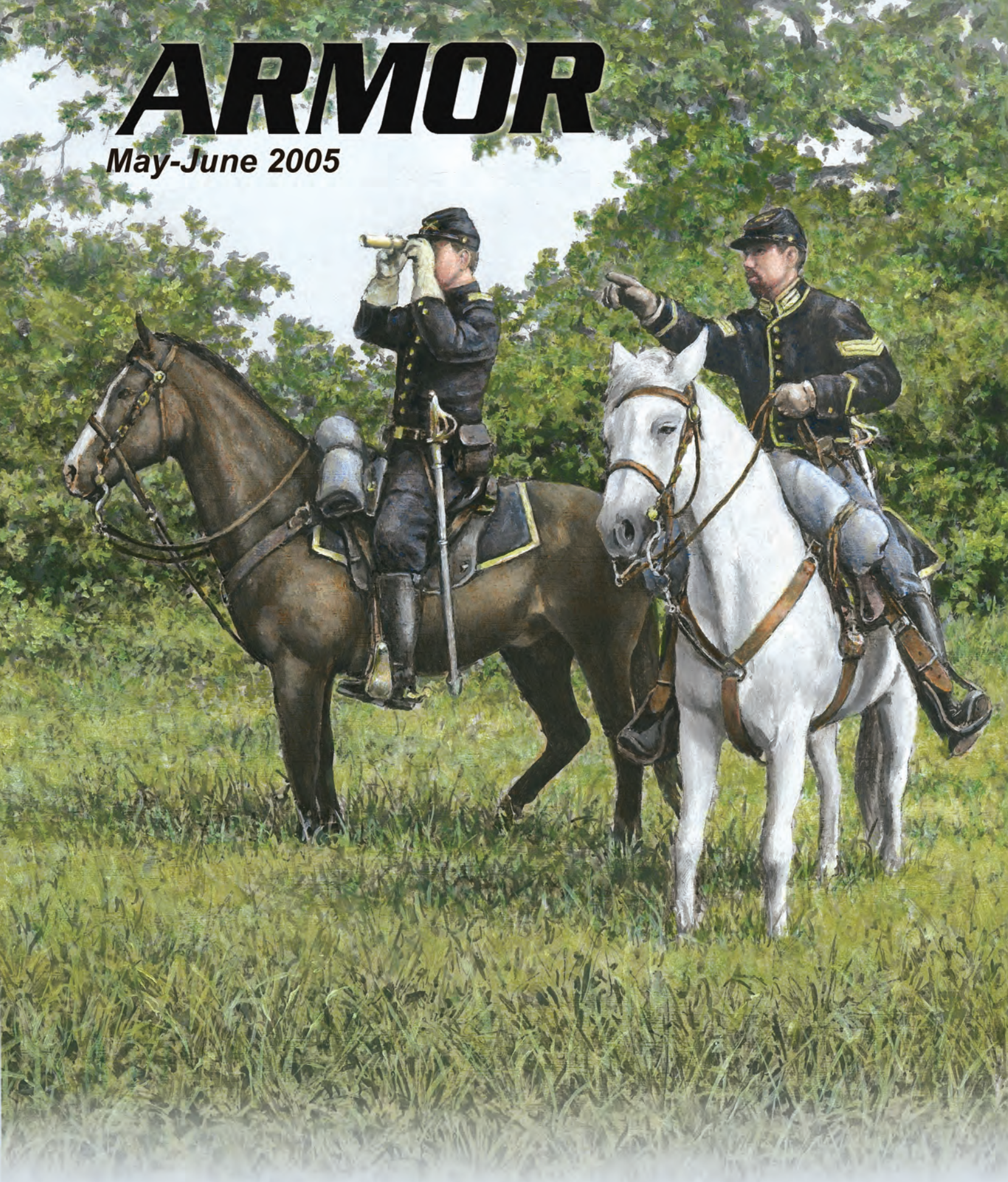
ARMOR

May-June 2005



Reconnaissance Then...

ARMOR

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Editor in Chief
LTC DAVID R. MANNING

Managing Editor
CHRISTY BOURGEOIS

Commandant
MG TERRY L. TUCKER

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Features

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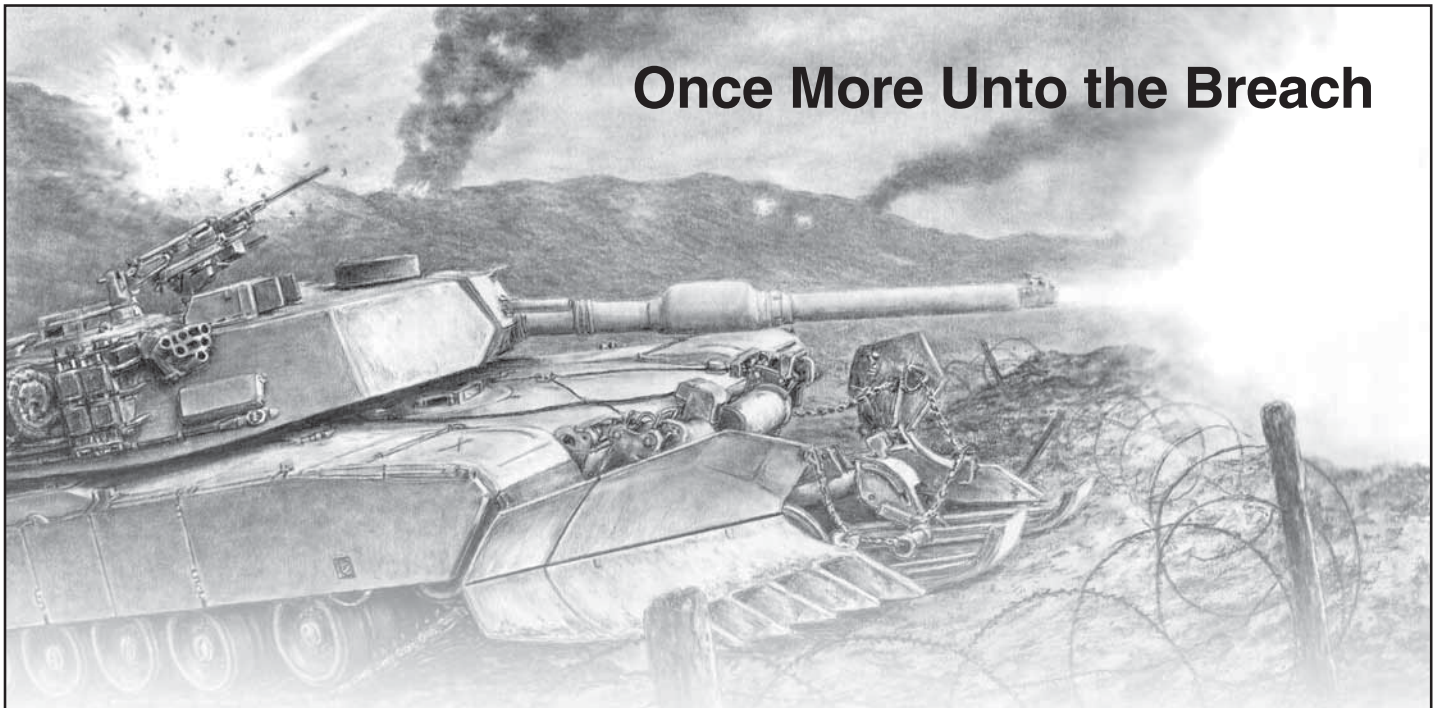
Once More Unto the Breach



The Abrams tank is finally receiving the credit it deserves. Over the years, the Abrams has been thought to be too heavy, too expensive, and a relic of the Cold War era. Despite its critics, Operation Iraqi Freedom has proven the effectiveness of the Abrams, whether operating in the clear open desert of Iraq or conducting "thunder runs" through Baghdad by elements of the 3d Infantry Division. Our soldiers continue to effectively deploy the Abrams tank during day-to-day operations within the urban areas of Iraq against insurgents. The success of the Abrams is now leading our Army to develop new survivability additions to the Abrams. This is good news for our soldiers and ultimately the U.S. Army. The Abrams tank is a winner on the battlefield and will continue to be for years to come.

In his article, "Gettysburg: Reconnaissance Then and Now," Captain Christopher L. Center highlights the effectiveness of reconnaissance operations leading up to the Battle of Gettysburg. He explains how cavalry doctrine has evolved and regressed at points throughout history and provides excellent commentary on recent cavalry/scout operations (or lack of) during Operation Iraqi Freedom.

The unprecedented employment of the U.S. Army Reserve and National Guard over the past four years has led to many positive changes in the way citizen soldiers are mobilized and trained. In "Theater Immersion: First Army Post-mobilization Training," Lieutenant General Russel L. Honoré and Colonel Daniel L. Zajac explain how innovative trainers in the First Army are improving the quality of training at mobilization stations across the United States.

"Back to the Future: A Company Commander's Perspective on Transformation," by Captain Raed D. Gyekis, takes aim at key elements of Army Transformation; specifically, the issue of over relying on total information dominance to radically change the way we fight wars. He argues that despite possessing total technological superiority against the Taliban and Iraqi forces, it took soldiers on the ground fighting for information to deliver the fatal blow.

There is little debate in the armor community on the effectiveness of the company and battalion master gunner. Since the beginning of its inception, the Master Gunner Program has graduated a multitude of soldiers who have enhanced the training and readiness of our armor and cavalry units. In his article, "Recreating the Master Gunner Program," Ira L. Partridge challenges the current master gunner program and its effectiveness in the current warfighting environment.

The multipurpose anti-tank (MPAT) round has been around for more than 10 years; however, it drew little attention until Operation Iraqi Freedom. In their article, "GUNNER, MPAT…," Greg Kolasa, Wakeland Kuamoo, and Michael Bono detail how tankers can best use the MPAT round against specific targets and examine the various mechanics behind the MPAT round.

