

Infantry

March-April 1994



"K Comp'ny artillery commander speakin'."

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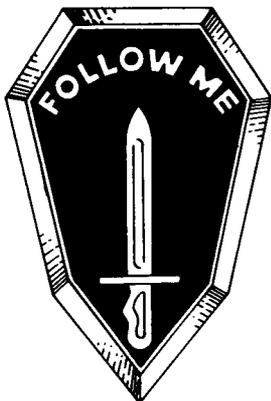
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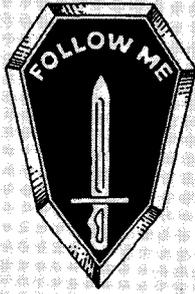
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Commandant's NOTE

MAJOR GENERAL JERRY A. WHITE Chief of Infantry

DISMOUNTED BATTLESPACE BATTLE LAB **Putting the Ideas of the Future into Action Today**

Some aspects of dismounted warfare have changed little in the past 80 years. We still shoot with iron sights, early detection of minefields is still difficult, and we still conduct night attacks using the doctrine, tactics, techniques, and procedures of decades ago, despite the availability of sophisticated night vision equipment and other technological advances. Given today's shrinking force structure, diminishing resources, and the ambiguity of the threats to which we may be required to respond, it is obvious that we cannot continue to do business as usual. We will have to structure, train, and equip the force in light of both the military situation abroad and the economic reality at home.

Today we have in our grasp technological solutions that can meet the challenges of our changing world, and we recognize that further innovative thinking at all levels can significantly improve our doctrine; tactics, techniques and procedures; training; leader development; organizational designs; materiel; and soldier support issues (DTLOMS). Our soldiers deserve the best we can offer them, and the Dismounted Battlespace Battle Lab will help us accomplish this, by providing the ways to examine the old paradigms, to retain those whose utility and relevance are still valid, and to replace the outmoded and inefficient ones with better ways of doing business.

The Dismounted Battlespace Battle Lab (DBBL) is one of six Battle Labs established by General Frederick M. Franks, Jr., Commander of the U.S. Army Training and Doctrine Command (TRADOC), in May of 1992. (The others are Mounted Battlespace; Depth and Simultaneous Attack; Early Entry, Lethality, and Survivability; Battle Command; and Combat Service Support). These Battle Labs provide the Army with an institutionalized means of identifying and evaluating new

warfighting ideas across the DTLOMS, and the Battle Lab Integration and Technology Directorate coordinates the efforts of all Battle Labs within the Army.

The ideas that will fuel the Battle Lab effort come from many sources: soldiers, junior and senior leaders, Battle Lab staffs, Department of Defense staffs, the Army's research and development centers, private industry, colleges and universities, private citizens, foreign military organizations, and others. Each has a unique perspective on our profession, and each has the potential to offer innovative approaches to how we do business. Will all of the ideas drawn from these diverse sources be useful and lead to improvements? Probably not, but enough of them will be of sufficient value to offer insights that we can apply toward meeting the considerable challenges facing us. TRADOC is now structured so that these ideas and initiatives can be quickly passed on to the appropriate Battle Lab for consideration.

The six Battle Labs are organized and resourced to horizontally integrate their examinations of data collected; this means that an initiative being worked by one of the Battle Labs has visibility in the programs of other Battle Labs, in the service schools, in the joint community of interest, and even among our allies. This concept is critical, in that it ensures that DTLOMS developments are in synch across the Army and within DOD. This will go a long way toward reducing any duplication of effort, and will assist us in efficiently using the resources at our disposal.

The DBBL's charter and subsequent directives have focused the organization's efforts on the following areas:

- Improving the night fighting capability of the combined arms force.

- Improving target acquisition capabilities of the combined arms force.

- Increasing the lethality of dismounted forces through improvements to both direct and indirect fires.

- Improving the survivability of the individual soldier, with emphasis on countermeasures, monitoring devices, new lighter weight materials, and reduced signature technology.

- Developing better means of combat identification for dismounted soldiers operating as part of a combined arms force.

- Developing stand-off countermine and counterbooby trap technologies for light forces.

- Developing the digitized communications capabilities needed by the dismounted soldier operating as part of a digitized combined arms force.

- Developing the Army's doctrinal, training, leader development, organizational, materiel, and soldier support solutions to the threat of weapons of mass destruction, particularly chemical and biological weapons.

To accomplish these ambitious goals, the DBBL is organized into a Battlespace Board and a Land Warrior Test Bed. The Battlespace Board is charged with developing and analyzing the eight concepts described above, and the Land Warrior Test Bed provides the dismounted soldier modeling and simulation support to the Battlespace Board and other agencies.

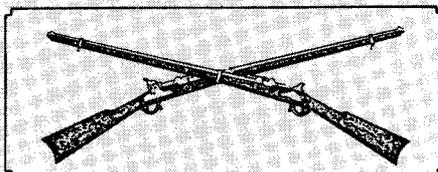
The Battlespace Board consists of two Concepts and Technologies Branches and an ORSA Branch, while the JANUS, Scenarios, and SIMNET/Corps Battle Simulations/Battalion & Brigade Simulations Branches make up the Land Warrior Test Bed. A third activity, the Department of the Army Special Task Force for Second Generation (II Gen) FLIR, draws support from Fort Benning's Battle Lab. The II Gen FLIR Task Force is charged with the horizontal technology integration of II Gen FLIR throughout the Army.

Three articles in this issue amplify some of the topics I have outlined: "Owning the Night" (page 9) describes Battle Lab initiatives in the night operations arena, and "Warfighting Experiment During 1994 Infantry Conference" (page 12) takes a detailed look at the advanced warfighting experiment that will be conducted at the 1994 Infantry Commander's Conference.

The third article, "Enhanced Land Warrior Program" (page 20) was drafted by the Directorate of Combat Developments and reflects the cooperation between that directorate and the Battle Lab. Watch for future articles on the Land Warrior theme; it is indeed an exciting concept, and progress will be measured in giant steps.

Future issues of INFANTRY will highlight articles on such diverse subjects as operations other than war (OOTW), continuous operations, future mortars, sensors and robotics, and command post and bunker configurations and materials. A central theme in each of these articles will be the need to conduct warfighting experiments, in order to let soldiers in the field evaluate these emerging doctrinal, training, leader development, organizational, materiel, and soldier support concepts. These and other experiments of the Battle Lab have been facilitated by a number of initiatives; one of these is the FORSCOM commander's designation of the XVIII Airborne Corps as the Battle Lab's affiliated unit. This habitual relationship has proved to be mutually beneficial, with each having gained valuable information from tests conducted in areas such as night fighting enhancements, 120mm mortars, and operations other than war. Another arrangement now permits Battle Labs to conduct limited, noninterference experiments at the combat training centers (CTCs). The realistic field conditions available at the CTCs are invaluable for the detailed analysis of emerging warfighting concepts. A third opportunity for the exchange of information derives from the ability of industry to interface with combat developers and the Battle Labs in ways that more effectively focus industry technicians on the Army's requirements.

This, therefore, is the Dismounted Battlespace Battle Lab; it provides a streamlined, institutionalized means for defining DTLOMS requirements for the conduct of future battles. More importantly, it focuses on ensuring that our soldiers are benefiting from the best technology and warfighting ideas, and in the most timely manner possible. The DBBL has broken the old paradigm of "putting yesterday's ideas into action tomorrow" and has allowed us to put tomorrow's ideas into action today.



INFANTRY LETTERS



60MM MORTAR SOLUTION IS ADDITIONAL PERSONNEL

Some of the officers in my unit have asked me to respond to Mr. Richard K. Fickett's letter in *INFANTRY*'s January-February 1994 issue (page 3)—to set the record straight before he is taken too seriously and someone actually acts on his recommendations and uses up more time, effort, or money.

I have more than 16 years of active duty experience as an indirect fire infantryman; have served as a platoon sergeant in three different mortar platoons—two of which had the M224 LWCM; and in 1986 graduated from the Infantry Mortar Leaders Course.

Mr. Fickett's recommendation to mount two cannons on one baseplate in order to reduce the size of the section and to reduce the weight for one crew to carry and employ do not add up to an improved mortar system, better indirect fire coverage, or an increase in the section's ability to accomplish its tactical mission.

His weight figures do not include the plug-in socket adapter or the dual cannon collar on the bipod, which would increase the weight of the bipod and require reinforcement of the shock absorbers. With dual cannons on one bipod, an assistant gunner would have to reach over the muzzle of one cannon to load the other, and both cannons would have to go out of action if one of them experienced a misfire. Firing a mission that required a special sheaf or coordinated illumination and high explosive would be impossible with the ammunition the mortar section is now issued from the Army's inventory. Adjusting and firing final protective fires and simultaneous missions would not be possible with the bi-azimuth cannon alignment as he describes it. Airborne infantry would not find it

practical to fit a bipod with a dual collar into the M1950 weapon container; even the current bipod extends out of the container, and the traversing mechanism's handle is exposed during airborne operations.

With the wide range of fire support assets available to the infantry company commander—artillery, close air support, naval gun fire, and helicopter gunships—it is still the company's organic 60mm mortar section that provides him the most flexible, responsive, and continuous fire support with a bursting radius small enough to engage the enemy close in without exposing his own troops to unnecessary danger.

In his letter, Mr. Fickett is accurate as to the number of personnel and the weight of the equipment he mentions; however, he fails to mention that the section also has two M23 mortar ballistic computers (eight pounds each), two M8 baseplates (three to six pounds each), plus the M17 plotting boards, the M115 boresight, and the aiming posts with aiming post lights. The section carries a heavy load, and add to that the radio, mortar ammunition, small arms ammunition, food, water, and the generic rucksack packing list.

The M224 60mm lightweight company mortar is not employed exclusively as a line of sight weapon, as the letter implies. The fact is that firing any mortar in the direct-lay mode is the least desirable technique because it exposes the mortar crew to enemy observation and enemy direct fire weapons. The 60mm mortar section is tactically employed and evaluated in accordance with the ARTEP 7-90 MTP and Field Manual 7-90 just like the 81mm or 107mm mortar platoons, and must perform the same missions. The M17 plotting boards and the M23 mortar ballistic computers provide the section with the capability to fire accurately from con-

cealed and defilade positions without unnecessary exposure to the enemy.

I agree that Mr. Fickett has indeed identified a problem: That problem is the absence of dedicated ammunition bearers and the difficulty of resupplying mortar ammunition. The solution, as I see it, is not another costly study or a reconfiguration of the current 60mm mortar system; it is to increase the mortar section's authorized personnel strength.

In this era of force downsizing, the idea of increasing the size of the 60mm mortar section may not be popular with senior leaders, but it is not the senior leaders who will be exposed to hostile environments, facing the enemy in combat, or carrying the infantryman's load. What it will take to win the first battle of the next war is more personnel trained for combat. An authorized ammunition bearer and assistant ammunition bearer and a dedicated radio-telephone operator will increase the productivity, combat readiness, and survivability of the mortar section.

The load of weapons, ammunition, radios, night observation devices, water, and equipment will then become more manageable, and an increased amount of mortar ammunition can be inserted with the section. In addition, the section will be better able to defend itself. The section will maintain its flexibility and responsiveness to simultaneous missions, coordinated high explosive and illumination missions, and split section operations.

Currently, the infantry company commander would have to divert other elements of his command to make sure his mortars do not fall victim to a small enemy element that happens upon them on a recon, or that has been by-passed by friendly forces. Once it begins to fire, the mortar section is no longer able to conceal its location because of the

sound of the mortars, and each member of the section is occupied with completing the mission of providing close, continuous, timely, and accurate indirect fire support. The additional ammunition bearer, along with assisting with the ammunition and equipment load, also provides a direct fire weapon and the eyes and ears to give early warning of an approaching enemy.

If Mr. Fickett and other concerned individuals truly want a better equipped and stronger military, it will take more than the modification of existing equipment; it will take payroll dollars to increase manpower strengths for some positions and to be an incentive for productive soldiers to stay in the Army. It will also take training dollars to provide the equipment, ammunition, and fuel to maintain a force that is ready to respond to the world situation and enforce U.S. policies and objectives.

ROBERT S. UNDERWOOD
SFC, Weapons Platoon Sergeant
Company C, 3d Battalion,
75th Ranger Regiment
Fort Benning, Georgia

TAKING ISSUE

As a warrant officer assigned to a National Guard engineer battalion, I have subscribed to *INFANTRY* for many years. I read it from cover to cover and apply lessons learned and the authors' experience to my unit, when applicable.

Lieutenant Patrick M. Walsh's article, "The Leadership Role of the Company Executive Officer," which appeared in the November-December 1993 issue, was very informative, and all company XO's, regardless of branch, can learn from his guidance.

I take issue, however, with the lieutenant's description of the motor sergeant as "the least knowledgeable and usually most junior" member of the

company staff. This may be true in the Active Army, but in the National Guard the company motor sergeant is usually the company's most senior and most experienced NCO (other than the first sergeant). In the Reserve Components, considering that our equipment is not used as often as that of the Active Army, the maintenance of our equipment is critical to the commander's overall readiness.

I'm not saying that equipment readiness is not also critical to active units, just that in most cases Reserve Component units regard their motor sergeants as NCOs who are crucial to the readiness of the unit, and that is why you will find experienced senior NCOs in that position.

JOHN J. PURPURO
CW2, New Jersey Army
National Guard
Unit Maintenance Technician
Hackensack, New Jersey

HPM TECHNOLOGY CONFERENCE

The Seventh National Conference on High Power Microwave Technology will be held at the Naval Postgraduate School, Monterey, California, 31 October to 4 November 1994. The conference is sponsored by the Space and Naval Warfare Systems Command and the Naval Research Laboratory, Washington, D.C.

The conference theme is "HPM Technology in Transition." It will provide a forum for technical exchange in both narrowband and wideband source technologies, system effects, and mission applications. The conference and its proceedings will be classified SECRET/NOFORN/WNINTEL. Members of the Department of Defense and other Federal agencies, industry, and

academia are invited.

Further information is available from HPM Conference Registration Office, P.O. Box 2218, Suffolk, VA 23432; telephone (804) 255-0409, FAX (804) 255-0056.

BRENDA K. VAUGHAN
Assistant Technical
Conference Coordinator

REUNION, SOCIETY OF THE FIRST DIVISION

The Society of the First Division (Big Red One)—which is composed of soldiers who served in World War I, World War II, Vietnam, DESERT STORM, and in peacetime—will hold its 76th Annual Reunion 17-21 August 1994 in Kansas City, Missouri.

Anyone who wants additional information may write to me at 5 Montgomery Avenue, Philadelphia, PA 19118, or call (215) 836-4841.

ARTHUR L. CHAITT
Executive Director

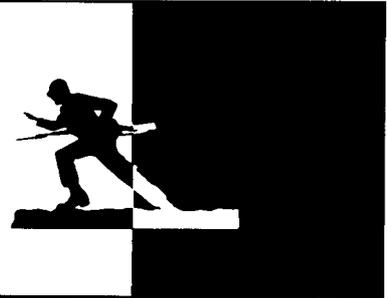
AIR FORCE ACADEMY HISTORY SYMPOSIUM

The United States Air Force Academy will hold its Sixteenth Military History Symposium, titled "Tooling for War: Military Transformation in the Industrial Age," 21-23 September 1994.

For further information, anyone who is interested may write to me at HQ USAFA/DFH, 2354 Fairchild Drive, Suite 6F37, USAF Academy, CO 80840-6246, or call (719) 472-3230/FAX (719) 472-2970.

JOHN T. FARQUHAR
MAJ, USAF
Executive Director

INFANTRY NEWS



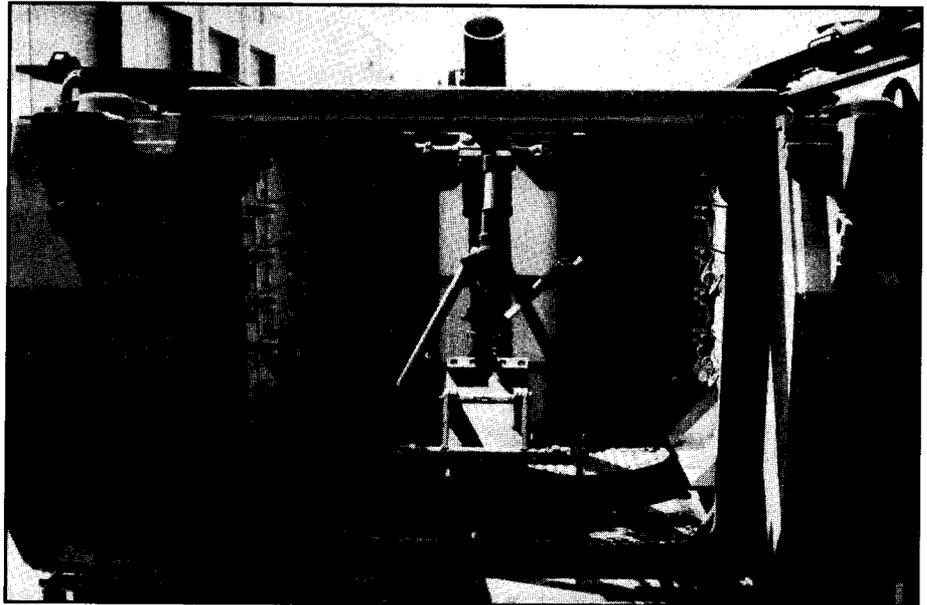
THE NEW M121 MORTAR, a carrier-mounted version of the M120, is scheduled for fielding during the third quarter of Fiscal Year 1994. It will replace the M30 4.2-inch mortar in mechanized and armor battalions and cavalry squadrons. In addition to its primary employment as a carrier mounted system on the M1064 carrier, the M121 can be dismounted into a ground mount firing posture by its four-man crew.

The M120 towed version was fielded in some units in 1991. The aging of the 4.2-inch mortar and its family of munitions, in addition to the imposition of other firing safety constraints, led to the decision to replace the M30 with the M121 on a one-for-one basis.

The enhanced performance characteristics and lethality of the 120mm over the 4.2-inch mortar will give maneuver commanders considerably more indirect fire capabilities. With the introduction of the 120mm smoke round, we have achieved both range equivalence with the high explosive round and a 100-percent increase in smoke obscuration effectiveness over the 4.2-inch smoke round it replaces.

Continuing developments will make this mortar even better: Look for improvements in the 120mm family of mortar ammunition, upgrades of the M1064 carrier, and a new family of fuses. Advanced ammunition types including infrared illumination, rocket-assisted, and smart round technologies are to be investigated for FY 2000 and beyond.

For training, an 81mm mortar training insert, M303, will be issued, one for each two guns. The M300 series of 81mm service ammunition, plus the M880 short-range training round can be fired from the M303 insert. For FY 2000 and beyond, the development of a full-caliber 120mm, full-range practice



COMPARATIVE MORTAR CHARACTERISTICS

WEAPON SYSTEM	120MM BATTALION MORTAR SYSTEM	
	M120 and M121	M30 4.2-INCH MORTAR
Assembled Weight	716.1 lbs—M120 on Trailer 316.8 lbs—M120/M121 399.3 lbs—M1100 Trailer	672.5 lbs
Elevation	800 to 1511 mils	800, 900, or 1065 mils
Rate of Fire		
Maximum	16 rds/min—1st minute	18 rds/min—1st minute
Sustained	4 rds/min	3 rds/min
Cannon	Smooth bore	Rifled tube
Ammunition	Fin stabilized	Spin stabilized
Combat Load (Rds)	36 (M120), 69 (M121)	88
High Explosive		
Maximum Range	7,200 meters w/NDI*	6,840 meters (M329A2)
Minimum Range	200 meters w/NDI*	770 meters
Bursting Radius	60 meters	40 meters
Width of Final Protective Fire	480 meters (6 tubes)	320 meters (6 tubes)
Smoke (WP)		
Maximum Range	7,200 meters	5,650 meters (M328A1)
Minimum Range	200 meters	920 meters
Illumination		
Maximum Range	7,100 meters	5,490 meters (M335A2)
Minimum Range	200 meters	400 meters
Burn Time	60 seconds	90 seconds
Candlepower	1,000,000 lumens	850,000 lumens
Area Illuminated	1,500 meters	800 meters

*Non-developmental item (Israel)

round will be pursued.

Current fielding plans call for all Force Package-1 units to be re-equipped with the M121 mortar during the fourth quarter of FY 1994. All remaining Active Army and Reserve Component units are programmed to complete fielding no later than the third quarter of FY 1997.

In support of the fielding plan, training on the 120mm should begin during the third quarter of FY 1994 for one-station unit training (OSUT) soldiers in MOS 11C and for officer and noncommissioned officer courses.

(This item was prepared by Walter P. McCann, Directorate of Combat Developments, U.S. Army Infantry School.)

THE FOLLOWING PUBLICATIONS will be distributed to the field in March or April 1994:

Field Manual 23-10, *Sniper Training and Employment*, provides information needed to train and equip snipers and to aid them in their missions and operations. It is organized as a reference for snipers and leads the trainer through the material needed to conduct sniper training.

Field Manual 23-14, *M249 Light Machine Gun in the Automatic Rifle Role*, provides technical information, training techniques, and guidance on the M249, formerly known as the squad automatic weapon (SAW), in the automatic rifle role. Unit leaders and designated automatic riflemen will find this information invaluable in their efforts to integrate this weapon into their combat operations.

Field Manual 23-31, *40mm Grenade Launcher, M203*, provides technical information, training techniques, and combat techniques on the M203 grenade launcher. This manual discusses gunnery training and train-the-trainer techniques and includes an appendix on the M79 40mm grenade launcher.

In a correction to the publications update that appeared in INFANTRY's November-December 1993 issue, page 4, **STP 7-11C14-SM-TG, *Soldier's***

Manual and Training Guide, MOS 11C, Indirect Fire Infantryman, is scheduled for publication in June or July 1994.

THE LIGHTWEIGHT LEADER computer (LLC), now being developed under the Soldier Enhancement Program, will integrate leaders from squad to company level into the digital battlefield of the future.

The LLC will improve the situational awareness of these small-unit leaders and enable them to plan and disseminate

operational information faster and more accurately. They will be able to react to changes in plans and the enemy and friendly situation, and to call fire on enemy locations more quickly.

The characteristics required of the LLC include the following:

- Size of less than 9x6x2 1/2 inches to fit in the side pocket of BDU trousers.
- Weight of less than four pounds (less than two pounds desired).
- Powered by 12 VDC and 24-32 VDC or internal batteries for at least 16 hours (110/220 VAC, 60/50 Hertz capability desired).

BRADLEY CORNER

THE BRADLEY INSTRUCTOR Company, 1st Battalion, 29th Infantry, at Fort Benning, is the institutional training unit for all Bradley fighting vehicle technical tasks. The company trains the Basic Bradley Transition Course, the Master Gunner Course, sergeants through lieutenant colonels in the Bradley Leader Course, and the Infantry Pre-Command Course trains battalion and brigade command and command sergeant major designees.

During the past year, the company has trained more than 4,500 students. All of them met the institutional training standards and are now stationed in units throughout the world. The instructor company would like to know whether the soldiers going to your units are sufficiently trained in the right areas. Any input will increase the quality of the courses and also provide you with soldiers who are better able to meet mission requirements.

Soldiers coming to your unit from the Basic Bradley Course are of particular concern. Are they capable of performing the tasks you ask of them? If not, what tasks do you feel should be deleted, added, or given more attention? Examples of this are driving and swimming the Bradleys. Considering your unit's required driver training programs, is it an effective use of institutional training time and resources to familiarize each of these students with

driving? Is swimming Bradleys for each student during the course worth the time and resources involved, or would a demonstration of the Bradley's swim operations and drive capabilities be a better use of time?

Please look at newly trained master gunners in the same manner. Are they capable of performing the tasks asked of them? Are they proficient in these tasks? Again, what areas do you feel should be added, deleted, or given added emphasis?

Most of the students graduating from the Bradley Leader Course are either newly commissioned second lieutenants or captains who have completed light infantry assignments. During the first four weeks, the course trains these students to perform as Bradley vehicle commanders and, in the last two weeks, concentrates on tactics. The same questions apply to these officers.

As the proponent for all institutional Bradley training, the Bradley Instructor Company would appreciate feedback from any level on the quality of the soldiers being trained.

Please send replies to Commander, Bradley Instructor Company, 1st Battalion, 29th Infantry, ATTN: ATSH-INA-BI, Fort Benning, GA 31905; telephone DSN 784-6136/6433 or commercial (706) 544-6136/6433.

• Operational functions accomplished by use of both voice and digital data information (LLC will be compatible with both the AN/PRC-126 and SINC-GARS radio systems). The data may be in formatted messages, free-text messages, or graphics.

• The initial LLC will include preparation, transmission, and reception capabilities for several reports—as a minimum: call for fire, situation, contact, spot, and position update reports.

Some of the more desirable features of the LLC will be its ability to interface with the Global Positioning System (GPS), the laser range finder, and the new digital compass, and also to transmit and receive military overlays.

The LLC is projected for initial fielding in Fiscal Year 1997.

ADDITIONAL PROTECTIVE BODY ARMOR for soldiers has been developed in response to events in Mogadishu, Somalia, in October 1993. Two-thirds of the injuries suffered by U.S. troops there were from shrapnel or bullet wounds in the lower abdomen, arms, and legs—areas not protected by the PASGT (personal armor system, ground troop) vests the soldiers were wearing. Officials in Somalia made an urgent request for additional ballistic protection for the extremities that would not add more than 17 pounds to the weight the soldier carried.

A team from the U.S. Army Natick Research, Development, and Engineering Center; the Training and Doctrine Command's Project Manager-Soldier; the Army Research Laboratory; and industry responded. In 11 days after the original request, the team developed and shipped two such items to Somalia.

Leg Protection. The team addressed leg protection by modifying the trousers from the Body Armor System Individual Countermine (BASIC) armor, which had been developed for combat engineers. The modified trousers offer ballistic protection equal to that of the PASGT vest. The modified trousers are slightly shorter and lighter to allow

ground troops the mobility they need to react quickly. An arm protection design was provided by a manufacturer from a similar on-the-shelf product.

Variable Body Armor. In response to another request for more armor and more protective equipment from combat engineers in Somalia, Natick provided 60 additional BASIC sets and augmented that protection with 60 sets of variable body armor (VBA). The VBA boron carbide ceramic plates, worn over the PASGT vest, will stop high-speed projectiles, including fragments and small rounds such as that of the AK-47.

Head Protection. Combat vehicle crewmen (CVC) assigned to Somalia needed better ballistic protection than the older model fiberglass helmets they



The modified BASIC trousers offer protection equal to that of the PASGT vest.

were wearing. As a quick response to this need, add-on ballistic upgrade kits, along with Kevlar CVC helmets, were shipped to Somalia to replace the older helmets. (This item had been requested

earlier for CVC crews in Operation DESERT STORM, but was not used because of the quick resolution of that conflict.) Combined, the upgrade kit and the Kevlar helmet offer the same level of ballistic protection as an infantryman's PASGT helmet. Like the body armor, the upgrade kit and Kevlar helmet are meant for combat situations only, not for everyday use.

Meanwhile, however, a new improved CVC helmet shell that incorporates the protection of both the Kevlar helmet and the ballistic upgrade kit into one less bulky item was developed and recently shipped to Somalia. This helmet shell is meant to be worn on a regular basis.

