approach?

• Status of friendly forces.

In the initial time analysis:

• Critically analyze battalion timeline if provided; solicit information on battalion scheduled events (such as rehearsals).

• Make initial estimate of time for company defense; identify time available, critical tasks, and priority.

Begin tentative planning.

Initiate movement if necessary. This step is taken whenever necessary to meet requirements in the timeline.

Start PCIs or rehearsals. NCOs supervise PCIs or rehearsals on the basis of the detailed WARNORD.

Conduct initial reconnaissance. Commander meets the battalion com-

mander in the engagement area (EA) or kill zone to see the ground before issuing the operations order (OPORD).

Attend battalion OPORD. Update company WARNORD.

Do commander's estimate. Complete mission and time analysis. Then complete tentative plan, refining details from initial estimate and plan. Then finalize company timeline.

Conduct leaders' reconnaissance. Leaders must get out on the ground to verify the tentative plan, confirm or deny assumptions made during map reconnais-

---

Leaders must get out on the ground to verify the tentative plan, confirm or deny assumptions made during map reconnaissances, and get the feel of the ground.

---

sances, and get the feel of the ground. They must take everything with them that they need to build the engagement area (EA): target reference point markers, engineer tape to mark key weapon and obstacle positions, maps, binoculars, precision lightweight GPS (global positioning system) receiver.

Possible personnel groups for reconnaissance are:

• Commander with radiotelephone operator (RTO), platoon leaders, fire support officer (FSO) with RTO.

• Commander (with RTO), platoon leaders, squad leaders.

• Commander platoon leaders, FSO, security force.

The commander meets with leaders in the EA. He explains to the platoon leaders:

• The company area of operation or area of interest (AO/AI).

• Where the enemy will enter AO/AI.

• Enemy force size/speed and order of march.

• Company task and purpose in battalion scheme (the effect the battalion commander wants from company fires).

• Proposed task and purpose for each platoon.

• Tentative company plan.

He walks the EA and area of responsi-

bility; if time allows, he also walks the terrain from the enemy point of view and gets the feel of the terrain. Then he identifies actual avenues of approach (mounted, dismounted, reconnaissance).

Build the engagement area. Mark Dragon and TOW target reference points (TRPs). In deciding where to kill the enemy, consider:

• Where the enemy *wants* to go, where he *can* go, where he *will* go.

• Where his advance can be stopped, where his formations and ability to mass can be disrupted, use and location of choke points, reverse slopes.

• Terrain that allows you to mass fires and maintain dispersion, depth, and mobility while minimizing his.

Physically mark TRPs for massing fires on specific avenues of approach, and use TRPs for controlling platoon fires.

Identify and mark proposed obstacle locations, consider obstacles that turn, fix, block, or disrupt in concert with platoon task and purpose:

• Channel enemy into the EA, or keep him there.

• Disrupt his attack formations. Make armor vehicles "button up." Cause him to kick out his dismounts early.

• Slow his rate of advance.

• Protect the platoon battle position (BP).

Obstacles and TRPs are physically marked for this phase; engineer stakes are useful for this purpose. Marking should be in accordance with battalion tactical standing operating procedure (SOP) and clearly visible to all so that weapons' range and ability to hit TRPs and obstacles in the EA can be verified when positions are selected and weapons are sited.

Planned obstacles should be marked with engineer tape from begin point to end point. This enables a platoon to see the orientation of the obstacles and serves as an exact location for the engineers laying them.

Select platoon positions. Identify the proposed BP from the enemy side. Move to the proposed position and adjust it so TRPs can be seen and ranged by weapons. Identify each crew-served weapon position, and mark its location on the ground:

• Squad locations are based on the pro-

posed task and purpose of the platoon.

• Weapons are positioned to hit the EA, TRPs, and obstacles that should be visible to the BP if properly marked. Positions should be selected when viewed at ground level to verify line of sight to the TRPs and obstacles when dug in.

• Position weapons to provide mutual support and interlocking sectors of fire within the EA and platoon kill zones. Squad leaders position M203s to cover dead space in the squad front.

• Position key weapons to provide coverage of the platoon EA or kill zone

---

When fighting from a deliberate defense, the commander should incorporate a synchronization matrix into his plan.

---

in depth. Depth is built using terrain in relation to the EA or kill zone and enemy. Consider indirect fires, obstacles, M203s, wire, mines, claymores, and hand grenades to engage the enemy in depth and continue to engage him as he gets closer.

• Position platoon forward observers (FOs) to observe indirect fire targets.

• Consider natural covered and concealed routes into and out of the BP.

• Avoid positioning key weapons and soldiers directly in the path of potential enemy vehicular attack routes.

Key weapon locations should be selected in daylight when METT-T allows. The commander may allow platoon leaders to select positions or may help them, depending on the level of training and the time available. If subordinate leaders are present during the reconnaissance, they can begin making range cards and sector sketches. Observation posts (OPs) should be as far out as possible to determine enemy avenues of approach and enemy formation size. Although wire communication with them is best, the situation may require FM radio. Good OP selection and coverage in depth are critical.

Develop initial company fire plan. Consider the IPB:

• How the enemy wants to attack, his formations, and speed.

• What do you expect to see first? Where? Do all your squad leaders know?

• Integrate with terrain and weather.

• Plan for battlefield obscuration (smoke).

Is there a battalion plan? Are there battalion control measures—EAs, TRPs, coordinating fire lines, maximum engagement lines?

Where do you want to kill the enemy; where is the company EA, maximum engagement line?

When do you want to kill the enemy; who will initiate or shift fires and how?

• Event (trigger) line.

• On command (radio). Always plan redundant signals.

• Timed.

How will you control fires to focus and distribute them laterally and in depth?

• TRPs.

• Sectors (squads).

• EAs (platoons).

• Near half or far half.

• Target array.

• Quadrants.

• Engagement priorities, weapons priorities (Dragon, AT4, LAW, M60, M203).

• Volley fire.

How will you integrate indirect fire; where and when?

• Use of company mortars, battalion mortars, direct support artillery.

• Plan targets forward of, on, and behind the BP.

• Prioritize targets.

• Select critical targets.

• Determine triggers and targets in priority.

How will you maximize the principles of direct fire?

• Cover all targets.

• Avoid double kills.

• Fire first.

• Maximize weapon capabilities.

• Most dangerous first.

• Stand off from effects of friendly weapons and enemy systems.

• Suppression versus destruction (linked directly to the task and purpose from next higher level).

• Prevent fratricide (leave lanes open for scouts, bring in OPs).

Designate techniques of engagement:

• Simultaneous.

• Alternating.

- Observed.

Designate patterns of fire:
- Cross fire.
- Frontal.
- Depth.

Issue OPORD to key leaders while overlooking the EA.

Occupy the battle position and site weapons (in accordance with tactical SOP). Link up with company brought up under control of executive officer and first sergeant (XO/1SG).

- Platoon leaders brief squad leaders on basic plan.

- Execute company security plan (local and OPs).

When tying in (company, platoon, squad) unit, right flank remains static; left flank ties into adjacent unit's right flank; units to the rear send patrols forward to tie in their left and right flanks with elements to the front.

At night, engage all targets first with indirect fire to avoid detection. Hold off crew-served weapons as long as possible. Report obstacles and minefields at 50 percent and 100 percent completion. The primary means of communication is wire, but once the engagement is initiated, primary communications are FM.

Priorities of work are:
- According to tactical SOP.
- Squad leaders personally site key weapons to verify that each weapon can hit targets.
- Coordinate with adjacent squads and platoons to confirm or deny the ability to have overlapping or interlocking sectors of fire. Identify dead space.
- Identify and mark trigger lines.
- Minimize position signature.

Arrange CSS (XO/1SG). Coordinate for CSS requirements through support platoon or S-4: LOGPAC, pre-stock, Class IV, additional support.

Rehearse engagement area. Priority of rehearsals is based on the most likely enemy course of action (COA), the most dangerous enemy COA, and counterattack or employment of reserve (always consider your fire plan, communications, and CSS during rehearsals).