The opposing force (OPFOR) at the National Training Center (NTC) has gone through some significant organizational and doctrinal changes during the past two years. Captain Robbin A. Hafen, First Lieutenant John P. Gilmour, and First Lieutenant Matthew E. Wright's article, "Developing a Heavy Reconnaissance Company," examines how the NTC has transitioned from the Soviet-based "Krasnovian" doctrine to the contemporary operational environment (COE) OPFOR doctrine.

Captain Timothy J. Morrow's article, "The Human Intelligence Game for Armored/Mechanized Units," examines how the war in Iraq establishes the need for armored and mechanized infantry units (as well as many others types) to conduct counterinsurgency operations. Morrow gives a firsthand account on the importance of human intelligence (HUMINT) in defeating insurgents.

In her article, "Combined Arms Training Strategy (CATS) Executive Summaries: The Commander's Tool for Planning Unit Training," Ann Meyers discusses how CATS streamlines and facilitates the planning process, while providing commanders a user- friendly management tool that will assist in developing the unit's training path.

Our Canadian friends are going through their own transformation battles in a quest to replace the Leopard tank with a more deployable combat vehicle. In their article, "Canada and the Mobile Gun System: Overhauling the Canadian Armoured Corps," Major Chris Young and Major Paul Peyton, inform us on the challenges the Canadian armored force faces in developing an agile and tactically decisive medium-weight force.

ARMOR is fortunate to have soldiers, Marines, and civilians willing to write articles that have an impact on our Army. During war, it is imperative that lessons learned and innovative techniques of surviving and winning on the battlefield are passed on to our forces. – DRM

By Order of the Secretary of the Army:

PETER J. SCHOOMAKER
General, United States Army
Chief of Staff

Official:

SANDRA R. RILEY
Administrative Assistant to the
Secretary of the Army

0506207

Points of Contact

DSN prefix – 464-
Commercial prefix– (502) 624-

ARMOR Editorial Offices

Editor in Chief
LTC David R. Manning 4087
E-mail: david.manning@knox.army.mil

Managing Editor
Christy Bourgeois 4582
E-mail: charlotte.bourgeois@knox.army.mil

Editor
Vivian Oertle 2610
E-mail: vivian.oertle@knox.army.mil

Art Director
Mr. Jody Harmon 3923
E-mail: jody.harmon@knox.army.mil

Editorial Assistant
Kathy A. Johnson 2249
E-mail: kathy.johnson@knox.army.mil

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U.S. Army Armor Center

Commanding General (ATZK-CG)
MG Terry L. Tucker 2121
E-mail: terry.tucker@knox.army.mil

Deputy Commanding General (ATZK-DCG)
BG Albert Bryant Jr. 7555
E-mail: albert.bryant@knox.army.mil

Chief of Staff (ATZK-CS)
COL Russell Gold 1101
E-mail: russell.gold@knox.army.mil

Command Sergeant Major (ATZK-CSM)
CSM George DeSario Jr. 4952
E-mail: george.desario@knox.army.mil

Command Sergeant Major to DCG (ATZK-DCG-CSM)
CSM Otis Smith 7091
E-mail: otis.smith@knox.army.mil

Unit of Action Maneuver Battle Lab (ATZK-UA)
Joe Hughes 5050
E-mail: joe.hughes@knox.army.mil

Experimentation and Analysis Directorate (ATZK-UAE)
COL Douglas L. Fletcher 7809
E-mail: douglas.fletcher@knox.army.mil

Cavalry and Armor Proponency Office (ATZK-CA)
COL Timothy R. Reese 1050
E-mail: timothy.reese@knox.army.mil

Office, Chief of Armor (ATZK-AR)
Aubrey Henley 5155
E-mail: aubrey.henley@knox.army.mil FAX 7585

Special Assistant to the CG (ARNG) (ATZK-SA)
COL Marlin Levendoski 1315
E-mail: marlin.levendoski@knox.army.mil

TRADOC System Manager for Abrams (ATZK-TS)
COL John M. Shay 7955
E-mail: john.shay@us.army.mil

TRADOC System Manager for Force XXI (ATZK-XXI)
COL Timothy D. Cherry 4009
E-mail: tim.cherry@knox.army.mil

Assistant TRADOC System Manager
Soldier - Mounted Warrior (ATZK-ATS)
MAJ Matthew J. Brown 8229
E-mail: matthew.brown@knox.army.mil

Directorate of Training, Doctrine, and Combat Development
TBA (ATZK-TD)
8247

U.S. Army Armor School

NCO Academy (ATZK-NC)
CSM Phillip D. Finerson 5150
E-mail: phillip.finerson@knox.army.mil

16th Cavalry Regiment (ATZK-SBZ)
COL Michael W. Alexander 7848
E-mail: michael.alexander@16cav.knox.army.mil

1st Armor Training Brigade (ATZK-BAZ)
COL Peter D. Utley 8736

LETTERS

Killing the Enemy and Taking Ground — It's Our Job

Dear *ARMOR*,

Today, I read the best and most relevant article that I have had the good fortune to read in *ARMOR magazine*, and there have been plenty of good ones over the past 25 or so years. Without doubt, Captain Michael R. Nakonieczny's article, "Preparing for the Realities of Killing the Enemy and Taking Ground," in the March-April 2005 issue takes first prize.

He succinctly takes the reason for our being combat officers and explains it, stripped of all the bull we are so accustomed to hearing — just the realities of the most important responsibility we have. Furthermore, at this particular juncture in the history of both our Nation and Army, we need to hear this very clearly. Thank you captain, you did it very well, mission accomplished; so well, that "Preparing for the Realities of Killing the Enemy and Taking Ground," should be a reading requirement for every officer attending the basic or advance course (or any other course for that matter) at the beginning of the course and again before they graduate from the course. They all would read it, know it, and live it, which is important — it is the warrior ethos. In fact, I would highly recommend that all combat branch officers attending all advanced military education/training be required to do the same, be it the U.S. Army Command and General Staff College, the U.S. Army War College, or wherever. We are different, whether we wear branch insignia or not!

We are an Army of one, but in the Army, this is our job!

JOSEPH C. KOPACZ
COL, U.S. Army, Retired

Placing Higher Emphasis on Priority Combat Concerns

Dear *ARMOR*,

It will take years to properly catalog and digest all the information being presented by the current conflict in Iraq. Even though this time-consuming task looms ahead, there are three things we can delineate now as issues that should be addressed promptly and aggressively.

The first issue that should be addressed is no matter what modifications or enhancements are made to the high-mobility, multipurpose wheeled vehicle (HMMWV), it is not a combat vehicle. If you add enough armor to make it reasonably effective in combat, it will collapse under its own weight. Some other vehicle will have to fill this role. We can make a hard and fast rule right now — nobody goes on a combat patrol in a HMMWV. We should have learned this lesson in Mogadishu.

The second issue is the concept of maneuver warfare, which has been discussed in *ARMOR* for years. One of the well-discussed subjects is the fact that there is no well-defined "front line" and no safe "rear area," which means supply convoys are always potential targets. We absolutely must have a true armored transport capability. From Vietnam to the present, troops have had to armor supply vehicles when the shooting started. Logistics groups should never deploy on a combat assignment with unarmored vehicles, never.

The slat armor added to the Stryker pointedly illustrates the third item to be aggressively addressed. There are constant conversations about ways to deal with rocket-propelled grenades (RPGs) and the damage they cause. RPGs will be with us for a long time into the future, which should make clear to the armor community that there is no higher priority than finding a relatively light weight armor combination that will defeat RPGs. This combination would also reduce casualties and damage from IEDs. We are not putting forth enough effort in either time or money to solve this problem. Dealing with the RPG problem should be someone's specific job.

Changing an army takes a long time, but these are things that need to be done first.

LARRY M. CHASE

Today's Commander Has Greater Responsibility than 1943 Counterpart

Dear *ARMOR*,

This is in response to retired Lieutenant Colonel Chester Kojro's letter in reference to Lieutenant Colonel Jeffrey Sanderson's article, "Transformation: A Commander's Perspective," in the January-February issue of *ARMOR*, which refers to the 1943 halftrack-equipped armored infantry company. Kojro makes the case that the 1943 company commander was just as challenged as today's company commander. I have also heard folks refer to the border cavalry (2d, 11th, and 14th Armored Cavalry Regiments) troops of the '60s, '70s, and early '80s. While it is true, in terms of personnel and equipment, that the organizations may be similar in scope, the commander of today has increased responsibilities in terms of battlespace management, such as networks, unmanned sensors, and access to higher echelon weapons of greater lethality, which will increase as more unmanned systems are pushed down to the company and platoons levels (Future Combat Systems). I also think the training requirements that a company commander has to manage today are probably greater then they were in 1943. Although technology is developed to help us do something better, it does not always equate to doing it easier at individual and micro levels.

ROB THORNTON
CPT, U.S. Army

Scouts Lead the Way!

Dear *ARMOR*,

There seems to be much bellyaching about what role cavalry might play in future force structure. As an old cavalry scout, I do not see the problem, only problem-makers. During my years in the Army, scouts would always trade friendly jabs with our infantry brothers, sometimes about how every time the Army bought a new weapon system or vehicle, the infantry branch would get a new military occupational series (MOS), but the 19Ds would get a new additional skill identifier (ASI). This has changed somewhat, as 11Hs and 11Ms are now 11Bs or 19Ds.

Reconnaissance, surveillance, and target acquisition (RSTA) squadron supporters seem to think RSTA roles are new and exclusive. Nothing could be further from the truth. When I pull out my trusty old U.S. Army Field Manual (FM) 17-98 (I know it's outdated) and leaf through it, I can plainly see these missions are, and always have been, cavalry scout tasks. It seems this may have been forgotten and you need an old scout to set things straight. Speaking of scouts, the 19D is, and always has been, the most versatile soldier in the Army. Take a 19D's skill level 1 manual and stack it next to any other and you will understand — the 19D has long been required to perform more different tasks than any other MOS. Most other MOS skill level 1 thru 4 manuals still do not stack up next to a scout's skill level 1. Suddenly, the "Johnny-come-latelies" do not see a future for the tried-and-true scout. They insist that only high-tech computer geeks with the latest gee-whiz gizmos can understand the future battlefield. Technology can greatly enhance our capability; it is not the end all, be all of force capability.