SEVERAL AN/PRC-139(C) tactical radios have been modified for use in tests to provide direct voice and data communications between computers and sensors for the Land Warrior/Next Generation Soldier test bed. The modification has added a digital data transmission capability to the radio system for direct high-speed RS-232 data transfer between computers without modems.

The test bed is exploring concepts that will eventually define the equipment U.S. soldiers will carry into battle in the early 21st century. Operational tests of the Land Warrior test beds will be performed by the National Training Center. The tests will demonstrate the transfer of both voice and digital information between soldiers in a combat environment. The digital information consists of imagery and data that include location, situational awareness, and command and control.

The basic AN/PRC-139(C) tactical radio system is now in full production and in use by all of the U.S. armed services. The system provides tactical multiband, encrypted communications in a hand-held package. It is part of an overall tactical communications system that includes the AN/GRC-238 base station, the AN/TRC-199 tactical repeater, and the OF-228/U vehicle adapter.

MICROCLIMATE COOLING (MCC) systems have been used for many years to help prevent heat casualties in soldiers wearing protective garments, and the development of such systems continues.

In the early 1980s, an ambient air cooling system (called protective outfit, toxicological, microclimate controlled) demonstrated the feasibility and benefit of providing MCC to the individual soldier. This ensemble was a completely self-contained chemical-biological protective suit for explosive ordnance disposal (EOD) personnel working in contaminated environments. A forced flow of filtered ambient air was channeled into the suit for body heat regulation and breathing.

In 1985 a combat vehicle crewman MCC air vest was developed and adopted for Army use. It is currently fielded with the M1A1 tank and is being used with the developmental cooling system of the M9 armored combat earthmover (ACE).

The U.S. Army Natick Research, Development, and Engineering Center—the Army's lead organization for clothing and individual equipment—has continued working with other agencies and industry in the development of microclimate cooling systems.

Currently in advanced development are two major MCC programs:

The STEPO (self-contained, toxic environment, protective outfit) cooling system, which began as a quick-fix system for EOD personnel, is man-portable and powered by a brushless DC motor and lithium batteries. In a tethered mode, it can operate on vehicle electric power.

The Individual Microclimate Cooling System (IMCS) is a self-contained, portable, liquid cooling system, whose vapor compression components were developed and improved by Natick personnel working with industry.

These two programs use many of the same components—cooling garment, compressor, condenser, evaporator, thermal expansion valve, water pump, and fans/blades.

Looking toward next-generation systems, an ambient air MCC system is one



Individual microclimate conditioning system (IMCS) back pack cooler and vest.

component of the Soldier Integrated Protective Ensemble (SIPE), which was completed successfully in Fiscal Year 1993. SIPE, a modular, head-to-toe individual fighting system for the dismounted soldier was designed to improve combat effectiveness while

providing balanced protection against multiple battlefield hazards.

The major emphasis of Natick's current technology-based efforts is to support the cooling requirements of Land Warrior, the integrated soldier system of the future.

"GATOR" AIR-DELIVERED MINE systems will be produced under a recently awarded contract. The contract calls for the production of approximately 1,400 systems to be delivered in early 1996.

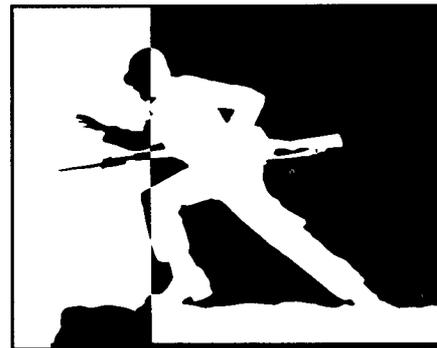
The Gator system consists of 94 mines in a tactical munitions dispenser. (See "The CBU-89 'Gator' Minefield," by Captain Daniel L. Thomas, *INFANTRY*, January-February 1992, pages 18-19.)

SUPPLIES OF NERVE-GAS ANTI-DOTE auto-injector systems to meet possible future needs will be maintained under a recent contract. The contract is the first in a series of programs designed to make sure adequate supplies of critical items are kept available.

The agreement calls for the retention of key personnel and facilities to ensure expertise in the manufacture of nerve

gas antidotes; the storage of expired auto-injectors that have been returned from the field; the management of a shelf-life extension program; and new orders for auto-injectors. A surge capability provision ensures that defense mobilization requirements will be met in the event of rapid deployment.

These auto-injectors are pen-like medical devices that allow individuals to self-inject precise drug dosages quickly.



round will be pursued.

Current fielding plans call for all Force Package-1 units to be re-equipped with the M121 mortar during the fourth quarter of FY 1994. All remaining Active Army and Reserve Component units are programmed to complete fielding no later than the third quarter of FY 1997.

In support of the fielding plan, training on the 120mm should begin during the third quarter of FY 1994 for one-station unit training (OSUT) soldiers in MOS 11C and for officer and noncommissioned officer courses.

(This item was prepared by Walter P. McCann, Directorate of Combat Developments, U.S. Army Infantry School.)

THE FOLLOWING PUBLICATIONS will be distributed to the field in March or April 1994:

Field Manual 23-10, *Sniper Training and Employment*, provides information needed to train and equip snipers and to aid them in their missions and operations. It is organized as a reference for snipers and leads the trainer through the material needed to conduct sniper training.

Field Manual 23-14, *M249 Light Machine Gun in the Automatic Rifle Role*, provides technical information, training techniques, and guidance on the M249, formerly known as the squad automatic weapon (SAW), in the automatic rifle role. Unit leaders and designated automatic riflemen will find this information invaluable in their efforts to integrate this weapon into their combat operations.

Field Manual 23-31, *40mm Grenade Launcher, M203*, provides technical information, training techniques, and combat techniques on the M203 grenade launcher. This manual discusses gunnery training and train-the-trainer techniques and includes an appendix on the M79 40mm grenade launcher.

In a correction to the publications update that appeared in INFANTRY's November-December 1993 issue, page 4, **STP 7-11C14-SM-TG, *Soldier's***

Manual and Training Guide, MOS 11C, Indirect Fire Infantryman, is scheduled for publication in June or July 1994.

THE LIGHTWEIGHT LEADER computer (LLC), now being developed under the Soldier Enhancement Program, will integrate leaders from squad to company level into the digital battlefield of the future.

The LLC will improve the situational awareness of these small-unit leaders and enable them to plan and disseminate

operational information faster and more accurately. They will be able to react to changes in plans and the enemy and friendly situation, and to call fire on enemy locations more quickly.

The characteristics required of the LLC include the following:

- Size of less than 9x6x2 1/2 inches to fit in the side pocket of BDU trousers.
- Weight of less than four pounds (less than two pounds desired).
- Powered by 12 VDC and 24-32 VDC or internal batteries for at least 16 hours (110/220 VAC, 60/50 Hertz capability desired).

BRADLEY CORNER

THE BRADLEY INSTRUCTOR Company, 1st Battalion, 29th Infantry, at Fort Benning, is the institutional training unit for all Bradley fighting vehicle technical tasks. The company trains the Basic Bradley Transition Course, the Master Gunner Course, sergeants through lieutenant colonels in the Bradley Leader Course, and the Infantry Pre-Command Course trains battalion and brigade command and command sergeant major designees.

During the past year, the company has trained more than 4,500 students. All of them met the institutional training standards and are now stationed in units throughout the world. The instructor company would like to know whether the soldiers going to your units are sufficiently trained in the right areas. Any input will increase the quality of the courses and also provide you with soldiers who are better able to meet mission requirements.

Soldiers coming to your unit from the Basic Bradley Course are of particular concern. Are they capable of performing the tasks you ask of them? If not, what tasks do you feel should be deleted, added, or given more attention? Examples of this are driving and swimming the Bradleys. Considering your unit's required driver training programs, is it an effective use of institutional training time and resources to familiarize each of these students with

driving? Is swimming Bradleys for each student during the course worth the time and resources involved, or would a demonstration of the Bradley's swim operations and drive capabilities be a better use of time?

Please look at newly trained master gunners in the same manner. Are they capable of performing the tasks asked of them? Are they proficient in these tasks? Again, what areas do you feel should be added, deleted, or given added emphasis?

Most of the students graduating from the Bradley Leader Course are either newly commissioned second lieutenants or captains who have completed light infantry assignments. During the first four weeks, the course trains these students to perform as Bradley vehicle commanders and, in the last two weeks, concentrates on tactics. The same questions apply to these officers.

As the proponent for all institutional Bradley training, the Bradley Instructor Company would appreciate feedback from any level on the quality of the soldiers being trained.

Please send replies to Commander, Bradley Instructor Company, 1st Battalion, 29th Infantry, ATTN: ATSH-INA-BI, Fort Benning, GA 31905; telephone DSN 784-6136/6433 or commercial (706) 544-6136/6433.

PROFESSIONAL FORUM



Owning the Night

CAPTAIN LEWIS G. WAGNER

The U.S. Army has long relied upon night operations to maintain an edge on the battlefield, and the ability to dominate the night was demonstrated during Operation DESERT STORM. In 1992, the Dismounted Battlespace Battle Lab at Fort Benning, Georgia, was given the responsibility for horizontally integrating own-the-night (OTN) technologies throughout the force.

The first step toward this goal was to develop a concept of night fighting capabilities that would establish the objective requirements for fighting and winning on the battlefield. The second step was to use this concept to conduct two advanced warfighting experiments—one at squad and platoon level and another at company and battalion level.

The Battle Lab identifies new ideas and technologies and coordinates with industry, various Army laboratories, and other members of the technology base to develop them. The Battle Lab then experiments, studies, models, and analyzes the capabilities to develop materiel and force structure requirements to prepare for and meet future challenges. These experiments integrate doctrine, training, leader development, organization, materiel, and soldier (DTLOMS) requirements and culminate in field experiments and demonstrations using tactical Army units and

soldiers to employ the new technology and equipment.

One of the problems encountered in trying to analyze OTN was the lack of baseline data for comparison. Until the night fighting capabilities concept established the requirement to pursue own-the-night initiatives, night fighting devices were developed piecemeal for



individual weapons or items of equipment on the basis of narrow requirements for one slice of the battlefield. The worldwide proliferation of night fighting technologies, the availability of current equipment on the open market, and the diverse nature and the sophistication of our potential enemies demand that we attain our objective capabilities by integrating solutions from all elements of DTLOMS.

In October 1992 the Battle Lab conducted a squad and platoon level OTN

experiment at Fort Benning to develop a baseline. In this experiment, Battle Lab personnel used a platoon from the 3d Brigade, 24th Infantry Division, to employ a variety of night fighting technologies and to conduct experiments in target detection, range firing, defensive live fire, and both dismounted and mounted squad and platoon exercises. (The results of this experiment are provided in the final test report, "Concept Evaluation Program Test of the Infantry Platoon Night Fighting System," April 1993.)

The second Advanced Warfighting Experiment was conducted from 23 September to 28 October 1993 at Fort Campbell, Kentucky. The purpose of this joint, combined arms experiment was to validate the basis-of-issue plan for a system of night fighting equipment; to demonstrate and evaluate the doctrinal TTPs (tactics, techniques, and procedures), training, leader development, organizational, and soldier support implications of this system of equipment; and to refine operational requirements for the emerging technologies associated with this system of equipment. This effort supported the Louisiana Maneuvers OTN issue. The objectives included identifying technologies that showed promise as warfighting enhancements to lethality and survivability and focused on TTPs

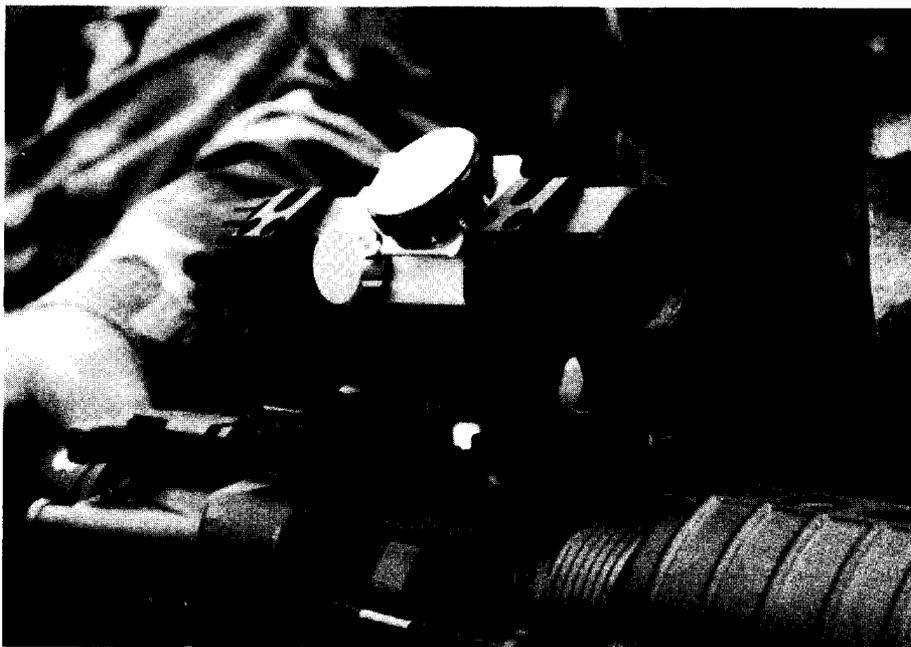
that improved joint, combined arms operations at night.

At Fort Campbell, the Battle Lab's OTN team assessed the military utility and effectiveness of various night fighting equipment items and technologies. The team observed and documented changes to TTPs to improve company and battalion operations in reduced visibility conditions. The experiment also provided an opportunity to look at other Soldier Enhancement Program (SEP) items to determine their military usefulness and effectiveness. The Infantry School will use the results to support decisions concerning night fighting tactics, techniques, and materiel use.

The 2d Brigade, 101st Airborne Division, supported the advanced warfighting experiment during its gold training cycle. The Battle Lab worked closely with the brigade's commanders and staff and its supporting combat support (CS) and combat service support (CSS) units to make sure the OTN issues, equipment, and technologies supported and enhanced the brigade's training objectives.

The brigade's units included an air assault infantry battalion, a forward support battalion, a Military Police (MP) platoon, an engineer battalion, and a military intelligence battalion. Army UH-60, CH-47, and AH-64 helicopters; Marine Corps UH-1 gunships; and Air Force AC-130, F16, and A-10 aircraft supported these units. The pilots experimented with the OTN equipment normally employed by ground units to mark landing and pick-up zones, identify friendly unit locations, and designate targets for attack aircraft.

All air missions were flown at night in support of the battalion's training missions. U.S. Marine Corps ANGLICO (air and naval gunfire liaison company) teams and Air Force liaison teams controlled the aircraft using hand-held laser pointers, infrared marking beacons, thermal heat pads, and strobes. A mix of equipment supported the aircraft using both thermal imaging and image intensification devices. Ground troops carried marking equipment to use in identifying their positions to the aircraft



Red dot sight with lenses enclosed in a sealed tube.

flying close air support. This was important in developing techniques and procedures the soldiers on the ground could use to work with supporting aircraft at night. With the use of OTN equipment, targets and friendly positions can be identified to the aircraft at night, allowing them to kill enemy targets with less risk of fratricide.

A Navy SEAL (sea, air, land) team also trained at Fort Campbell during the experiment. The Battle Lab provided the team with OTN equipment to use in MOUT (military operations on urban terrain) training—AN/PVS-7B night vision goggles, three-power magnifier lenses for the goggles, AN/PVS-7B compass, AN/PAQ-4B aiming light, GCP-1 and LPL-30 hand-held laser pointers, Phoenix codeable infrared light (known as Buddlights), pocket scopes, and monocular night vision goggles. The SEAL team's assessments gave the OTN team an opportunity to develop the technology jointly. (Joint development saves acquisition dollars and justifies speeding up the acquisition process to get the items in the hands of the soldiers.)

The advanced warfighting experiment began with range firing the M16A2 using the red dot optical sight during the day and various IR aiming lights at night. The Battle Lab also experimented with extending the range of the M249 light machinegun at night by using laser aiming devices and a new

third-generation AN/PVS-4. The brigade elements assessed the utility and capability of new technology to enhance combat operations.

The purpose of the red dot sight experiment was to assess the training requirements and military utility of the sight in improving unit combat effectiveness. The sight reticle consists of a sharp luminous red dot with adjustable intensity that is projected onto an optical element and reflected back to the firer's eye. When the sight is boresighted to the rifle, the bullet impact is approximately where the red dot overlays the target. The red dot is not projected onto the target; it is visible only within the sight reticle. Two types of sights were used for this experiment—one with exposed lenses and one with lenses enclosed in a sealed tube.

The major findings of the red dot sight experiment related to training requirements, training transfer, and zeroing the sight. The test showed a high degree of training transfer from iron sights to using the red dot sight. In general, soldiers who qualified as expert marksmen with iron sights did not find a significant benefit in using the red dot. On the other hand, soldiers who had difficulty with iron sights improved their marksmanship with the red dot sight.

Zeroing the M16A2 with the red dot sight required about the same number of rounds as required in zeroing the rifle's iron sights. The test also showed that



This night photo made using third-generation image intensification technology reveals a soldier wearing the AN/PVS-7B night vision goggles.

the sight adjustments needed to be consistent with the M16A2 iron sights and zero target. (These findings and other design recommendations were included in a separate Dismounted Battlespace Battle Lab report titled "Experimentation and Analysis of the Utility and Training of the Red Dot Optical Sight," December 1993.)

The night-firing portion of the experiment compared three aiming lights: the AN/PAQ-4A, the AN/PAQ-4B, and the IRAD (infrared aiming device) 2500. Two questions were addressed: Is zeroing at 25 meters better with one of these aiming lights than with the other? Is there a difference in the number of targets hit at various ranges with the different aiming lights?

The Army Research Institute (ARI) field unit at Fort Benning assisted with these comparisons, collected and analyzed data, and provided an interim report for inclusion in the final report of the company and battalion level experiment.

The resulting data supported the idea that different zeroing procedures are needed for aiming lights. It is difficult to obtain a good aim point for two reasons—the lack of a clear image through night vision goggles and the blooming effect that obscures the small silhouette when the aiming light hits the 25-meter zero target.

Shot groups with aiming lights at night were consistently larger than shot

groups with iron sights in daylight zeroing. The large shot groups made it difficult to zero the aiming lights and contributed to the lower hit probability on the qualification range.

The aiming light comparisons during range firing showed no significant differences in the number of targets hit with the different aiming lights. Performance decreased significantly at ranges greater than 100 meters, and only chance hits were obtained at 200 meters. This low hit probability beyond 100 meters can be attributed partly to problems in zeroing and training. The primary reason for the low hit probability at 200 meters was the soldiers' inability to detect targets with the AN/PVS-7B night vision goggles.

In the platoon OTN experiment and in other trials during the company and battalion experiment, hit probability at ranges greater than 100 meters was increased when the three-power magnifier lens was used. The lens extends the range of the goggles out to 300 meters and is effective in stationary observation

and target detection roles. The weight and magnification, however, make the device difficult to use during dismounted movement.

The M249 machinegun night fire exercises were performed to determine the effectiveness of various devices, including the AN/PAQ-4B with AN/PVS-7B goggles, the IRAD 2500 with AN/PVS-7B goggles, the AN/PAQ-4B with AN/PVS-7B's three-power magnifier lens, the third-generation AN/PVS-4, the thermal weapon sight, and the baseline second-generation AN/PVS-4.

All of these experimental devices outperformed the second-generation AN/PVS-4s now on hand in the unit. The third-generation AN/PVS-4s provided the best results with target hits out to 600 meters. The iterations with the aiming light—AN/PVS-7B—three-power lenses and the thermal weapon sight all increased the M249's long-range hit probability at night. The three-power lens attached to the AN/PVS-7B during M249 firing increased by 400 meters the range at which targets were effectively engaged. The results are summarized in the accompanying table.

Following the range firing, the experiment focused on incorporating the experimental equipment into the unit training missions. The air assault battalion conducted a series of platoon exercises in which each company rotated through a force-on-force platoon assault, a platoon live-fire assault on a bunker system, a platoon live-fire ambush, and a company defense. OTN equipment was used during all these missions, and Battle Lab personnel observed and documented the tactics, techniques, and procedures for employing the equipment. Data was collected

DEVICE	RANGE: 100M	200M	300M	400M	500M	600M
II Generation AN/PVS-4	100%	100%	100%	60%		
III Generation AN/PVS-4	100%	100%	100%	100%	80%	60%
Thermal Weapon Sight	100%	100%	100%	100%		
Aim Light/AN/PVS-7B/3X Lens	100%	100%	100%	60%	50%	50%
Aim Light/AN/PVS-7B	100%	60%				

through questionnaires filled out by the soldiers after each iteration.

The final results (which will be published in the "Own the Night Advanced Warfighting Experiment" report) identify both training and materiel problems that must be addressed. The technology and equipment the battalion used were well received by the soldiers and leaders. Technology is available today to satisfy most of our night fighting requirements. Developing ways to train soldiers to operate with the improved equipment in periods of reduced visibility should be our most important goal.

Another major element of the experiment was the work done with CS and CSS elements. The FSB in the experiment established a brigade support area (BSA) to conduct its normal missions of resupply, maintenance, and medical operations. The support battalion conducted convoys and BSA security using OTN equipment to improve their night capability. Data on each piece of equipment used was collected through soldier questionnaires.

The FSB was particularly interested in the added capability of the AN/PVS-7B and other image intensification devices. Night vision goggles and pocket scopes significantly increase the night vision capability now available in CS and CSS units. The FSB was also interested in the flip-up helmet mount and the snap-on compass for the AN/PVS-7B goggles. The helmet mount attaches the

goggles to the Kevlar helmet to provide a more comfortable fit; the compass snaps onto the goggles and gives the soldier an azimuth while he is looking through the goggles.

The MP platoon conducted the missions of main supply route security and marking, traffic control point security, and rear area security against a Level II threat. The Military Police School Battle Lab task force supported the Dismounted Battlespace Battle Lab with personnel to evaluate and gather data on the MP platoon's portion of the experiment.

The two equipment items that offered the most significant capabilities for the MPs were the driver's viewer enhancement (DVE) and the electronic filmless camera.

The DVE offered the user excellent night driving capabilities as well as target identification and acquisition using the three-power magnification mode for the second generation forward looking infrared (FLIR). A system with these capabilities has important MP applications in both combat operations and operations other than war (OOTW).

The electronic filmless camera enabled the user to transmit real time battlefield images to a remote location using organic communications. The camera's primary application for the three-man MP team was its ability to interface with battlefield digitization in

combat operations. The interface allowed the team to send and receive updated intelligence reports supported by pictures day or night.

The company and battalion own-the-night advanced warfighting experiment provided insights for near-term solutions by examining innovative uses of different developmental and nondevelopmental items. The experiment looked at the equipment along with new tactics, techniques, and procedures. It also validated the results of the platoon and squad level experiment conducted by the Dismounted Battlespace Battle Lab in October 1992 at Fort Benning.

The results of the previous experiments have established the base for an OTN Advanced Warfighting Demonstration with the 101st Airborne Division at the Joint Readiness Training Center in March 1994. The conclusions from this rotation will lead to the development of a recommended battalion basis of issue and validated TTPs to give the field a synergistic system of night fighting equipment.

Captain Lewis G. Wagner is assigned to the Operations Research Systems Analysis Branch of the Dismounted Battlespace Battle Lab. He previously served in the 5th Battalion, 9th Infantry, at Fort Wainwright and in the 1st Battalion, 58th Infantry, at Fort Benning. He is a 1983 graduate of the United States Military Academy.

Warfighting Experiment During 1994 Infantry Conference

MAJOR THOMAS G. DODD

The agenda for the 1994 Infantry Conference, which is to be held at Fort Benning 9-12 May, will include an

advanced warfighting experiment prepared and presented by the Dismounted Battlespace Battle Lab.

This experiment will feature a series of force-on force situational training exercises (STXs).

The focus of the experiment will be the future operational capabilities of the U.S. Infantry and the capabilities of a unit in a rapid force projection or early entry scenario. As in the past, the conference will include briefings on Infantry School initiatives in the areas of doctrine, training, leader development, organization (or force design), materiel developments, and soldier issues, or DTLOMS. Various DTLOMS issues will also be incorporated into the experiment and emphasized by soldiers performing training tasks.

The intent of this approach is to examine warfighting improvements in lethality, survivability, mobility, command and control, and sustainment for dismounted soldiers in an integrated combined arms and joint service environment.

To accomplish this intent, the Battle Lab is examining DTLOMS issues relating to several Mission Training Plan (MTP) tasks for the infantry company. The current plan for the warfighting experiment incorporates MTP tasks into a force-on-force night exercise, followed by a daytime force-on-force operation. Units participating will be a long-range surveillance unit (LRSU) team, an air assault company team, and a mechanized infantry force. A Canadian airborne infantry company will serve as the opposing force.

The night exercise will begin with the airborne insertion of the LRSU team (Figure 1), which will conduct initial surveillance on the objective and mark the landing zone for the air assault. The air assault company team will perform the night air assault, followed by an assault on a built-up area at Fort Benning's MOUT (military operations on urban terrain) facility. As part of this assault, the company team will have to breach an obstacle and, after seizing the built-up area, occupy a defensive position to secure the town and the surrounding area. The major MTP tasks in this night exercise are shown in Table 1.

The daytime exercise (Figure 2) will be a continuation of the night portion.

During the night, the company team will transition from a hasty defense into a deliberate defense to await its link-up with the mechanized force. The mecha-

The major MTP tasks in this exercise are shown in Table 2.

The tasks selected for the experiment were those that are most representative of the difficult mission tasks for infantry units and those that provide an opportunity to evaluate critical DTLOMS issues. The tasks to be used are only a few of the 80 collective tasks for an infantry company listed in ARTEP 7-10-MTP, *Mission Training Plan for the Infantry Rifle Company*.

The airborne insertion of a LRSU team was selected because it allows for the examination of the special mission capabilities of LRSU; provides a representation of airborne infantry units (which enables the experiment to address some of the DTLOMS issues associated with the various airborne infantry elements); and addresses part of the infantry's interaction in joint operations.



nized force will move to clear lines of communication and reach the link-up point, then pass through and around the company team to attack enemy forces.

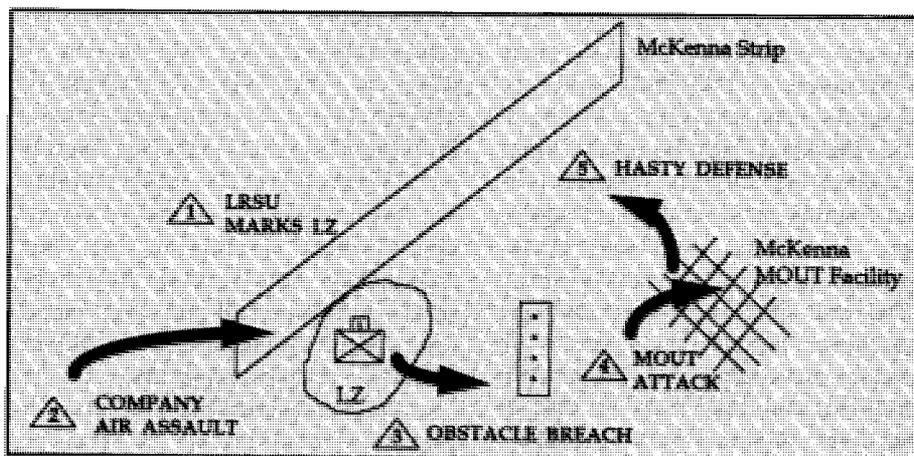


Figure 1. Night demonstration tasks.