- The purpose is to ensure that every leader and soldier understands the plan and can hit intended areas with direct fire.

- Rehearsals are controlled by the commander over the radio or land line from his position in the BP; each soldier or member of the chain of command positions himself where he plans to fight the battle and talks to the commander by radio or land line.

- Rehearsals are conducted by the XO (with company trains vehicles or actual combat vehicles), driving through each part of the EA and on each avenue of approach; companies and platoons practice

---

Priority of rehearsals is based on the most likely enemy course of action (COA), the most dangerous enemy COA, and counterattack or employment of reserve.

---

initiating and controlling fires (with FO and FSO) and illustrating how obstacles and indirect fires are integrated with direct fires.

- Rehearse movement to alternate and supplementary positions (day and night).

- FSO and FOs verify and identify trigger lines for indirect fires to the commander and timing for impact of the rounds.

- Rehearsal is conducted at crawl, walk, run pace (day and night). The goal is to have a full rehearsal using the enemy's most rapid rate of advance.

- Adjustments to the company plan and positions are made during and following the rehearsal and before finalizing the fire plan.

Finalize the company fire plan. Adjust the plan on the basis of the rehearsal. This is the focal point of the entire company defense.

Prepare positions. Be prepared for small emplacement excavators and bulldozers to arrive at any time. Ensure a thorough plan for controlling blade assets and eliminating down time. Establish a responsible party to control assets and a time schedule (XO or 1SG). Before digging, ensure that weapon positions are verified at ground level.

Recon alternate and supplemental positions. Repeat procedures for reconnaissance and building the EA.

Update OPORD with fragmentary order. Update every three to five hours

in different parts of the BP to supervise, and to let squad leaders and team leaders see each area. Platoon leaders brief the commander on standard areas during each meeting:
- Maintenance of weapons and equipment status.
- Personnel status.
- Progress of fighting position completion.
- Progress of obstacle construction.
- Any problems or required support.

Commander briefs the following areas:
- Changes to the plan.
- Updates to the enemy situation.
- Updates on the company timeline.

FSO, XO, 1SG, medics, air defense personnel, engineers (as applicable) brief changes and updates to the basic OPORD.

Continue to prepare BP and rehearse. Finally, commanders and platoon leaders should ask themselves the following questions at the end of the planning process, again during the preparation of the defense, and again before the battle begins:
- How do my task and purpose support the higher headquarters' task and purpose?
- What is the most important aspect of the terrain in regard to my mission?
- How do I plan to take advantage of enemy strengths and weaknesses in this defense?
- What concerns me most in accomplishing this mission?
- How do I visualize the fight unfolding?

The company defense is a link in the defense of the battalion and brigade's area of responsibility. To ensure the link is a strong one, the company defense must be meticulously planned and executed. A properly conducted defense will meet its intent of disrupting an enemy attack while buying time and allowing a commander to retain key terrain, concentrate forces, and decisively defeat the enemy.

Captain Matthew M. Canfield is an observer-controller at the Joint Readiness Training Center at Fort Polk. He previously served in the 1st Battalion, 503d Infantry, in Korea and led rifle and mortar platoons in the 3d U.S. Infantry. He is a 1987 ROTC graduate of the University of Florida.

Battle Simulations

CAPTAIN CRAIG A. TRISCARI

On today's battlefield, the continuous wave of new technology and the rapid exchange of digitized information demand the highest level of command and control. Commanders need to fine-tune their staffs and train their individual units to a high state of readiness in applying these information age tools.

With the scarcity of funds, commanders have to find alternate methods of training their units. When a unit goes to the field, the commander has to feel confident that his soldiers will gain the maximum benefit from the training event. His staff must understand what needs to be accomplished so the individual soldier's time is not wasted.

Battle simulations are a low-cost, safe, and effective way of training commanders, staffs, and individual subordinate units. Using the crawl-walk-run method of training, units are given an opportunity to increase their readiness. Although nothing can substitute for live rounds down range and actually fighting on a piece of terrain, such exercises can be supplemented by low-cost simulations during the unit's training cycle.

Some of the simulations in the military inventory are individual-skill simulations, such as flight simulators, and more complex systems that integrate a variety of military components, such as a joint theater level simulation.

The accessibility of simulations makes scheduling fairly easy for units of brigade size and smaller. Most major installations have battle simulation centers, which seek out units to fill simulation slots. Most of these centers are up-to-date on the new simulations being developed and placed in the inventory on a regular basis.

To train a unit properly, a commander must understand its strengths and weaknesses. If a unit expends all its energy and resources during a rotation at the National Training Center (NTC) in training the maneuver units while placing little emphasis on the combat support (CS) and combat service support (CSS) units, it will fall short of defeating the opposing force. It is important that the commander train all of his units and assets as he would have them fight in combat. A commander can develop a simulation program that will train all of his subordinate units while retaining complete control of the training environment.

The commander also needs to identify the simulation that best meets his units' training goals and objectives. He can outline his concept and training goals to the instructors at the battle simulation center and allow them to guide him to the simulation that will be most productive.

Two major simulations in the inventory can be used effectively to train units, from brigade level down to squad level. The first is the Brigade/Battalion Battle Simulation (BBS), which is a primary command and staff trainer. It focuses on giving commanders and their staffs a real-time, free-play exercise that stresses the staff to react to simulation play. The second is JANUS, an analytical tactical trainer. It focuses chiefly on company-size units but can be used at battalion or brigade as well. It verifies tactical orders and stresses all battlefield operating systems.

Major goals of these systems are to give commanders and staffs an opportunity to do the following:

• Prepare to execute mission training plans (MTP).

• Exercise and evaluate internal staff training and standing operating procedures.

• Develop awareness of the lethality and complexity of the battlefield.

• Evaluate written material and verbal communication processes between commanders and staffs.

• Provide a dynamic situation that requires changing courses of action and issuing fragmentary orders.

The systems have the following capabilities:

• Permits operations on terrain (NTC, JRTC, Haiti) that allows for a full maneuver box without common training area restrictions.

• Allows the commander to direct the exercise.

• Allows for hard-copy feedback from the computer system to assist in the after-action review process.

• Moves equipment and personnel in real time.

• Trains all types of units (maneuver, CS, and CSS).

• Exercises doctrinal command and control relationships.

• Realistically drives battlefield operating systems.

• Replicates the communication environment as closely as possible to unit doctrine and standing operating procedures.

• Lets units conduct single or multi-echelon exercises either on station or at a remote site.

These simulations have some limitations: They do not simulate human factors such as sleep and morale; the exercise of some CS and CSS factors is degraded because of inherent complexities; and play boxes are limited to brigade-size units.

A simulation work-up can be imple-

mented on most military installations. The quality of the simulation will depend on the amount of time the unit spends in planning the simulation, as well as on the experience of the personnel actually conducting the simulation.

A simulation work-up may look like the following:

• Brigade alone: BBS staff planning command post exercise (CPX), two or three days.

• Brigade and battalions: BBS staff planning CPX, two or three days.

• Individual battalion: BBS staff planning CPX, two or three days.

• Individual battalion: one-day JANUS tactical/battlefield operating system synchronization exercise.

• Individual company: JANUS exercise with the commander and S-3 observing and assessing unit training needs, two or three days. (The program should take place over a period of 18 to 24 months for active duty units, and may take longer for Reserve and National Guard units.)

If properly identified, simulations can complement any training program a unit develops. They give a commander an opportunity to train as a brigade staff without the usual distractions and restrictions.

Captain Craig A. Triscari served with the 2d Infantry Division, 177th Armored Brigade, and NTC Operations Group. He has served as a platoon leader, antiarmor platoon leader, executive officer, observer-controller, and simulation center operations officer at Fort Lewis. He is now assigned to the 1st Brigade, 25th Infantry Division. He is a 1988 ROTC graduate of Purdue University.