The greatest asset the Army has is its soldiers, and while there is a role for the tech-nerd, they can never replace the scout on the ground. They both would best be served in roles that support each other and that does not rule out additional ASIs for any MOS. There is an old saying among scouts that the scout is "the Jack of all trades and master of none." I always took issue with that. For the scout to survive and win in any of his many roles on the battlefield, the scout had to be "Jack of all trades, master of every damn one of them!"

If you cannot yet see the great parallels, then you are the field-goal kicker standing on the 25-yard line that can't see through the uprights. The scout is the adaptive soldier — he has done his mission without the glory that has been heaped on the infantry and tankers. All we need to do is adapt the new tech into the traditional cavalry. The 19D noncommissioned officers will take advantage of any good weapons system or other device and incorporate it into the mission. Technology is great, but it cannot replace the scout on the ground. Lack of human intelligence (HUMINT) has been blamed for our not finding weapons of mass destruction in Iraq. Don't let the lack of HUMINT be responsible for not finding the enemy in future battles.

If you still fail to see the great truths before you, here it is: RSTA equals cavalry! Much like the song, this old soldier tried to fade away, but I realized I needed to set some things straight. So, for now, I'll go back to standby, waiting to

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Major General Terry L. Tucker
Commanding General
U.S. Army Armor Center

Heavy Armor: The Core of Urban Combat

The Abrams tank and Stryker combat vehicle have recently received a lot of publicity in some of America's most popular newspapers. Some of this news has been good — and some not so good. Nonetheless, the common theme appears to address the U.S. Army's need for combat fighting vehicles that offer superior mobility, survivability, and lethality. In the March-April 2005 issue of *ARMOR*, Major General Pete Chiarelli, Major Patrick Michaelis, and Major Geoff Norman wrote an excellent article, "Armor in Urban Terrain: The Critical Enabler," which addresses the necessity of the Abrams tank in ongoing operations in Iraq. The article particularly focuses on using the M1A2 Abrams and M2A3 Bradley in an urban environment. From the late 1970s to current operations in Iraq, Armor doctrine clearly suggests that built up areas — cities — greater than 1 square kilometer should be bypassed. The U.S. Army's doctrine on combined arms operations in urban terrain also suggests that tanks and/or Bradley Fighting Vehicles should not operate without close support of dismounted infantry, and tanks and Bradleys should not deploy into areas that have not been cleared by dismounted infantry.

But war has a way of resetting peacetime doctrine, as occurred in Europe during World War II and in Korea. Current operations in Iraq demand armor and mechanized infantry relearn lessons of past wars to apply tactics, techniques, and procedures (TTPs) that place them in the lead, often without dismounted infantry support, into the heart of the urban environment. Major General Chiarelli does a fantastic job of covering detailed TTPs, which enabled the 1st Cavalry Division to win fight after fight across Iraq, while preserving his force. He also cautions our Army to "be wary of eliminating or reducing the option of heavy armor; it has proven decisive and has been the critical enabler that allowed Task Force Baghdad to win every fight, everyday."

I applaud Major General Chiarelli, Major Michaelis, and Major Norman for their work; they couldn't be more on target. Fact is: the Abrams tank, particularly the M1A2SEP (systems enhancement program), is a critical component in combined arms warfare in Iraq. It was used by our U.S. Army and Marine Corps to lead every major combat operation and continues to do so every day with outstanding results. It is called on to lead the fight because it offers the best balance of mobility, survivability, and lethality; and that equals tactical and operational capability.

By the same token, our light infantry and reconnaissance forces credit the Stryker for saving hundreds of lives because of its increased survivability and mobility. The Stryker combat vehicle is an awesome medium-weight combat vehicle that gets infantrymen and scouts to the fight. It offers strategic mobility and, more importantly, tactical mobility to our light infantry forces, while protecting them against countless threats. The Stryker has earned a great reputation for combat operations in Iraq. In a letter to the editor of the *Washington Post* on 5 April 2005, "Strykers Get the Job Done," LTC Michael E. Kurilla wrote, "During the past six months, one Stryker, C21, has been hit by a suicide car bomb, nine IEDs [improvised explosive devices], eight RPG [rocket-propelled grenade] direct hits, and a lot of small arms fire. Its crew had six wounded, but all of its Soldiers are still in Iraq and fighting. After each attack, the Stryker either stayed in the fight or was repaired in less than 48 hours."

The message is clear: our Army requires combat vehicles that are designed to be mobile, survivable, and lethal. Our fleet of Abrams tanks, Bradley Fighting Vehicles, and Stykers are currently providing these requirements. The up-armored HMMWV is also saving Soldiers' lives, particularly against small arms fire and IEDs. However, it should be noted that the up-armored HMMWV is not a substitute for the Abrams, Bradley, or Stryker. The Abrams and Bradley are in a class of their own. The mission of the Armor and Bradley crewman is to close with and destroy the enemy through mounted fire, movement, and shock effect. They are the most lethal, survivable, and mobile combat systems in the Army's inventory.

In an effort to further enhance survivability and lethality, Abrams TRADOC Systems Manager and Program Manager Abrams have been developing a program called the Tank Urban Survivability Kit (TUSK). The TUSK is designed to be applied by units in the field, eliminating the need for vehicles to return to a depot for modification. Current and future conflicts demand that the Abrams operate in urban areas. Enemy forces in urban areas pose a different threat to the tank, unlike the enemy that the Abrams was originally designed to fight. Lessons learned and Soldier feedback was critical in determining how the Armor community could make the world's safest tank even better. As currently envisioned, the Abrams TUSK package (still under development) could include:

- Abrams reactive armor tile (ARAT), which are add-on explosive armor tiles that are mounted along the hull to provide increased flank protection.
- Remote firing night sight (RFNS) — M1A1 only. The RFNS provides the M1A1 tank commander with thermal sighting capability to engage targets in the closed-hatch position using the .50-caliber machine gun.
- Remote weapon station (RWS) — M1A2 only. The RWS replaces the existing externally fired .50-caliber machine

Continued on Page 49

CSM George DeSario Jr.
Command Sergeant Major
U.S. Army Armor Center

New Protective/Combat Eyewear Is Approved for Use

Sixteen percent of all coalition force casualties are attributed to eye injuries. Several reports from coalition soldiers indicate the Army's new protective eyewear has protected their eyes from shrapnel time and time again. Soldiers in combat and training run a high risk of losing their eyesight. Flying shrapnel from an enemy weapon blast is the most dangerous threat to our soldiers' eyes, but many other hazards threaten eye safety. Flying sand, dust and debris (from helicopters, high winds, or overpressure), flash fire, and lasers all pose significant threats to soldiers' eyes.

The new eyewear, which are commercial off-the-shelf items, have passed the U.S. Army's testing criteria, and are currently being issued to deploying soldiers through the Army's rapid fielding initiative (RFI). The goggles can also be ordered through your unit's standard supply system.

The new eyewear can be broken down into two categories — spectacles or goggles. According to test criteria, spectacles are required to stop a 5.8-grain fragment simulating projectile at 640 feet per second and goggles are required to stop a 17-grain fragment simulating projectile at 550 feet per second (approximately twice the energy impact as the spectacle). Although some of the approved spectacles may also meet the goggle requirement, armor troops performing platform missions should choose from the list of approved goggles to provide the appropriate level of fragmentation protection, as well as added sun, wind, and dust protection. An updated authorized protective eyewear list, from the Program Manager-Clothing and Individual Equipment (PM-CIE), provides information to order the new eyewear at *http://www.peosoldier.army.mil/index.php?section=product.* The list should be located directly below the "Advanced Combat Uniform" graphics on that page.

Although these new commercial items provide excellent ballistic protection, none of them protect eyes from lasers. If the mission requires laser eye protection, you must still wear the old Sun, Wind, and Dust Goggles (SWDG), Ballistic/Laser Protective Spectacles (BLPS), or Special Protective Eyewear Cylindrical System (SPECS) with laser lens. For soldiers requiring prescription spectacles, the Uvex XC spectacle with prescription lens carrier (PLC), Eye System Safety (ESS) Interchangeable Component Eyeshield (ICE) 2 spectacle with PLC, and Revision II Sawfly with PLC are authorized for use as alternatives to the BLPS.

The ESS Land Operations Goggle can be worn by soldiers who need prescription eyeglasses, as well as those who do not. The ESS Land Operations Goggle will fit over the Army-issued eyeglasses. The kit includes a rubber frame with foam backing to wick away moisture and increase comfort for long periods of use. Foam-covered vent holes allow ventilation and help eliminate fogging, while keeping out dust. The kit includes an anti-reflective sleeve that reduces glint when the goggles are not in use. One size fits all.

The ESS Low-Profile Night Vision Goggles are strictly for soldiers who do not need eyeglasses. These goggles fit closer to the face and are more compatible with night vision goggles. The goggle backing is made of rubber, which allows a closer fit to the face. Foam-covered vent holes in the goggles' frame allow ventilation, while keeping out dust. Outrigger clips on the strap allow for optimal helmet compatibility without breaking the face seal. An anti-reflective sleeve reduces glint when the goggles are not in use. One size fits all.

The ESS Vehicle Operations Goggle is designed for soldiers exposed to excessive airborne debris when operating vehicles at high speeds. The Vehicle Operations Goggle will fit over most eyeglasses. The high-density, restricted perimeter filtration provides protection against airborne debris while traveling at high speeds. The frame has a foam backing that also wicks away moisture. It also comes with the anti-reflective sleeve that reduces glint when the goggles are not in use. One size fits all.

The Arena FlakJak Goggle is designed for soldiers who do not wear eyeglasses. The frame has a foam backing that fits to the face and also wicks away moisture. This goggle consists of a molded frame with a ventilation screen, which allows air to flow through to minimize lens fogging. This goggle also has an anti-reflective sleeve to reduce glint. One size fits all.

All goggle kits come with two ballistic protective lenses, one clear and one tinted. These lenses are made with anti-scratch and anti-fogging coatings. Both types of lenses protect the eye from ultraviolet rays.