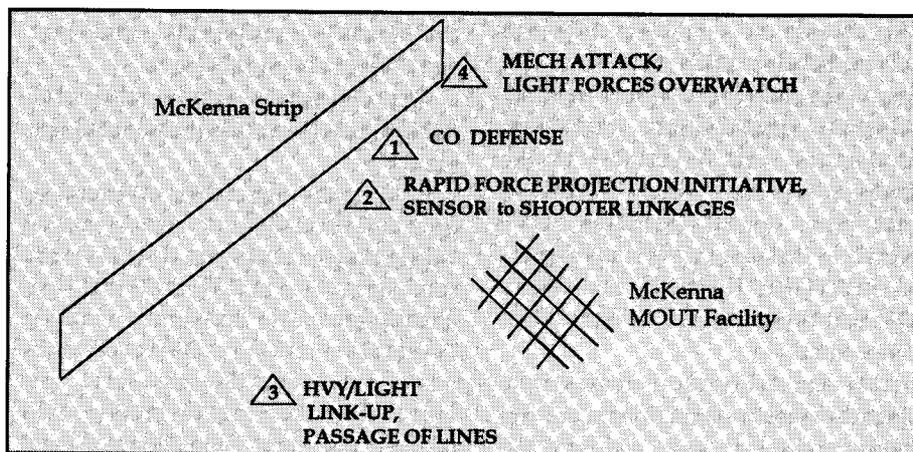


Figure 2. Day demonstration tasks.

MTP TASK	MTP TASK NUMBER
LRSU Airborne Insertion/Surveillance of Objective/Mark LZ	7-5-0018/7-5-0006 (ARTEP 7-93-MTP)/per Operation Order
Perform Air Assault	7-2-1036 (ARTEP 7-10-MTP)
Breach Obstacle	7-3/4-1014 (ARTEP 7-8-MTP)
Assault Built-up Area	7-2-1054 (ARTEP 7-10-MTP)
Defend (Hasty Defense)	7-2-1021/7-2-1055 (ARTEP 7-10-MTP)

Table 1

MTP TASK	MTP TASK NUMBER
Defend	7-2-1021/7-2-1055 (ARTEP 7-10-MTP)
Perform Link-up	7-2-1036 (ARTEP 7-10-MTP)/17-2-0318 (ARTEP 71-1-MTP)
Perform Passage of Lines	7-2-1040 (ARTEP 7-10-MTP)/17-2-0303 (ARTEP 71-1-MTP)
Assault an Enemy Position	17-2-310/17-2-0326 (ARTEP 7-1-MTP)

Table 2

The air assault operation was selected for several reasons: Light infantry gains surprise and maneuverability by conducting air assault operations (vertical envelopments). Effectively executing such operations requires close consideration of DTLOMS issues so that all the necessary pieces will be in place. Feedback from the combat training centers indicates that infantry units need training in these types of operations. In addition, air assault operations require a combined arms effort.

The task of breaching an obstacle was chosen because mines and wire obstacles are common on the modern battlefield, and units must be able to clear them. Again, a thorough examination of DTLOMS in relation to this task will identify any deficiencies.

An assault on a built-up area was selected because such operations are likely in the future, and proper training, equipment, organization, leadership, and doctrine will be critical to the infantry's success. Many DTLOMS issues came out of Operation JUST CAUSE in Panama in 1989 and Operation RESTORE HOPE in Somalia in 1993, and these deserve Infantry Conference attention.

Hasty and deliberate defenses were chosen because infantry forces are frequently required to seize and hold terrain.

Finally, the missions of link-up, passage of lines, and mounted attack were chosen as a means of examining mechanized infantry DTLOMS issues. Additionally, including mechanized forces allows for an investigation of ways to improve interoperability between light and mechanized forces. In these mission tasks, the key interest in the future will be the ability to transmit tactical overlays, situation awareness (location) information, and other coordination digitally on the battlefield so that command and maneuver tempo can be faster than the enemy's ability to respond. A close examination of the coordination required in a link-up and a passage of lines reveals an extensive list of tasks to be accomplished. With modern digital technology, these tasks can be carried out quickly, efficiently, and effectively on-the-move.

The experiment should also offer several benefits to the dismounted soldier:

First, since this series of exercises grew out of several previous advanced warfighting experiments, it will include some new items in DTLOMS that have already proved to be worthy of future development as well as improved methods of operation. The high-level visibility that these issues receive will provide for rapid consideration and assessment by field commanders.

Acceptance should lead to the further development and eventual fielding of the improvements; in some cases, it could speed the acquisition cycle and get materiel items into the soldiers' hands sooner.

Second, the experiment will allow field soldiers, not technicians, to get involved in the DTLOMS issues early. Soldiers tend to see through the "smoke and mirrors" and give their honest assessments of the value of a proposed change or improvement; and sometimes they offer solutions that may be better than those being proposed. These assessments by regular soldiers are invaluable in obtaining solutions that are accepted and usable.

The significance of this warfighting experiment approach to combined arms and joint operations can be summed up in a few sentences:

It provides an opportunity to integrate the proposed solutions into a combined arms and joint field environment. The examination of the tasks selected directly involves the integration of aviation, field artillery, engineers, armor, and joint air assets. This approach will offer solutions that have been tested in an environment closely resembling the one in which the unit is expected to operate. The result will be solutions that are integrated, both horizontally and vertically, throughout the force.

In summary, the Infantry Conference will provide an opportunity to examine and validate DTLOMS developments in a combined arms and joint environment. This new way of doing business should result in shorter fielding time for equipment and doctrine to address specific problems; and, of particular interest to the infantryman, the Dismounted Battlespace Battle Lab focuses on the dismounted soldier's own perspective of the battlefield.

Major Thomas G. Dodd is an operations research, systems analyst in the Dismounted Battlespace Battle Lab. He previously served in the 82d Airborne Division and the 25th Infantry Division and on the faculty of the United States Military Academy. He is a 1981 graduate of the United States Military Academy and holds a master's degree from the Naval Postgraduate School.

Commander's Intent

Providing the Focus for Operations

MAJOR KEVIN C.M. BENSON

A great deal of attention has been devoted in recent years to the importance of a clear commander's intent statement. The U.S. Army Command and General Staff College teaches a format approach to the intent: essentially, purpose, method, and end state.

In the five-paragraph field order, the intent follows immediately after the concept of the Operation, and the recommended length of an intent is three to five sentences. But I have seen intent statements ranging from one or two sentences—scribbled on the matrix format task force operations order (found in Field Manual 71-2, *The Tank and Mechanized Infantry Task Force*)—to the multi-paragraph intents found in general defense plans and formal, deliberate plans at corps level and higher. Ultimately, however, the intent should express the purpose of the operation and the desired end state. Intent and mission are linked by the purpose of the operation.

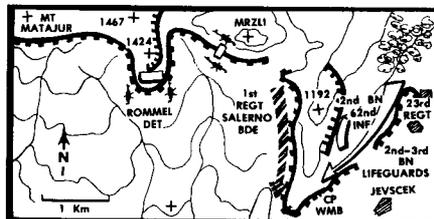
During an informal discussion at Fort Leavenworth in 1991, Brigadier General Huba Wass de Czege cited an incident from German General Erwin Rommel's classic book *Attacks* as the best result of a clear commander's intent:

In October 1917 Rommel was a lieutenant serving with the Wuerttemberg Mountain Battalion in the Italian Alps. The fortifications around Mount Matajur, the highest point in the region, were key to the Italian defenses (Map 1). Over a period of days, Rommel led attacks that reached the mountain's

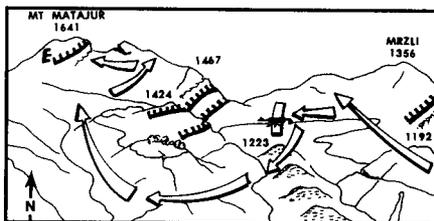
slopes. These attacks were so successful that he was on the verge of breaking through the defenses and unhinging the entire front. Flushed with success, he was preparing to continue the attack

[Rommel] asked himself, "Should I break off the engagement and return to Mount Cragonza?... No!" He reasoned that the order to do so was based on incorrect knowledge of the situation and the existing opportunity.

when an order from his battalion commander reached him: "The Wuerttemberg Mountain Battalion withdraws." The battalion commander, on a moun-



Map 1



Map 2

tain peak behind Rommel, formed the impression that Mount Matajur had been taken and was ordering a reorganization of the battalion for the defense. Rommel was faced with a dilemma—continue the attack or comply with orders.

The situation was unfolding. Most of the battalion began to withdraw, except for the forces with Rommel. He asked himself, "Should I break off the engagement and return to Mount Cragonza [the site of the battalion commander]...No!" He reasoned that the order was based on incorrect knowledge of the situation and the existing opportunity. He wrote later in *Attacks*, "Unfinished business remained...and the terrain favored the plan of attack" (Map 2). Rommel successfully broke through the Italian defense and seized Mount Matajur.

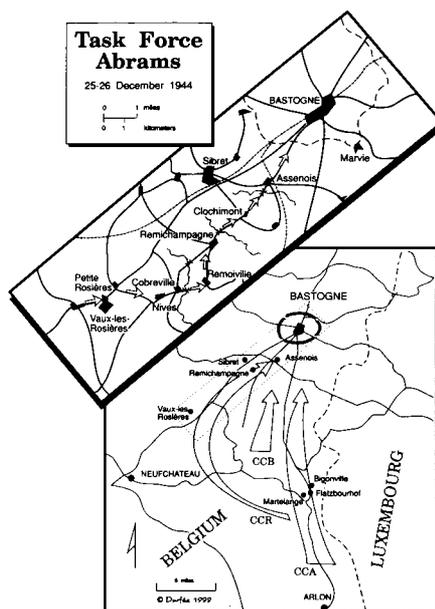
General Wass de Czege asked the rhetorical question, "How did Lieutenant Rommel know that taking Mount Matajur would break the Italian defense in the Alps?" His answer to this question was that the corps commander had clearly spelled out the reason for his intent. And one small-unit leader, who had a clear understanding of the higher commander's intent, acted in accordance with that intent instead of following orders.

A similar incident occurred during the Battle of the Bulge in December 1944 when Lieutenant Colonel Creighton W. Abrams understood the intent of the army commander: "Relieve Bastogne."

Bastogne was encircled, and the U.S. 4th Armored Division was ordered to relieve it. Abrams, commanding the 37th Tank Battalion, led the vanguard of the Combat Command Reserve (CCR). The plan was to attack through the town of Remichampagne, to Clochimont, then to Sibret, and finally into Bastogne. Abrams led from the front in his own tank, Thunderbolt.

The battle for Remichampagne went well, assisted by a flight of Air Force P-47s that arrived unexpectedly to bomb and strafe the German defenses. By mid-afternoon, Abrams' battalion was down to 20 tanks, and the infantry battalion of the CCR (a French battalion) was understrength by 200 men. Darkness was falling fast. The orders were to continue to Sibret. Abrams sensed that the enemy was in strength there but that he could break through to Bastogne and begin the relief if he went through the town of Assenois. Lewis Sorley, in his biography of Abrams, says that Abrams said to Lieutenant Colonel George Jaques (the infantry battalion commander), "Let's try a dash through Assenois straight into Bastogne," and "[They] didn't check with anyone about this switch in plans. The CCR commander was weak...and if Abrams had called and asked for the change in mission, he probably would have been denied." (*Thunderbolt From the Battle of the Bulge to Vietnam and Beyond: General Creighton Abrams and the Army of His Times*, Simon & Schuster, 1992, page 76.)

Abrams and the 37th Tank Battalion made the dash and linked up with the 101st Airborne Division soldiers holding Bastogne. Still later in the battle, the CCR commander ordered his forces to move into the lines of Bastogne. According to Sorley, Abrams thought this was "a bad idea, that the line from Remoiville to Remichampagne to Clochimont to Assenois ought to be manned to secure the corridor leading into Bastogne." Abrams, the commander on the spot, knew that the most important mission—relieving Bastogne—took precedence over an order issued without current knowledge of the situation.



Map 3

The intent in each of these instances clearly conveyed the guiding purpose of the operation. It served as it was intended, providing guidance in the absence of other orders or even conflicting orders. In both of these situations, the commander on the scene understood the intent of

Abrams [whose orders were to continue to Sibret] said, "Let's try a dash through Assenois straight into Bastogne," and...didn't check with anyone about the switch in plans.

the operation and knew that accomplishing that intent and the original mission was more important than following orders to execute a new mission.

These historical examples highlight the need to make the intent statement very clear. Since operations do not unfold as expected once contact is made, the statement must provide focus for commanders at least two levels down. During an operation, decisions must often be made at once, with little or no time for contemplation. Prussian General Karl von Clausewitz tells us that war is the realm of uncertainty and chance. Information and assumptions made dur-

ing the planning process are open to doubt after contact. In this fog of war, the guiding light must be the commander's intent.

The intent is a key part of the operation plan, and, as these examples show, there are times when accomplishing the intent far outweighs accomplishing the mission.

The intent as we now write it is part of the Execution paragraph of the field order, immediately after Concept of the Operation. This placement implies a tie to the concept; indeed, since the recommended format includes Method as a part of the intent, this may be the correct place for it. But the true tie, as the examples show, is not to the concept or the method of employment of forces but to the mission.

The commander's intent is not a restatement of the concept; it is tied to the mission as a description of the operation's guiding purpose. The method unique to the fighting style of a commander must be transmitted face to face, commander to commander. Once the battle is joined, subordinate commanders must be guided by the purpose of the operation and the desired end state of our forces relative to those of the enemy. A platoon leader engulfed in smoke near Old Baldy at the Combat Maneuver Training Center in Germany, when he sees the grill doors of the opposing force's vehicles, must know in his heart that attacking the regiment fulfills the commander's intent.

Returning to the tie between mission and commander's intent and where to put the intent in the field order, I believe it should be paragraph 2.b. of the order:

1. SITUATION.
2. a. MISSION.
- b. COMMANDER'S INTENT.
3. EXECUTION.

The commander's intent should express, as a minimum, the purpose of the operation and the desired end state. Placing the intent with the mission will not inhibit any commander from stating what he wants in the intent sub-paragraph. And this placement of the intent will more clearly demonstrate the natural tie between the two. The method of employment properly belongs in the

concept of the operation. The intent is not a restatement of the concept. Its purpose is to guide the action of subordinate units and leaders when events become wrapped in the confusion of battle.

Clausewitz wrote more than 100

years ago that, "Everything in war is very simple, but the simplest thing is difficult." The soul of the mission order is in the intent—the "simple thing" that must be accomplished and that commanders must therefore keep in mind throughout the operation.

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To The New XO At Any Level: Some Practical, Hard-Learned Advice

LIEUTENANT COLONEL ROBERT G. BOYKO

You have been chosen to serve as an executive officer—at company, battalion, or brigade level—the second-in-command of an Army unit, one heartbeat away from the top job. You are probably both excited and apprehensive about this new assignment. Having served as an XO at each of these levels, I would like to give you some practical, hard-learned advice on how to succeed as an XO—at any level.

First of all, let me be brutally frank: If your new title of executive officer conjures up images of you replacing your fallen commander in the heat of battle and leading your troops to victory, you need to think again. There is always that possibility, of course, but it is quite remote. Furthermore, the actual amount of time you will spend leading the unit, even in peacetime, is not likely to be more than five percent. What you should do during the other 95 percent is what this article is all about.

Your marching orders as an XO can best be stated as follows: You are in charge of all the things your boss doesn't want to do or doesn't have time to do. This means that arms rooms, supply rooms, personnel action centers, and motor pools will see more of you than the lead track or the lead platoon during the next conflict or the next combat training center rotation. In short, you

are the man behind the scenes who makes things work.

The life of an XO is not glamorous, but it is necessary. In an ideal Army, the commander at every level would be involved in every facet of his unit's existence, but this ideal can never be realized. The commander does not have the time or the energy to be everywhere, and that's why he needs you.

The best of commanders must spend most of his time planning and conducting training and operations. At battalion and brigade levels, he has an energetic and competent operations officer (S-3) to help him. This means that although your tactical ideas may be valued, if you're heavily involved in training and operations as an XO, you're probably being misused.

So what are your duties?

The answer to this question begins to emerge during a face-to-face meeting with the commander, preferably before you take over as XO. He will talk and you will listen. Hopefully, he will give you his vision of where he wants to take the unit. A good commander will also give you his ideas on what you should do and what specific areas he wants you to concentrate on. But he will not define the job for you; you will have to do that for yourself.

The next step after meeting the com-

mander is to formulate your own vision of what you want to accomplish. Take time to define your goals. These goals may include successful deployments to major training events, successful performance at those events, and successful redeployments. They can also focus on definite goals for each functional area. This vision should be the basis of your officer evaluation report support form. The goals provide a road map for your focus as XO. Over time, the people affected most by your goals—the commodity leaders and staff members—should know your specific goals for their respective areas.

Once you are armed with your vision, the next step is to meet your subordinates. Who they are is determined by the level at which you are serving, but at any level they fall into two groups: those who work primarily for you (whom you rate) and those who work for someone else but who support you or are supported by you.

At company level, the people who work for you will be the commodity managers—supply sergeant, armorer, and so on. At battalion and brigade level, they will be the primary and special staffs. The people who work for someone else but who are vital to your success at company level will be the platoon leaders and platoon sergeants.

At battalion and brigade level, they will be the XO's of the subordinate units and the leaders of the combat support and combat service support units that support yours.

Although these two groups are equally important to your success, you must deal with them differently:

The group of people who work for you includes the staff members (except for the S-3, who is a special case). Your job is to see that they are all pulling in the same direction (talking to each other); that they are working efficiently; and that they accomplish their missions. I have found the best way to meet all three of these objectives is to have a 15-minute staff meeting each morning. This allows the staff members to update each other; it gives you a chance to give guidance to the group; and it brings the staff together to facilitate coordination. (I have not found any substitute for frequent face-to-face coordination between staff members.) These meetings must start on time and end promptly. Don't allow the staff members to stroll in five or ten minutes late or let the meetings drag on.

Always acknowledge initiative on the part of a staff member (for purposes of this article, this also includes the commodity managers at company level). I can't think of any attribute that is more highly valued in a staff officer than initiative.

Force the staff members to plan ahead. You need to be very directive in this area, because they may tend to assume that the future, unlike the past, will be problem-free. But that assumption is never correct. Focus them on the future; otherwise, they will tend to get caught up in day-to-day operations and get behind in planning for upcoming events. This leads to confusion, short-cuts, and the feeling in subordinate units that the higher headquarters has deserted them and they must fend for themselves. Needless to say, example is always the best teacher. You must be the master planner in the unit. If you find yourself constantly reacting to events, your planning is inadequate.

Give your staff reasonable suspenses, and then stick to them. No one wants to

be moved around from one project to another, and all projects do not have to be completed immediately. Give the staff guidance and as much time as possible to complete an action. Then leave them alone.

For major projects, you need to schedule periodic updates to make sure the staff is on track. Always work to reduce confusion and to resist the efforts of others to make changes that do not really contribute to the good of the unit. Be available to answer questions, but don't stand over your people.

Guidance, reasonable suspenses, letting people do their jobs—I'm sure all this sounds great to subordinates, and it can be, provided they don't miss suspenses. Never overlook a missed suspense. If a staff officer needs more time, he should come to you before the eleventh hour and ask for it. I record all suspenses in a little notebook, so there is never any doubt of what has been requested or when it is due. Some of your subordinates may feel under the gun, but this approach shows that actions assigned are actions that must be completed. A good suspense system teaches the staff discipline.

S-3 RELATIONSHIP

A special area of staff concern is your relationship with the unit S-3. He has a direct line to the commander, he's usually the busiest person in the unit, and he doesn't need or want you to do his job. An old XO told me when I was S-3 that his job was to make me look good, and I think that's sage advice for any XO. You do this by being a sounding board for his ideas; by ensuring that the rest of the staff supports his plans; by ensuring that outside agencies support the unit; and finally, by ensuring that no operation fails for lack of support. In a unit, the commander, the XO, and the S-3 work as a team. Each has a powerful voice when discussing ideas with the others. Give the S-3 the credit he is due, and don't ever betray him. The commander has plenty of respect for both of you.

Since a unit transmits important

information to its subordinate units through orders, you should be intimately involved in the orders process.

At company level, you, your commander, and the first sergeant write the order. Your job is to make sure the necessary support from outside the company is available and that it arrives at the right place at the right time. (We have all seen operations fail because the requested trucks didn't arrive on time.)

At battalion and brigade levels, the deliberate orders process should include all the primary staff members and the leaders of the attachments involved in the operation. Hasty (fragmentary) orders should include at least you, the commander, the S-3, the S-2, and the fire support officer. The S-3 leads the orders process, and you ensure that the staff supports his plan. Don't ever force the S-3 to worry about logistics or transportation.

The other major group—those who do not work directly for you but who will have a direct bearing on your success—are the platoon leaders and platoon sergeants at company level; the company XO's at battalion level; and the battalion XO's at brigade level. If you always remember that they don't work directly for you, they will be receptive to your advice and help.

In dealing with these subordinate units, your job is to support them and help them whenever and wherever possible. Supporting subordinate units is an easy idea to articulate but a difficult one to practice, especially with the current cutbacks in headquarters units. The trend in the Army is to centralize support at battalion and brigade levels. Here are a few principles you need to follow:

- Make sure your headquarters provides the support required by current Army doctrine. If maintenance is centralized at brigade level, for instance, don't force the battalions to have "shadow" mechanics.

- Require outside agencies to support your units. In the day-to-day confusion, these agencies sometimes forget that your infantry unit is their reason for being, and you must tactfully remind them. Draw on the support that is sup-

posed to come from your higher headquarters. For example, the division transportation office is to support major deployments and has the expertise to do it; your subordinate units should not have to assume these tasks.

- Support your subordinate units by protecting them from the unreasonable support demands of higher headquarters. (Your commander and S-3 will protect the unit from unreasonable demands that adversely affect training.) Quite often, combat service support officers, especially at higher headquarters, do not understand the effect their requests—for detailed information, complicated turn-in procedures, or resupply requirements—have on lower units. Having been in the trenches yourself, you know when a demand is unreasonable.

- Do not make unreasonable demands on your own subordinate units. For example, statistics that take a lot of time to accumulate and update may not be really necessary. (It seems to me that the Army spends too much time making charts.) If the data is so important that you must track it, have your own staff do it.

- Finally, support your subordinate units by wisely using the resources you have. This means you must establish priorities (with the commander's concurrence). A deploying unit, for example, may get all the maintenance support your unit can provide while the others have to wait. This is a hard fact of military life. Simply dividing everything evenly is not establishing priorities at all.

The next key area of your job is serving as an ambassador for your unit. Although the commander represents the unit at most high-visibility events in day-to-day interchanges between units, you are the true ambassador. Outside agencies won't necessarily make or break your unit, but they will certainly contribute to its success or failure. Be guided by the following principles (and see that your subordinates also follow them):

- First, *compromise* is not a bad word. Everyone needs more support than is available, so don't be a whiner

who gets 95 percent of what he needs but continues to talk about the five percent he doesn't get. Instead, find a way for that unit to support yours with transportation or maintenance and still meet its other commitments. Any adjustments you have to make in your plans will be worth the trouble in the long run.

- Reward the people who support your unit well. The reward doesn't have to be elaborate. Simply telling a person's boss (in writing) that he did a good job supporting your unit can do wonders. These combat service support people have a difficult job, and they need a lit-



tle credit once in a while.

- Use criticism, too, if you're not getting the support you need, but only after you have learned all the facts and have tried to correct the problem at your level. Then, take the problem to higher headquarters. Just don't burn your bridges. You don't have to coddle support agencies, but neither should you beat them into the ground in front of higher commanders. You may win the battle but lose the support war.

- Maintain your credibility. If you say you'll have the trucks back by 2300, you'd better have them back. If you promise a combat service support unit instructors for its local defense training, either deliver the instructors or let the unit know well in advance that circumstances beyond your control will prevent

it. Combat service support units don't like making schedule changes any more than you do.

The last area I want to cover is that of problem solving. As an XO you are paid to plan, teach, and solve problems. According to an old adage, the more planning you do the fewer problems you will have, and vice versa. This is true, but no matter how thoroughly you plan there will always be problems. (That's what makes your job interesting.)

Another adage states that you should never solve a problem for a subordinate that he can solve for himself. This is also true, but in the interest of time, you often have to intervene. It has always bothered me when someone in a support agency says "No" to a sergeant or a lieutenant and then completely changes his mind when the XO calls with the same request. Sometimes you need to go ahead and use the weight of your position to solve a problem.

Before you can solve a problem, though, you have to know what the problem is. Your subordinates may be reluctant to tell you, and your job is to try to change this tendency. Be tough on subordinates who don't come to you until it's too late, or until the problem has become too big to solve. Good planning and open communications between you and your staff members will reduce the number of problems and their severity; despite your best intentions, though, sometimes the only way to solve a problem is to ask an agency or other unit for a favor. In such situations, the good will you have built earlier will serve you well.

Some of the problems you see will be systemic ones, such as a vehicle maintenance system that is not up to speed, or a legal system that is too slow. How do you solve such problems?

To examine systemic problems, you must first be able to find the details. Given the maintenance problem, for example, if you have only enough time to inspect either the operator maintenance of ten vehicles or the entire maintenance program of one vehicle, you will be better off inspecting the total maintenance program of one vehicle. Start at the operator level; go to direct

support, check the records, check the TAMMS (Total Army Maintenance Management System) clerk and the prescribed load list. Are spare parts on order? Are they coming in? What about scheduled maintenance?

Sometimes you have to search out systemic problems. I remember one case in which my battalion always blamed the brigade legal section for the slow processing of administrative separation cases. A smart brigade XO did a thorough investigation of the process and found that the biggest delay was at company level. This led my battalion to

change the way we handled the legal business. A cursory inspection of a perceived problem may be almost worthless, but once you find the root of the problem, you have the clout to make the necessary changes.

Being an XO at any level is a challenge. Don't expect to lead that assault in the next war or to grab a lion's share of the medals. But if you perform your duties well, you will have the satisfaction of knowing you helped keep the unit going through thick and thin. By taking care of all the tough, thankless jobs the commander doesn't want to do

or doesn't have time to do—in the arms room, the supply rooms, the motor pool, and the personnel center, you free him to do his own job of commanding the unit.

Lieutenant Colonel Robert G. Boyko served as company executive officer in the 25th Infantry Division, as battalion XO in the 7th Infantry Division during Operation JUST CAUSE in Panama in 1989, and is now XO of the 193d Infantry Brigade at Fort Clayton, Panama. He is a 1975 graduate of the United States Military Academy. His previous articles have appeared in *INFANTRY* as well as other professional publications.

Enhanced Land Warrior Program

CAPTAIN MARK A. CONLEY

Our Infantry—as the centerpiece of a smaller, more lethal, and more readily deployable Army—must have the weapons, clothing, and equipment to survive in various environments and types of terrain, and against various threats. To make the most of its combat power, the Army must base its future modernization efforts for the individual soldier on an integrated system.