Firearms Training System:
A Proposal for Future ROE Training

CAPTAIN DAVID G. BOLGIANO

The proper use of force is critical in a peacekeeping operation but the improper use of force to attain a short-term tactical success can lead to a long-term strategic failure. More and more military operations in the future will require U.S. forces to apply varying degrees of force, ranging from the individual decision of a soldier to pull the trigger to a company level response.

From peace operations to traditional force-on-force engagements, the operational tempo and rules of engagement (ROEs) can change quickly, and our forces need to prepare for this challenge. A significant part of their training needs to be focused on the use of force and ROEs for individual responses.

Changing political realities now place U.S. forces in situations that are more familiar to civilian law enforcement officers than to traditional warfighters, as soldiers find themselves in situations that require a more discriminating use of force. Even traditional force-on-force

conflicts, post-combat operations, and nation-building missions will require our soldiers to operate in environments with ROEs something less than those that apply to combat.

The Army's current use-of-force and ROE training can be improved to prepare soldiers for these new missions. The greatest void is in the development and

Unlike pre-planned attacks, raids, or ambushes, most peace missions do not clearly identify "hostile force" before engagement.

implementation of a practical hands-on firearms training device for individual soldiers preparing for peacekeeping missions.

I propose that the Army adopt an interactive computer simulation firearms training device such as the one the Federal Bureau of Investigation (FBI) already

employs in use-of-force training for its agents. Before analyzing the applicability of the FBI's device for military use, however, it is essential to understand the similarities between civilian law and policy and military ROEs. Civil law and policy require the "reasonable" use of force against imminent threat of death or serious bodily injury. Most modern military ROEs embrace the concept of the reasonable use of force with language concerning "hostile acts" and "hostile intent."

"Reasonableness," as demonstrated by case law, allows for a more forceful response than many would expect. This same standard of reasonableness applies to decisions on the use of deadly force in most military operations. Mission parameters, however, often complicate the application of a reasonable response. Unlike pre-planned attacks, raids, or ambushes, most peace missions do not clearly identify a "hostile force" before engagement. Therefore, the reasonable-

ness of a response is often predicated on identifying hostile acts or intent. This decision may have to be made by a young, frightened soldier whose actions are strongly based on training.

Behavior that constitutes a hostile act or intent often cannot be clearly defined under peacekeeping ROEs. Further, soldiers are generally not allowed to make a preemptive strike but must be ready to respond appropriately to hostile acts from an unidentified enemy. Under these circumstances, soldiers must quickly analyze facts that may or may not justify a reasonable belief that the use of deadly force is needed. Further, their analysis is affected by some physiological factors:

Action/Reaction Time. Like civilian law enforcement officers, soldiers will be forced to evaluate situations even while they must react quickly and appropriately. This could range from an isolated sniping incident by an individual to a military type of assault on a traffic control point or checkpoint. Unfortunately, once a hostile act is initiated, the party in the defensive posture may suffer casualties before the situation can be assessed and appropriate measures taken.

Neutralization of the Threat. The ability of an individual soldier to stop a hostile act is generally limited to small arms fire. Stopping an individual who poses a real threat requires the neutralization of the central nervous system—either by direct injury to the brain or upper spinal column, by hydrostatic shock, or by deprivation of oxygen through massive blood loss. Achieving these results may take seconds or minutes, which is often enough time for the individual to commit more threatening actions.

Sensory Distortion Phenomena. In extremely violent situations, the body's survival mechanisms focus on the threat, which often results in tunnel vision, scenario fulfillment, time compression, and stress-induced error. These phenomena usually occur when the mind is called upon to analyze in seconds events that usually take minutes of rational explanation or analysis. Historically, there are many examples of this. Winston Churchill, in describing his experience in the battle at Omdurman in 1898, said it was like watching a silent film. Police

officers under fire often completely discharge their firearms and later report that they cannot recall ever hearing a shot or feeling any recoil.

Despite these realities, U.S. forces are often deployed with minimal guidance on the use of deadly force, most often in the form of "last resort" language. This guid-

The Army's current use-of-force and ROE training can be improved to prepare soldiers for these new missions.

ance may be improper for three reasons:
• It places U.S. forces at a disadvantage in action or reaction time.
• It is not required by international law or most strategic policy objectives.
• Commanders may be tempted to substitute "last resort" statements for essential training on how and when to respond with deadly force.

Furthermore, although lawyers, senior commanders, and planners may understand ROE "last resort" language, soldiers who have not had practical, realistic hands-on training may not understand it. As a minimum, they need lane training, role-playing, and other situational training exercises (STXs). Civilian law enforcement agencies recognize that personnel under stress react according to the manner in which they have been trained. Accordingly, much effort is spent on realistic use-of-force training for individuals.

Soldiers who have not had practical, realistic hands-on training may not understand ROE "last resort" language.

The FBI maintains an excellent law enforcement use-of-force training program. In addition to hands-on training facilities, the FBI also develops a historical, legal, and technical database for use-of-force situations. Perhaps the most effective device in the FBI's training inventory is the Firearms Training System

(F.A.T.S.), which was developed and manufactured to provide realistic law enforcement use-of-force training.

Unlike traditional target ranges, this system attempts to replicate the conditions of stress, time compression, and sensory deprivation that are prevalent in deadly force situations. It consists of a large training room with a full wall-sized screen, on which are projected differing scenarios from CD ROMs (compact disks, read only memory). The scenarios require an agent to make use-of-force decisions in accordance with FBI policy, which is analogous to operational ROEs. The scenarios are fast-paced, often innocuous, offered in varying degrees of illumination, and always subject to change.

An agent in training is equipped with a realistic simulated weapon that emits laser "bullets" that hit the target screen. The laser-sensitive screen instantly records the shots on the system's computer. Depending on the placement of shots, lack of shots, or verbal commands, the computer continues the scenario to its conclusion. The computer can then play the scenario back, showing the hits and misses. More important, the training staff can point out the appropriate or inappropriate uses of deadly force.

Before undergoing this training, FBI agents are briefed extensively in the classroom on use-of-force policy. In military scenarios, the appropriate use of force would be mission specific. The role of a judge advocate, therefore, would be to brief soldiers on the use-of-force policy for a specific mission, observe the training, then debrief the soldiers, forcing them to justify the actions they have taken. RAMP training and STX debriefings would go hand-in-hand with this type of training. (RAMP stands for return fire with aimed fire; anticipate attack; measure the amount of force; and protect with deadly force only the human life and property designated by command.)

The Army already has some basic F.A.T.S. hardware in its inventory, primarily for use in training military police units. There are significant differences, however, between the current Army systems and the FBI's systems:

• The FBI systems are capable of "branching." That is, the program's responses depend on the actions of the trainee. If the trainee issues clear and concise orders, the scenario may resolve itself without escalating into violence. Or if the trainee shoots poorly or merely wounds a subject, the subject may return fire. The Army systems, without this capability, continue regardless of the trainee's decisions. They are therefore only marginally useful in initial *shoot-don't shoot* training.

• The FBI scenarios are written specifically for FBI policy on the use of deadly force, while the Army systems are generic law-enforcement scenarios, not tailored to the Army's military police policy on the use of deadly force. More important, none of the developed or implemented scenarios cover military operations.

The Army should develop a full range of ROE-dependent F.A.T.S. scenarios that would give the individual soldier realistic training. Since the Army has already fielded the hardware to support such a system, the cost of development would be primarily in the production of the new scenarios.

When developing an Army system, the following factors should be considered:

• The classified nature of most ROEs would generate special production, storage, and utilization problems. This could be reduced if classification levels were reviewed and the use of truly classified

---

Civilian law enforcement agencies recognize that personnel under stress react in the manner in which they have been trained.

scenarios were limited to smaller units (special operations, scouts, or long range surveillance detachments).

• Numerous scenarios would be needed to cover the spectrum of conventional and peacekeeping missions. Additionally, to achieve branching capabilities, each scenario would require that several iterations be recorded in production. Costs could be reduced through joint planning and scripting.