Units may order the authorized commercial eyewear with the national stock number (NSN) by submitting funded military standard requisitioning and issue procedures (MILSTRIP) requisitions through normal supply channels to the Defense Supply Center Philadelphia General and Industrial. If you need additional facts on any of the protective eyewear, please contact: Mr. Larry T. Hasty, DSN 464-3662, commercial (502) 624-3662, or email *larry.hasty@knox.army.mil*; Mr. Myron Pross, PM-CIE, DSN 444-2510, commercial (215) 737-2510, or email *MyronPross@dla.mil*; or Mr. Frank Cole, DSN 645-9907, commercial (256) 955-9907, or email *frank.cole@logsa.redstone.army.mil.* Special thanks to Mr. Larry Hasty and Mr. Frank Cole for their contribution.

Iron Discipline and Standards!

From the Boresight Line:

The Future Master Gunner Course

by First Sergeant Jack Cooper

Over the past 18 months, the Master Gunner Branch has been working to redesign its Master Gunner Course. The advent of the unit of action brigades and the ongoing war in Iraq dictates the need for change. The current course focuses on three major areas: turret maintenance, gunnery, and training management. While each of these areas is critical to the success of the master gunner, some deletions, additions, and revisions are required. In 2004, we conducted several task reviews during the Armor Conference, the Command Sergeants Major Conference, and the Master Gunner Conference. Most recently, we convened a board at Fort Knox, Kentucky, made up of master gunners from Fort Knox, the U.S. Army National Guard Bureau, and the U.S. Marine Corps. Additionally, we are regularly receiving input from the field through phone calls, emails, and new arrivals at Fort Knox. The key goal for the Master Gunner Branch is to ensure the course remains current, relevant, and viable to the field force. Field input is crucial to this endeavor.

Turret Maintenance

Turret maintenance is the backbone of the master gunner. Our turret maintenance program builds from the base knowledge of a tank commander. Every good tank commander knows that to destroy a target, he has to select his ammunition, lase, and engage the target. This is much like driving a car — to make it go, you must check fluid levels, turn the key, and put the car in gear. Most drivers, like most tank commanders, understand simple basics of how an engine works. However, a master gunner has the ability to quickly diagnose a problem, which helps streamline the maintenance program of a unit. A master gunner is not a replacement for the great mechanics we have in the armor force — he is the link between the crew and the maintenance experts.

In Iraq, battalion areas are widespread and it is not uncommon for companies to be separated from their battalion mechanics. The company master gunner should coordinate with maintenance personnel before deploying from the forward operating base and ensure replacement parts and diagnostic equipment is deployed with the company, which will provide basic maintenance and streamline the readiness and availability of tanks for the next mission.

Before units deploy into combat operations, they must screen their tanks. This involves ensuring the system is fully operational and prepared for combat. The master gunner is trained to ensure the system is operational — he knows the difference between a maintenance problem and a crew error.

Gunnery

A master gunner has one major priority: ensure tank crews can destroy the enemy. Knowing how the system works gives him the expertise to ensure the vehicle is ready. We train master gunners to teach crews how to most effectively employ a fully operational or degraded tank. The Basic Noncommissioned Officers Course has deleted gunnery classes from its program of instruction, so the Master Gunner Course is the only place a tank commander can improve base skills to the master level.

Since battalion-level master gunners are responsible for multiple weapons systems, we are adding MK19, 25mm, composite surface danger zones, and small arms ammunition to our repertoire of classes.

Training Management

Once a master gunner successfully completes the required maintenance and gunnery skill sets, he then learns how to assess current skill levels and manage time, personnel, and resources. Once these prerequisites are successfully completed, the master gunner will have the expertise to develop a tailored and viable training program that achieves the commander's goals.

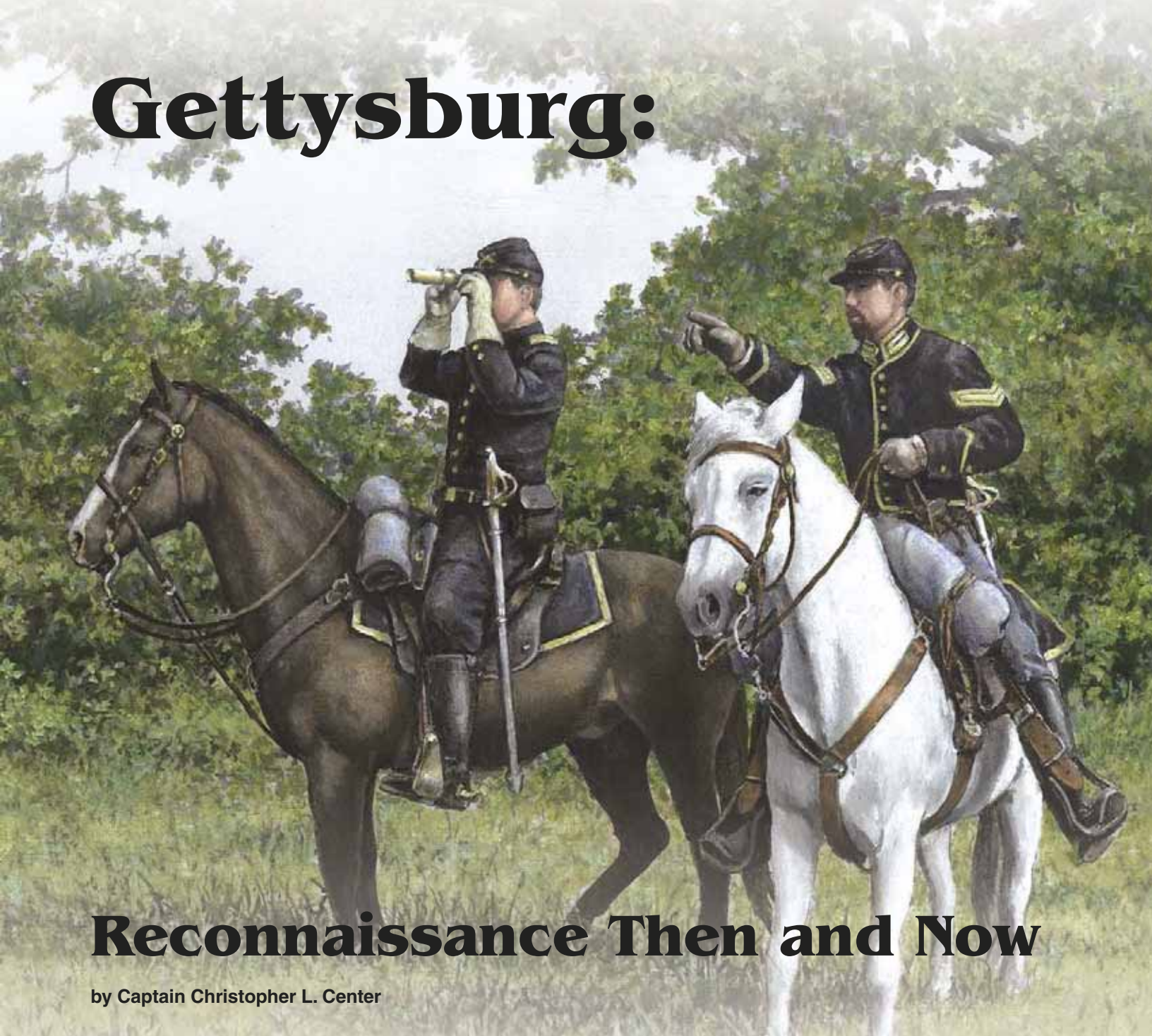
Future Goals

Currently, the Master Gunner Branch has deleted some of the diagnostic testing that is no longer used by the force, updated other classes, and has added embedded diagnostics training for the M1A1 Abrams integrated management (AIM) tank.

We are moving forward to ensure this course meets the needs of the unit in the field. Time is one of the key factors in training master gunners. We are looking at tracking the M1A1 and M1A2SEP (system enhancement program) course. Currently, they are two separate courses — the M1A1 course is a prerequisite for the M1A2 course. Based on the stabilization of personnel in a unit of action brigade, a master gunner will spend his time on only one system. Once we finish working out the details, we will have one course, which will graduate either a skill identifier A8 (M1A1) or K8 (M1A2) master gunner in the time it currently takes to train M1A1 master gunners.

We are developing core classes for both systems, as well as system-specific classes. Additionally, we are diligently working with the Bradley Master Gunner Branch to develop core classes between the two schools with an eventual goal of exchanging instructors. This will ensure that master gunners, Bradley or Abrams, will have enough knowledge at battalion or higher level to properly advise the commander. The mobile gun system (MGS) will soon be fielded and we are developing the master gunner course (R8) to meet this requirement as well. It may or may not be tracked with the M1 course.

Gettysburg:



Reconnaissance Then and Now

by Captain Christopher L. Center

U.S. Army Field Manual (FM) 101-5-1, *Operational Terms and Graphics,* defines reconnaissance as "a mission undertaken to obtain, by visual observation or other detection methods, information about the activities and resources of an enemy or potential enemy, or to secure data concerning the meteorological, hydrographic, or geographic characteristics of a particular area."[1] Used properly, reconnaissance can be the difference between winning and losing the battle, which was apparent during the Battle of Gettysburg in July 1863. General George Meade, using his cavalry in a proper reconnaissance role, exhibited modern-day fundamentals of reconnaissance, allowing his Army of the Potomac to gain the advantage at Gettysburg, while General Robert E. Lee used his cavalry in a disruption role, denying his Army of Northern Virginia an ideal battlefield position to engage and defeat Lee's army.

Reconnaissance Then

The plan to invade the North was decided in May, 1863. The Confederacy had not secured the quick victory that they anticipated at the beginning of the war. Based on logistics and the fact that Vicksburg was close to falling to General Ulysses S. Grant's forces, Jefferson Davis called on General Lee to develop a solution to these two catastrophic problems facing the Confederacy.