The Enhanced Land Warrior Program is the focal point of such a system. It includes improvements to the weapons, equipment, and clothing the soldier carries or wears in a tactical environment. These improvements are designed to make the best possible use of a unit's lethality, command and control, survivability, sustainment, and mobility. The program takes a modular approach to outfitting the infantryman. Instead of linking equipment to a particular equipment design, the subsystems in this program are mission and task-oriented, so commanders can tailor their forces for specific missions.

The overall Enhanced Land Warrior Program is intended to be a continuing

process that includes three near-term programs (Land Warrior, Air Warrior, and Mounted Warrior) and one far-term program (21st Century Land Warrior).

The genesis of research and development for an integrated soldier system was the Soldier's Integrated Protective Ensemble (SIPE), the first successful soldier-oriented advance technology demonstration (ATD). The SIPE ATD developed, fabricated, and demonstrated a modular, head-to-toe, integrated fighting system that offered better combat effectiveness while also protecting the individual soldier against numerous battlefield hazards. Instead of focusing on hardware, the SIPE program demonstrated technology that would clarify and define requirements for the Enhanced Land Warrior Program.

Land Warrior

The first of the near-term programs, Land Warrior, is scheduled for field testing in 1997. This program will be a complex of emerging technology subsystems that offer a "leap-ahead" combat capability for the dismounted

soldier. These technologies will include improvements in the soldiers' individual and collective performance at night and in obscured and chemical environments by improving lethality, command and control, survivability, sustainment, and mobility.

The development of Land Warrior will revolutionize the Army's employment doctrine, tactics, training, leader development, and force design for the dismounted combat soldier. Its benefits will include the following:

Computer. A small computer for the soldier will provide the helmet-mounted, heads-up display (HUD), semi-automated information ranging from global positioning system (GPS) information with digital maps and compass bearings to information in the form of messages, operation orders, and reports. Built-in data menus will enable the soldier to send electronic battlefield reports and intelligence data to higher headquarters. The program will enable the soldier to hand off fire control and to accurately identify and send digitized call-for-fire information to artillery, mortars, and

aircraft. Additionally, leaders using the system will be able to receive and transmit still-frame video imagery along with interactive and embedded training. Interactive training such as marksmanship will allow the soldier to use his weapon system with current weapon training devices. Electronic training manuals and field, operator, technical, and First Aid training manuals can be included for embedded training.

Thermal Weapon Sight. The thermal weapon sight will interface with the HUD and enhanced night vision capabilities to allow the soldier to scan an area to detect and engage targets more accurately through limited visibility and obscurants. This integration will also allow the soldier to see and engage targets around vehicles, buildings, and obstructions without exposing himself to fire.

Communications. Soldier-to-soldier communications will allow squad members to maintain stealth and to communicate effectively from covered and concealed positions. Squad leaders will be able to identify sectors of fire to their team leaders using the laser aiming light viewed through their image intensifiers and to communicate instructions at the same time without compromising their covered and concealed locations.

Integrated Electronic Components. Electronic components, individual equipment, weaponry, and hazard protection will be integrated into a unified system. Its modular design will allow leaders to tailor a mission without burdening their soldiers with items they don't need for a specific mission. This modular system approach provides the flexibility to achieve the best possible balance between performance and protection in responding to various mission requirements.

The Land Warrior system will offer many tactical mission improvements at various levels, of which the following are typical:

Squad Ambush. In the squad ambush (Figure 1), team leaders can use communications within the squad to maintain control on the assault line and to assign sectors of fire using aiming lights and night vision image intensi-

fiers. This means that team members can identify sectors of fire and receive mission information without leaving their covered and concealed positions along the assault line. Flank security personnel can be located at greater distances, maintain communications with leaders on the assault line, and provide their leaders with situation updates without compromising their positions. When an ambush is initiated, fire control

can be enhanced by intrasquad communication, aiming lights, and laser range finders for more accurate delivery of munitions on enemy targets. The ability of each soldier to use an integrated night vision and thermal sighting capability will significantly improve all aspects of lethality, survivability, command and control, and mobility.

Platoon Attack. GPS navigation during the platoon attack (Figure 2) will

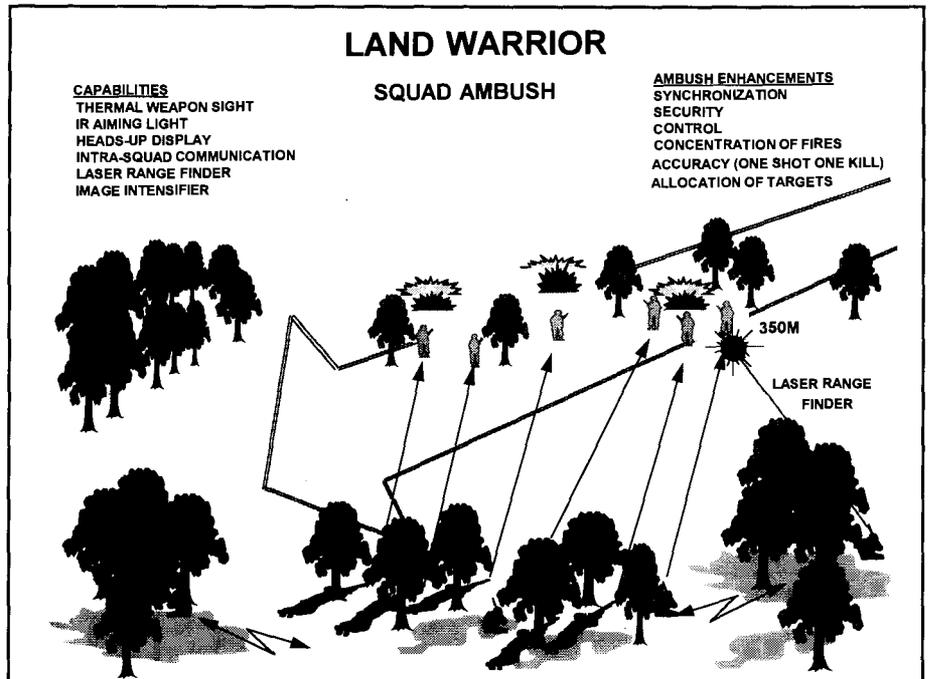


Figure 1

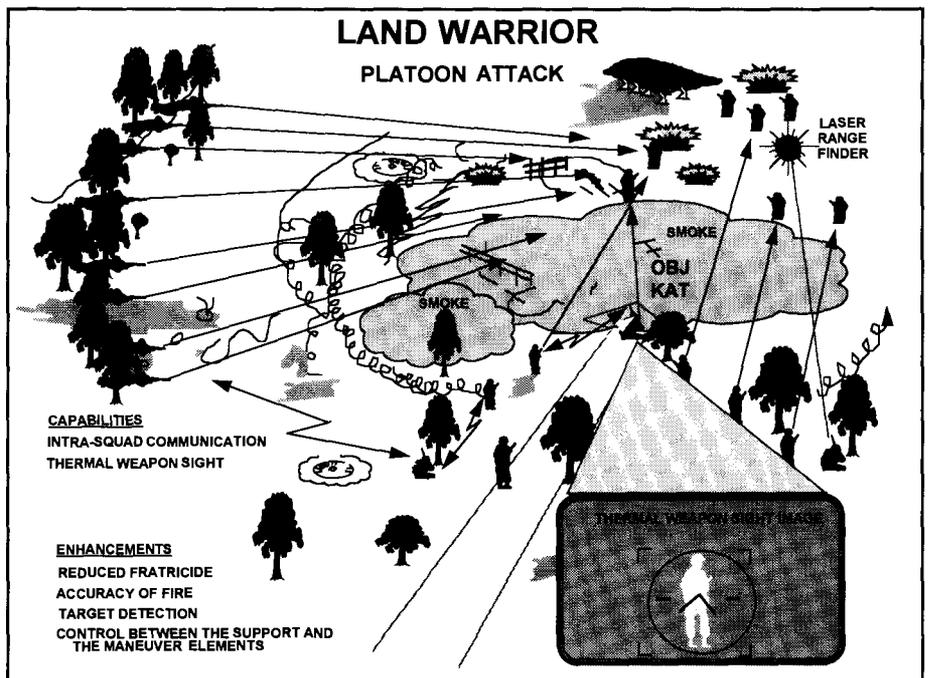


Figure 2

ensure that the attack is in the correct location. The heads-up display allows the unit leaders to see their position graphically in relation to those of other friendly units. During a possible limited visibility attack, the support element (with the team leader using thermal sights and aiming lights) will initiate fire and identify targets for their soldiers to engage. The assault elements will have a better view of the objective, at greater distances, and better command and control throughout the final assault. The attack will achieve better command and control, lethality (fire control and accuracy), mobility, and survivability, and with less probability of fratricide.

Company Attack. During movement in a company attack, situational awareness is improved through real time global positioning and digital mapping, along with the use of a digital compass. Information is continuously fed into the leaders' computers and passed from squad to platoon to company and higher headquarters. This will keep the unit oriented on the objective, verify its exact position when it arrives, and keep the leaders informed of the locations of other friendly units.

Figure 3 depicts situational awareness through the HUD (digital mapping, unit position symbols, and grid location), communications linkages, and digital data transmission. Accurate situational awareness allows for better use of fire support coordination between mounted and dismounted elements, while also informing subordinate leaders and soldiers of their roles in the overall unit effort.

21st Century Land Warrior

The overall objective of the Enhanced Land Warrior Program is a far-term system envisioned for initial fielding in the early part of the 21st Century. The 21st Century Land Warrior Program will provide improvements in several areas:

Lethality. Improved lethality will be accomplished through the interface with the objective individual combat weapon (OICW), which will eventually replace the M16 series of rifles. This weapon will have a bursting munitions capabili-

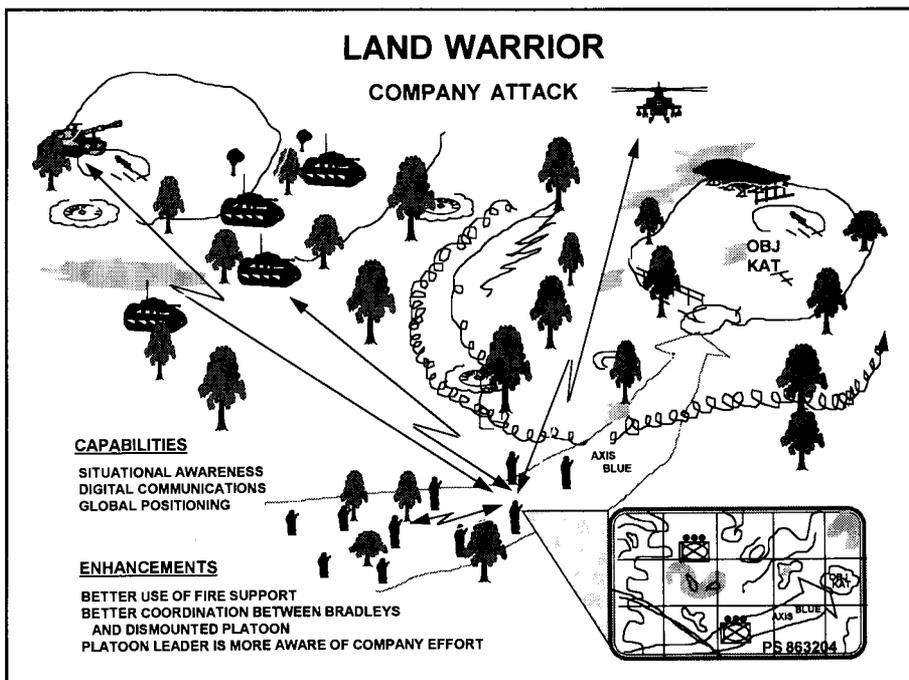


Figure 3

ty that enables soldiers to incapacitate unexposed enemy soldiers. Thermal weapon sight and laser range finding capacities will be an integral part of the weapon.

Command, Control, and Communications (C3). Improved C3 will be available through the reduced weight and size of the individual soldier's computer and radio. Better command and control will be achieved through the wireless transmission of digital reports and imagery, which will allow for rapid command and control at various unit levels. C3 will also consist of improvements in sound detection, state-of-the-art satellite navigation, and the integration of thermal, chemical, medical, combat identification, and mine sensors.

Multiple Threat Protection. Multiple-threat body armor protection will protect torso, arms, and legs against fragmentation, flechette, and assault rifle and machinegun projectiles.

Maintenance of Thermal Equilibrium. The microclimatic conditioning (MCC) subsystem will maintain the equilibrium of a soldier's body temperature for a minimum operational period of time. This system will maintain a soldier's level of performance by reducing

heat build-up and stress during missions in environments that indicate a need for it.

All of the subsystems will be modular, mutually supporting, and completely integrated with each other. The 21st Century Land Warrior system design will make the best use of current state-of-the-art materials, components, and technologies as well as those that continue to emerge.

The Enhanced Land Warrior Program uses technology to provide the overmatch capabilities required for success on the future battlefield. These improved capabilities will provide the soldier with better command and control, maneuverability, acquisition and target engagement, intelligence gathering, and survivability. The program makes a technological leap in the combat effectiveness and lethality of individual combat soldiers—the Army's most valuable asset.

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Heavy Brigade HHC Operations

CAPTAIN BART HOWARD

An armor and infantry brigade headquarters and headquarters company (HHC) plays a critical role on the battlefield in keeping the brigade mobile and sustaining and supporting its command and control posts. Yet the heavy brigade HHC is one of the most neglected organizations when it comes to doctrine, tactics, and techniques. Commanders find little material to guide them and must rely on the advice and opinion of others.

Most brigade HHCs do not have mission essential task lists (METLs) that they can use in preparing for war, and this is something they should correct. Having deployed on numerous field exercises and National Training Center (NTC) rotations with one of these companies, I would like to offer a sample METL, along with some techniques that have worked well for our organization.

I believe the following tasks encompass all the missions for a HHC commander and provide a vision for the unit:

- Deploy by rail, sea, and air.
- Move tactically.
- Secure a command post.
- Sustain personnel and equipment.

Deployment

The HHC must be able to deploy quickly and efficiently, and each operation provides more insight on how to prepare for movement the next time.

The company's executive officer (XO) should serve as the unit's movement officer. Working closely with the brigade S-4 and post agencies, he should become an expert on all aspects of movement. The result of his efforts

should be a "movement book" that continues to be refined. All special emphasis areas associated with movement must be assigned within the company, and neither the staff nor the company personnel should be overloaded. The maintenance section should become expert in rail-loading operations and hazardous cargo. (See also, "Rail-loading a Heavy Brigade," by CPT Michael V. Truett, *INFANTRY*, November-December 1986, pages 16-20; and "Rail Movement Spreadsheet," by CPT Charles B. Pelto, *INFANTRY*, July-August 1986, pages 17-21.)

Solid maintenance training and management are vital for deployment. A realistic and attainable goal for a unit that is heavy on supervisors and light on workers is a disciplined maintenance program consisting of a command preventive maintenance checks and services (PMCS) time and good services.

Particular attention should be paid to the organization's transportation assets. The MTOE (modified table of organization and equipment) allows only four M35 trucks (two maintenance, one supply, one mess) and two M105A2 trailers. The unit can afford only one "built-up" five-ton truck—the prescribed load list (PLL)/tool truck and trailer—which will house the ULL (unit-level logistics) computer and all the tool sets. This configuration gives the unit the flexibility to haul a variety of equipment, depending on the factors of METT-T (mission, enemy, terrain, troops, and time).

Personnel readiness, a primary mission of the company first sergeant, requires constant work. Periodic old-

fashioned dog-tag and record checks will help keep this aspect of deployment manageable. Finally, a good family support plan is a proven deployment advantage. Family support for the HHC brigade requires special attention and usually falls under the wing of a rear detachment battalion.

Tactical Movement

To survive, the brigade's main command post (CP) must be able to displace and set up efficiently, and this is a more complex task than it initially appears to be. The main CP consists of far more elements than are organic to the HHC. Engineer, air defense artillery, fire support, signal, and U.S. Air Force elements all tie in once the tactical operations center (TOC) is in the field.

At this point, any actions that have not been coordinated earlier will be more difficult for everyone. The HHC must have written standing operating procedures (SOPs) for such basic drills as moving the TOC. The HHC commander can coordinate with the operations sergeant major and the slice elements to review the SOPs and conduct simple sandtable exercises before the unit deploys. This will pay big dividends in efficient TOC operations and will set the tone for teamwork.

Through these informal rehearsals and wargaming sessions, the austere HHC gains in available assets. For example, the engineer S-3 section that accompanies the brigade TOC has an M35 truck that can provide critical hauling capability for the TOC's organic equipment. The section also has M8

chemical agent alarms and additional weapons that can augment the company's security plan.

The keys to successfully moving the main CP are reconnaissance and an effective quartering party. Before the main CP moves, the HHC commander coordinates closely with the brigade XO (a never-ending process). The company commander gets information on the area of operations from the staff and selects some possible TOC locations on the basis of a map reconnaissance. He and the signal officer then conduct a personal reconnaissance to confirm good locations for the main CP. The checklists in Field Manuals 71-1, *The Tank and Mechanized Infantry Company Team*; 71-2, *The Tank and Mechanized Infantry Battalion Task Force*; and 71-3, *Armored and Mechanized Brigade*, provide solid criteria for selecting positions, but an eye for the right ones comes only through experience.

In site selection, concerns for communications and security must be weighed against each other: A location that is excellent for security may not allow good communications, while a position silhouetted on a hilltop for good communications will not last long. Depending on time available, the operations sergeant major or operations NCO and a representative from the signal team should be brought in to accompany the reconnaissance group and provide their expertise. The HHC commander should know the dimensions of the CP and pace it out on the proposed location, because some locations may prove to be a tight fit between large rocks or trees. In a desert environment, where many wadis look the same, the location must be marked with a small stake or other inconspicuous marker so it can be found again.

The HHC commander returns to the TOC to brief the brigade XO. Once the location is chosen, the brigade XO must establish a time line for the move. The quartering party cannot leave the main CP too early, because the loss of its personnel will hurt overall TOC operations, but a late departure will only defeat its mission. In our brigade, we found that the quartering party needed to move

early enough to allow the main CP to move at EENT (end of evening nautical twilight) or shortly before. This allowed enough light to select positions and have the main CP displace while there was too much ambient light to use AN/PVS-7 night vision goggles but not enough for the enemy to see with binoculars.

Either the HHC commander or the XO should lead the quartering party. The logistics support area (LSA), consisting of maintenance, supply and mess trucks, should move in the quartering party. The trucks can provide security for the quartering party, reduce the size of the main body, and quickly set up to prepare for the main CP; for example, the mess team can serve hot beverages after the main CP arrives and goes into operation. The quartering party should also include the M577 "base track" for the TOC setup. This vehicle breaks down, receives the quartering party briefing, then moves with the commander. It can proof the route to the new TOC location in case of any particularly steep entrances. This vehicle immediately erects the 254 antenna for the main CP; begins nuclear, biological, chemical (NBC) monitoring; and sets up its standard integrated CP system (SICPS), providing the base for setting up the main CP. Finally, we always moved the signal team with the quartering party. When the main body arrived, the junction box was ready for mobile subscriber equipment (MSE) communication. A well-briefed quartering party was then ready to accept the main body.

The first sergeant and the HHC XO can move the main body. One technique is to take the XO along on the initial reconnaissance so he will know the exact route to the new location. Since the TOC is made up of many different units, moving it requires real discipline and cooperation. The key to getting the main body moving is early notification and practice. One successful technique is to move all the vehicles in a hasty column formation (herringbone), issue the movement briefing, and then move. This ensures that everyone gets in the column, and it orients the unit on the proper route. The first sergeant leads, followed by tracked vehicles and then

wheeled vehicles. The operations sergeant major usually stays with the trail vehicle. The maintenance M578 recovery vehicle travels with the main body to provide support.

When the main body arrives at the new site, the quartering party moves it into place, and work begins according to SOP. Key to an effective SOP is a priority of work scheme such as the following example:

- Position vehicles.
- Establish security (quartering party).
- Establish communications.
- Employ NBC equipment (quartering party should have an M8 chemical agent sensor in operation).
- Camouflage.
- Establish sectors for defense.
- Conduct PMCS.
- Dig in generators on the basis of METT-T.
- Resupply.
- Rehearse reaction force.
- Initiate sleep plan.

At this point, the HHC commander conducts another map reconnaissance and prepares to repeat the entire process.

Security

The main CP is highly susceptible to infiltration and attack by enemy forces and a lucrative target for artillery and air attack. The HHC has few assets with which to defend itself. In most situations, military police support is not available because of key MP missions elsewhere on the battlefield. Passive measures that use the resources at hand are the main CP's best defense.

The CP should be set up in a position that offers natural protection. No security force, whatever its size, can protect a completely bare TOC. The commander and the first sergeant take on the mission of security, and the enforcement of discipline is important. Good old-fashioned noise and light discipline goes a long way toward the main CP's survival. The CP should be scanned with AN/PVS-7 goggles to find and eliminate any sources of light.

Dispersion is also important. Here, the layout of the position must be bal-

anced. A TOC with vehicles dispersed over two kilometers cannot be defended, while one with the vehicles bunched together can be taken out by artillery. Some of the remedies are common sense: Vehicles must be parked away from the TOC, and natural wadis, vegetation, and folds in the terrain must be used to help conceal them.

There are many techniques for securing the TOC. We tried several and found a successful system that relied on early warning and a reaction force. In this system, two observation posts are set up, one manned with personnel from the LSA and one with personnel from the TOC. When there are multiple avenues of approach, one OP should be manned and a roving patrol sent out. This combination works. Although more personnel are needed when the threat is high, the cost must always be weighed, with a balance between manpower and sleep.

The OPs must be tied in with PRC-127s, HYPX-57 secure wire line adapters, or TA-1035 digital nonsecure voice terminals. These communications go to the TOC and the HHC CP, which is usually just an M998 HMMWV (high-mobility multipurpose wheeled vehicle). A well-briefed and disciplined OP or a two-man patrol can get early warning and alert the CP. At this point the commander, the XO, or the first sergeant takes care of nonessential personnel in the TOC and the LSA and acts. If the threat is low, a five-man team might handle the situation. Faced with an all-out attack, however, the TOC comes alive and mans the defensive perimeter, in positions the HHC commander has pointed out during the occupation of the site. Since the main CP is not designed to conduct a strong defense, the goal is to achieve security through passive measures and the early detection of the enemy.

Although its MTOE seems slim, the HHC has the equipment needed to conduct the security mission. The M578 provides an excellent hasty OP to cover the main approaches; it has armored protection, heavy armament, and FM radio communication. In large areas such as the NTC, the commander's or

the first sergeant's M998 can be used for mounted patrols.

Finally, a good sleep plan must be developed in which either the commander, the XO, or the first sergeant is alert at all times.

Sustainment

The brigade HHC must sustain the command post's men and equipment, and these operations can be conducted over long periods of time under harsh conditions.



Although the HHC commander is responsible for the TOC's overall support, the XO carries out that support, handling all of the unit's coordination. Since the company has some unique support relationships, coordination with the forward support battalion (FSB) is especially important. The HHC XO must also keep the brigade S-4 informed of all requirements and changes in status. The XO should coordinate face-to-face whenever possible, but he can also use the communication assets available at the main CP, such as MSE and lightweight digital FAX.

By doctrine, the company mess team stays at the CP, and this arrangement worked best for us. The mess team became very responsive to the needs of the TOC, and we could schedule Class I resupply around the times we expected to move again. In combat situations, the team prepared T-rations without erecting the mobile kitchen trailer. This

saved time and enabled the team to move more quickly. It also enabled the mess teams to increase or decrease headcounts for meals, which was especially critical as personnel from the slice elements drifted in and out of the main CP. We prepared a logistical package (LOGPAC) for the tactical CP and the command group, moving it forward by M998. On a few occasions, we were able to use available aircraft to resupply the tactical CP. The rear CP received all its support from the FSB.

Class III support is difficult for a brigade HHC, because the MTOE does not allow it any fuel-holding vehicles. Instead, by doctrine, nearby battalions are to provide area support, but we found that this didn't work. The battalions couldn't spare the fuelers, and our fuel needs were often too unpredictable in any case—vehicles that needed to be resupplied would return to the TOC at all hours. Both in war and at the NTC, the HHC needed a tank and pump unit of diesel fuel. For motor gasoline (MOGAS), we coordinated closely with the direct support artillery battalion and agreed to provide their TOC with diesel fuel in exchange for periodic resupplies of MOGAS.

All maintenance personnel must be at the main CP to provide quick repairs. The HHC maintenance requirement greatly increases once a unit is in the field. With the influx of track and wheeled vehicles from the slice elements, the size of the TOC can double. (Somebody has to fix the Air Force's M998s.) An old-fashioned PMCS program and efficient mechanics go a long way toward keeping the fleet running and sustained.

The HHC MTOE does not include an assigned medic; nevertheless, we found that a medic was necessary at the main CP. The medic provides critical First Aid, along with trained combat lifesavers, who are absolutely necessary in an organization such as the brigade HHC. If the company takes heavy casualties, it must activate an area support mission from the nearest battalion or FSB.

The HHC supply sergeant stays at the main CP, where he maintains a stock of

self-service supply center (SSSC) items and conducts a daily LOGPAC to the brigade support area (BSA). The move to the BSA must be organized and efficient. It is best to have the mess team and maintenance personnel consolidate their moves to reduce the time on the road and the danger of attack during periods of limited visibility.

Leaders must not forget the soldier as part of this sustainment operation. The HHC soldier must be proficient in a number of survival skills that are part of constant wartime readiness. Given the variety of military occupational special-

ties, the company's individual training program must include critical First Aid, NBC, and weapon proficiency skills. As with the HHCs at other levels, the commander must approach the challenge of training these diverse soldiers with imagination and detailed preparation.

The brigade TOC is a critical asset to the brigade commander; it implements his orders and keeps him informed. To function, it must deploy, move, survive, and sustain; and these are the missions of the brigade headquarters and headquarters company. Although this company has few resources, if it develops a

mission essential task list, solid SOPs, and disciplined leaders, it can accomplish its mission and free the brigade commander and his staff to focus on conducting the fight.

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FIFTY YEARS AGO IN WORLD WAR II MARCH-APRIL 1944

As the winter of 1944 drew to a close, the ring was tightening around the Axis Powers. Japanese forces in the Pacific, their sea lanes blocked by American and British naval operations, were feeling the pressure of relentless offensives on the land, on the sea, and in the air. In Russia, a mounting Soviet offensive was isolating and destroying Wehrmacht units, which were also unable to effectively resupply or sustain armies that stretched from the Baltic to the Black Sea. In Italy, U.S. troops were solidly ashore, preparing to break out of Anzio and mount a drive on Rome. The cost of victory was high, however; Marine losses at Tarawa, U.S. Army casualties at the Rapido, and the stubborn German defense at Cassino only strengthened Americans resolve to fight and win. Ultimately, the defeat of the Axis was measured in the acts of individual heroism that are the fabric of our military heritage.

These and other highlights of World War II are drawn from Bud Hannings' excellent book, A Portrait of the Stars and Stripes, Volume II, available for \$50.00 from Seniram Publishing, Inc., P.O. Box 432, Glenside, PA 19038.