• The possibility of changes in international law or the political goals of the United States might make the programs prematurely obsolete. Updates and proper training of the trainers would be necessary. But the focus of the program would still be self-defense and the use of deadly force—areas of the law that are fairly stable.

In light of the volatile political situations in regions where most such missions will be conducted, effective individualized ROE training is essential. The uncertainties and "fog of war" can be greatly attenuated through realistic training. A system such as F.A.T.S. would provide effective use-of-force training under stressful conditions similar to those soldiers may face in peacekeeping or combat operations.

Captain David G. Bolgiano is assigned to the Center for Law and Military Operations, Charlottesville, Virginia. He previously served as senior trial counsel with the 3d Infantry Division and as chief of administrative law in the 82d Airborne Division. He also served as part of the coalition forces during Operations *Desert Shield* and *Desert Storm*. He is a graduate of Loyola College of Maryland and holds a doctorate from the University of Baltimore School of Law.
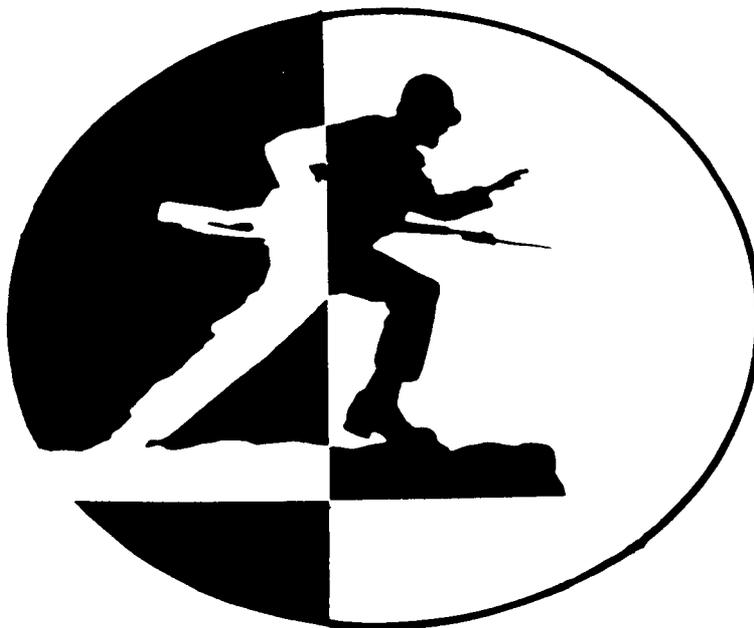
INFANTRY CAREER NOTES

DEFENSE ATTACHE ASSIGNMENTS

The Defense Attache System (DAS) is recruiting only the best qualified NCOs who seek Joint Service Staff assignments in American Embassies in more than 80 locations around the world. Selected NCOs in the ranks of sergeant through platoon sergeant are given an opportunity to represent the U.S. Army and the Defense Intelligence Agency while serving in diplomatic assignments in Europe, Africa, the Far East, the Middle East, and North, Central, and South America.

To be selected, an NCO must be on active duty, qualify for a Top Secret security clearance, have a General Technical (GT) score of 115 or higher, a clerical score of 120 or higher, a typing score of 40 words per minute or higher, and must be familiar with the latest personal computer word processors. He must also test 100 or higher on the Defense Language Aptitude Battery (DLAB). All family members must be U.S. citizens and meet the medical standards of the country of assignment.

Prerequisites, application procedures, and countries available in the program are in Army Regulation 611-60. For additional information, contact SFC Gale at DSN 923-2134, or commercial (410) 677-1240, extension 2633.

U.S. MILITARY ACADEMY ACCEPTING APPLICATIONS

Each year, approximately 200 Regular Army soldiers are offered admission to the United States Military Academy (USMA), at West Point, New York, or the USMA Preparatory School, at Fort Monmouth, New Jersey. Although some soldiers are offered direct admission to USMA, most attend the preparatory school first.

IOAC CLASS SCHEDULE FY 1997		
CLASS	**START DATE**	**END DATE**
1/97	08 DEC 97	14 MAY 97
2/97	23 MAR 97	12 AUG 97
3/97	08 JUN 97	28 OCT 97
4/97	14 SEP 97	20 FEB 98

The preparatory school provides the academic, military, and physical instruction to qualify soldiers for admission to and graduation from USMA, along with commissioning as U.S. Army second lieutenants. The curriculum prepares soldiers for success through an intensive curriculum focused on both English and mathematics.

To qualify for admission, a soldier must be a U.S. citizen, a high school graduate, unmarried with no legal obligation to support dependents, under 23 years of age on 1 July of the year he or she enters USMA (under 22 on 1 July of the year entering the preparatory school), and of high moral character with a sincere interest in attending USMA and becoming an Army officer.

This is an excellent opportunity for any soldier who wants a first-rate college education and a commission. Especially encouraged to apply are soldiers who meet the basic eligibility requirements, have achieved Scholastic Aptitude Test (SAT) scores greater than 1050 or American College Test (ACT) composite scores of 23 or higher, and good grades in a college-preparatory high school curriculum.

All application requirements must be met by 1 April 1997 to be considered for an appointment to USMA or the preparatory school in July 1997. Interested soldiers should call CPT Brandon at DSN 688-5780 or commercial (914) 938-5780.

INSTRUCTOR JOBS IN THE 108TH DIVISION

The 108th Division (Institutional Training) has immediate openings for more than 400 U.S. Army Reserve senior noncommissioned officers to serve as instructors at locations in the southeastern United States.

This is an excellent opportunity for soldiers who are thinking about leaving active duty and looking for a way to continue their careers in the Army Reserve.

Instructors are needed to teach other Army Reservists and members of the Army National Guard a variety of military occupational specialties (MOSs) one weekend a month and two weeks a year. Openings exist for staff sergeants, sergeants first class, and master sergeants at locations in North Carolina, South Carolina, Georgia, and Florida.

Soldiers assigned to Army Reserve or National Guard troop program units are required to maintain proficiency and education in their MOSs. From time to time, these soldiers must return to a classroom environment for additional skill training. Nearly all of this formal individual skill training is taught by institutional training divisions such as the 108th. The division has four school brigades that offer specialized MOS-specific training at numerous locations throughout its area of responsibility.

The ever-changing needs of the Army and recent reorganizations of units have created a new demand for instructors to train reclassified soldiers in new skills for tomorrow's Army.

Immediate openings are available for senior noncommissioned officers who are qualified in the administrative and personnel specialties as well as the supply, medical, signal, military police, and transportation fields.

Some MOSs have specific instructor requirements set up by the resident active component school. For example, many medical instructors must meet special residency, licensing, and previous military or civilian employment require-

ments before they can be assigned to instructor positions.

Interested soldiers should contact their local Army Reserve Component career counselor or call (704) 342-5106 with any questions about these vacancies. Questions concerning specific requirements for medical instructors should be directed to Headquarters, Health Services Brigade, at (904) 765-7673.

ROPMA TAKES EFFECT 1 OCTOBER 1996

The first major change in reserve officer management since 1954 takes effect on 1 October 1996, with the implementation of the Reserve Officer Personnel Management Act (ROPMA).

Applicable to all services, ROPMA will revise and modernize reserve component officer statutes, updating and standardizing provisions of law that affect the appointment, promotion, retention, separation, and retirement of Reserve commissioned officers. ROPMA does not apply to warrant officers.

ROPMA's purpose is to standardize reserve officer personnel management and to align the reserve component system with that of the active component. It will:

• Eliminate mandatory time-in-grade (TIG) requirements for promotion. (Instead, it sets minimum and maximum TIG for each rank, with date of rank falling in between. Individual Ready Reserve (IRR) promotions will continue at maximum TIG.)

• Eliminate mandatory time-in-service requirements for promotions.

• Provide a below-the-zone promotion option, based on the needs of the service, for captains, majors, and lieutenant colonels.

• Promote officers on the basis of "best qualified" standards rather than "fully qualified."