The initial plan was to detach two divisions from General Lee's Army of Northern Virginia and bolster the defenses at Vicksburg and other threatened points. Lee did not agree with this plan and made it known, feeling his operations would turn defensive. He knew there had to be an end to the war, which would be found within an invasion of the North. Victory in this operation would mean recognition of sovereignty by England.[2]

The concept of the operation was for the Army of Northern Virginia to move west of Harper's Ferry and the Blue Ridge Mountains, oriented on crossing the Potomac River. This would force the Army of the Potomac to screen Confederate movements to the North and pull them away from defending the Union Capital of Washington D.C., which would extend the Union lines over several miles and Lee would then attack the

head of the column and destroy it piecemeal. General Jeb Stuart, commander of Lee's cavalry and reconnaissance, recommended that he move his unit to the east of Federal lines. This would prevent congestion on roads leading north and allow Stuart's force to cross the Potomac closer to Washington D.C. Lee would approve this plan, which would prove disastrous because it would take his "eyes" away and he would not be aware of Federal movements.[3]

The Army of the Potomac was lead by General Meade, who had recently taken command from General Hooker, who was fired for inaction. Meade used his cavalry in a doctrinally correct manner. Meade tasked his cavalry commander General Alfred Pleasonton to screen the flanks of the Army of the Potomac, upon identification of the Army of Northern Virginia.

Pleasonton's organization was a corps with eight brigades. Stuart led a division-level organization with six brigades. The typical cavalry troop organization in the North had 72 troopers and 60 in the South. The numbers would seem to give the Federal Cavalry the advantage, but this was not true during the first two years of the war. The South had skilled riders and, like its infantry counterparts, the Confederate cavalry had better leaders. The North overcame this deficiency by applying suggestions made in a memorandum written by Pleasonton in 1862. Pleasonton believed that the cavalry had to be given an identity of its own by law, thus turning it into a corps-level organization. Another issue he raised was the professional development of personnel within the organization. Officers and enlisted soldiers needed to grow in the organization, learning their duties of covering the front and flanks of the army, advanced guards, rear guards, and gaining information on the enemy's movements. The final suggestion that Pleasonton offered was that this corps organization needed its own artillery, effectively making it a combined arms team.[4] Pleasonton applied these tactical training points in the campaign leading to Gettysburg and turned the Union Cavalry into an effective reconnaissance unit.

Library of Congress

General Pickett taking the order to charge from General Longstreet, Gettysburg, 3 July 1863.

The first reported contact by Union Cavalry occurred on 24 June 1863. Pleasonton spotted the Army of Northern Virginia moving west of the Blue Ridge Mountains. Pleasonton deployed his three divisions to screen the flanks of the Army of the Potomac. Major General John Buford, the First Cavalry Division Commander, covered the army's western flank, tracking the movements of Lee's main force, the Corps of Generals James Longstreet and A.P. Hill. Major General Hugh Kilpatrick would act as the advanced guard in front of the Army of the Potomac, trying to locate the Corps of General Richard Ewell. Major General John Gregg covered the right and rear of the Army of the Potomac. Gregg would track the movements of Stuart and attempt to keep him separated from the Army of Northern Virginia.[5]

The Union Army's movements were effectively screened from 24 June until contact had been made between the two armies on 1 July. Communications had been effectively cut between the main body of Lee's army and Stuart's cavalry. Lee would not have a clear picture of the composition and disposition of the Union Army until contact was made in Gettysburg.

Lee intended for Stuart to use speed to get around the eastern flank of the Army of the Potomac. Stuart departed from the main body on 24 June, leaving a skeleton force to screen for Lee. Four issues would slow down Stuart: the meeting engagement at Haymarket with Winfield Hancock's II Corps; the telegraph lines and railroad tracks that Stuart was to destroy on his march around the Army of the Potomac; the acquisition of 125 supply wagons, just eight miles northwest of Washington on 28 June that were bound for the Union Army; and the meeting engagement fought at Westminster, Maryland, with forces from Gregg's Division just before crossing the Mason-Dixon Line into Pennsylvania.[6]

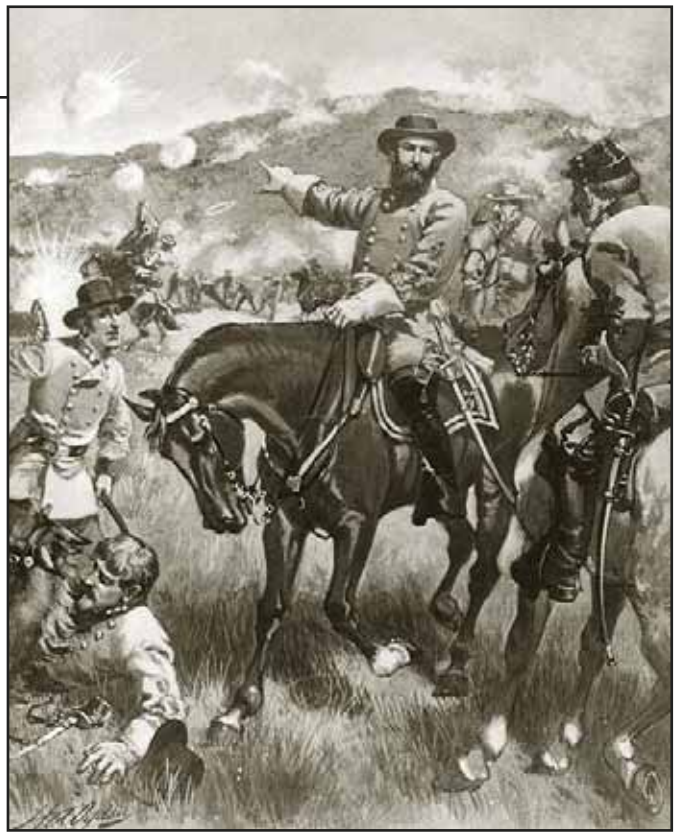
These four issues would cause intelligence and synchronization problems for Lee. According to plan, Stuart was to ride around the eastern flank of the Army of the Potomac, cross the Potomac River into Maryland, and link up with Ewell's Corps and Lee's advance guard to secure his right flank in Pennsylvania. The plan failed. The first engagement with Hancock's II Corps was a prime piece of intelligence that Lee did not receive. If Lee had been properly informed, he would have known that the Army of Potomac was moving north, tracking his movements, while Washington was left virtually undefended. Stuart's movement was further slowed down by acquisition of the 125 supply wagons eight miles northwest of Washington. The Confederates were in dire need of supplies; however, with synchronization being an issue with moving Stuart's force into support of Ewell's flank, the wagons were not a key task. Furthermore, Lee would have considered Stuart's ability to get within eight miles of the Union Capital and move freely a priority intelligence requirement. Stuart's Division (-) of cavalry could have seriously effected the political situation in the Capital of Washington.

General Meade did not suffer reconnaissance failures because he used Pleasonton's cavalry to support his move into Pennsylvania. The three division commanders, Buford, Kilpatrick, and Gregg, successfully screened the Union Army's flanks and by

30 June, Buford was making his way into Gettysburg and securing key terrain for the main army's lines.

Buford's 1st Cavalry Division arrived in Gettysburg at 11 o'clock on the morning of 30 June. Buford immediately received reports from the townspeople that Hill's Corps had been spotted nine miles northwest of town. Buford surveyed the area for its geographical importance for the coming battle. Gettysburg was a major artery of roads leading north, south, east, and west. Securing key terrain in this town would be essential to defeating Lee's army.[7]

Buford secured Cemetery Ridge in the southern part of town. This ridge ran north to south and extended for two miles, providing excellent observation for any defending force. This is where the Army of the Potomac and the Army of Northern Virginia made contact. Buford dismounted his troopers and took on Brigadier General Henry Heth's Division of Hill's Corps. Buford would hold the ground for 24 hours, until General John Reynold's Corps could reinforce him; at times, he took on two infantry divisions from Hill's Corps.[8] Stuart had not yet linked up with Lee's main body; therefore, Lee did not have cavalry to provide intelligence on what he might face or where he might face it. The key terrain of Cemetery Ridge would allow the Union Army to sustain massive attacks from Lee's army from 1 to 3 July, culminating with the significant event of Pickett's Charge. At the time of Gettysburg, cavalry shouldered the major burden of the campaign on both sides. The effective use of reconnaissance was the issue that separated the South from the North.



Longstreet at Gettysburg, 2 July 1863. Library of Congress

Reconnaissance Now

Today's reconnaissance is based on seven fundamentals: orient on the intended objective, be continuous, maximize assets, gain and maintain contact, develop the situation, report information rapidly and accurately, and retain freedom of maneuver.[9] Four of these fundamentals are closely linked with events leading up to the Battle of Gettysburg on 1 July 1863.

Using the first fundamental of reconnaissance, the objective is to focus on a critical area or priority intelligence requirement (PIR). The commander will base his PIRs on threat forces, terrain, infrastructure, or society.[10] Meade and Lee identified their PIR as being the movements of the opposing armies. Meade was successful at gaining this PIR and tracked the Confederates from 24 June until Buford made contact with Hill's Corps on 30 June. Lee, on the other hand, gave Stuart very loose guidance and contradicted himself with two different sets of orders. The first set of orders stated that Stuart could move east of the Blue Ridge Mountains to move through Maryland and link up with Ewell to guard his right flank. The second set stated Stuart should move west of the Blue Ridge, if the Union Army was static and not moving north. The issue was further confused when General Longstreet forwarded his preference for the cavalry to move to the west of the Blue Ridge to guard the infantry's flank.[11] Stuart was left with too much discretion and should have been given a route, which would have maintained communication with Lee and would have also provided the Army of Northern Virginia ample opportunity to gain and secure key terrain on its arrival at Gettysburg.

The second fundamental of reconnaissance is to ensure continuous reconnaissance. Reconnaissance operations will be conducted before, during, and after all operations. Before an operation, reconnaissance answers all PIR identified during intelligence preparation of the battlefield (IPB), scheme of maneuver, and course of action. During reconnaissance, the unit collects and updates information, threat dispositions, and compositions. This allows the commander to execute decision points tied to the commander's critical information requirements (CCIR).[12] Meade tasked the cavalry to secure the flanks of the Union Army from 24 June until Buford made contact in Gettysburg. General Pleasonton was located in General Meade's headquarters, which made information readily available. Lee, on the other hand, divided his cavalry from the infantry, which made mutual support impossible. Stuart was conducting continuous reconnaissance and tracked the movements of the Union Army from Washington to Pennsylvania. This reconnaissance was useless because there was no communication between Lee and Stuart.