- 1-3 March** *The U.S. 3d Infantry Division repulses a heavy German attack against its positions on the Anzio beachhead, then counterattacks to regain ground lost earlier.*
- 4 March** *An eight-man squad of Troop G, 5th Cavalry, is attacked by a 200-man Japanese that killed six of the eight Americans. Sergeant Troy A. McGill singlehandedly holds off the enemy until his weapon ceases to function; he continues to fight with the butt of his rifle until he is overrun. The next morning, his body and those of 105 Japanese are found in and around his position. Sergeant McGill is posthumously awarded the Medal of Honor.*
- 15 March** *Allied planes pound the town of Cassino with 1,200 tons of explosives, but the German defenders quickly reoccupy the rubble and continue to offer heavy resistance. American, New Zealand, and Indian infantry continue to pour into the town in a driving rainstorm.*
- 28 March** *The U.S. 34th Infantry Division lands at Anzio to replace the 3d Infantry Division deployed near Cisterna. On the same day, Russian forces of the Third Ukrainian Front recapture Nikolaeu.*
- 2 April** *The 2d Battalion, Merrill's Marauders—enroute to capture the airfield at Myitkyina, Burma, are holding their positions in spite of heavy Japanese attacks.*
- 10 April** *U.S. Task Force Reckless prepares to embark for the invasion of Hollandia, New Guinea. In Italy, the Germans cancel a planned assault against the Anzio beachhead. Soviet forces of the Third Ukrainian Front capture the Black Sea port of Odessa.*
- 23 April** *During a heavy fight near Padiglione, Italy, in which most of the noncommissioned officers are casualties, PFC John Squires of the 30th Infantry, 3d Infantry Division, takes charge, repulsing three German counterattacks. Advancing with his machinegun, PFC Squires captures 21 Germans and 13 machineguns. He is later awarded the Medal of Honor.*



THE INFANTRY BATTALION AAR: PREPARATION AND PRESENTATION

LIEUTENANT COLONEL KARL W. EIKENBERRY

EDITOR'S NOTE: This is the second article in a two-part series on planning, preparing, and conducting infantry battalion task force after-action reviews (AARs). The first part, in INFANTRY's January-February 1994 issue, dealt with the training of the observer-controller team in external evaluations (EXEVALs). This article provides a more detailed look at procedures and techniques that are useful in developing and presenting good AARs.

Before discussing the structuring and preparation of the battalion task force AAR, there are a few principles that must be kept in mind:

- AAR discussions should be concerned with performance measured against doctrinally accepted tactics, techniques, and procedures. Home-station observer-controllers (OCs) simply don't have the experience or credibility enjoyed by the OCs at the combat training centers (CTCs). Although it

is human for participants at any AAR to challenge the observations of the OCs, it is more difficult for them to argue with or ignore doctrine.

- CTC formats should not be slavishly copied. A particular technique may look impressive, but if it is based on an expensive instrumentation system that is not available at home station, it has to be modified to fit the environment and resources available.

- The AAR preparation plan must be kept simple and easy to execute. The fancy plays must be saved for a CTC assignment.

- Imagination and variety should be used to make a big production of the battalion task force AAR. We often have thousands of soldiers maneuvering at no small cost during battalion task force EXEVALs, and the task force AAR represents the culminating point. We owe it to our soldiers, our unit, and our profession to go beyond a dull, plodding checklist approach in delivering the AAR.

The quality of the AAR, of course, will only be as good as the input provided by the team OCs. Input is gathered through OC team meetings and the submission of OC cards.

Meetings

During each mission, the chief OC should meet periodically with his unit commanders, battle and special staffs, and specialty platoon OCs, hopefully at intervals that correspond to the completion of the planning phase (some time after the task force order is issued); the completion of the preparation phase (some time after the completion of task force rehearsals, and ideally company level rehearsals); and after a change of mission. It may be useful to have a brief OC meeting after each task force AAR to give the team any important feedback.

These meetings are best held at the AAR site, but it is sometimes more logical to convene them beside the evaluated unit's tactical operations center when all OCs are already gathered to observe an order or rehearsal. Every minute the OCs spend in meetings is a minute away from their tasks of observing and coaching, preparing their own AARs, and resting for the next phase. Meetings must therefore be well-organized with a clear agenda. They should be fast-paced and should include only what is essential.

Meetings should begin with the OC battalion executive officer (XO) and the concerned staff issuing any pertinent administrative, logistical, and OC command and control updates. This part of the meeting focuses exclusively on the functioning and support of the OC team and its mission as controllers. The meeting then turns to a detailed discussion of the observations of the OCs and their analyses of the evaluated task force.

The recommended order for this discussion is:

- Intelligence—S-2, scout OC, military intelligence support team (MIST) OC.
- Maneuver—S-3, rifle company commanders, antitank platoon OC.
- Fire support—battalion fire support officer (FSO), company FSOs, mortar platoon OC, and U.S. Air Force tactical air control platoon OC.
- Air defense—air defense OC.
- Engineer—engineer OC.
- Nuclear, biological, chemical (NBC)—NBC officer.
- Combat service support—S-4, S-1, headquarters and headquarters company (HHC) commander, support platoon OC, and medical platoon OC.
- Communications—signal officer and, if applicable, the military intelligence battalion team chief in charge of electronic warfare and operations security assessment.
- Noncommissioned officer (NCO) and soldier assessment—command sergeant major (CSM).

The goal of the participants is to identify significant task force strengths and weaknesses in the three phases of its mission (planning, preparation, and execution), and for the OC team as a whole to find and agree upon the sources of significant problems and to establish what really happened.

We are interested in issues that have a major effect on the

task force's performance (both good and bad), and that cut horizontally across the battlefield operating systems (BOSs) or vertically between the unit echelons. For example, the fact that the commander of Company B doesn't allocate his time well is not germane to the task force AAR unless that problem is common among commanders and can be attributed, perhaps, to the inability of the battalion staff to establish reasonable timelines early in the planning process. The fact that poor communications with the field trains precluded the timely resupply of ammunition to the mortar platoon is the kind of legend that great AARs are built upon: The mortar platoon sent one of its own vehicles in desperation to the rear, only to have it destroyed by a minefield that the tactical operations center had not made known to the mortars, which in turn led to the FSO not being advised until H-hour minus 15 of the mortars' inability to execute the preparatory fire.

The difficulty is in identifying an anecdote that represents the outer layer of a complex and important story. One technique is for each of the OCs listed above—using an operations map as a reference—to provide, in sequence, a brief (less than one minute) summary of the status and plans of the unit (or staff section) they are evaluating. (This is one reason the AAR site is the most conducive to OC meetings since standardized graphics are available.)

Each briefer should then note at least one but no more than three areas of concern that bear scrutiny by another member of the OC team. The briefer should specifically include other team members to reinforce his points. For example, the scout OC might ask the FSO OC to find out why the scouts were inserted without a fire support plan; the signal officer might explore the reasons they had no secure communications; and the Company A commander might find out why the fire team that was to accompany the scouts never appeared, which meant there was no known plan for Company A and the scouts to link up.

Additionally, each briefer should list one observed strength or area of improvement to help keep the OCs thinking positively.

If the participants in these meetings are going to get to the heart of the matter, each must be encouraged to contribute freely, whether lieutenant colonel or second lieutenant. These meetings are always time-consuming, perhaps up to two hours, but they are vital. Lacking the instrumentation, communications, and OC experience available at the CTCs, we need the somewhat tedious but focused and penetrating team discussions to offset our disadvantages.

If the chief OC actively guides the meeting—identifying the themes he wants the team to investigate in detail, and dismissing those he feels are not relevant to the task force AAR—the results can be impressive. The exchange of information after a change of mission must be abbreviated; the OCs must deliver platoon and company AARs and cannot be held up in a collective meeting at the task force AAR site. The best alternative is to have the OCs arrive independently, provide the assistant S-3 with their final data to be compiled into AAR charts (friendly losses, for example), and then meet one-on-one with the chief OC for a quick discussion of the

salient points of the execution phase, and to submit any remaining OC cards.

The use of OC cards is the key to easing the flow of information to the chief OC and expediting the preparation of the task force AAR. These are simply 3x5 or 5x8 index cards, prepared by the OCs and submitted to the chief OC, that suggest leading questions for designated AAR participants (see sample contents in Table 1). The cards are organized by mission phase (planning, preparation, and execution) and by BOS. Each offers an accurate description of what the answer should be, and lists pertinent lessons learned along with the appropriate doctrinal references.

The chief OC must specify the times (corresponding to the OC team meetings) when the cards for the planning and preparation phases should be turned in, and he receives the cards for the execution phase immediately after a change of mission. There is often considerable overlap in the three phases of an operation, and the chief OC must allow his team members some flexibility in their efforts to categorize particular issues.

The AAR is well on its way to a successful outcome if the chief OC does the following: Insists on completely standardized cards (preprinted cards eliminate the possibility of the scout OC providing his input on an MRE wrapper); makes

sure he understands the questions and what the answers should be (which is why he must receive the cards in person); requires his team members to do their homework in identifying lessons and possible fixes; and crosswalks an issue with other OCs when he suspects part of the story is still missing. Now the chief OC has only to select which cards he wants to use, arrange them in order, line up supporting graphic aids, and execute.

Several additional points should be considered:

- The team members who submit cards directly to the chief OC should include the battle and special staff, unit commanders together with their FSOs (with the battalion FSO OC also present), and the specialty platoon leader OCs.

- As the mission unfolds, the chief OC should develop several salient lessons-learned themes and then make sure he chooses cards that reinforce these themes. Without this focus, the AAR will have little effect on subsequent task force performance.

- Some system must be devised for providing information to the CSM on NCO and soldier issues. This can usually be done less formally, however, except for the collection charts concerning preparation for combat and soldier skills gathered by the assistant S-3.

- Team members should be commended for frequently submitting cards that are selected for use in the AAR.

- If there is enough room, key members of the OC team should attend the AAR (sitting in the rear) so that they can put their observations into proper perspective.

- OCs must inform their counterparts, before the task force AAR begins, of the topics the chief OC may address that touch on their areas of responsibility. (These can be ascertained, of course, from the contents of the cards the OCs hand in to the chief OC.) Forewarned, almost any professional soldier will quickly pass through the period of self-pity or anger and start to look inward for solutions. The OCs improve cohesiveness by setting everyone up for success at the AAR, not by blindsiding them in front of subordinates, peers, and superiors.

AAR Site Layout

Considerable care must go into the layout of the task force AAR site, a mission that can be given to the HHC first sergeant. A permanent or semi-permanent facility somewhere near the "maneuver box" is preferable.

A large parking area should be identified and some soldiers detailed to direct arriving vehicles. The site must include latrines to accommodate those attending. Beverages should be made available to the task force participants upon their arrival. The site itself must have communications, and ideally an AAR room (which doubles as the OC team meeting site); an office for the chief OC (used for OC card submission and his preparation of the AAR, and also by the division's senior leaders, who frequently convene a meeting after the AAR); an OC working area (which has doctrinal references and material to support the team's work); and an administrative office or message center.

The seating arrangement depends on the site itself and the

SAMPLE OBSERVER-CONTROLLER CARD

MISSION: Night Attack

PHASE: Execution

BATTLEFIELD OPERATING SYSTEM: Fire Support

SUBMITTED BY: Fire Support OC

ASK: Company B FSO

THE QUESTION: What happened when the Commander, Company B, directed him, in the middle of the assault on Objective Blue, to provide illumination over the enemy regimental command post?

THE ANSWER: Although the night attack had been planned as nonilluminated, the commander of Company B decided at 0323 hours, 25 minutes after the attack had been initiated that he had lost effective command and control and could only regain the momentum with the assistance of illumination. The FSO immediately called for illumination but learned he could not expect 105mm artillery support for another 10 minutes. The infantry battalion's mortars were supporting the task force main effort (Companies B and C). The Company B mortars had carried only five rounds of illumination forward and were out of range for illumination anyway. At 0352 hours, the battalion mortar platoon, which had neither preplanned illumination fires nor initially prepared illumination rounds, did finally respond to the B Company request. By 0404 hours, effective illumination fires had been adjusted over the regimental command post, but excessive casualties prevented Company B from pressing home the assault.

LESSONS LEARNED (cite doctrine): Always plan for illumination for a night attack (ARTEP 7-20-MTP, Task: Operate fire support section and field manuals (FMs) 6-20 and 7-20).

POSSIBLE FIXES: (1) FSOs should use planning checklists (fatigue factor); (2) Mortars must be more proactive—The mortar platoon leader had asked for guidance on illumination after the operations order, but didn't follow up when FSO said he'd get back with him later; (3) Maneuver commanders can do a better job of integrating FSOs into rehearsals—The Company B commander asked the task force commander after the rehearsal whether he could use illumination if his attack stalled and was granted permission, but no FSO was aware of this conversation; (4) CSS players must be more proactive—Support platoon leader was overheard by his OC the day before the attack telling the S-4 that he was surprised none of the rifle companies had decided to request 60mm mortar illumination.

Table 1



By encouraging subordinates to frankly discuss a unit's performance, a commander can improve participation in the AAR and increase the training benefit of the AAR process.

type of graphic aids to be used. The chief OC should provide clear guidance and approve the plan. The opposing force (OPFOR) commander must be included, as well as individuals who played key roles on a particular mission, such as the air mission commander for an air assault operation. The chief OC's task is easier if representatives from the same BOS or team (commander and FSO, for example) are seated in the same general area. The division command group and brigade level commanders should be seated off to the side, out of the view of the task force participants.

The AAR preparation team must ensure that each participant has an unobstructed view of the graphics used by the chief OC during the AAR. As the presentation becomes more involved, considerable juggling is usually required to make this work.

Upon receipt of the seating plan, the HHC first sergeant should have a chart made and posted at the entry to the AAR site, and then arrange and label the chairs accordingly. A detail should help seat the attendees and ensure that they do not bring their equipment or weapons into the site. To avoid disruptions during preparations, nobody except OCs should be admitted to the site until five minutes before the AAR is scheduled to begin.

The AAR Format

The CTCs and ARTEP 7-20-MTP, *Mission Training Plan for the Infantry Battalion*, are the best sources for AAR formats, although these must be adjusted to suit home-station conditions. A suggested outline is at Table 2. The chief OC should focus on the three or four areas where he and his team believe the most attention is needed (reconnaissance, rehearsals, fire support integration, and casualty evacuation). The use of a laser pointer will help clarify discussions involving charts, maps, and diagrams.

One technique for improving participation is to encourage the task force commander (off to the side) to frankly discuss

one or more specific shortcomings of the unit when asked for his input on what needs improvement. Subordinates who see their boss criticize himself in front of his own bosses quickly pick up on the idea that it is all right to talk openly about problems. At the same time, the chief OC must avoid destroying the effectiveness and the credibility of the task force commander during the AAR process; in general, the leading questions should be directed elsewhere. Finally, for those participants who are obstructive and persistently defensive, the chief OC can either skip over them and talk to the task force commander later or, if the problem continues, set them up for an unmistakable message that will quiet them.

The Presentation

The following techniques should be considered in the search for ways to improve AAR delivery:

Graphic Support. Many kinds of graphic support should be considered, the more diverse the better: large sketches of the maneuver area and objectives (with accompanying overlays), overhead and slide projectors, video tape players, flip charts, and even computers that can project monitor pictures and scanned or digitized maps. But plans should always include simpler backups in case these high-technology gadgets fail. Additionally, the actual graphics of the evaluated task force can be used. The unit no longer needs them upon change of mission, and the battle staff can't quibble when confronted with the real thing.

Doctrine Slides. The OCs in charge of each BOS should prepare generic doctrine slides that address the topics likely to be discussed during the AAR (a computer with a wall projection device is quite useful). The chief OC can use these slides to focus on particular points.

For example, after an operation during which three Stinger teams (none of which had relocated after last light) were neutralized by OPFOR guerrilla forces, the chief OC decides he wants the section leader to talk about lessons learned during

SUGGESTED AFTER-ACTION REVIEW FORMAT

- I. Statement of AAR Purpose and Goals (chief OC).
- II. Battle Summary (presented by chief OC or his representative, this presentation should be supplemented by references to a large operations map).
 - A. Brigade/Battalion Task Force Missions and Commanders' Intent.
 - B. OPFOR Mission and Commander's Intent.
 - C. Blue Force Concept of the Operation.
 - D. Significant Events (chronological list of major events with outcomes).
 - E. Battle Losses (blue force and red force personnel and equipment).
- III. Sustain and Need Improvement Input from Designated Task Force Leaders and Staff officers to Chief OC, Followed by Chief OC Identifying Major Themes to be Stressed During AAR (the chief OC should point out the correlation between these themes and the "need improvement" areas raised by the AAR participants).
- IV. Planning Phase (chief OC).
- V. Preparation Phase (chief OC).
- VI. Execution Phase (chief OC).
- VII. OPSEC Evaluation-Optional (MI battalion representative).
- VIII. NCO and Soldier Issues and Identification of "TF Heroes" (CSM).
- IX. Review Task Standards for Mission Just Completed (allowing task force members to judge overall performance) and Identify Task Standards for Next Mission (chief OC).
- X. Chief OC Asks for Input From Senior Commanders Present.
- XI. Chief OC Turns AAR Room Over to Task Force Commander and Gives Him 15 to 30 minutes uninterrupted alone with his leaders and staff (however, he should not allow him to use the comfort of the AAR site to conduct tactical planning).

•The chief OC, using his OC cards, should generally proceed in the BOS order—for example, planning phase discussion should move from S-2 and scout platoon leader to S-3 (and the commander for his intent), to FSO, mortar platoon leader, and ALO, and so on. The OPFOR commander and other special attendees—for example, air mission commander for air assault operation—should be called upon when appropriate.

Table 2

the AAR. At the AAR, the chief OC might begin by showing a slide that relates relevant doctrine (Table 3), and then ask the Stinger section leader to assess his performance accordingly. Again, it is better for the audience to compare their actions with the doctrine than to argue with the chief OC.

Once the AAR is over, commanders must ensure that information is disseminated to all members of the unit.

SAMPLE DOCTRINE SLIDE

Night Employment Considerations

Since Stinger unit participation in the air battle may be reduced at night, platoon leaders should take advantage of any lull and concealment afforded by darkness to accomplish the following:

- Move weapons to new, alternative, or supplemental positions.
- Resupply weapons and crews.
- Perform required maintenance.
- Position weapons to provide better security against ground attack.
- Allow maximum crew rest by lowering alert state for crews or squads, as the situation permits.

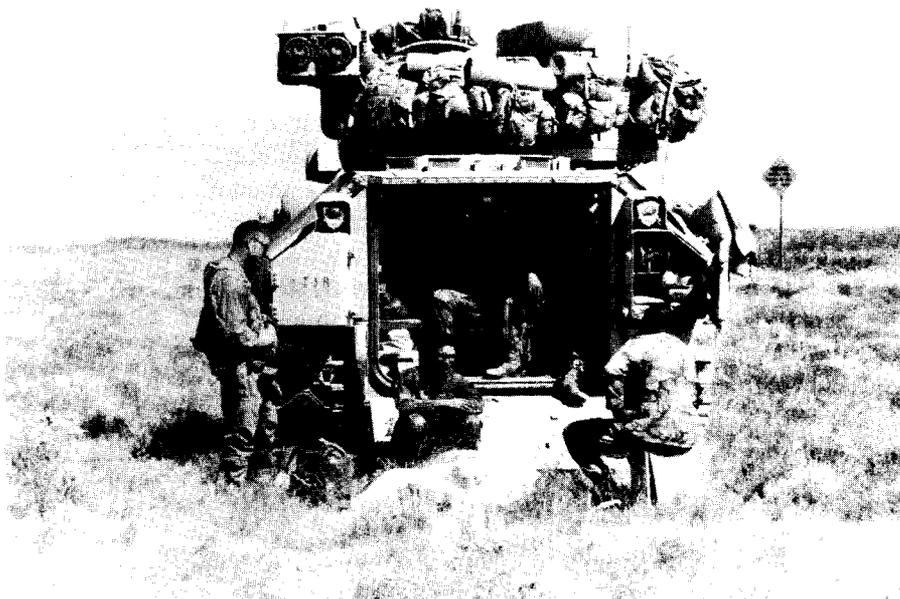
(From FM 44-16, *Platoon Combat Operations—Chaparral, Vulcan, and Stinger.*)

Table 3

Good sources of doctrine slides are field manuals, the publications of the Center for Army Lessons Learned, and quotations from military history that remind the viewers their problems are not unique (for example, Irwin Rommel's, "Communications had failed. . .the usual business at night").

Overlays. Overlays and templates, used imaginatively, can greatly improve an AAR. Multiple BOS overlays superimposed on one another are particularly useful. Some of these are named areas of interest (NAIs) and targeted areas of interest (TAIs), as opposed to the target list; engagement area direct fire; fire support; and obstacle overlays. Templates showing weapon fans (to display air defense coverage, for example) are also helpful. A computer with a map-scanning capability and a wall projector, operated by an innovative computer operator entering overlays and fans, can do wonders here.

Slides and Video Tapes. Pictures help establish what really happened. Arrangements with the training support center to have slides developed quickly can pay big dividends. Aerial photographs of the objectives and assembly



areas (to critique passive air defense), along with shots on the ground of sandtables and fighting positions, can lead to excellent AAR dialogue. Video tapes of operations orders and rehearsals also help record the facts, and these tapes can be used selectively during AARs. The process itself helps prepare task force leaders for the intrusiveness of the OCs at the CTCs. The CSM can also draw heavily upon slides and video tapes in his portion of the AAR on NCO and soldier issues.

Tracking Specific Actions Within the BOSs. OCs at the training centers have numerous resources at their disposal to establish the reality of the training. In the absence of these resources at home station, one technique is to tag a particular action in advance and have all concerned OCs follow its development closely until it is completed, noting all intermediate events and times. Slides showing the results can then be prepared for use during the task force AAR; the results will lead either to praise or to an analysis of what went wrong and how to fix it. Some examples are tracking a particular fire mission from call-for-fire until end-of-mission; a casualty evacuation from time of injury until arrival at the appropriate evacuation site; a resupply request from its initiation until the actual distribution of supplies to the user; and a request for maintenance support from the time a vehicle breaks down until it is repaired.

The CSM's Role. The CSM should be given some guidance and then turned loose on soldier issues. He should weigh soldier loads and check packing list compliance (the results should be captured on a slide for the AAR); and he can work with selected OCs to prepare slides for "A Day in the Life of a Private," recording the significant actions that selected soldiers performed during the planning and preparation phases. The numerous entries of sleeping, eating, or waiting for orders are eye-openers for the exhausted leaders of the task force who believe their soldiers, like them, must be on their last leg. The CSM also needs to gather information for the collection charts to be used in his portion of the AAR.

Finally, on the basis of input from OC team members, he should identify five to ten task force "heroes" (soldiers and young leaders who excelled during the last operation). At the end of his portion of the AAR, the CSM should announce the names and actions of these soldiers and show a brief video of the task force's last battle, accompanied by some upbeat music. Such a conclusion visibly restores morale to a group of professional soldiers who have just been subjected to some hard knocks.

The Role of Imagination. The OC team members should be encouraged to be creative. They might develop a slide showing the grid locations of the same three targets from ten different sources (the forward support element, the mortar platoon FDC, the company mortar section, a company FSO, a platoon forward observer, and others; track the sleep of key

leaders each day throughout the EXEVAL and brief at each AAR; record radio traffic and incorporate it when it can be helpful at each AAR; use global positioning system devices to check locations and to look for discrepancies within the task force and between BOSs; and examine mission statements and intents both horizontally and vertically for consistencies and variations.

Putting It All Together. A good, smart, strong team is needed to put together a high-quality AAR in the time allocated. The more work that can be done before mission execution, the better. In fact, most of the AAR can be prepared before the task force crosses the line of departure—graphics posted, planning and preparation cards completed, and so on. The execution phase, from an OC perspective, is often anticlimactic because the results have been anticipated. By the time execution begins, all that really remains for AAR preparation are the OCs' final comments and their input for the collective charts. AAR preparation and AAR site support teams—revolving around the assistant S-3, the NBC officer, and the HHC first sergeant, and committed to excellence—will put out a great product if the process is carefully considered in advance and rehearsed before delivery.

One-on-One AARs. Several days after returning to garrison, each OC should meet with his counterpart to talk behind closed doors and give a truly frank appraisal of the team's strengths and weaknesses. (Leaders are sometimes surprised to learn that their highly favored soldiers didn't measure up, while the not-so-favored excelled. This is the type of information that we as military professionals need to both convey and accept.

Preparing for and delivering an infantry battalion task force AAR is a difficult mission. The chief OC and his staff must ask the right questions and begin planning early. Although our CTCs provide excellent models for study, the task force leaders must look at their home-station resources and make any necessary adjustments.

They also need to bear in mind that the relationship between an evaluated unit and the training center OCs is quite different from that between a unit and the OCs from a sister unit. If an OC team remains professional and positive, half of the battle is already won. Following the principles of grounding the AAR in doctrine, basing it on the input of an aggressive but directed group of OCs, and keeping it simple but imaginative can lead to outstanding results.

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Operation TOUCHDOWN

Using the Dynamics of Combat Power

CAPTAIN ERNST H. WEYAND, III

In October 1951, while negotiations for peace in Korea were at a standstill, the United States Army's 2d Infantry Division faced a force of North Korean and Chinese Communist units along the eastern portion of the Kansas Line (Map 1).

After three weeks of offensive operations aimed at removing the enemy from a series of prominent hilltops known as Heartbreak Ridge, the 2d Division initiated and executed Operation TOUCHDOWN. As a result of this operation, the division gained control of Heartbreak Ridge and kept it until the end of the Korean War. Operation TOUCHDOWN succeeded because it combined and successfully integrated pro-

tection, maneuver, firepower, and leadership to deliver maximum combat power against the enemy.

On 30 June 1951, General Matthew B. Ridgway, commander of the United Nations forces in Korea, had invited the Chinese High Command to discuss an armistice. The Chinese accepted, and the town of Kaesong was selected as the site for the first series of talks. In the succeeding months, each side haggled over a number of issues, and talks were suspended several times. In August a new site was established at Panmunjom, and both sides seemed prepared to conduct serious dialogue to end the war.

Despite progress, hostilities continued during the negoti-

tions. General Ridgway, wanting to keep losses to a minimum, prohibited any major offensives. On the other hand, U.N. commanders were directed to retain the initiative by using strong patrols and local attacks designed to seize key terrain that would extend the friendly forces' fields of observation while reducing the enemy's.

With this guidance, General James A. Van Fleet, commander of the U.S. Eighth Army, planned a series of limited offensives designed to give his command a more favorable defensive line by securing key terrain along its front. These offensives, referred to as the Battle of the Ridges, began in August with the 2d Infantry Division's attack of enemy forces on a prominent ridge line called the Punchbowl (because of its odd shape). This attack was followed by a coordinated attack to the west by both the 2d Infantry Division and the U.S. First Marine Division. The objective of this attack became known as Bloody Ridge because of the price paid to win and hold it. After securing this ridge, the Eighth Army focused its attention on the adjacent ridge line—a narrow, rocky, mountain mass running north and south with Hills 931, 894, and 851 dominating the Mundung-ni and Satae-ri valleys—which would soon be known as Heartbreak Ridge (Map 2).

On 8 September 1951 Eighth Army headquarters ordered 10th Corps to seize, "with least practicable delay," Hill 931. The 2d Division received this mission and chose to attack on 13 September. Initial intelligence reports indicated that the enemy would have only one or two battalions on this ridge

line and that they "showed no established and formidable fortifications similar to those on Bloody Ridge." The 2d Division therefore expected light resistance from enemy forces on Heartbreak Ridge.