• Eliminate the TIG extension past 30 years commissioned service for colonels,

unless waived by the service secretary for the "needs of the service." (In essence, colonels must leave after 30 years of service or age 60, whichever comes first. Previously, colonels could serve five years TIG before reaching the normal 30-year cap.)

• Allow officers to delay a promotion upon selection. For the Army Reserve, that delay can be up to one year. It is not applicable for Active Guard/Reserve (AGR) officers.

• Establish a Reserve Active Status List (RASL), by order of seniority, for each service. The Army's list will be made up of Army Reserve and National Guard officers in an active status, including AGR, TPU (Troop Program Unit), IMA (Individual Mobilization Augmentee), and IRR, but will not include Reserve officers on the Active Duty List or those in inactive duty status.

• Retain officers on the RASL for up to two years after mobilization.

• Allow any eligible officer on the

RASL to apply for a position vacancy promotion (an option previously open only to TPU officers in the next lower grade).

Several provisions of ROPMA went into effect earlier:

• Extension of the mandatory removal date (MRD) for *promotable* lieutenant colonels from 28 to 30 years of commissioned service, or age 60, whichever comes first.

• An MRD of 28 commissioned years of service (or age 60) for captains, majors, and lieutenant colonels (not promotable), regardless of age when commissioned.

• Requirements for National Guard officers transferring to the Army Reserve to do so at their current rank, not the highest USAR grade held.

• Requirement for a bachelor's degree for promotion to captain.

• A "chain teaching" program on ROPMA, which is now under way throughout the U.S. Army Reserve.

SENIOR OFFICER LOGISTICS MANAGEMENT COURSE

The Senior Officer Logistics Management Course (SOLMC) is specifically designed to provide an update for battalion and brigade commanders, primary staff officers, and Department of the Army civilians working in the logistics field.

The course covers maintenance, supply, readiness, and transportation and provides hands-on experience with vehicles, the unit level logistics computer, weapons, ammunition, medical, communications, NBC, missile, and quartermaster equipment.

The course is open to officers of all branches in the rank of major or above, from Active Army, U.S. Army Reserve, and Army National Guard components, the U.S. Marine Corps, and allied nations. Department of the Army civilians in the rank of GS-11 or higher are also eligible to enroll.

The one-week course is conducted 12 times each fiscal year at Fort Knox. Class quotas may be obtained through normal U.S. Army Training and Doctrine Command channels. Any problems in obtaining class quotas or information about the course should be directed to the SOLMC Branch Chief at DSN 464-8152/3411 or commercial (502) 624-8152/3411. Class schedules for Fiscal Year 1997 are shown below:

SOLMC SCHEDULE

CLASS NUMBER	CLASS DATES
97-01	18-22 NOV 96
97-02	27-31 JAN 97
97-03	24-28 FEB 97
97-04	17-21 MAR 97
97-05	14-18 APR 97
97-06	12-16 MAY 97
97-07	16-20 JUN 97
97-08	21-25 JUL 97
97-09	18-22 AUG 97
97-10	15-19 SEP 97

BOOK REVIEWS

INFANTRY recently received the following reference volumes, which readers will find useful:

Jane's Infantry Weapons 1996-97. **Edited by Terry J. Gander. Jane's Information Group Ltd, 1996. 750 Pages. $290, Hardcover. $795, CD-ROM.** Because of the massive increase in infantry weapons around the world—many of which are being used for "irregular or unlawful" purposes—this edition includes some 150 new entries. It profiles more than 2,000 weapons and accessories, including pistols, rifles, machineguns, and antitank weapons, from more than 300 manufacturers in 69 countries.

Each entry offers detailed descriptions of items currently in service or under development and includes specifications, manufacturer information, a listing indicating whether the item is in production or development, and performance evaluations. Many entries also include photographs of the items.

The volume includes alphabetical and manufacturer indexes, a "National Inventories" section (listing the items owned by each country), a glossary, and data tables providing information on each piece of equipment or accessory.

Jane's Land-Based Air Defence 1996-97. **Edited by Tony Cullen and Christopher F. Foss. Jane's Information Group, Ltd., 1996. 349 Pages. $290, Hardcover. $795, CD-ROM.** Land-based air defense systems continue to play a critical role in military operations, as has been shown in the former Yugoslavia, where ground forces have shot down French and U.S. fighter planes.

This directory provides a comprehensive look at antiaircraft gun and missile systems now in service or under development around the world. It reviews more than 350 gun and missile systems from more than 97 manufacturers. Systems are listed by type and by the country in which they are manufactured and cross-referenced in alphabetic and manufacturer indexes. It also includes a section that lists the systems owned by each country.

Each entry provides a description of the system and operating specifications, including dimensions, range, speed, rate of fire, warhead, and propulsion. Many entries include photos of the systems, and all include manufacturer data and a section noting whether it is in development, in production, or in service.

Brassey's World Aircraft and Systems Directory 1996-97. **Edited by Michael Taylor. Brassey's 1996. 576 Pages. $99.95, Hardcover.** This is the most comprehensive and up-to-date directory of current aircraft types available. It covers thousands of aircraft types in service, production, or development, along with their operating systems, design and production histories, performance figures, and manufacturers, and includes more than 1,000 photographs and drawings. Each entry offers a detailed description, with dimensions, performance, and production.

***General William C. Lee: Father of the Airborne.* By Jerry Autry, assisted by Kathryn Autry. Airborne Press (2824 Crestscene Trail, Raleigh, NC 27603), 1995. 224 Pages. $35.00.** Reviewed by Dr. Charles E. White, Infantry School Historian.

On 25 June 1940, as the French were surrendering to the Germans in Marshal Foch's railroad car, Major William C. Lee was officially assigned the airborne project for the U.S. Army. For several years, Lee had been quietly advocating an American airborne force, but his superiors at Infantry Branch looked upon his ideas with suspicion.

Ironically, it was President Franklin Roosevelt who ignited the spark that launched the airborne concept. Roosevelt, watching newsreel footage of German paratroopers jumping into Holland, summoned his military liaison to find out about U.S. paratrooper capability. Shortly afterward, Major Lee's enthusiasm for the airborne received the blessing of Infantry Branch.

Without question, William C. Lee spearheaded the development of the airborne concept in the United States. His innovative and creative energy, coupled with his total dedication to the project, made sure the nation had the finest paratroopers in the world. Shortly after his promotion to lieutenant colonel in 1940, Lee took command of the newly formed Provisional Parachute Group at Fort Benning, Georgia. The group was charged with establishing a jump school, training paratroopers, and developing doctrine for the airborne force.

James Gavin, who later commanded the

82d Airborne Division during Operation *Market Garden* in 1944, was Lee's operations officer at the time. His description of Lee captures the heart and soul of the man:

[He was] a smart, patient, tolerant, considerate, intelligent, and kind man. He struggled with us—we kids wanted to rebuild the world right away. There were all sorts of things we were wild-eyed about and having a great old time doing, jumping every place under the sun. He let us try anything we wanted to do. And we did. But he applied a governing hand—and good common sense. There couldn't have been a better man for the job.

A few days after the attack on Pearl Harbor, Lee was promoted to colonel and assigned to the War Department staff. He soon took Army Chief of Staff General George C. Marshall on an inspection tour of the airborne force. After reviewing the paratroopers in North Carolina, Marshall was convinced that an airborne capability was essential for the Army. In May 1942, he ordered Lee, now a brigadier general, to England to consult with the Allies on airborne needs for the invasion of France. Upon his return, Lee recommended the establishment of an airborne division.

On 17 August 1942, Lee was promoted to major general and given command of the newly activated 101st Airborne Division at Camp Claiborne, Louisiana. For the next 18 months, he trained the division relentlessly, as the soldiers honed their combat skills. He was also instrumental in integrating glider training into the airborne concept. When the 101st deployed to England in 1943, Lee established a division jump school to sustain the skills of his paratroopers and to train additional volunteers. During this time, Lee was also intimately involved in the planning for the Normandy invasion. He wrote the airborne plan and selected the actual drop sites for the 82d and 101st Airborne Divisions.