The third reconnaissance fundamental, gaining and maintaining contact, is key in describing the successes and failures of reconnaissance at Gettysburg. Contact should be established through long-range acquisition. Once this contact is established, contact cannot be broken until handover occurs with a follow-on unit.[13] Major General Buford gained and maintained contact throughout this campaign. Seizing key terrain at Cemetery Ridge was the capstone event that exemplified this fundamental. Buford's Division gained contact on 30 June and had to dismount and fight continuously for 24 hours until reinforcements from Reynold's Corps supplemented his lines. This allowed the Union Army to seize the advantage by allowing the main body of the army to move into position to counter the offensive. On the other hand, Stuart gained contact but could not maintain it on his march to Pennsylvania because it would slow his march and he did not have support from follow-on forces.

Finally, key to this campaign was reporting information rapidly and accurately. "Intelligence loses its relevance as it ages. The troop must accurately report what it observes in a timely manner."[14] Lee's first reconnaissance failure was Stuart's contact with Union lines on 25 June. Stuart made contact with Win-

field Hancock's II Corps. Stuart tried to send a report to Lee, but the report never made it to him. Lee would have no idea until he reached Pennsylvania that the Union Army was rapidly pursuing him. Commanders need accurate and timely reconnaissance; if this fails to happen, they fall victim to reactionary tactics. The Union seized the initiative by obtaining accurate information on the enemy and fighting a successful counterreconnaissance fight against Stuart.

Comparing 19th- to 21st-century reconnaissance, few changes have been made fundamentally. The seven above-mentioned fundamentals applied to cavalry organizations in 1863, just as they do today in reconnaissance, surveillance, and target acquisition (RSTA) and division cavalry squadrons. The primary differences are technology and the three-dimensional battlefield. These days, intelligence not only comes from the scout on the ground with a pair of binoculars (human intelligence), it also comes from manned aerial systems, such as the joint surveillance and target attack system (JSTARS) and the unmanned aerial vehicle (UAV), which provides reconnaissance without risk to personnel. Finally, reconnaissance comes from long-range observation systems, such as the long-range advanced scout surveillance sensor (LRAS3) and command launch unit (CLU) of the Javelin guided missile. These reconnaissance assets can conduct handover at a reconnaissance handover line (RHOL).[15]

JSTARS is a U.S. Air Force asset that works at brigade or higher levels and identifies threat forces moving into a Stryker brigade combat team's (SBCT) area of operations (AO). The AN/APY3 radar system employs the moving target indicators (MTI) and the synthetic aperture radar (SAR). The MTI will show movement in the AO and the SAR is geographically oriented. This system takes the target analysis and passes it to the UAV guidance unit.[16]

The UAV, also known as the RQ-7A tactical UAV Shadow 200, works directly for the SBCT. The SBCT will alert the RSTA squadron, who in turn will alert the surveillance troop to gain visual contact.[17] The UAV acquires human targets and vehicles. Recon handoff will occur with line-of-sight assets once the UAV acquires the target. The surveillance troop will then handoff the target to a Stryker ground troop, who will use the LRAS3 to observe the target as it moves into sector. Observation will end at this point and some type of engagement system will be alerted to the presence of a threat target moving into the AO. The target will be engaged by a dismounted scout or infantryman using a CLU.

Personnel using the CLU are handed the target at just a few kilometers out. The target can be acquired at this range, but not identified. Once the identification occurs, the target is engaged and destroyed. All other assets continue to observe and report any retrograde actions or approaching reinforcements.[18]

During Operation Iraqi Freedom, the pace of operations did not allow scout platoons at battalion and brigade reconnaissance troop levels in cavalry organizations to "develop the situation"

"These days, intelligence not only comes from the scout on the ground with a pair of binoculars (human intelligence), it also comes from manned aerial systems, such as the joint surveillance and target attack system (JSTARS) and the unmanned aerial vehicle (UAV), which provides reconnaissance without risk to personnel. Finally, reconnaissance comes from long-range observation systems, such as the long-range advanced scout surveillance sensor (LRAS3) and command launch unit (CLU) of the Javelin guided missile. These reconnaissance assets can conduct handover at a reconnaissance handover line (RHOL)."

as General Buford did on Cemetery Ridge. Two issues caused this: speed and lack of protection for the scouts.

The maneuver battalions and brigades that scout platoons or brigade recon troops were supporting were accustomed to a more deliberate pace of operations.[19] Operation Iraqi Freedom was reminiscent of the Blitzkrieg that the Germans used during World War II against Poland and France. During Operation Iraqi Freedom, the 3d Infantry Division and U.S. Marines lead with M1s, Bradleys, and light armored vehicles throughout the operation until the culmination of events in Baghdad. This was due to the speed of execution that the armor and mechanized battalions exhibited. Recon organizations during Operation Iraqi Freedom did not have the advantage of speed that was exhibited by cavalry organizations during the Civil War.

Protecting scouts is a critical element of effective reconnaissance. The scout in a high-mobility, multipurpose wheeled vehicle (HMMWV), armed with an M2 machine gun or an MK19 grenade launcher, providing reconnaissance forward of an M1 tank, does not balance. The scouts did not have adequate armament for protection from enemy attacks. The call was made to lead with tanks and mechanized infantry, thus allowing the main firepower to be at the front. Scouts were used in convoy and checkpoint security roles.

The U.S. Army has decided that these two issues can be solved by introducing a reconnaissance squadron to each brigade combat team. These squadrons will be equipped with tube-launched, optically tracked, wire-guided (TOW) and Javelin missiles, which will provide a little more firepower than typical reconnaissance organizations. In light brigades, these squadrons will be made up of two mounted recon troops, one dismounted recon troop, and one surveillance troop. In the heavy brigade combat team, the reconnaissance squadron has three mounted recon troops and one surveillance troop, and the squadron's main weapon is the M3 Bradley.[20]

Reconnaissance must have the ability to fight. This has not been the focus in years past; however, recent combat action has placed scouts out front and they need armament to lead the charge. Doctrine will continue to be developed in these organizations and we will see, especially in light RSTA squadrons, a light infantry and cavalry scout mix at troop levels, which will allow troop commanders to cordon with vehicles and search with light infantry.

Cavalry has evolved and regressed at points throughout its history. During the Civil War, cavalry was the eyes and ears of the commander. It allowed commanders, such as Lee and Meade, to seize and hold ground until main maneuver forces arrived to take the battle handover. This was evidenced throughout the month of June 1863 in Gettysburg. Meade employed his cavalry correctly and Lee incorrectly used the cavalry in a disruption role, which did not support his maneuver. Meade exhibited modern-day fundamentals of reconnaissance, allowing him to gain the advantage. The difference between then and now is technology based — 19th-century reconnaissance forces could not provide the reconnaissance picture of 21st-century technology. Due to the reconnaissance handover line and today's systems, such as JSTARS, UAV, LRAS, and CLU, we can see deep into the enemy's battlespace, and echelon our reconnaissance from joint service operations down to the basic scout platoon on the ground. On the other hand, cavalry is not the tip of the spear it once was in the 19th century; it has been relegated to missions of security for convoys and checkpoints.

Cavalry is in the midst of revolutionizing to become relevant in today's fast-paced operations. Cavalry's goal is to become a centerpiece of operations within the BCT and get back to its job of establishing and maintaining contact until follow-on forces can take the battle handover. The future is uncertain, but with operations in Iraq and Afghanistan being noncontiguous, all branches will have to let go of deliberate operations and allow for flexibility in today's operating environment.

Notes

[1]U.S. Army Field Manual (FM) 101-5-1, *Operational Terms and Graphics*, U.S. Government Printing Office, Washington, D.C., 30 September 1997, p. 1-130.

[2]Paul D. Walker, *The Cavalry Battle That Saved the Union*, Pelican Publishing Company, 1 April 2002, pp. 94-95.

[3]Ibid., p. 96.

[4]Jay Luvaas and W. Harold Nelson, *Guide to the Battle of Gettysburg*, University Press of Kansas, Lawrence, Kansas, 1986, pp. 210-211.

[5]Edward G. Longacre, *The Cavalry at Gettysburg*, University of Nebraska Press, Lincoln, Nebraska, 1986, pp. 161-168.

[6]Ibid., pp. 151-158.

[7]Ibid., pp. 180-182.

[8]Walker, pp. 105-108.

[9]FM 3-20.971, *Reconnaissance Troop, Recce Troop and Brigade Reconnaissance Troop,* U.S. Government Printing Office, Washington, D.C., December 2002, p. 3-2.

[10]Ibid., p. 3-2, 3-3.

[11]Longacre, pp. 148-149.

[12]FM 3-20.971, p. 3-2.

[13]Ibid., p. 3-4.

[14]Ibid., p. 3-5.

[15]Ibid., p. 3-23.

[16]Intelligence, Surveillance, and Reconnaissance (ISR) Organization and Assets Conference, PowerPoint Presentation, 3d Squadron, 16th Cavalry Regiment, Fort Knox, Kentucky, 2004, slide 33.

[17]FM 3-20.971, p. 3-23.

[18]Ibid., p. 3-25.

[19]Major Christopher Connolly, "Reconstructing the Cavalry Force," *ARMOR*, September-October 2004, p. 16.

[20]Ibid., pp. 17-19.

CPT Christopher L. Center is currently the adjutant, 1st Squadron, 71st Cavalry, 1st Brigade Combat Team, 10th Mountain Division, Fort Drum, NY. He received a B.A. from Norwich University. His military education includes Armor Captains Career Course, Armor Officer Basic Course, and Infantry Mortar Leaders Course. He has served in various command and staff positions, including squadron maintenance officer, Headquarters and Headquarters Troop (HHT), 1st Squadron, 11th Armored Cavalry Regiment (ACR), Fort Irwin, CA; XO, D Company, 1/11th ACR, Fort Irwin; tank platoon leader, A Troop, 1/11th ACR, Fort Irwin; and mortar platoon leader, HHT, 1/11th ACR, Fort Irwin.