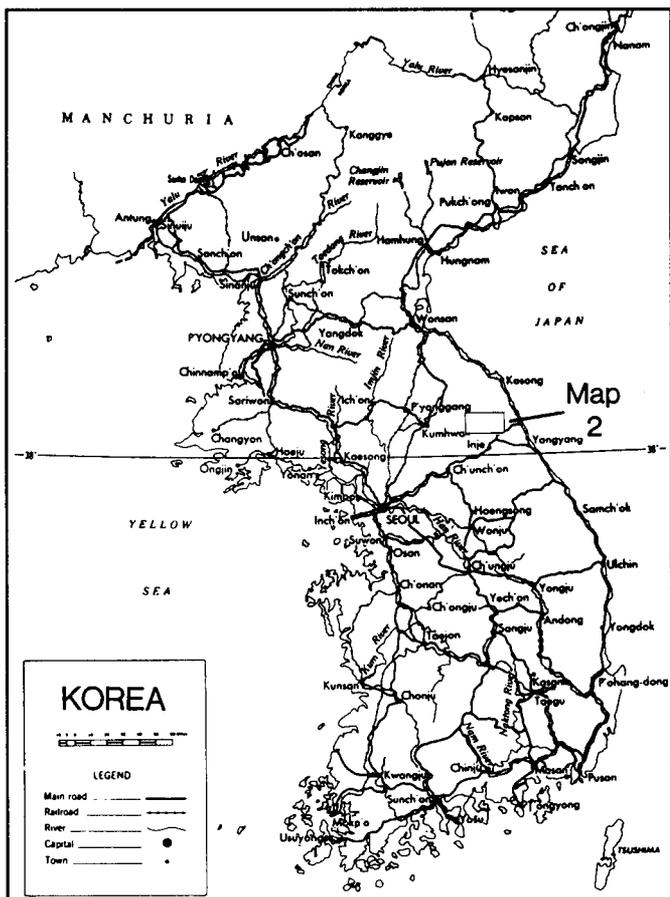
On 13 September, the division's 23d Infantry Regiment attacked Heartbreak Ridge. By the end of the first day of fighting, the regiment had made little progress while the well-entrenched enemy used artillery and mortars to push the regiment's soldiers off the narrow fingers approaching the ridge line connecting the three hills. By the evening of the 14th, however, the 23d Infantry was poised along the crest of the ridge. The enemy forces counterattacked during the night, but the regiment held its position.

In the days and weeks that followed, in some of the fiercest fighting since the beginning of the war, the members of the 23d Infantry made repeated attempts to gain the crests of the hills. Despite the regiment's limited successes in these attempts, the enemy retained the ridge. On 24 September, the regimental commander, Colonel James Y. Adams reported to Major General Robert N. Young, the new division commander, that he could no longer continue the operation on its current scale. Between 13 and 26 September, the 23d Infantry sustained 948 casualties, and the division was clearly losing the battle for Heartbreak Ridge. General Young knew this and resolved to do something about it.

He conferred with his staff and flew numerous reconnaissance missions around the ridge complex and, within a few days, had a clear picture of the enemy's strengths. These strengths were the ability to resupply from the west (particularly through the town of Mundung-ni and the Mundung-ni valley); the dogged determination to hold onto Heartbreak Ridge; the ability to reinforce positions in short periods of time; the well-prepared positions on terrain that covered the only avenues of approach in the sector; and the ability to mass mortar and artillery fire on the advancing U.N. soldiers. In addition, Heartbreak Ridge was part of a series of hills and ridges that the North Korean defenders could mutually support with both direct and indirect fires. Clearly, then, the enemy was sitting in a fortress that would subject an attacker to direct and indirect fires from any number of nearby strong-points. When the 23d Infantry made its piecemeal attacks, as it had done for two consecutive weeks, it had proved no match for an enemy force that focused its complete attention on the regiment's soldiers spread out in long columns along the narrow fingers of the ridge.

As a result of his detailed study of the ridge and its surrounding area of operations, General Young concluded that the early attacks had failed because of "the piecemeal commitment of elements and the lack of fire support teams." In addition, he noted that 85 percent of the friendly casualties had been from enemy mortar fire and that a concentrated and coordinated attack could disperse the mortars and keep the enemy from reinforcing the point under attack.

On 1 October, General Young issued the operations order for Operation TOUCHDOWN. His plan was based on a combined and coordinated effort by the entire 2d Division (see Map 3):



Map 1

time they needed to prepare for the operation. (The operations order issued on 1 October would not need to be changed until the end of the operation, when the 10th Corps headquarters extended the division's western boundary and added Hill 1220 to its list of objectives.)

The success of Operation TOUCHDOWN began early when a patrol from the 38th Infantry found Hill 485 unoccupied on 4 October. A company moved up and occupied it, giving the 2d Division one of its intermediate objectives before H-hour. On 5 October at 2100, the operation officially began with all the regiments from the 2d Division attacking simultaneously across a broad front while artillery and close air support pounded the enemy positions.

The 38th Infantry quickly seized Hill 728, gaining a position on the southeastern edge of the Mundung-ni Valley. To the right of the 38th Infantry, the 23d Infantry (with an attached French battalion) attacked to seize Hill 931. The 23d, which had been unsuccessful in its attempts to defeat the enemy on this hill during the previous three weeks, now conducted a violent night attack and had secured this formidable objective by 0600 on 6 October.

On 6 October, while the 23d Infantry cleared small pockets of resistance on Hill 931, Task Force Sturman struck toward the village of Satae-ri and engaged an enemy battalion. Surprised by this move, the enemy concentrated artillery, mortar, and antitank fires on the task force, which gave the 23d much-needed relief and allowed its leaders to consolidate and reorganize their forces. At the same time, Task Force Sturman had a successful first day, destroying 35 enemy bunkers before withdrawing to its assembly areas in mid-afternoon. Meanwhile, in the western part of the division's sector, the engineers continued to build and improve the road into the Mundung-ni Valley.

On 7 October, the 38th Infantry was given four new objectives—Hills 905, 974, 841, and 605—located well to the

attempts. This, in turn, provided the foothold the 38th needed to take its follow-on objectives (Hills 905, 605, 841, and 1220). In the east, the 23d was preparing to attack Hill 851 while one of its battalions attacked Hill 520, a small knob from which the enemy controlled the ridge line running to the west of Hill 841. By the morning of 10 October, the enemy on Hill 520 was defeated, and the 23d controlled the western approaches to Hill 851.

Meanwhile, on the division's eastern flank, Task Force Sturman continued to make bold thrusts up the Satae-ri Valley and engage the enemy in the north end of the valley and on the reverse slope of Hill 851.

The decisive point of Operation TOUCHDOWN came on 10 October, when the road to the Mundung-ni Valley was opened for the 72d Tank Battalion. As Colonel Robert Love, commander of the 2d Engineer Battalion, explains:

The armored fist burst through the enemy positions and deep into the valley which served as his supply route. Mundung-ni was entered and by-passed, lead elements of the task force advancing 1200 meters north of the town to place fire on the hills. Another element turned west into the valley behind Hill 841 and was able to strike at the reverse slope of the enemy hills. (From "Engineers in Operation Touchdown," *The Military Engineer*, September-October 1954, page 330.)

In effect, the thrust of the 72d Tank Battalion completely unhinged the enemy's defenses. On its initial thrust up the valley, the battalion destroyed the Fluor Spar Valley mine shaft that housed enemy ammunition and replacements. The tanks arrived north of Mundung-ni, catching the troops of the Chinese Communist Force's 204th Division, 68th Army, as they were replacing the rapidly disintegrating elements of the North Korean 5th Corps. At the end of the first day, the coordinated tank surges in both the west and the east had inflicted hundreds of casualties on North Korean and Chinese forces and completely disrupted their replacement operations.

In the days that followed, the 72d Tank Battalion and Task Force Sturman continued to push northward in their area of operations, moving with little or no enemy resistance, inflicting numerous casualties, and disrupting enemy defenses with their accurate direct fires. To the west, the 38th Infantry fought its way along Kim Il Sung Ridge, while in the east the 23d Infantry continued its efforts to seize Hill 851.

On 12 October both the 38th and 23d Regiments were poised to attack their final objectives (Hills 1220 and 851, respectively). Enemy resistance was stiffening all along the division's front, but the soldiers of the 2d Division were determined. The 23d made its final push on 12 October and by 0630 on the following day had seized the hill. To the west, the 38th Infantry conducted its final attack on 14 October and seized Hill 1220 the following morning. This concluded the 2d Division's role in Operation TOUCHDOWN.

To the soldiers and leaders of the 2d Division, this operation was a resounding success. In all, the division sustained 3,181 casualties while fighting for Heartbreak and Kim Il

Operation TOUCHDOWN succeeded because it combined and successfully integrated protection, maneuver, firepower, and leadership to deliver maximum combat power against the enemy.

north. Each of these hills provided a commanding position along the western edge of the Mundung-ni Valley. To the west, the 9th Infantry attacked Hills 867 and 1005. Despite heavy enemy resistance along this ridge line, the 9th inched its way toward its final objective and two days later seized Hill 1005 after a bayonet assault. On 8 October a battalion from the regiment seized Hill 666 and continued its attack to the north until it took an unnumbered hilltop on the western edge of the Mundung-ni Valley.

On 9 October, using the 9th Infantry to protect its flank, the 38th Infantry attacked Hill 636 and seized it after two

Sung Ridges, far fewer than the 4,500 casualties that had been expected in taking Heartbreak Ridge alone. By contrast, the enemy lost 9,547 soldiers on Heartbreak Ridge and close to 11,800 on Kim Il Sung Ridge.

Analysis

The 2d Division succeeded in Operation TOUCHDOWN because commanders at all levels successfully integrated protection, maneuver, firepower, and leadership. These elements were skillfully combined into a sound plan that was flexibly but forcefully executed to generate superior combat power against a well-entrenched enemy force.

Protection. During the operation, commanders were well aware of the imperatives of protection: conserve the fighting force through security, dispersal, cover and concealment, deception, suppression of enemy weapons, and mobility (as well as keeping soldiers healthy and maintaining their fighting morale). This awareness is evident in the earliest stages of the operation—specifically, five days before H-hour when the 9th and the 23d Infantry Regiments were pulled off the front lines. (Meanwhile, most of the 38th Infantry units were also pulled back, leaving only one battalion to guard the division's front.)

While the units were in the rear, the soldiers conducted equipment refit, and fresh troops were brought in to replace battle losses. Leaders planned their portion of the operation in great detail and tirelessly rehearsed their soldiers. The 23d Infantry, which was to conduct the difficult night attack on Hill 931, practiced and rehearsed its operation day and night on terrain similar to Heartbreak Ridge. Lieutenant Colonel Virgil E. Craven, a battalion commander in the 23d, said, *Each man knew who was to be in front of him, who behind. Whatever it may do in other places, familiarity bred confidence on the hillsides of Korea* ("Operation Touchdown Won Heartbreak Ridge," *Combat Forces Journal*, December 1953, page 28). In addition to this training, the soldiers in each regiment were allowed time to rest and prepare themselves psychologically for the final push. When H-hour came, the soldiers of the 2d Division were ready for combat.

Protection was also inherent in the operational plan developed by General Young. Operation TOUCHDOWN called for the simultaneous attack of specific objectives, executed across a broad front. This kind of attack did not allow the enemy to reinforce any particular point in his lines, or to concentrate his deadly mortar and artillery fire at any specific point as he had done previously. The tank thrusts up the Mundung-ni and Satae-ri Valleys drew a significant amount of enemy artillery and direct fire away from the attacking soldiers, and the tanks' direct fire was used effectively against the bunkers on the forward slopes of the enemy-held ridges.

The careful management of both direct and indirect fire support plans also protected friendly soldiers. General Young's requirement that each regiment submit its fire support plan ensured the best possible synchronization. And this synchronization contributed to the devastating suppressive fire that was concentrated across the division's front throughout the operation.

Maneuver. In the restrictive terrain that made up the division's area of operations, maneuvering to achieve an advantage was difficult. The infantry soldiers were forced to attack along narrow ridge lines, often in single file. This meant that friendly forces found it difficult to mass their fires at the critical point in the attack, while the enemy could move quickly to mass his combat power against the attacker.

Realizing this difficulty when he began developing the plan, General Young used the most obvious solution— increase the number of artillery pieces supporting the operation. When TOUCHDOWN began, every indirect fire asset

When the plan was issued, it was simple with clearly defined objectives that allowed commanders the freedom to carry out their assignments. This simplicity in planning and execution eliminated distractions and allowed leaders and soldiers alike to focus on the mission at hand.

in the division supported the maneuver elements. These weapons fired around the clock to support offensive operations and, by the end of the operation, had fired nearly 500,000 rounds.

The division also achieved maneuver through the methodical and systematic movement of combat units along mutually supporting ridge lines. Specifically, the division headquarters closely monitored the location of friendly units and "leapfrogged" their movements so that a unit would control a commanding piece of terrain and protect the exposed flanks of the maneuvering unit. This was one of the key factors in the operation's success and was most evident on 9 October when the 38th Regiment used the 9th to protect its left flank as it moved to seize Hill 636.

The last and most audacious of the plans to achieve an advantage through maneuver was the thrust of the 72d Tank Battalion into the Mundung-ni Valley. When the battalion entered the battle on 10 October, enemy soldiers were caught completely off guard and the tanks killed hundreds of them on that first day. The battalion's primary focus was the town of Mundung-ni because of its logistical and psychological importance to the enemy holding the ridges to its west and east. The tankers succeeded in completely disrupting enemy operations in and around this town. In addition, the tanks, which moved unimpeded throughout the enemy rear area until the operation ended on 15 October, also disrupted and effectively stopped enemy replacement operations.

The leaders of Operation TOUCHDOWN gained a positional advantage over the North Korean and Chinese forces through the extensive use of artillery, the bounding of units along key terrain to mutually support each other, and the violent thrusts of the 72d Tank Battalion up the valley.

Firepower. Once again, the immediate and obvious solution to the need for maximum firepower was the employment

of the division's artillery assets. The only stumbling block to this approach was that the tenuous supply lines could not support the volume of ammunition and other supplies required for an operation of this size. The division G-4 solved this problem by establishing forward ammunition supply points.

On 5 October the division had stockpiled 33,900 rounds of 105mm ammunition and 11,760 rounds of 155mm. With everything in place, the division had a 105mm artillery battalion in direct support of each infantry regiment and a 155mm battalion in general support of the entire division. In addition, the division artillery commander succeeded in having a bomber sent over from Japan and getting allocations for half of the corps' air assets in the theater.

On 4 October alone, the division's artillery fired 7,100 rounds and directed 45 air strikes. This type of artillery and close air support continued to pound objectives throughout the operation and was the key reason the enemy sustained so many casualties on both ridges.

The tanks in both Task Force Sturman and the 72d Tank Battalion also contributed greatly to the element of firepower. From 6 to 13 October, the task force's tanks fired their 76mm main guns at enemy bunkers on the forward slopes of Hills 931, 851, 656, and 811. On their first day, Task Force Sturman's tanks destroyed 35 enemy bunkers and five known machinegun positions. When the 72d entered the battle in the western part of the division's sector, it had an immediate and lasting effect on the enemy as it blasted the enemy resupply points in the Fluor Spar Valley mine area, rendering it ineffective for further use. Also, the 72d took up positions from which the tanks could engage the enemy on Hill 905 in support of the 38th Regiment's attack of this objective.

For the foot soldiers, the most important factor in firepower may have been the formation of support and assault teams for use in the narrow and rocky terrain. These teams evolved because of the difficulty in establishing large support positions for an attack (by an element of any size) on well-prepared enemy positions. The concept, used extensively by soldiers in the 23d and 38th Infantry Regiments, called for small support teams—equipped with machineguns, 60mm mortars, and 57mm recoilless rifles—to support the assault teams—carrying only small arms and flame throwers—as they moved from point to point in a methodical reduction of the enemy's bunkers until the objective was secure. This method of massing firepower at the critical point of the attack

proved effective in defeating the entrenched Chinese and North Korean forces during the operation.

Leadership. From the division commander down to the lowest levels, there were several indications of strong and informed leadership:

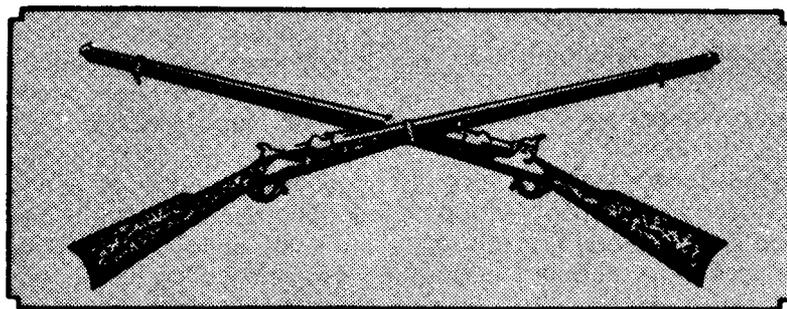
First and foremost was extensive planning at all levels, from the first leaders reconnaissance to the submission of detailed fire support plans to the division operations officer. General Young demanded detail, and this requirement filtered down to the leaders at all levels.

Next, when the plan was issued, it was simple with clearly defined objectives that allowed commanders the freedom to carry out their assignments. This simplicity in planning and execution eliminated distractions and allowed leaders and soldiers alike to focus on the mission at hand.

The most important quality of leadership exhibited during the operation may have been the patience of General Young: He was patient in allowing the regiments to prepare for their offensive operations instead of rushing headlong into the attack. He was patient in giving his subordinate leaders time to plan, rehearse, refit, and rest their soldiers for the final push. And he was patient in ensuring that the attacks were systematic, methodical, and mutually supporting. Thus he ensured that objectives were effectively isolated as the units took on the arduous task of removing well-entrenched enemy soldiers from their strongpoints.

After nearly 30 days of fighting, Heartbreak Ridge was taken because of the success of Operation TOUCHDOWN. And this operation was a success because the leaders involved in its planning and execution understood and effectively integrated maneuver, firepower, protection, and leadership. This successful integration made the most of the effects of combat power on the North Korean and Chinese forces and, despite their advantages of position and number, led to their defeat.

Captain Ernst H. Weyand, III, now in the U.S. Army Reserve in Hawaii, is a graduate of the United States Military Academy. He dedicates this article to the memory of his father, Sergeant Ernst H. Weyand, Jr., who fought in the Battle of Heartbreak Ridge as a member of the 23d Infantry Regiment's antitank and mine platoon.



TRAINING NOTES



The M60 Machinegun Training and Employment

CAPTAIN JEFFREY J. GUDMENS

Airborne, air assault, and light infantry rifle platoons have a great deal of combat power in their organic M60 machineguns, but most of them do not use these weapons to their full potential. Many leaders don't understand how to employ them properly, they don't select the crewmen carefully, and, most important, they don't train the crews properly. As a result, crewmen tend to use the M122 tripod only in the defense, think crew drill is something left over from "the old days," and do not understand the techniques of fire. The remedy is training.

Units need to first train the leaders on the machinegun so they can then train their crews. Leaders must understand the importance of choosing mentally and physically tough soldiers who can accomplish their mission with little guidance. Then they must make sure the crews understand one key point: The M60 machinegun is not just a big M16 rifle; it is the platoon's most important organic support weapon.

M60 crewmen need special training in employing the weapon. While the squad leaders are training their squads, the platoon's senior leaders should train

the machinegun crews on their specific tasks.

These leaders and trainers must have a thorough knowledge of Field Manual (FM) 23-67, *Machinegun 7.62-mm, M60*, and develop a machinegun training program. Appendix E of the manual contains an excellent program. All the tasks listed are important, but special

The M60 machinegun is not just a big M16 rifle; it is the platoon's most important organic support weapon.

emphasis should be placed on teaching the crewmen the following:

- How to assemble and disassemble the M60 and to perform field repairs when the weapon is not functioning.
- How to mount the machinegun quickly and correctly on the M122 tripod. Crewmen must understand that firing the machinegun from the tripod is the most effective method of engagement, and crew drill is the best way to teach this task.
- How to use the traversing and ele-

vating (T&E) mechanism. Crewmen have to know this task before they can fire effectively during periods of limited visibility, or before they can prepare a range card.

- How to prepare a range card. The gunners should know how to analyze the local terrain and select a good final protective line (FPL) or primary direction of fire (PDF). The crew, working as a team, should walk its sector to clear fields of fire, determine deadspace, and walk the FPL. If the machinegun crews are properly trained, they can advise the platoon's leaders on the weapon's employment.

During movement, the platoon leader must position his crews correctly and have them carry the proper equipment:

- Crew 1 should move with the platoon leader as part of his command post, while Crew 2 moves with the platoon sergeant.
- The gunner should carry the machinegun and 300 rounds of ammunition. The machinegun should be loaded with a "starter belt" containing at least 50 rounds, and the belt should be stored in some kind of protective bag or container.

TRAINING NOTES

- To speed the gun's employment, the assistant gunner should carry the tripod in his hands; the tripod should have the pintle assembly mounted and tied off to one of the tripod legs. He should also carry the spare barrel bag and at least 300 rounds.

- The assistant gunner should carry an M9 pistol instead of an M16 rifle. Since his concern is assisting the gunner, all he needs is a self-protection weapon. Carrying an M16 detracts from his ability to mount the machinegun on the tripod.

- The crewmen should carry the ammunition in the issue bandoleer, or in another bag or box. (Linking ammunition together and placing it in a "butt" pack or a demolitions bag works well.) The crew should never carry ammunition exposed or in any manner that allows it to get dirty, broken, or out of sequence in the belt.

When the unit makes contact, the machinegun crews must react in a well-practiced battle drill:

- The platoon leader gives Crew 1 a general location to support by fire. The gunner selects the exact support-by-fire position and immediately delivers suppressive fire using the bipod assembly. The assistant gunner opens the tripod, then opens the barrel bag to remove the T&E mechanism.

- While Crew 1 is going into action using the bipod mount, the platoon sergeant moves forward with Crew 2. The platoon leader gives a general location for this crew to support by fire. The platoon sergeant selects the exact location and commands the crew, "Gun to be mounted here, front, action!"

- The assistant gunner on Crew 2 moves to that location, opens the tripod completely, places it on the ground with the front leg pointed in the direction indicated by the platoon sergeant, and jumps on the rear shoes to plant the tripod firmly.

- The gunner moves forward and places the machinegun on the pintle assembly, while the assistant gunner extracts the T&E mechanism from the barrel bag. The gunner places the T&E on the machinegun and locks it to the traversing bar. He then sights in on a



The M60 machinegun earned its reputation for reliable firepower in Vietnam; here a machinegunner and his assistant engage a sniper during operations of the 173d Airborne Brigade.

target and begins firing. The assistant gunner ensures that the gun does not run out of ammunition and that the ammunition flows freely into the gun.

- When Crew 1 hears Crew 2 fire, Crew 1 mounts its machinegun on the tripod using the same method as Crew 2. Effective crew drills ensure rapid suppressive fires.

During offensive operations, machinegun crews can be part of the support element, the breach element, or the assault element.

In the support element, the tripod-

Every rifle platoon should be authorized a weapons squad, and every M60 crew should have an ammunition bearer.

mounted M60 delivers accurate, high-volume fire to suppress the enemy. The support element leader must carefully position his machineguns so that each has a sector of fire defined by the amount of traverse the bar allows. The sectors should overlap whenever possible.

In the breach element, the M60 provides excellent close-in support. Its high volume of fire isolates the breach

point and allows the breach force to accomplish its mission without worrying about enemy reinforcements. The support force leader of the breach element positions his machineguns on tripods so that their traversing bars prevent the weapons from firing on the breach or assault forces.

In the assault element, the M60s are used to weight the commander's main effort and to suppress critical targets encountered during the assault. Although the crews can fire from the bipod mount, using the tripod mount is more effective. With training, crewmen can use individual movement techniques with the machinegun already on the tripod.

During defensive operations, the M60 should be used to kill the enemy as he closes on the platoon's position, not to engage point targets. The M249 machinegun can usually cover any point target; the M60 is most effective for grazing fire across the platoon front to kill the enemy during his final assault.

In the defense, the platoon leader selects the exact location for his machineguns. His goal is to position them so their combined fires will provide grazing fire (an FPL) across the entire platoon front. This grazing fire is complemented by a tactical obstacle on

the friendly side of the FPL. The best way to obtain grazing fire that covers the platoon front is to place machineguns near the platoon flanks. The platoon leader should place a grenadier on the FPL side of the M60 to cover any deadspace along the line and an M249 on the other side to provide fires to protect the M60. The assistant gunner absolutely *must* walk the FPL while the gunner makes the range card.

One of the major reasons our platoons have not been using their M60s properly is that a change to the tables of organization and equipment (TOEs) removed some important personnel. To correct this deficiency, every rifle platoon should be authorized a weapons squad, and every M60 crew should have an ammunition bearer. (The rifle platoons in Ranger battalions have both weapons squads and ammunition bearers, and their machinegun crews are among the most proficient in the Army.)

During squad training, the weapons squad leader could train the M60 crews on machinegun tasks while the platoon leader and platoon sergeant supervised the platoon's overall training. During field operations, the weapons squad leader could assist the platoon leader with all aspects of machinegun employment, allowing the platoon leader more time for his other tasks.

The greatest advantage to having an ammunition bearer on a machinegun crew would be that the young soldier assigned to the job could train as a crew member and become the next assistant gunner.

To ensure success during the next conflict, our platoons must improve upon their machinegun employment. Achieving this improvement will require several steps:

- Leadership training (Infantry Officer Basic Course, Primary Leadership Development Course, and the like)

should include in-depth classes that prepare leaders to train and employ their machinegun crews better.

- The crews should strive to fire off the tripod at every opportunity.

- The crews must understand how to use the T&E mechanism, and crew drill should become second nature to them.

If airborne, air assault, and light infantry rifle platoons learn to employ their M60 machineguns properly, they will realize all of the potential combat power these organic weapons have to offer.

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Known-Distance Marksmanship

The Key to Increasing Combat Performance

CAPTAIN GLENN A. DUBIS
STAFF SERGEANT CARL O. DOOLEY

Since the early 1970s when the Army adopted the M16A1 rifle and the current rifle qualification system, known-distance firing has all but disappeared from Army marksmanship training schedules. Known-distance firing, originally intended as an integral part of the current Army qualification system, was dropped to conserve resources. This is unfortunate, because it has severely limited the soldier's potential to achieve the combat marksmanship skills he needs to attain decisive victory with his primary wea-

pon. In recent years, however, known-distance firing has been making a comeback among infantry trainers and light infantry commanders.

The merits of known-distance firing can be understood best from a historical perspective. Known-distance firing has a long tradition both as a military training tool and as a vehicle for recreational competition. These traditions often muddy thinking with emotion, and long-standing habits stifle creativity and intuition. If we are to revisit known-

distance firing, we must briefly review its original purpose, then redefine it by breaking it down into its essential elements.