Unfortunately, a debilitating heart attack on 5 February 1944 put an end to Lee's brilliant career. At first, he expected to recover and return to command, but in March he had another attack and was sent home. After a short stay in Walter Reed Army Hospital, Lee was officially retired in December 1944. He later said that missing the Normandy invasion was the greatest disappointment of his life.

Lee is one of the most remarkable soldiers the U.S. Army ever produced. Incredibly private and uncommonly modest, he pioneered the American airborne concept. Virtually all personnel involved in the training of U.S. airborne forces during World War II were Lee's men. He rightly deserves the title, "Father of the Airborne."

Unfortunately, few in the Army today, and fewer outside the service, ever heard of him. Even the U.S. Army's official history of World War II fails to mention his participation. Fortunately, Jerry and Kathryn Autry have put together this splendid pictorial biography of and tribute to General Lee. It also contains more than 350 photographs and documents relating to Lee and the development of the U.S. airborne force. It also includes Lee's correspondence with Omar Bradley, Matthew Ridgway, Maxwell Taylor, and many others. Most of the material in this book was previously unpublished.

Anyone who wants to learn about the development of America's airborne capability and the man almost solely responsible for its creation should read this superb work. William C. Lee is truly one of the great unsung heroes of the U.S. Army and its involvement during World War II.

Eisenhower and the Suez Crisis of 1956. **By Cole C. Kingseed. Louisiana State University Press, 1995. 166 Pages. $22.50.** Reviewed by Lieutenant Colonel Harold E. Raugh, Jr., U.S. Army.

The 1956 Suez crisis sounded the death knell of British and French imperialism in the Middle East, and ushered in a new era of significant U.S. involvement in the region. Taking place in the midst of the Cold War and almost concurrently with the Soviet invasion of Hungary, this crisis might have ignited a world conflict. Fortunately, it was defused, primarily through the effective leadership of U.S. President Dwight D. Eisenhower.

It is important to place the Suez crisis within the context of the Cold War and the U.S. policy of containment of the Soviet Union in the 1950s. The United States, in tacitly accepting the formation of the Baghdad Pact in 1955, misjudged the actual temperament of the Arab Middle East. Egyptian President Gamal Abdel Nasser was the dominant figure in Arab politics, and after being rebuffed when he asked the U.S. to support Egypt's nationalization of the canal, he concluded an arms agreement with Czechoslovakia. The Eisenhower administration viewed this as Soviet encroachment, albeit by proxy, into the Middle East. The chain of events continued and escalated, with

Egypt's official recognition of the People's Republic of China, U.S. withdrawal of a pledge of financial support for the construction of the Aswan Dam, and Egypt's nationalization of the Suez Canal. For the British especially, the issue was perceived as one of national survival (and prestige); in collusion with the French and the Israelis, England invaded Egypt in November 1956.

The focus of this book is on the way Eisenhower managed the Suez episode, articulated a coherent national policy, and developed a national strategy to achieve his policy objectives. Eisenhower's success was due in large part to his skilled selection of able subordinates, frequent consultation with a small group of trusted advisers, centralized coordination of policy, willingness to accept responsibility, and reservation of policy decisions to himself. A vital component of his strategy was the skillful mustering of congressional support. The author's insightful analysis reveals that the balanced "interaction among the political, economic, and military dimensions of foreign policy marked Eisenhower as a skilled practitioner of crisis management."

In concert with recent revisionist historians, author Kingseed (an Army colonel and a West Point associate professor of history) is convinced that Eisenhower was a far more active and able chief executive than contemporary observers and early historians believed. Interesting, well-researched, and superbly written, this study deserves a wide readership.

The Seven Military Classics of Ancient China, Including the Art of War. **Translation and Commentary by Ralph D. Sawyer, with Mei-Chun Sawyer. Westview Press, 1993. 568 Pages. $29.95.** Reviewed by Lieutenant Colonel Albert N. Garland, U.S. Army, Retired.

In recent years, United States infantrymen have become more and more aware of and interested in ancient and modern military writings emanating from the Far East, and particularly from mainland China. This is all for the good, for we tend to forget the number of military contacts—friendly and otherwise— that we have had with Asian countries during the past 150 years.

Many of us are already familiar with Sun-Tzu's *Art of War,* which has been published in many Western languages since it was first translated by a French missionary some 200 years ago, and which has been studied by many Western military schools and academies.

Ralph Sawyer, the principal translator and commentator of this book, has been involved for the past 20 years in international consult-

ing work throughout Asia. In addition to Sun Tsu's work, he also brings us six other Chinese military classics, all in new translations:
- T'ai Kung's Six Secret Teachings.
- The Methods of Ssu-ma.
- Wu-tzu.
- Wei Liao-tzu.
- Three Strategies of Huang Shih-kung.
- Questions and Replies between T'ang T'ai-tsung and Li Wei-kung.

The first six of these writings were originally collected and edited during the Sung dynasty (960-1126 A.D.). The seventh was later combined with the others to make up the "Seven Military Classics" which, as Sawyer points out, "comprised the orthodox foundations for military thought and the basis for the imperial examinations required for martial appointment."

Sawyer adds that an early 1970s archaeological dig of a Han dynasty tomb unearthed a large number of valuable texts written on well-preserved bamboo slips. One was Sun Pin's Military Methods. A descendant of Suntzu who lived 100 years later, Sun Pin was considered an outstanding military strategist in his own right. (Sun Pin, or Sun Bin, was the subject of an article in the March 1991 issue of *Military Review* by then-Lieutenant Colonel Karl W. Eikenberry.)

Following a brief preface and a note on his translations and the pronunciation system he uses, Sawyer furnishes a chronology of approximate dynastic periods and a general introduction and historical background of the seven military classics. The book contains the appropriate notes, five appendixes, two indexes, a selected bibliography, and a glossary of selected terms with Chinese characters.

Since China seems again on the edge of becoming a great military power, U.S. military professionals need to learn as much as they can about that country's past military writings. What may strike Western readers at first is the stringent discipline, imposed on all ranks, that frequently called for execution. Still, we need to recall that the French Army of World War I (its 1-of-10 system) and the Soviet Army of World War II used execution to punish units and commanders for failing to carry out operations successfully.

There is much to be learned from these classics, and Sawyer's translations hold up well.

The Last Year of the German Army: May 1944-May 1945. **By James Lucas. Arms & Armour, 1994. 240 Pages. $16.95.** Reviewed by Colonel Cole C. Kingseed, U.S. Army.

The 12-month period from May 1944 to

the unconditional German capitulation in May 1945 saw the Third Reich descend from the status of an embattled but still potent power to one of utter defeat. In his analysis of the decline of German fortunes, James Lucas examines the role the German Army played in the Nazi defeat. His study includes the military organization of the conventional military establishment, as well as the Nazi Party militias formed as Hitler's distrust of his generals grew in the aftermath of the July 1944 assassination plot.

In describing the principal weapons and vehicles in service during the war's final year, Lucas tries not to describe in depth all the military campaigns in the numerous theaters of war. He uses the operational campaigns only to highlight a specific weapon or to illustrate a specific incident during the campaign. By his own admission, such an approach leaves gaps in the recording of events and battles. The campaign in Normandy, for example, receives a scant six pages; the battle of Berlin is mentioned only in passing.

Like many other authors, Lucas maintains a grudging admiration for the discipline of the German Army. He says that Germany was still strong enough in May 1944 that it might have been possible for Hitler to fight the war to a stalemate. But his claim that unit cohesion and the command structure still functioned effectively in the closing month of the war is dubious. What he does best is to address the many factors that contributed to the German collapse. Unfortunately, his analysis lacks the depth needed for detailed scrutiny.

Written more for the novice than the military historian, this book merits mixed reviews. The chapter on organization and command structure is the best written. But subsequent chapters on weapons, opposition to Hitler, and the theaters of war do not live up to expectations. By far the most interesting is Joachim Peiper's account of the Ardennes counteroffensive.