Theater Immersion: First Army Post-mobilization Training

by Lieutenant General Russel L. Honoré and Colonel Daniel L. Zajac

We are in a war with no rear areas or front lines. We have to instill the Warrior Ethos into the mobilized soldiers we train. Every soldier must be able to function as an infantryman. Soldiers *must have tough, realistic, hands-on, repetitive training until their response is intuitive. When soldiers get off the bus at the mobilization station, they must feel they have arrived in Iraq or Afghanistan.*

Between 11 September 2001 and the summer of 2003, the First and Fifth Continental United States Armies (CONUSA) mobilized and deployed thousands of Reserve Component (RC) soldiers from the Army National Guard (ARNG) and the U.S. Army Reserve (USAR) in support of the Global War on Terrorism (GWOT).

In the First Army's area of responsibility (AOR), nearly 78,000 RC soldiers were trained and deployed from mobilization stations east of the Mississippi River. By fall, this number grew to 191,491. Some of these soldiers and units were employed in the Continental United States as part of Operation Noble Eagle, while others deployed to combat zones in support of Operations Iraqi and Enduring Freedom. Meanwhile, additional RC forces were mobilized and deployed to peacekeeping duties in Kosovo, stabilization forces in Bosnia, and Joint Task Force Guantanamo (JTF-GTMO). Initially, the majority of these soldiers and units were combat support (CS) and combat service support (CSS) formations.

Dynamics changed during the summer of 2003, when entire National Guard (NG) enhanced brigades were called up for duty in combat zones. In the First Army's AOR, the 30th Brigade from North Carolina was the first such formation to be mobilized for employment in Iraq. The 30th Brigade's post-mobilization training was executed with the 24th Infantry Division in oversight and the 2d Training Support Brigade (TSB), 78th Division Training Support (2/78th) as the lead for training. The 2/78th was heavily reinforced with trainers from the 78th and 87th Divisions. The 30th Brigade executed post-mobilization training at Fort Bragg, North Carolina; Fort Stewart, Georgia; and Fort Drum, New York. This mission was historic as it signaled the first time that an entire NG enhanced brigade would complete mobilization and deploy to a war zone under the auspices of the First Army. While this effort was a significant success, some challenges were experienced and significant lessons were learned.

In the summer of 2004, First Army was tasked to mobilize multiple NG brigades in the form of Tennessee's 278th Regimental Combat Team (RCT) and Mississippi's 155th Brigade Combat Team (BCT). However, this time the approach would be different. To avoid competing for training resources on active posts, both formations would mobilize at Camp Shelby, Mississippi. The 278th would train at Shelby from June through September and execute a mission rehearsal exercise (MRX) at the National Training Center (NTC) in October. When they completed the MRX, the 278th would return briefly to Camp Shelby and deploy to theater in

"RC units called up for mobilization come in all shapes and sizes. Moreover, they are called up for a variety of discrete missions requiring varying training programs. For the most part, specific training requirements are defined by the combined forces land component commander (CFLCC). The list of CFLCC tasks is not all inclusive and unit commanders often arrive at mobilization stations with specific mission essential task lists (METL) to meet particular emphasis or additional training needs."

November. Similarly, the 155th would train at Shelby from July through October, execute an MRX at the NTC in November/December, and deploy to theater in December/January.

Leading the First Army's effort would be a command and control cell from the 24th Infantry Division (ID) with the 3d Brigade, 87th Division (3/87th) — heavily reinforced by elements of the 87th and 85th Divisions — as the lead trainers. This approach facilitated an economy of scale that provided savings in resources, particularly training support brigade observer controller trainers (OCTs). Moreover, lessons learned during the 278th RCT's training could immediately be applied to training the 155th BCT. Not only would both brigades mobilize at a single location, but First Army would introduce a new approach to post-mobilization training — theater immersion — a training concept that is now the watchword for post-mobilization training across the entire First Army's AOR.

The Challenge

RC units called up for mobilization come in all shapes and sizes. Moreover, they are called up for a variety of discrete missions requiring varying training programs. For the most part, specific training requirements are defined by the combined forces land component commander (CFLCC). The list of CFLCC tasks is not all inclusive and unit commanders often arrive at mobilization stations with specific mission essential task lists (METL) to meet particular emphasis or additional training needs. Moreover, while in general terms, units of battalion or smaller size receive 35 to 60 days of post-mobilization training, the precise number of training days will vary. This is based on mission, in-theater destination, and latest arrival date in theater.

Mobilizing brigade-sized formations for combat in Iraq demands a significantly different approach. Under wartime conditions, these formations receive approximately 90 days of intense training at the mobilization station, ranging from individual-level through brigade operations training. Post-mobilization training covers a wide range of tasks mandated by CFLCC. These tasks range from individual to high-end collective tasks, from stability- and support-focused operations through conventional combat missions. The model for training RC brigades concludes with an intense MRX at one of the combat training centers.

Theater Immersion — the Solution

The purpose of theater immersion is to rapidly build combat-ready formations, led by competent and confident leaders, who *see first, understand first,* and *act first*; and are manned by battle-proofed soldiers, inculcated with the Warrior Ethos. The theater immersion training concept accomplishes this by placing leaders, soldiers, and units — as rapidly as possible — into an environment analogous to what they will encounter in combat. At the soldier level, training is tough, realistic, hands-on, and repetitive, designed to illicit intuitive soldier response. This training environment replicates conditions in a multiechelon approach that thrusts formations into a theater analog soon after arrival at the mobilization station and stresses the organization from the individual to the brigade level. Essentially, theater immersion is a Combat Training Center (CTC)-like experience that replicates conditions down range, while training individual- through brigade-level collective tasks.

Seeing First

The most important component of theater immersion is a deliberate and continuous study of the contemporary operational environment (COE) in theater — particularly, a study of the threat. To facilitate this process, the First Army is refining web-based collaborative information sites where the latest intelligence and tactics, techniques, and procedures (TTP) can be proliferated among trainers. The process must be continuous because of the evolving nature of the threat in Iraq. The 3/87th's intelligence officer, in collaboration with the First Army's G2, deliberately studied daily intelligence reports from the targeted employment areas for each brigade, as well as unit after action reports, Center for Army Lessons Learned products, and Department of the Army G3 Improvised Explosive Device (IED) Task Force products to replicate and update TTP in the training area. Soldiers and leaders of all ranks and positions, from riflemen to brigade and division commanders in country, were interviewed to obtain the most recent views of the COE. Meanwhile, the 3/87th's brigade S3, in collaboration with the First Army's G3, studied the latest TTP and operational patterns of coalition forces to determine the best methods to counter and defeat the threat. Twenty soldiers from the 3/87th deployed to Iraq in two coalition military assistance training teams (CMATT). These teams provided near-daily updates to help craft the training environment. Moreover, these soldiers, along with recent combat veterans from the 3d Brigade and across First Army, were employed as OCTs soon after returning from Iraq.

Understanding First

The entire training environment was grounded in an overarching friendly and threat operational scenario. This scenario was updated in fragmentary orders (FRAGOs) and intelligence summaries

(INTSUMS) that provided micro scenario sets for discrete training events. Employing crawl-walk-run, the eight-step training model, and multiechelon techniques, soldiers, leaders, and units progressed from individual to collective events, beginning with vehicle and squad operations and progressing to battalion- and brigade-level operations. Collective events culminated at brigade level with a field training exercise (FTX) and peaked at battalion level with a five-day Army training and evaluation program (ARTEP) that ended with a battalion live fire coordination exercise (FCX). In these high-end collective events, a premium was placed on battle command and decision-making in stability and support operations environments.

To ensure fidelity with the environment in country, the TSB commander executed two reconnaissance missions, along with unit leaders, on pre-deployment site surveys (PDSS) to confirm and modify training practices appropriate to each brigade's sector. Likewise, key trainers, such as the TSB XO and command sergeant major, were dispatched to Jordan and Kuwait to ensure the fidelity of cultural awareness and reception, staging, and onward integration (RSOI) training.

Acting First: A Realistic Environment and Threat

The most obvious manifestation of theater immersion is the physical design of training sites. For the 278th RCT and 155th BCT, two fully functioning forward operating bases (FOB) were constructed, and four villages, a highway overpass, and local roads were lined with guard rails. The villages have mosques, offices for civil authorities, markets, walled residences, and tunnel complexes, as well as traffic circles and low-hanging telephone and electric cables that are typical of Iraqi villages.

Joint Coalition Council (JCC) facilities were established to mirror those in theater and to exercise leader interface with a multitude of indigenous civil leaders. Meanwhile, cantonment areas were transformed into three FOB analogs, complete with entry control points (ECPs), guard towers, and wire. FOBs and towns were named after existing locations in country, and road signs, police cars, and markets were created based on recent photos from Iraq. To save time and conserve costs, much of the construction work to build these sites was completed by 3/87th soldiers. For example, 3/87th's 2-305th Training Support Battalion (TSBn) built most of the two FOBs, where the units would execute FOB defense training and battalion-level ARTEP/ FCXs.

Within weeks of arrival at the mobilization station, following necessary soldier readiness processing (SRP), dental, and medical examinations, units began operations from the camps and FOBs and moved to training missions as tactical formations. In these experiences, unit leaders planned, prepared, battle tracked, and controlled their organizations while acclimating to the battle rhythm typical of units fighting in theater. While some classroom instruction had to be accomplished, field time was maximized, and by the time they completed training, soldiers averaged over 40 days operating from FOBs and camps under constant threat of contact with a resourceful enemy.

Since time is limited at the mobilization station, immediately immersing soldiers into a replicated combat zone enables focused training 24-hours a day, and retraining can occur as needed. Instead of living in a normal garrison environment, soldiers saw concertina wire, entry control points, and guard towers to simulate the FOB environment. In an FOB, small-unit leaders not only trained on theater-specific tasks, but they had the opportunity to exercise troop-leading procedures and basic discipline continuously.