The Rise and Fall

As a military training tool, known-distance firing was the culmination of marksmanship training. It was, in effect, qualification for the soldier. Its importance was due to two factors:

The first was the development of repeating rifles and cartridges that had

the precision and the power to enable a skilled marksman to consistently hit targets at extended ranges. To exploit the capabilities of these rifles, the soldier had to increase his ability to aim the rifle. Next he had to understand the effects of trajectory, wind, and weather on the ultimate impact of the bullet. Known-distance firing accomplished these training objectives. Once the soldier's skills more closely matched the increased capabilities of his primary weapon, the combat power of infantry formations increased dramatically, and the tactical formations of the day changed profoundly.

The second influence was the urbanization of the United States during the industrial revolution. When this was a rural society, the Army could take it for granted that its conscripts had some familiarity with firearms. The migration of millions to the cities invalidated this assumption, and a formal system of weapon training was introduced, with known-distance firing as the centerpiece.

At about the same time, known-distance firing became an increasingly popular form of recreation, and the Army did much to encourage this, as did some civilian organizations. Although the courses of fire have evolved since then, their origins are still easily recognizable as oriented on military marksmanship skills, albeit skills that have fallen into disuse.

Thus, known-distance firing, from its beginning, has been the basis of recreation, a tool for training the unskilled, and a vehicle for making the most of human marksmanship skill in order to realize the full potential of the rifle as an infantry weapon.

The demise of known-distance firing in the Army was not totally illogical. The first thing that diminished the benefits of known-distance marksmanship training was the increase in the power and number of weapons of mass destruction. The first and most important of these was artillery, with armor soon to follow. Close air support is a more recent addition. Weapons of mass destruction denied the infantry the opportunity to engage targets at maxi-

mum distance; they created confusion on the battlefield, broke up and destroyed infantry formations at distances beyond the maximum effective range of infantry weapons. The industrial revolution, which had first given the infantry soldier an advantage in firepower, had now deprived him of that advantage.

Infantry tactics therefore had to be modified. It no longer made sense for infantrymen to engage targets at the maximum effective range of their own weapons because they were still out-ranged and outgunned. This was part of the folly of the active defense and of medium antitank weapons such as the Dragon. This new battlefield usually denied the infantrymen shots beyond 300 meters. Instead, they had to close with the enemy and engage him with overwhelming firepower at distances

The essential elements of known-distance firing are precision marksmanship, combat distance, multiple shots, and feedback on the position of each shot.

shorter than the maximum range of his (the enemy's) or their (the infantrymen's) weapons. Organization, planning, and leadership in the midst of the chaos of the battlefield became more important than the individual or collective ability of infantrymen to shoot at maximum range.

The second factor was the development of the assault rifle, which was designed in part with the modern battlefield in mind. The U.S. Army's first assault rifle was the M16A1 (actually the result of an evolution process beginning with the M1 Garand and the M14). Armed with the M16, an infantry soldier could carry more ammunition. The M16 round had a flat trajectory out to 300 meters but lost accuracy and power beyond that range.

Theoretically, this flat trajectory eliminated the need to adjust the sights out to ranges of 300 meters, and beyond that point it was irrelevant. At shorter

ranges the M16 offered the luxury of greater firepower thus allowing infantrymen to achieve a decisive firepower advantage at the critical moment. The advantage of a higher rate of fire—as opposed to fewer, better-placed shots—is debatable. Still, the new M16A1 seemed well suited to the battlefield and to the tactical philosophy of the day.

Finally, the Army adopted a way of zeroing the M16 at reduced distance—25 yards—by using the long-range rear aperture and then flipping to the combat range aperture. A 25-yard zero obtained by this method theoretically equaled a zero at 250 yards, and zeroing at reduced range was easier than zeroing at 250 yards. This was called “obtaining a battlesight zero.”

With the elimination of the need to adjust sights due to trajectory—combined with the fact that a combat zero no longer needed to be confirmed at combat distance—the way was clear for the elimination of known-distance firing from Army marksmanship training. A soldier could move directly from the 25-yard zero range to the qualification range, where he would shoot at pop-up targets without ever having to move his sights. It became quicker, easier, and cheaper to eliminate known-distance firing because the two compelling reasons for it no longer existed.

The final reasoning behind the decision to eliminate known-distance firing was economy. The Army proposed to save the training time, terrain and infrastructure, ammunition, and money required to maintain known-distance training, then to convert these resources to programs and weapons that could offer more tangible results in deterring and stemming the chief threat. In short, known-distance firing fell into decline because the importance of the rifle as the primary infantry weapon also fell into decline.

The new method of zeroing and qualification did not represent an improvement; instead, it seemed to be a mandate for mediocrity. Marksmanship training lost almost all the benefits that known-distance firing had offered. Since that time, such training aids as the Weaponeer

Weaponer have come into the system as economical attempts to recapture some of what had been lost.

With this understanding of the origin and the decline of known-distance firing, we can now define it in a way that will help us understand its continuing value as a training tool.

The Elemental Parts

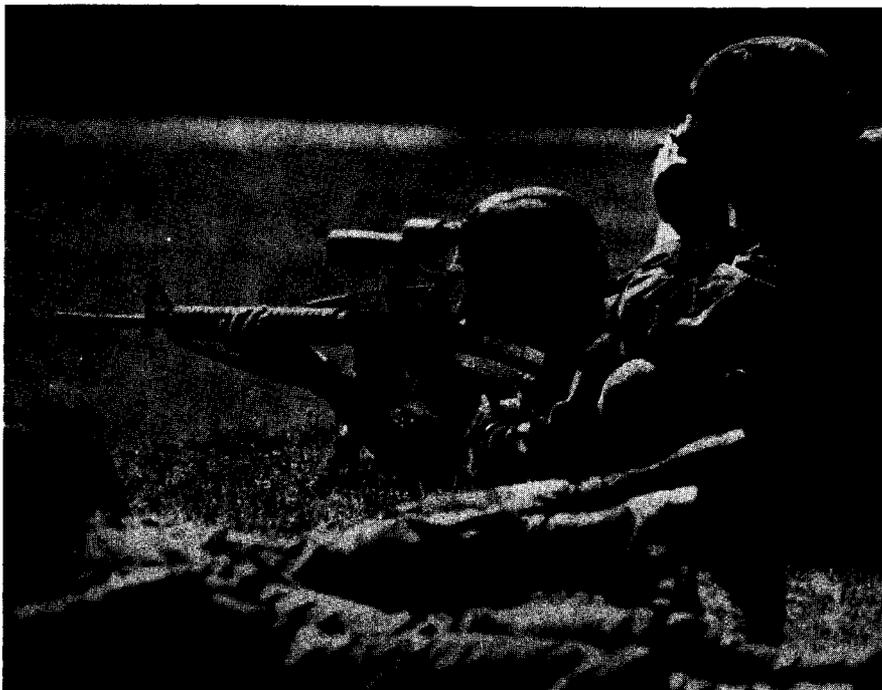
Known-distance firing is precision marksmanship training conducted at standard engagement ranges, firing multiple (at least five) shots, at a target on which the position of each shot can be marked.

It doesn't matter what the target looks like—bull's eye, silhouette, or camouflage silhouette—or whether it has scoring rings or areas. It doesn't matter whether the soldier fires some standard number of shots beyond the minimum (although a standard course of fire together with targets with graded scoring areas will provide a mechanism for quantitative analysis of performance). It doesn't even matter whether the soldier fires at more than one range (although combat zero range is by far the best). All of these variables should ultimately be controlled to create an optimum condition for training, but they are all ancillary to the central elements of good known-distance training.

The essential elements of known-distance firing are precision marksmanship, combat distance, multiple shots, and feedback on the position of each shot.

Precision Marksmanship. In precision firing, the soldier is using his sights and is trying to hit the target—in other words, applying the fundamentals of marksmanship. This generally implies single-shot firing before receiving downrange feedback, but firing multiple shots can be better for the novice shooter. And multiple shots can tell the advanced firer everything he needs to know and get him off the range quickly.

Combat Distance. Combat distances are the distances at which typical engagements are expected to occur. For the Army's M16, 50 meters to 300 meters are qualification distances. Battlesight zero distance is the best since it



Coaching can provide the shooter with feedback, the most important element of known-distance firing.

represents the most favorable distance for the M16 design. Battlesight zero is 250 yards for the M16A1 and 300 meters for the M16A2.

Realistic training for engagements at shorter ranges is likely to involve precision techniques other than those mentioned earlier. Furthermore, precision firing at short distance does not challenge

Known-distance firing is the only complete tool for skill development at combat ranges.

the firer's skill, nor does it indicate the rifle's true performance potential.

Firing at distances beyond 500 meters is not considered tactically feasible, as the effects of such variables as wind and mirage increase dramatically. As a result, performance becomes erratic. Even so, long distance firing can be a great confidence-builder for soldiers who have solid marksmanship skills. If wind conditions are right (calm and steady), excellent results can be

achieved at ranges up to 600 meters and even 1,000 meters with the M16A2. Hours later, however, as conditions become changeable, the same exercise may prove disappointing.

Multiple Shots. Multiple shots are necessary to verify performance. The minimum of five shots mentioned earlier is arbitrary, but it does serve to point out that ten shots are usually unnecessary while three are barely enough to form a picture of the way the firer and the rifle are performing. If after five shots the shot groupings are scattered, there is a problem with either the shooter or the weapon. Wind also has this effect, but it is more obvious since all firers on the range are usually affected the same way.

Feedback. The most important element of known-distance firing is downrange feedback—that is, the act of marking each shot. This gives the soldier the information he needs to evaluate his skill as a marksman. It allows him to associate his actions with the rifle with the positioning of shots down range. This feedback also demonstrates the validity of his 25-yard battlesight zero. The confirmation of battlesight zero is not something that can be taken for

granted, either for elevation or for windage. Feedback also demonstrates the effects of wind on the strike of the bullet. Finally, when the soldier engages a target at a different range, it demonstrates the real effect of trajectory on the strike of the bullet. Theoretically, the bullet strike should remain within a silhouette at all distances out to 300 meters; this is questionable at the shorter distances, though, and may be entirely invalid if the battlesight zero is incorrect.

The big benefit in marking the individual shot holes is feedback. Knowing whether a shot is a hit or a miss is not good enough. The soldier must have more specific information if he is to improve his ability to aim the rifle, execute the shot, keep a valid zero, and make slight adjustments to compensate for the effects of wind and, if he needs it, for trajectory. It should be noted, however, that at qualification distances, a soldier makes adjustments for wind and elevation by adjusting his point of aim, not by manipulating the rifle sights.

Transition vs. Skill Development

In the past, known-distance firing was considered a transition between the 25-yard zero and qualification. The sequence was first zero, then transition, then qualification. But the term *transition* sold short the merits of known-distance firing. When the Army decided to cut marksmanship training resources, transition was the obvious choice. Apparently, the idea was that although we need a beginning and an end, the middle was expendable.

Known-distance firing is not the expendable middle. It is not transition for the sake of transition. Known-distance firing offers feedback on performance, zero, wind, and trajectory. Neither 25-yard zero nor qualification offers any of these to any real extent. Known-distance is the only complete tool for skill development at combat ranges. Better terms for the proper sequence of marksmanship training are *zeroing*, *skill development firing*, and *qualification*. The term *known-distance firing* describes the method of training, but *skill development* describes the goal

of that training.

Since the decision to eliminate known-distance firing as a required part of Army qualification was influenced by economics, now that the world picture has changed so radically, the Army may be persuaded to reinvest in marksmanship some of the training resources it took away. The first step in that direction should be to reestablish known-distance firing as a required part of qualification.

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Staff Sergeant Carl O. Dooley is also assigned to the U.S. Army Marksmanship Unit, where he has served in the service rifle section and the instructor group and is now a coach with the service rifle team. He is a U.S. Army Distinguished Rifleman and a member of the President's 100.

Physical Disability Review System

Taking Care of Your Soldiers

CAPTAIN M. NICHOLAS COPPOLA

If you are a new commander, you may find that your unit has several soldiers on limiting physical profiles and awaiting medical boards. Your first impulse may be to try to have these soldiers reassigned to the local medical holding company so you can get others in the same specialties to replace them. When you do, you will be introduced to the Army's physical disability review system—and to another important

aspect of taking care of your soldiers.

Thousands of soldiers or their medical records appear before medical review boards each year. Unless they are severely injured or sick and require hospitalization for more than 90 days, or come from overseas assignments, they remain on duty with their parent units until the disability review process is complete. Moving these soldiers to medical holding companies, which often

requires permanent changes of station, would cost the Army a lot of money, create unnecessary stress for their families, and hinder the soldiers in establishing relationships with agencies such as the Army Career Alumni Program and the Transition Assistance Program, that can help them transition into new careers. In addition, medical treatment facilities cannot support permanent changes of station for all the soldiers

awaiting medical boards. And there are only so many beds available and so many people to take care of them. Every unit must therefore share in caring for soldiers who are no longer able to perform all of the duties of their MOSs, due to illness or injury.

A soldier undergoing the medical and physical disability review process will rotate through several administrative and medical sections before being separated from the Army or returned to duty. This process takes 90 to 120 days for some soldiers and up to a year for others—depending on the nature of the illness or injury, the proficiency of the medical and administrative personnel, and the backlog of cases for the boards and other agencies. The best way for a commander to expedite the process is to learn as much about it as possible so he can help his soldiers through it.

A Medical Evaluation Board (MEB) is made up of at least two physicians who have expertise in the medical conditions that affect soldiers. These physicians complete Department of the Army (DA) Form 3947 (Medical Evaluation Board Proceedings) and Special Form (SF) 502, a brief but complete clinical history of the patient's medical status.

These forms generally make up what is called the MEB "dictation." In most cases, a resident physician will complete the dictation alone and then discuss the findings with a chief resident or the chief of the department involved before the final document is prepared. The soldier and the physician will then discuss the contents of the MEB dictation. If neither finds concerns that need to be addressed further, both sign the document.

The result will be one of the following actions:

- The soldier is returned to full duty because the MEB has found he has no condition that fails to meet medical retention standards in accordance with Army Regulation (AR) 40-501, *Standards of Medical Fitness*, Chapter 3.

- The soldier is returned to duty with limitations that are based on an assigned permanent "two" profile.

- The soldier is returned to duty with a permanent "three" profile. The parent organization is responsible for coordinating an MOS Medical Review Board (MMRB) to determine whether the soldier is still capable of performing in his designated MOS, if applicable.

- The soldier does not meet medical retention standards, and the MEB dictation is forwarded to the Physical Evaluation Board (PEB) for a medical retention determination.

A PEB, which can be either informal or formal, is made up of at least three officers—generally a line officer in the rank of lieutenant colonel or colonel as

Medical treatment facilities cannot support permanent changes of station for all the soldiers awaiting medical boards. Every unit must therefore share in caring for soldiers who are medically impaired.

the board president, a field grade physician, and another field grade line officer who acts as the personnel management officer. In some cases, enlisted soldiers in the ranks of platoon sergeant or above may also be present at the soldier's request. The board must always have an odd number of voting members so there will be no ties in the adjudication process.

Only the soldier's MEB records appear before an informal PEB. The informal board determines whether the soldier meets retention standards or is medically unqualified for continued service. If he is found medically unqualified, the soldier's MEB is "rated" on the basis of the Department of Veterans Affairs Schedule for Rating and Disability (VASRD) (pronounced *vaserdee*). The VASRD is basically a flow chart that the board members can follow in rating the soldier's condition. For example, if the soldier has experienced a traumatic amputation, the chart might ask whether it was an arm or a leg; if it was an arm, whether it was the soldier's

dominant arm; and if it was his dominant arm, whether the amputation was above the elbow; and so on. When all the questions have been answered, the VASRD guides the board members toward a disability rating. Once the informal board completes the adjudication, the soldier has an opportunity to concur or nonconcur with its findings. If he nonconcur, he can request a formal PEB, which is then scheduled by the PEB President.

With the formal PEB, in most cases, the soldier, his MEB record, and a legal advisor appear before the board to address his concerns over the informal PEB findings. (The legal advisor may be one who is appointed or one the soldier obtains independently at no expense to the Government; he is not part of the board and is present only to assist the soldier in his appeal.) The soldier does not have to have a legal advisor, or, in fact, appear himself. He can have someone appear on his behalf, or simply make a written appeal to the board.

After a second look at the soldier's record, the PEB members *may* change the fitness recommendation or the compensation award. Upon final review by the PEB, the board records are forwarded to the U.S. Army Physical Disability Agency (USAPDA) and the Total Army Personnel Command (PERSCOM). USAPDA has the authority to modify the PEB's findings, if applicable. And, upon final review, the completed board records are forwarded to PERSCOM, where the soldier's status is changed from *patient undergoing disability review to active duty, retired or separated*.

Each soldier receiving a medical board is appointed a counselor from the PEB liaison office, who will explain the entire disability process to him. These counselors are generally civilians who are under the control of the patient administration division of the treatment facility. They are subject matter experts on the disability review process and are always ready to assist you and your organization. At any time during the process, you or the soldier's other leaders are welcome to call his counselor to

discuss the case and learn its current status. After the MEB has been dictated and the PEB adjudicated, the counselor compiles the proceedings and explains their implications.

The MEB dictation often takes longer than any other part of the physical disability process. The soldier's physician may require detailed clinical work at other sections of the hospital or may send the soldier to another facility. It is common for a soldier to wait two to four weeks to be seen by another specialist or to have certain tests performed. Because of this time factor, the utmost importance must be placed on having the soldier keep all scheduled appointments. If he misses one appointment, the entire disability process may be extended by a month or more.

On the other hand, if a clinic or physician cannot give a soldier an appointment for 30 days, a telephone call to that section early each morning may result in an earlier appointment due to a cancellation. Additionally, and this is time-consuming, if the soldier can afford the time to sit in the clinical section for a morning or an afternoon, he may be able to get in immediately when another patient fails to appear for an appointment.

Overall, if you command a unit at an

installation in the continental United States and have a soldier undergoing disability review in a medical treatment facility that does not directly support your command, you can expect him to be attached to the facility only for the time required to dictate his MEB. The soldier will be returned to his unit after the MEB is completed. If he is recommended for a PEB, he will stay in your command until the PEB has determined his fitness, percentage of disability, and compensation (if any). If the soldier is

The best way for a commander to expedite the Physical Disability Review process is to learn as much about it as possible so he can help his soldiers through it.

found fit for duty, he is likely to remain in your unit with a revised profile. Even if he is found unfit for duty, he may stay until his final retirement or separation orders are processed.

Most of the soldiers undergoing disability reviews are good troops who, through no fault of their own, have been wounded or otherwise injured on active

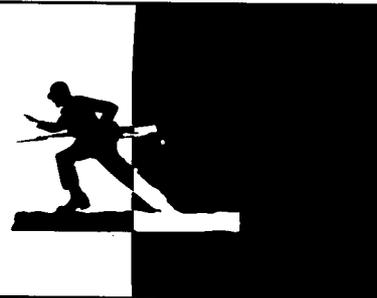
duty or have developed a serious illness or condition. Many of them, after long years of commendable service, face the anxiety of making the transition to the civilian world, perhaps lacking the competitive training to succeed there, and with a family to support and future medical obstacles to overcome. Your soldiers in similar circumstances need your support, your understanding, and most important, your help.

Like many other processes in the Army, the medical disability system is full of jargon and acronyms, exceptions to policy, and numerous levels of medical and administrative authority. Although this article cannot include every aspect of the system, it should give you a strong foundation for further study and professional conversations. Given the proper knowledge, you can provide the best opportunities for your soldiers who are undergoing disability reviews.

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ENLISTED CAREER NOTES



SKILL DEVELOPMENT TESTS

The old skill qualification test (SQT) is gone, and NCOs must now zero in on the new skill development test (SDT).

The SDT is a formally administered written test of leadership, training management, and military occupational specialty (MOS) knowledge. It is one of the key elements that will determine NCO promotions, assignments, school selection, and retention in the future.

The Army established the SDT as a way for NCOs to measure and guide their own professional growth and development as leaders. The SQT was designed primarily to support individual training in units. The SDT puts the responsibility for self-development and advancement on the individual NCO, not on the unit.

The SDTs administered this year are for record. The tests developed by the U.S. Army Infantry School cover 11B, 11C, 11H, and 11M MOS skills. The objective of these SDTs is to measure and guide NCOs as they grow in skill and competency.

Each sergeant, staff sergeant, and sergeant first class will take a two-hour written test consisting of 100 questions in three categories: 20 questions on leadership, 20 on training, and 60 on MOS knowledge. Each NCO rank in an MOS has a separate SDT.

The questions are selected from the ITEM BANK of questions maintained by the MOS proponent (the Infantry School for infantry MOSs), the Combined Arms Center (CAC), and the Sergeant's Major Academy. The MOS questions are based on soldier's manual tasks and are written annually by subject matter experts. No more than 75 percent of the previous year's questions will appear on a given year's SDTs.

NCOs will receive their SDT notices about two months before they are to take the test at a selected site. Each NCO is

responsible for preparing for the test; no unit time will be devoted to these preparations. Commands must spot-check to see that NCOs are receiving the appropriate publications for study when they need them. The specific manuals and references to study in each category are the following:

- Leadership Section—Field Manuals (FMs) 22-100, 22-101, 22-102.
- Training Section—FM 25-101.
- MOS Knowledge Section—MOS-specific soldier's manuals and supporting references.

Initial test results are issued within 30 days, and final scores are issued two to three months after testing. The passing score for the SDT is 70 percent, ten points higher than for the SQT. Beginning in Fiscal Year 1994 for the Active Army and 1995 for the Reserve Components, an NCO's score will be linked to the Enlisted Personnel Management System (EPMS). The EPMS makes the SDTs an effective tool for promoting NCO development and also recognizes and rewards those who excel in this area. It will therefore require individual study, research, professional reading, and self-assessment.

The importance of studying properly for SDTs can be summed up as follows:

Focus. An NCO focuses his efforts to excel on the test by applying the approach that is best suited to the specific subject matter. His first step is to ensure in his own mind that he will obtain the best possible score. To do this, he must have a well-devised study plan, make sure he has the appropriate manuals and reference materials, and then execute the plan on schedule. This means focusing on self-discipline.

The amount of time an NCO should study depends on his individual ability to read, understand, and apply the material. Past study statistics indicate that only four out of five NCOs actually

studied at all in preparing for the test. Exit surveys from the 1993 SDTs indicate that 48 percent of the soldiers taking the tests had studied for ten hours or less.

Feedback. Unit commanders will become more involved by studying feedback and scores from available data and reports. Feedback is (or should be) aimed at the soldier himself. Test scores should tell him what his strengths and weaknesses are and where he stands in relation to his peers.

Fortune. There are several types of rewards for an NCO who is willing to study to increase and demonstrate his knowledge of his specific MOS. Self-satisfaction is one type of reward. Knowing that he has mastered the necessary skills in his MOS will be a positive factor. Recognition by his peers and superiors when he does well on the test is another form of reward. Individual NCOs who score high may be rewarded with key assignments, and qualified NCOs will receive monetary rewards through promotions.

Future. With the downsizing of the Army, competition for positions and leadership roles will be greater than in the past. SDT scores will be highly important as boards meet to select NCOs for promotion to higher ranks. These scores—along with a review of the individual NCO's leadership skills, MOS knowledge, completed schools, enlisted evaluation reports, and training—will clearly identify the better qualified NCOs.

An NCO's individual effort as he studies and strives to improve in his MOS is vital to his career, and to his service to our nation.

(This item was prepared by infantry subject-matter experts SSG Eastman, 11M; SFC Reynolds, 11H; SSG Wilcox, 11B; and SFCs Thompson and Ervin, 11C.)

OFFICERS CAREER NOTES



CAPTAINS PROMOTION BOARD

The next captains board has been scheduled for 10-27 May 1994. The zone of eligibility is based on date of rank, not year group. Last year's board considered lieutenants with dates of rank from 1 September 1991 through 31 August 1992. The Fiscal Year (FY) 1994 board should cover 1 September 1992 through 30 September 1993.

The current plan to reduce the actual promotion point to 48 months means the current list will be exhausted by October 1994, and the promotion of officers on the FY 1994 list will begin in November 1994.

Infantry Branch offers the following advice to lieutenants preparing for the board:

- Order a copy of your microfiche (call DSN 221-9612). Make sure it contains your academic evaluation report (AER) from the Infantry Officer Basic Course and all officer evaluation reports. If your Ranger orders or awards and decorations are not on the microfiche, get them in.

- Make sure the officer record brief (ORB) that goes before the board is correct. Use white-out and type or use red ink, but make it neat.

- Don't wait until the last minute to have your official photo taken. Make sure your uniform is neat and fits correctly, and get a good haircut. The board uses the photo to see if you are fit and if you look like you belong in a uniform.

To ensure that your file is straight, call CPT Mark Erwin in April at (703) 325-5516 or DSN 221-5516.

MAJORS BOARD

The 1994 Army Competitive Category Majors Promotion Board is scheduled to convene on 5 April 1994. Eligibility consideration is based on active dates of

rank for promotion to captain as follows:

- Above the Zone—1 September 1987 and earlier.

- Promotion Zone—2 September 1987 through 1 February 1989.

- Below the Zone—2 February 1989 through 1 March 1990.

Eligible officers should read PERSCOM message, subject: FY 94 Major, Army Competitive Category, Promotion Board Zones of Consideration. All personnel services centers and military personnel offices received copies of this message in January 1994. It contains specific instructions on processing evaluation reports, procedures for ORB reviews, official photograph updates, and guidelines for submitting letters to the president of the board.

A current photo and ORB are the two most important of the items that you can influence. Make sure you have a recent color photo in a properly fitted uniform with the correct awards and decorations. No infantry cords. If you have any questions, call the Captains Desk at Infantry Branch, (703) 325-5520 or DSN 221-5520.

PROFESSIONAL DEVELOPMENT

The following professional development opportunities are available for company-grade officers. Most of these programs are highly competitive and require officers with strong files and good academic potential.

Advanced Civil Schooling (ACS): Annually, the Army sends officers to full-time, fully funded civilian schooling to obtain advanced degrees that qualify them for positions validated under the Army Educational Requirements System (AERS).

U.S. Military Academy (USMA) Instructor Program: The five-year USMA instructor program includes 18

to 24 months of graduate study followed by a three-year utilization tour at USMA in an instructor or staff officer position.

U.S. Military Academy (USMA) Tactical Officer Program: This four-year assignment as a tactical officer at West Point is part of the Dwight David Eisenhower Program of Graduate Studies in Leader Development.

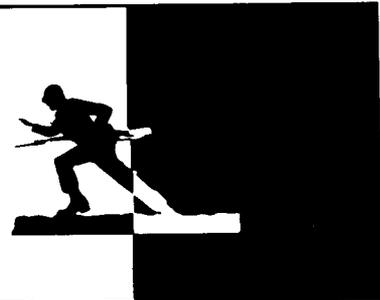
Degree Completion Program (DCP): This partially funded, noncompetitive program enables an officer to obtain a baccalaureate or graduate degree. The officer pays tuition, books, and other fees associated with civilian college attendance.

Olmsted Scholarship: This three-phased scholarship program is designed to give the Army a group of officers who have an in-depth knowledge of foreign countries. The officers selected by the Olmsted foundation attend language training at the Defense Language Institute and then complete two years of academic study in foreign countries. They may be offered opportunities to pursue one-year master's degrees.

Harvard/DCSOPS Fellowship: This fellowship program is designed to provide the Army with trained strategists. Officers selected for the program by the Office of the Deputy Chief of Staff for Operations (ODCSOPS) attend Harvard University for one year to earn master's degrees in public administration, with follow-on assignments to ODCSOPS for three years.