On the debit side, there is little new material in this book. To Lucas, the one strategic blunder that more than any other changed the course of history was Hitler's declaration of war against the United States. The introduction of massive U.S. resources doomed Germany. Lucas's assertion that Hitler's interference with the armed forces resulted in disastrous consequences to the war effort is common knowledge and hardly enlightening. The lack of notes and bibliography also detract from the text.

In the final analysis, Lucas has produced a disjointed examination of the German Army in the last year of the war. Readers may find portions of the book informative, but the stan-

dard work on the German Army is still Matthew Cooper's The German Army, 1933-1945 (published by Scarborough House, 1990).

Connecticut Yankees at Gettysburg. Kent State University Press, 1993. By Charles P. Hamblen. Edited by Walter L. Powell. $22.00, Hardcover. Reviewed by Major Don Rightmyer, U.S. Air Force, Retired.

Of all Civil War topics, the Gettysburg campaign is one of those written about most often. Despite the insistence of some that the Civil War has been "written to death," a steady stream of substantive historical studies continue to be published. One noteworthy lack has been regimental histories of specific units, and this book fills an important niche for Connecticut's role in the battle.

Charles Hamblen was a principal and teacher at Norwich Free Academy before his death in 1986. His book manuscript was then edited by Walter Powell, historical preservationist for the Borough of Gettysburg.

Hamblen's historical work details the involvement of five Connecticut infantry regiments—5th, 14th, 17th, 20th, and 27th—as well as a light artillery battery that participated in all major phases of the three-day battle.

The Connecticut regiments brought nearly 1,300 men to the fields and hills of Gettysburg and suffered 359 casualties by the end of the third day. The 17th Connecticut suffered most heavily in fighting on Barlow's Knoll the first day and East Cemetery Hill on the second. The 27th encountered heavy action in the Wheat Field, and the 14th saw combat on Cemetery Ridge. Hamblen closes his book with a full accounting of the units' casualties, listing by name those who were wounded or killed.

Augmented by some excellent battlefield maps, this book is an excellent recap of one Northern state's role at the battle of Gettysburg.

Summons of the Trumpet: U.S.-Vietnam in Perspective. By Dave Richard Palmer. Originally published in 1978. Presidio Press, 1995. 277 Pages. $14.95. Reviewed by Dr. Joe P. Dunn, Converse College.

The subtitle of the original paperback edition in 1978, "A History of the Vietnam War From a Military Man's Viewpoint," was an accurate description. Author Dave Palmer, a colonel at the time, offered a readable, popular-audience military account of the war with candid assessments of the limitations under which the conflict took place. Along with Admiral U.S. Grant Sharp's *Strategy for De-*

feat (also published in 1978), it was one of the most significant military retrospects of the early period when the literature on the military conduct of the war was still very limited. The book received good reviews in popular sources and military publications but attracted less attention in scholarly circles.

Many words have "passed under the bridge" since then. The literature today on the military conduct of the war, and particularly on strategy, is voluminous. The level of sophistication, the controversies, and the debates now are a central component of the Vietnam War bibliography. Harry Summers, Bruce Palmer, Philip Davidson, Andrew Krepinevich, Larry Cable, Mark Clodfelter, and several others have contributed landmark "military man" perspectives that have differed widely in interpretation and inspired intense debate.

Palmer capped his 35-year Army career with a five-year tour as superintendent of the U.S. Military Academy and retired as a lieutenant general. The book, reissued completely as it was in 1978 without even a new preface, remains a very readable popular history with some insightful comments and appraisals that have stood the test of time. It is a good overview for the novice, but serious students of the war will find it more of a period piece compared to the level of analysis now available in other sources on the war.

If a reader wanted to read only one book on Vietnam, I would recommend something with more analytical depth. But to gain an overview of what happened and why professional military men found the war such a frustrating disaster, this is not a bad place to start. It is still a very good read.

Darkmoon: Eighth Army Special Operations in the Korean War. By Ed Evanhoe. Naval Institute Press, 1995. 193 Pages. $25.95. Reviewed by Michael F. Dilley.

Until recently, most of the books about special operations during the Korean War were classified. Ed Evanhoe was there as an active participant in these operations and therefore had his personal recollections for a sounding board to his research in the newly declassified archives and studies. *Darkmoon* is the exciting and fascinating result.

World War II saw the widest use of special-purpose, special-mission organizations in U.S. military history. Predictably, when the war was over, the military services disbanded most of these forces. In June 1950 the North Koreans stormed across the border, taking the south and the world by surprise, as they rolled steadily and inevitably toward the Sea of Ja-

pan. Attempts to use special operations forces began almost immediately. The planners realized early that any use first required establishing and training such forces, as there were none in the theater. And there were many petty jealousies among the services and various intelligence organizations that made the coordinated and effective use of special operations forces almost a war in itself.

Most of this book concentrates on the various missions in the first 18 months of the war, with the details from after-action reports richly supplemented by personal accounts. The author's narrative flows smoothly and is easy to read. He has included two chapters—one near the beginning and the other almost halfway through—to tell the larger story of how these special operations fit into the intelligence and strategic plans. He also uses these chapters to explain who the various players are and how they fit in. These explanations help keep the reader focused as well as understand the wealth of acronyms.

Evanhoe says in his preface that one book is not enough to do justice to the subject of special operations in the Korean War. Although he's probably correct, he has done an outstanding job in this work. He includes operations by all the services as well as the Central Intelligence Agency, detailing both successes and failures. Despite the jargon and acronyms, the story line grabs the reader and takes him with it, moving from one operation to another and from one part of the country to another.

Darkmoon is another book in the Naval Institute Press's Special Warfare Series. As with the others, it has been selected because little else is available on this aspect of special operations. It is an excellent book, recommended for special operators, infantrymen, and others who work with special operations forces or just have an interest in them.

RECENT AND RECOMMENDED

Utmost Savagery: The Three Days of Tarawa. By Colonel Joseph H. Alexander, U.S. Marine Corps (Retired). Naval Institute Press, 1995. 328 Pages. $29.95.

A Short History of the Civil War. By James L. Stokesbury. William Morrow, 1995. 354 Pages. $25.00.

Winfield Scott Hancock: A Soldier's Life. By David M. Jordan. Indiana University Press, 1995. 416 Pages. $12.95, Softbound.

Senseless Secrets: The Failures of U.S. Military Intelligence from George Washington to the Present. By Lieutenant Colonel Michael Lee Lanning (U.S. Army, Retired). Carol Publishing, 1996. 324 Pages. $24.95.

Days of Infamy: MacArthur, Roosevelt, Churchill—The Shocking Truth Revealed: How Their Secret Deals and Strategic Blunders Caused Disasters at Pearl Harbor and The Philippines. By John Costello. (Originally published by Nimbus Communications, 1994.) Pocket Books, 1995. 452 Pages. $14.00, Softbound.

Code Breaker in the Far East: How Britain Cracked Japan's Top Secret Military Code. By Alan Stripp. (Originally published by Frank-Cass & Company., Ltd.) Oxford University Press, 1995. 204 Pages. $12.95, Softbound.

Civil War Medicine: Care & Comfort of the Wounded. By Robert E. Denney. Sterling, 1995. 408 Pages. $19.95, Softbound.

Leader of the Charge: A Biography of General George E. Pickett, C.S.A. By Edward G. Longacre. White Mane Publishing Company (P.O. Box 152, Shippensburg, PA 17257), 1996. 242 Pages. $29.95.

Blue Water Sailor: The Story of a Destroyer Officer. By Don Sheppard. Presidio Press, 1996. 352 Pages. $24.95.

The General's War: The Inside Story of the Conflict in the Gulf. By Michael R. Gordon and Lieutenant General Bernard E. Trainor. (Published in hardcover, 1993.) Little, Brown, 1995. 576 Pages. $15.95, Softbound.

Bosnia: What Every American Should Know. By Arthur L. Clark. Berkley, 1996. 235 Pages. $6.99.

Transportation and Logistics: One Man's Story. By Jack C. Fuson. U.S. Army Center of Military History, 1995. 227 Pages. $18.00.

Confederate Commissary General. By Jerrold Northrop Moore. White Mane Publishing (P.O. Box 152, 63 W. Burd Street, Shippensburg, PA 17257), 1996. 340 Pages. $24.95.

Wahoo: The Patrols of America's Most Famous WWII Submarine. By Rear Admiral Richard H. O'Kane. Presidio Press, 1996. 376 Pages. $15.95, Softbound.

On Celestial Wings. By Colonel Ed Whitcomb. Air University Press, 1996. 217 Pages. Softbound.

Solitary Survivor: The First American POW in Southeast Asia. By Lawrence R. Bailey, Jr., with Ron Martz. Brassey's, 1996. 240 Pages. $23.95, Hardcover.

Prisoners of the Japanese: POWs of World War II in the Pacific. By Gavan Daws. (Originally published in 1994.) Morrow, 1996. 462 Pages. $15.00, Softbound.

When Titans Clashed: How the Red Army

Stopped Hitler. By David M. Glantz and Jonathan M. House. University Press of Kansas, 1995. 414 Pages. $29.95.

Silent Warriors: A Memoir of America's 442nd Regimental Combat Team. By Jack K. Wakamatsu. Vantage Press, 1995. 279 Pages. $17.95, Hardcover.

Guns: Who Should Have Them? Edited by David B. Kopel. Prometheus Books, 1995. 475 Pages. $25.95.

Sergeant Major, U.S. Marines. By Major Bruce H. "Doc" Norton, U.S. Marine Corps (Retired) and Sergeant Major Maurice J. Jacques, U.S. Marine Corps (Retired). Ivy Books, 1995. 464 Pages. $5.99.

Witness to War: The Civil War 1861-1865. By Harold Holzer. Witness to War Series. Berkley, 1996. $12.50, Softbound.

The Story of the 116th Regiment Pennsylvania Volunteers in the War of the Rebellion. By St. Clair A. Mulholland. Edited by Lawrence Frederick Kohl. Fordham University Press, 1996. 480 Pages. $27.50, Hardcover.

Over There: A Marine in the Great War. By Carl Andrew Brannen. Texas A&M University Press, 1996. 167 Pages. $24.95.

A Cavalryman's Story: Memoirs of a Twentieth Century Army General. By Hamilton H. Howze. Smithsonian Institution Press, 1996. 316 Pages. $24.95.

War Dogs: Canines in Combat. By Michael Lemish. Brassey's, 1996. 256 Pages. $22.95.

Fight or Flight. By Geoffrey Regan. Avon, 1996. 277 Pages. $16.00, Softbound.

Zhukov: The Rise and Fall of a Great Captain. By William J. Spahr. (Originally published in 1993.) Presidio Press, 1995. 304 Pages. $12.95, Softbound.

The Battle Book: Crucial Conflicts in History from 1469 BC to the Present. By Bryan Perrett. Sterling, 1996. 352 Pages. $19.95.

The Biographical Dictionary of World War II Generals and Flag Officers: The U.S. Armed Forces. By R. Manning Ancell with Christine M. Miller. Greenwood, 1996. 720 Pages. $95.00.

Call for Fire: Sea Combat in the Falklands and the Gulf War. By Captain Chris Craig. John Murray (distributed by Trafalgar Square, North Pomfret, VT 05053), 1996. 300 Pages. $45.00.

The Red Orchestra: The Soviet Spy Network Inside Nazi Europe. By V.E. Tarrant. Wiley, 1996. 224 Pages. $24.95, Hardcover.

On the Front Lines: The Experience of War through the Eyes of the Allied Soldiers in World War II. By John Ellis. (Published in Great Britain as World War II: The Sharp End, by Windrow and Green, Ltd., 1990.) John Wiley, 1991. 380 Pages. $15.95, Softbound.

Bull's Eye: The Assassination and Life of Supergun Inventor Gerald Bull. By James Adams. Random House, 1992. 317 Pages. $23.00, Hardcover.
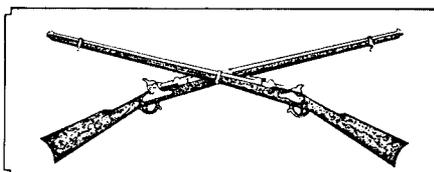
From The Editor

Army Readiness in 1950—The Seeds of Disaster

In June of 1950, the United States Army was riddled with major shortcomings in personnel, unit cohesion, discipline, housing, equipment, and overhead. These issues were addressed in an article by Hanson W. Baldwin in the New York *Times* as late as 22 June 1950, a scant three days before North Korean forces invaded South Korea, and some of the factors that contributed to the crushing defeats suffered by U.S. forces early in the war are worth reviewing.

The author noted that few if any Army units were ready for immediate combat service, and that the combat forces available were too small to provide the base for a wartime mobilization and still maintain a strategic reserve. Foremost among the Army's problems was personnel turnover, with a 150 percent rate not considered uncommon. This was due partly to the demands of maintaining occupation forces overseas and the demands of service schools, and partly to poor personnel management. Whatever the cause, the replacements meant constant training to bring units up to a minimal state of readiness.

A second deficiency—a lack of unit esprit—was also due to the personnel turbulence. When leaders and soldiers cannot serve together for more than a year, it is difficult to build and sustain unit cohesion. This is evident even today when a new commander arrives, rejects programs of his predecessor, and sets about building the rifle company, battalion, or whatever in his own image. A new broom does indeed sweep clean, but in so doing it may well sweep away much that is useful, including esprit. Another factor was the post-war policy of reducing emphasis on elite or specially trained units, many of which had been vital to the war effort only five years earlier.

The lack of qualified and experienced officers and noncommissioned officers, another problem, was exacerbated by the discharge of many of the veterans of World War II. In the months preceding the outbreak of war in Korea, efforts were already under way to improve the quality of leadership, through service leadership courses and a more demanding selection process, but the results of these efforts had not yet permeated the Army. Today's emphasis on professional development, including leadership instruction in officer and NCO courses, is aimed at ensuring that we do not end up in similar straits at some time in the future.

Another interesting difficulty facing the Army of 1950 was that of eliminating incompetent or otherwise unfit officers and NCOs. Aside from the administrative task of processing elimination actions, the writer attributed the blame to the tendency to "pass the buck" by allowing substandard soldiers to assume other duties or assigning them to other units. This is a good point, because a poor soldier, of any rank, is the Army's problem, not just the unit's.

Materiel readiness was another source of concern. Baldwin noted that as of June 1950, most of the Army was equipped with weapons that had seen service in World War II, were turned in as troops were discharged, and then reissued to the postwar Army. Many of those weapons had seen hard use in combat and had required extensive reconditioning. This was the case with other materiel as well, and as a result the Army found itself in the process of being upgraded, but still unprepared when 89,000 North Korean soldiers—seven divisions plus other units—poured across the border into South Korea.

Today the U.S. Army is focusing efforts on the whole spectrum of infantry weapons, from the pistol to antitank systems, and we cannot afford to lessen our emphasis. Task Force Smith has been singled out as an example of the price of unpreparedness, but it was a microcosm of the disaster that befell the four understrength South Korean divisions and the regiment that first stood before the communist onslaught.

It is no coincidence that North Korea today stands as one of our strongest potential adversaries. In light of recent revelations concerning the fate of U.S. soldiers that nation has held as prisoners of war, and the mistreatment of South Korean civilians and military who fell into their clutches, we cannot afford to let our guard down again. The events that sowed the seeds of disaster prior to 1950 can recur at any time if we fail to learn from these bitter lessons of history. We must train, maintain, and equip the U.S. Army to go in fast, hit hard, and do the job right the first time.

RAE

Coming Articles:

Zeroing Techniques with Night Vision Devices
Ranger Company Live-Fire Raid at Night
Battle Staff Ride for Company Leaders
Dismount Infantry Training
Company Mortars
Platoon Combat Security Post

PIN: 074979-000