Any officer who is interested in one of these development opportunities should complete DA Form 1618-R (a reproducible form found in Army Regulation 621-1) and forward it to his assignment officer at Infantry Branch. Additionally, he must have a current DA photo, copies of his undergraduate transcripts, and current GRE or GMAT scores in his file.

BOOK REVIEWS



BILL MAULDIN'S ARMY. By Bill Mauldin. Presidio Press, 1992. 384 Pages. \$30.00 Hardbound, \$14.95 Softbound.

This book is a reprint of Bill Mauldin's earlier edition, which was originally published by Sloan in 1949. This superb compendium of Mauldin cartoons from 1940-1945 will awaken memories among those who served during those hectic years, but it will also attract a much wider audience. Anyone who has served with ground troops will recognize Willie and Joe, their antagonists and their buddies, and the trials the U.S. soldier has had to face as long as he has served this great nation.

The subject matter for the cartoons in the first section of the book—aptly named "Garrison Life, Training, and Maneuvers"—was provided by the first Louisiana Maneuvers, held in the fall of 1941. In a series of cartoons that could only have been conceived by someone who was there, Mauldin follows his characters through the tribulations of guard duty, K.P. (*kitchen police* to the uninitiated), field exercises, and preparations for overseas deployment. As today's Army again plans Louisiana Maneuvers as part of its Battle Lab concept, these subjects are still timely.

Mauldin's attention to detail will not go unnoticed: Leafing through the pages, the reader sees the Army's transition from the World War I dishpan helmet to the model that was to serve our fighting men until the 1970s. Likewise, he will see presented in faithful detail the replacement of the 1903 Springfield rifle by the M1 Garand, the change from a water-cooled to an air-cooled machine gun, and the myriad other weapons, vehicles, and pieces of equipment of soldiers on both sides of the war. Equally accurate are the sarcasm and sometimes bitter humor of combat troops occasionally faced with the arbitrary regulations of rear-echelon types whose war seems to bear little resemblance to the front-line world of Willie and Joe.

Like Mauldin's earlier book, *Up Front* (The World Publishing Company, 1945) this one offers lessons to the soldier, the leader, and in fact to all of us. The subjects of interservice rivalry, propaganda, personal

hygiene, and creature comforts are all here, and in terms we can all understand.

This is not a book you can easily put down; its subject matter is particularly timely now that we are commemorating the 50th anniversary of the Second World War. Mauldin served three years with the 45th Infantry Division as it fought its way up the Italian boot in some of the bloodiest fighting of the war, and the reality of combat provides a backdrop for the humorous situations in which his characters find themselves. What this book does particularly well is reveal soldiers as they are: ordinary people who often find themselves in situations not of their own choosing, but who are doing their level best to get the job done.

If you don't already have it, buy this book, read it, keep it in a place where your guests can find it. The price is very reasonable, and you're well advised to buy the clothbound edition, because it will get a lot of use.

A PORTRAIT OF THE STARS AND STRIPES, VOLUME II. By Bud Hannings. Seniram Publishing, Inc, 1991. 946 Pages. \$50.00.

If your library does not include a chronological history of World War II, this is the book to buy. Bud Hannings has painstakingly compiled the most readable, detailed chronography available today. Volume I of *A Portrait of Stars and Stripes*, published in 1989, traced the history of our nation—and the men and women who served her—from shortly before the Boston Massacre until the end of World War I. Volume II picks up with January 1919 and chronicles events through 31 December 1945. An interesting adjunct to the second volume is a chronological listing of events which—although primarily nonmilitary in nature—influenced the military operations that make up most of the book.

To be sure, there are countless other books on World War II, as well as chronographies that highlight key events. There are also listings of units and their campaigns, casualties, and still other volumes on the heroism of our men and women in uniform, but Hannings

has brought all of this—and far more—together in one volume.

Throughout the book, among the accounts of great battles and the leaders credited with victory and defeat are stories of individual heroism. Hannings has added the human dimension that is all too often missing from histories, and his book is the better for it.

What is conspicuously missing from the book is parochialism; the author freely credits sailors, airmen, Marines, soldiers, and all others who contributed to the overthrow of the Axis powers. In an age when interservice rivalry has been supplanted by bitter competition for defense dollars, we would do well to revisit the enormous cooperative effort that was World War II, and realize that Ben Franklin's remark to John Hancock on the value of hanging together is still relevant.

Hannings also offers a number of footnotes to history, and highlights those forgotten warriors who sacrificed their own interests for a greater good. One of these is Major George Jordan, the U.S. liaison officer with the Russians, who was tasked with overseeing the implementation of the Lend-Lease Program. He saw the program not from the perspective of Washington—where the effort was viewed as it was *intended* to be—but from the reality of Great Falls, Montana; Alaska; and on the ground in Russia itself. There, the waste, abuse, and blatant fraud of our Ally were readily apparent, and Jordan repeatedly tried to alert U.S. State Department and congressional authorities, efforts that resulted in his being replaced in June 1944. He would later testify in congressional hearings in 1952, after the damage had been done: By 1944 three-quarters of a ton of uranium compounds, along with 2.2 pounds of uranium metal—more than 48 percent of the total U.S. stockpile—had been shipped to Russia, in spite of a Manhattan Project embargo on such shipments. Jordan also revealed the transfer of classified documents on atom bomb development to the Russians, along with thousands of documents, looted from the U.S. Patent Office files, on such subjects as helicopters, bomb-sights, and ammunition.

Such accounts demonstrate the exhaustive

BOOK REVIEWS

research that went into the compilation of this text, and make it an invaluable source for anyone desiring to gain an appreciation of the complexity of the war effort.

A Portrait of the Stars and Stripes, Volume II, belongs on the shelves of every library. Today, half a century after the fact, it is all too easy to take for granted the enormous sacrifices that World War II demanded of America and her Allies, but Bud Hannings has told the story in human terms, and in unabashedly patriotic language that can only evoke pride in our nation and her armed forces.

DAK TO: THE 173D AIRBORNE BRIGADE IN SOUTH VIETNAM'S CENTRAL HIGHLANDS, JUNE-NOVEMBER 1967. By Edward F. Murphy. Presidio Press, 1993. 384 Pages. \$24.95. Reviewed by Major General Albert H. Smith, Jr., U.S. Army Retired.

Today's professional infantrymen are equipped, conditioned, and trained better than their predecessors who fought in the Vietnam War—with one notable exception: The soldiers of the 503d Infantry Regiment (Airborne) were as good as any fighting men our Army has ever sent into battle. Assigned to the elite, all-volunteer 173d Airborne Brigade, these potent warriors—their platoons, companies, and battalions completely combat ready—deployed from Okinawa to South Vietnam in May 1965.

Ed Murphy's newest book chronicles the experiences of the 503d from early successful engagements against the Viet Cong through the fiercest kind of fighting against North Vietnamese Army regulars in the Central Highlands. The author uses previously unpublished information, gathered in exhaustive interviews with more than 80 survivors, to describe a series of bloody battles around Dak To.

Vietnam's Central Highlands contain some of the most difficult terrain in the world. There are continuous rain forests with huge hardwood trees 250 feet high. Where sunlight filters through the leafy canopy, the jungle floor is covered with dense undergrowth that restricts visibility to a few yards and makes movement difficult. How U.S. combat infantrymen, their NCOs, lieutenants, and captains fought a tough, well-trained enemy in this terrible environment is what Murphy's narrative is all about.

His masterful portrayal of brave soldiers trying desperately to accomplish seemingly impossible missions under such conditions provides unlimited material that might be

used in professional development sessions for officers and noncommissioned officers at all levels. In addition to detailed accounts of small-unit operations, brave deeds, leadership, weapon employment, support problems, and the like, readers will also want to discuss such subjects as "body count" and friendly-fire casualties. (General William Westmoreland and others in the chain of command were shocked to learn that 29 percent of the dead paratroopers were killed by friendly fire.)

In my judgment, *Dak To* should be required reading throughout the Army's school system. Certainly, combat arms students will be most interested in the total coverage. But those enrolled in the Chaplain's School will not find a better combat role-model than Chaplain Charles J. Waters. As recorded on a dozen pages, he was universally loved in the 173d and earned the Medal of Honor for his brave deeds on Hill 875, where he was killed on 19 November 1967.

The author is to be congratulated on a superb, exciting historical work. He also deserves a special salute for the 16-page photographic summary and for the glossary of Vietnam-era terminology, which will be helpful to readers of all ages.

BEYOND THE SOVIET THREAT: THE U.S. ARMY IN A POST-COLD WAR ENVIRONMENT. By James Berry Motley. Lexington Books, 1991. 225 Pages. \$29.95. Reviewed by Colonel Cole C. Kingseed, United States Army.

With the demise of the Soviet empire and the end of the Cold War that dominated American strategic thought for half a century, the U.S. Army now confronts an uncertain future with respect to roles and missions. *Beyond the Soviet Threat* is an attempt to address the challenges that face the Army of the 1990s. The author's intent is to foster open discussion of the problems facing the Army and how it can be best organized to protect U.S. interests during a period of rapid change and uncertainty.

Written two months after Saddam Hussein's invasion of Iraq in August 1990, some of the material, such as Soviet policy toward the Third World, was soon dated. What makes the book valuable to the Army community, however, is the author's analysis of five central themes that affect the Army of the future. These themes focus on the realignment of the Army's forward-based deployment posture, the move to a new European security system, the future role of the Reserve Components, the implications

for AirLand Battle doctrine in future conflicts, and a transitional era during which the Army can restructure itself with a new strategy focused on small-war contingencies. These areas provide the foundation for subsequent chapters.

Whether or not the reader agrees with every aspect of Motley's analysis is not as important as the serious dialogue the author hopes to foster. He concludes, not surprisingly, that the Army must come to grips with the major changes occurring in a multipolar, interdependent world. In planning for the future, the Army must deal with NATO and the problems of small wars, as well as with ways in which the Active Army and the Reserve Components can work together in a more synergistic role to insure the protection of U.S. interests.

In a final warning, Motley challenges the Army to create a structure and an infrastructure of the communications and logistics facilities it will need to fight successfully on the relatively unsophisticated Third World battlefields of the 21st century.

In summary, this book provides provocative analysis of the challenges facing the Army in the post-Cold War environment. The book will be most helpful to the national security community, policy and decision makers, and officers working on the strategic issues confronting the U.S. Army.

RAIDERS OR ELITE INFANTRY? THE CHANGING ROLE OF THE U.S. ARMY RANGERS FROM DIEPPE TO GRENADA. By David W. Hogan, Jr. *Contributions in Military Studies*, Number 128. Greenwood Press. 296 Pages. \$47.95. Reviewed by Lieutenant Colonel Albert N. Garland, United States Army Retired.

Dave Hogan, a historian at the Army's Center of Military History and a long-time student of so-called "elite" units, has rendered a fine service with this solid historical account of the Army's Ranger establishment, from its first modern appearance in 1942 to the present. Along the way, he touches lightly on other "elite" units, such as the Special Forces and its various spin-offs during the Vietnam War, Merrill's Marauders, the Alamo Scouts, and the 1st Special Service Force.

Hogan stresses certain themes throughout his study: a lack of clear-cut doctrine for the employment of Ranger units; a certain antipathy toward special units on the part of line unit and higher commanders; the misuse of Ranger units, particularly during World

War II and the Korean War; and the occasional inability of Ranger commanders to make their views known and accepted by higher authorities. For example, he believes that only one Ranger unit during World War II—the 6th Ranger Battalion in the Pacific—was employed correctly, and this one largely because it had a good friend at 6th Army headquarters.

The military professional today, and particularly Ranger unit commanders, should read this book and digest and discuss its contents. These readers should specifically note that Ranger units have not always been with us—a five-year gap in the 1940s, a 17-year gap in the 1950s and 1960s—and that they may not be with us in the future unless definite roles and missions for them are laid down in cement and then adhered to by all concerned. The action on 3 October 1993 in Somalia, for example, raises disturbing questions: Were the Rangers properly employed? Was there a proper chain of command? Was the action beyond the capabilities of the Ranger units? Three Ranger battalions were lost in Italy in early 1944 for many of the same reasons that surfaced in Mogadishu.

Again, Hogan has written a solid historical book. Although it is basically his doctoral dissertation, it reads far better than many I have seen recently. He deserves a round of applause.

BRAXTON BRAGG AND CONFEDERATE DEFEAT: VOLUME I. By Grady McWhiney. University of Alabama Press, 1991. 421 Pages. \$19.95.

BRAXTON BRAGG AND CONFEDERATE DEFEAT: VOLUME II. By Judith Lee Hallock. University of Alabama Press, 1991. 300 Pages. \$29.95. Reviewed by Major Don Rightmyer, United States Air Force Retired.

With the publication of this two-volume biography, Confederate General Braxton Bragg has become the subject of one of the most detailed biographies of Southern generals—after, of course, the more renowned Robert E. Lee and Stonewall Jackson. Interestingly, the first volume of this study was originally published in 1969 by Dr. McWhiney, and the work has waited until now to be brought to completion (with both volumes being issued together).

Braxton Bragg, a North Carolinian from a family of poor reputation, graduated from West Point in 1837 and took his commission in the artillery. He served in the Florida Seminole campaigns where his health seemed quite precarious; then he found him-

self in even more serious trouble with the Army's senior leaders in Washington. His flirtations with the attentions of Congress, in fact, resulted in his eventual court-martial.

Bragg's personality quirks also led to the story (perhaps apocryphal) about a request he made for supplies, which he subsequently walked across the post and denied to himself in his capacity as post quartermaster. His commander noted that Bragg had quarreled with everyone else and was now quarreling with himself.

Bragg's military star and reputation ascended, despite his previous troubles, during the 1848 war with Mexico. His artillerymen performed in an outstanding manner on several occasions, winning Bragg brevet promotions to lieutenant colonel and also making him one of the nationally recognized heroes emerging from these campaigns.

Just before the Civil War, Bragg left the army for civilian life but wasted no time in donning gray when the war began. His initial service was in command of forces facing Union Fort Pickens at Pensacola, Florida. He was dispatched to help with the troop concentration at Corinth, Mississippi, in early 1862 and led a corps into battle at Shiloh.

In a matter of months, Bragg was placed in command of the western Confederate army called the Army of Tennessee. He led it through the disappointing Kentucky campaign in 1862, Stone's River, and the smashing victory at Chickamauga Creek. Following his disastrous leadership at Chattanooga and Missionary Ridge, Bragg asked to be replaced, and Confederate president Jefferson Davis complied. Instead of being sent to an obscure post, or home to await further orders, Bragg was brought to Richmond where he assumed duties as Davis's senior military advisor and served until the war's end.

Both of these volumes, which divide the story at early 1863, are well researched and well written. The authors—using the widest possible variety of historical sources to support their studies—provide numerous insights into the life, thoughts, and actions of Bragg and his fellow Confederates. They provide in-depth coverage of the serious animosities between Bragg and his subordinate commanders, detailing the conflict, both on the battlefield and behind the lines. The result of this biographical set is well worth the wait.

VIETNAM: THE HELICOPTER WAR. By Philip D. Chinnery. Naval

Institute Press, 1991. 189 Pages. Reviewed by Joe P. Dunn, Converse College.

The helicopter, for very good reason, became the symbol of the Vietnam War. The very nature of the conflict was shaped by the pervasiveness of the chopper. This large folio pictorial history is the first chronological narrative to cover the entire conflict from the viewpoint of the helicopter crewman.

Philip Chinnery, author of two previous pictorials on Vietnam and several other books on air warfare, mixes a year-by-year narrative history and personal stories with a fine collection of annotated photographs (many of them taken by pilots and previously unpublished). He includes all the military services and every type of equipment and mission. Several informative appendixes list helicopter units, casualties, and organizational structures.

Written for both the general reader and the air combat aficionado, the book is a most useful contribution.

FOR KING AND KAISER: THE MAKING OF THE PRUSSIAN ARMY OFFICER, 1860-1914. By Steven E. Clemente. Greenwood Press, 1992. 280 Pages. \$45.00. Reviewed by Dr. Charles E. White, Infantry School Historian.

For King and Kaiser is the first detailed study in English of Prussian officer education during the Imperial Period. Author Steven Clemente shapes his thesis with a discussion of the educational tradition General Gerhard von Scharnhorst and his associates attempted to establish during the Prussian Reform Era (1807-1819). He then surveys Prussian secondary education and its link to officer selection and training in the years after 1819.

In the main portion of the book, following these introductory chapters, the author examines the three pillars of Prussian officer education—the nine cadet schools (which Scharnhorst tried to abolish), the 13 war schools (which Scharnhorst created to provide basic military education to those who wanted to earn commissions), and the Berlin War Academy (which Scharnhorst established to provide a three-year advanced military education for a select few). Clemente concludes that the quality of Prussian officer education declined during the Imperial Period.

This conclusion is nothing new. In fact, it is the standard interpretation of how Scharnhorst's enlightened notions of education

were rejected by a conservative class bent on preserving its aristocratic values, despite changing times and the influx of many middle-class officers into the army. "Right thinking" and service to the King and Kaiser, as Clemente states, were the basis for Prussian officer selection and education from 1860 to 1914. Yet, this was nothing new, either: The same had been true ever since the time of Frederick the Great, who wanted only officers from the nobility.

It is important to realize, however, that the armies of France, England, Austria, and Russia had similar constraints throughout the 18th and 19th centuries. Before 1914, every European army suffered from an aristocratic reaction to the revolutionary spirit of the Enlightenment, which championed the idea of an aristocracy of education, not birth. To claim that Prussian military education declined from 1860 to 1914 is thus a qualitative judgment that is very difficult to prove. If it declined, in relation to what? To French, English, Austrian, or Russian military education? By every account, the Prussian system for developing combat leaders was superior to that of any other great power of Europe. In fact, it probably has not been equaled since by any other army in the modern world.

What really happened is simple. The military education of the officers of Prussia and other European countries became less general and humanistic (which Schamhorst had emphasized) and more technical and professional. Military education thus moved away from "the art of war" and embraced "the science of war," and the result was catastrophic. As French Marshal Joseph J.C. Joffre wrote in 1916, "It takes sixteen thousand dead to train a French division commander."

Nevertheless, this is an important book. It brings together in exhaustive detail a great mass of material (memoranda, curricula, admission requirements, selection standards, personal accounts) essential to an understanding of Prussian officer education. And because this book is in English, U.S. soldiers now have an opportunity to study one of the finest military education systems in history.

THREE MARSHALS OF FRANCE: LEADERSHIP AFTER TRAUMA. By Anthony Clayton. Brassey's (UK), 1992. 203 Pages. Reviewed by Major Harold E. Rough, Jr., United States Army.

French military leadership, according to Dr. Anthony Clayton, was not totally bankrupt during World War II and its immediate aftermath.

This interesting book is "essentially a study of general officer leadership at and above division level" of Alphonse Juin, Jean de Lattre de Tassigny, and Philippe Leclerc de Hauteclocque. All three of these men held major commands after the ignominious and traumatic French debacle of 1940, as well as during the post-war years, and all three became Marshals of France (the last two posthumously).

Author Anthony Clayton, a Senior Lecturer at the Royal Military Academy Sandhurst, introduces the topic by describing what he believes to be the unique attributes of French military leadership, which focus on *passion*: romantic nationalism, Christian beliefs, and tensions "between volatile temperament and a profession requiring order and discipline," among others. Clayton further elaborates that in the pursuit of French interests, passion could take many forms, including guile, tact, charm, temper, flattery, sulking, and arrogance. Within this framework, he chronicles and evaluates the formative years, World War II, and post-war commands and experiences of the three protagonists.

The author's assessment of the generalship of these three officers is generally highly laudatory, and his often unsubstantiated claims (there is only one footnote in the entire book) seem to derive from generalizations and Francophilia. The performance of these generals was often characterized by friction, jealousy, and at times refusal to obey orders and undeserved condemnation and courts-martial, rather than admiration. The fact that they were French does not excuse such unconscionable military behavior.

A dozen superb photographs, plus seven well-drawn maps, superbly supplement the text. Biographical notes on the three main subjects and a bibliographical appendix are especially useful. But the reader should keep his French-English dictionary at his side to translate the numerous French phrases he will find scattered throughout the book.

Practical experience is surely the best way to learn leadership, although the diligent study of historical military commanders is also worthwhile. One can always learn from good, bad—or just different—styles of leadership. This thought-provoking book makes an excellent contribution to military history as well as to leadership.

RECENT AND RECOMMENDED

A HESSIAN DIARY OF THE AMERICAN REVOLUTION. By Johann Conrad Dohla. Translated and edited by Bruce E. Burgoyne. From the 1913 Bayreuth edition by W. Baron Von Waldenfels. University of Oklahoma

Press, 1993. \$13.95, Softbound.

ROGUE WARRIOR. By Richard Marcinko with John Weisman. Pocket Books, 1993. \$5.99, Softbound.

THE COMPLETE WARGAMES HANDBOOK (Revised Edition): HOW TO PLAY, DESIGN, & FIND THEM. By James F. Dunnigan. William Morrow & Company, 1992. 317 Pages. \$12.00, Softbound.

MEDIEVAL CHINESE ARMIES 1260-1520. Men-At-Arms Series, No. 251. By Chris Peers. Color plates by David Sque. Osprey, 1992. 47 Pages.

WELLINGTON'S HIGHLANDERS. Men-At-Arms Series 253. By Stuart Reid. Color plates by Bryan Fosten. Osprey, 1992. 47 Pages.

WEHRMACHT AUXILIARY FORCES. Men-At-Arms Series, No. 254. By Nigel Thomas and Carlos Caballero. Color plates by Simon McCouaig. Osprey, 1992. 47 Pages.

FLAGS OF THE AMERICAN CIVIL WAR. Men-at-Arms Series, No. 252. (First of a three-volume set.) By Philip Katcher. Color plates by Rick Scollin. Osprey, 1992. 47 Pages.

VIETNAM MARINES 1965-1973. By Charles Melson. Color plates by Paul Harmon. Elite series No. 43. Osprey, 1992. 63 Pages.

THE BATTLE BOOK: CRUCIAL CONFLICTS IN HISTORY FROM 1469 BC TO THE PRESENT. By Bryan Perrett. Sterling Publishing, 1993. 320 Pages. \$24.95.

THE SOLDIER'S CHRONOLOGY. By James W. Atkinson. Garland Publishing, 1993. 620 Pages. \$93.00.

THE LANDSCAPE TURNED RED: THE BATTLE OF ANTIETAM. By Stephen W. Sears. Published in hard cover in 1983. Tichnor & Fields, 1993. 431 Pages. \$12.95, Softbound.

MODERN BOMBERS AND ATTACK PLANES. By George Sullivan. Facts on File, 1992. 128 Pages. \$17.95.

THE THIRD TEXAS CAVALRY IN THE CIVIL WAR. By Douglas Hale. University of Oklahoma Press, 1993. \$28.95.

HITLER'S JAPANESE CONFIDANT: GENERAL OSHIMA HIROSHI AND MAGIC INTELLIGENCE, 1941-1945. By Carl Boyd. University Press of Kansas, 1993. 272 Pages. \$25.00.

THE FATEFUL PEBBLE: AFGHANISTAN'S ROLE IN THE FALL OF THE SOVIET EMPIRE. By Anthony Arnold. Presidio Press, 1993. 224 Pages. \$30.00.

HEROES OF WW II. By Edward F. Murphy. Published in hard cover in 1990. Ballantine Books, 1991. \$4.99, Softbound.

SACRED VESSELS: THE CULT OF THE BATTLESHIP AND THE RISE OF THE U.S. NAVY. By Robert L. O'Connell. Westview Press, 1991. 409 Pages. \$24.95.

NATIONAL SECURITY STRATEGY OF THE UNITED STATES: 1991-1992. By George Bush. Brassey's (US), 1991. 135 Pages. \$14.00.

THE CIVIL WAR DICTIONARY. Revised and updated. By Mark Mayo Boatner III. Vintage Books, 1991. 1,008 Pages. \$18.00.

From The Editor

SHARING YOUR KNOWLEDGE

The Donovan Technical Library in Infantry Hall is a repository of combat experience stretching back to the earliest days of our Army. The greatest concentration of material lies in the monographs and staff studies written by those who served in World War II, the Korean War, or Vietnam. The lessons offered in those pages are as timely today as when they were written; the issues of night operations, fratricide, combat logistical support, and small unit leadership continue to interest leaders today.

Those lessons also appear in *INFANTRY* because they are relevant, but we need more articles on our recent combat actions. Operations such as *URGENT FURY* (Grenada, 1983), *JUST CAUSE* (Panama, 1989), and *DESERT SHIELD/DESERT STORM* (Iraq, 1990-91) evoke even greater interest, not only because they are more recent, but also because they were fought with the weapons and equipment of today's infantryman, using many of the tactics and techniques that soldiers are still learning today. Personnel who have served in Somalia can offer valuable insights on subjects ranging from close combat to the tedium of running convoy operations and dealing with a civilian populace whose loyalties and predictability can vary from day to day.

What sort of articles are we looking for? First, the subject should focus on brigade level and below; it is there that most of our readers are to be found, and surveys have shown that operations at the company, platoon, and squad levels attract the greatest interest and response. Next, the article should offer lessons learned or other insights; remember, your observations are important, so write them as you remember them, in your own words. It's not necessary to present us a perfect manuscript; in fact, we'd prefer to just get a good, clean double-spaced draft that tells us what you have to say. The important thing is to capture the lessons that have been learned—often at a high price—so that others can benefit from your experience.

Remember, you have an opportunity to write for generations of Infantrymen still to come; the men who added their monographs to the library in the early 1940's probably never thought that accounts of their experiences would be read, discussed, and applied by soldiers deployed to the Persian Gulf in 1990, but such was indeed the case when planners drew heavily upon desert warfare of World War II during preparations for *DESERT SHIELD* and *DESERT STORM*. This is the time to capture your thoughts and pass them along to others.

RAE

SUBSCRIPTION INFORMATION

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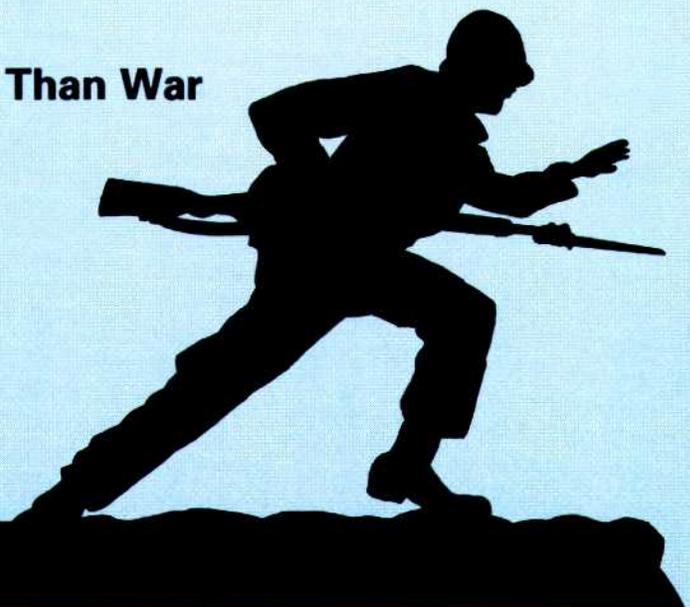
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