To populate the villages, 300 civilians on the battlefield (COBs) were hired, to include 80 Iraqi-Americans. Under the control of 3/87's logistics support battalion (LSB), these COBs, particularly the Iraqi-Americans, added a powerful dose of realism to each training event. Linguists, mayors, police chiefs, religious leaders, terrorists, and news reporters, as well as leaders of the Iraqi national guard, army, and border police were portrayed by Iraqi-Americans who spoke to soldiers only in their native tongue and wore clothing appropriate to their positions. These COBs were given personalities, rehearsed (COB academies) and were habitually employed in roles required for various training events. Encountering these COBs, soldiers had to negotiate, conduct bilateral meetings, gather intelligence, and react to civil disturbances while communicating through their linguists.

To aggress against training units, a full-time opposing force (OPFOR) from the 3/87th and 3-349th LSB, were employed.

"The purpose of theater immersion is to rapidly build combat-ready formations, led by competent and confident leaders, who see first, understand first, and act first; *and are manned by battle-proofed soldiers, inculcated with the Warrior Ethos. The theater immersion training concept accomplishes this by placing leaders, soldiers, and units — as rapidly as possible — into an environment analogous to what they will encounter in combat."*

"Within weeks of arrival at the mobilization station, following necessary soldier readiness processing (SRP), dental, and medical examinations, units began operations from the camps and FOBs and moved to training missions as tactical formations. In these experiences, unit leaders planned, prepared, battle tracked, and controlled their organizations while acclimating to the battle rhythm typical of units fighting in theater."

These soldiers, primarily mobilized reservists, rehearsed operations for weeks prior to the arrival of the brigades. With periodic OPFOR academies and daily updates on the latest threat TTP provided by the S2, this OPFOR dressed and equipped like anti-Iraqi forces (AIF), designing and executing threat counter-tasks to expose leaders and warriors to the most realistic situations possible. IEDs in the form of booby traps, mines, projectiles, bombs, and vehicle-borne devices (VBIED) were ubiquitous in training. Soldiers were constantly subjected to sniper, rocket, and mortar attacks.

Forging Competent, Confident, Disciplined Leaders

To achieve success against the anti-Iraqi OPFOR, soldiers and leaders must conduct detailed troop-leading procedures (TLP), issue doctrinally correct five-paragraph orders, execute rehearsals, and perform rigorous precombat inspections (PCI) and precombat checks (PCC). Every training event was treated as a combat mission, be it individual weapons qualification (IWQ), military operations in urban terrain (MOUT), combat patrolling, or cordon and search.

Discrete training events were organized in 19 training modules. Each of these modules focused on one or more of the 83 theater-specific training tasks established by CFLCC. Moreover, these modules accounted for new theater-specific METL developed for each formation and echelon. An aggressive and densely packed training matrix was created to ensure all required training tasks could be accomplished to standard. Moreover, by-name tracking of each soldier, progressing through CFLCC-mandated individual tasks, was executed. The resulting training plans were approved by the First Army's commander. The 3/87th's commander, who was responsible for training, would validate in writing that individuals and units had been trained to proficiency on these tasks.

To accomplish all this, the 3/87th was heavily reinforced by trainers from the 1st, 4th, and 5th Brigades of the 87th Division, as well as elements of the 4th Brigade, 85th Division. At its peak, the effort employed some 750 First Army personnel to train the 7,000 soldiers of the 278th ACR and 155th BCT, making the OCT-soldier ratio approximately 1:13. TSBn commanders, responsible for various modules, prepared detailed training plans. Training events were rehearsed and the TSB commander walked the terrain and prepared detailed risk management work sheets (RMWS).

The TSBn commanders' creativity was put to the test in developing ways to build multiechelon training events to validate individual and collective tasks. Speed and trust in absorbing the latest lessons learned, as well as flexible, adaptive, and responsive trainers, were the watchwords for developing training plans. While theater-specific tasks, such as FOB defense, entry control points, combat patrols/ground assault convoys, raids or cordon and search, garner significant attention in training plans for combat in Iraq, a multitude of additional tasks were built into the training program. Moreover, METL-specific, branch, and specialty training were layered into the training matrix. Integral to this entire process was gathering and updating the latest TTP for each task, as well as developing appropriate threat counter-tasks for use by aggressors. This is a continuing process that lies at the very heart of theater immersion. As conditions change in theater, trainers must rapidly change conditions on the training battlefield. This approach placed a premium on agile and creative TSBn commanders, as well as an aggressive, streamlined approach to gathering the latest war-zone lessons.

Key individual tasks cross-walked to collective tasks, such as react to indirect fire, treat and evacuate casualties, and nine-line medical evacuation (MEDEVAC) requests, were repetitively nested in every collective event in tough, realistic, hands-on conditions to create an intuitive response in soldiers. Likewise, the IED threat in theater was embedded in every training event possible, from land navigation to battalion ARTEPs, in every form conceivable, from projectiles slung behind guard rails to booby trapped buildings and vertical attacks from highway

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overpasses. During theater immersion, soldiers repeatedly train on multiple tasks. For example, a single simulated rocket attack trains react to indirect fire, casualty evacuation procedures, nine-line MEDEVAC requests, damage assessment, crater analysis, counter-battery fire, and many other procedures.

Individual and collective training events placed emphasis on first-line supervisors and junior-level leaders. After action reviews (AARs) focused on key-leader skills and the Warrior Ethos to rapidly develop initiative and aggressiveness in the depth of formations. At the heart of this approach were comprehensive noncommissioned officer AARs, lead by battalion or brigade command sergeants major. Over time, as units progressed through training and gained greater confidence, the responsibility for conducting these AARs was passed to unit leaders.

A Robust Live Fire Program

A robust live fire program was devised and executed. Moreover, it was spread through the training matrix to ensure live fire events were performed throughout training. Soldiers and units progressed through rigorous pre-marksmanship instruction (PMI) to individual and crew served weapons qualification. Soldiers would then execute reflexive fire and close combat assault courses that included urban scenarios, IEDs and moving target arrays. This was followed by FOB defense live fire, which included a moving VBIED and a squad/platoon live fire assault course.

Following crew served weapons qualification, gunners and assistant gunners qualified weapons from their vehicles, including heavy expanded-mobility tactical trucks (HEMTTs), high-mobility, multipurpose wheeled vehicles (HMMWVs), five-ton trucks or howitzers, on moving platforms, engaging stationary and moving targets. Once complete, crews were formed into combat patrols and ground assault convoys for collective live fire events, in day and night conditions, using moving and stationary vehicles verses moving and stationary targets. Combat vehicle crews executed Bradley and Tank Tables up to Table XII, as Paladin crews and platoons fired through Field Artillery Table XV. Meanwhile, mortar platoons executed mortar reports. The culmination of live fire events was a battalion/brigade FCX that combined fires from motorized companies, howitzer platoons, mortar platoons, close air support, and Army aviation. By the time they had completed training at Camp Shelby, the 278th and 155th had over 14,500 soldiers qualify individual and crew served weapons on various ranges and during training events, collectively expending over 2.3 million rounds of ammunition.

Supporting and reinforcing the live fire program, the 3/87th and Camp Shelby massed useful training devices to enhance soldier weapons proficiency. While traditional systems, such as the mobile conduct of fire trainer (M-COFT), were employed for tank and Bradley crews, new systems were fielded just in time for training. The most prominent device employed was the virtual combat convoy trainer (VCCT). It was used to good effect to practice and sustain convoy skills. Additional devices found useful in training squads and crew served weapons teams include the engagement skills trainer (EST-2000) and the virtual battlefield simulator (VBS-1). Meanwhile, the fire arms training system (FATS), laser marksmanship training system (LMTS), and Beamhits provided trainers with superlative PMI tools.

As the 278th and 155th mobilizations drew to a close, new simulators to better train reaction to IEDs were being fielded. These new devices will see plenty of action in impending mobilizations.

Draconian Maintenance

Whether breaking through the Normandy hedgerows or operating from dispersed FOBs throughout Iraq, a key arbiter in a unit's ability to effectively perform its mission and survive remains effective logistics — particularly maintenance. A significant challenge for mobilizing units is the paradigm shift from "normal" operating procedures, practiced at armories and drill centers, to the full exploitation of the standard Army maintenance information system (STAMIS). It was imperative to rapidly immerse leaders, operators, and units in the unit-level logistics system-ground (ULLS-G). A two-day structured ULLS-G gunnery was devised and executed with all operators and maintenance leaders in attendance. Subject-matter experts were brought in for training and included the Army Forces Command (FORSCOM) G4 and III Corps' command maintenance evaluation team (COMET). This ULLS-G gunnery laid the foundation for effective maintenance management and class IX flow throughout mobilization and carried the brigade through the MRX and into theater. Enforcing attendance, oversight, and accountability at brigade-level maintenance meetings was instrumental to unit success.

Simultaneously, Department of Defense Army activity codes (DODAAC) were issued to units, while parts ordering and tracking were enforced. Time was of the essence, as all unit equipment had to be inspected and validated prior to deployment, and in many cases, prior to training. Creating accountability and confidence in the maintenance and supply system was imperative.

Other than COMET teams, internal trainers included the TSB's S4 and logisticians with recent theater experience. Train-

ers such as these focused on overall logistics management, as well as building unit administrative and logistics operations center (ALOC) procedures. Along with one-on-one assistance, trainers distributed relevant logistics information, such as a *Mobilizing Unit Leader's Maintenance Management Smart Book and Baseline SOP* and *ALOC Smart Books* from recently drafted U.S. Army Combined Arms Support Command (CASCOM) publications, Fort Lee, Virginia. With some units receiving relatively short post-mobilization training, a sense of logistics urgency combined with recent in-theater doctrine/TTPs had to be stressed immediately on the unit's arrival. During sustainment operations, establishing a thorough baseline of logistics fundamentals greatly improved unit success.

Battle Command: See Yourself, the Enemy, the Weather, and Terrain

For RC leaders and staffs, steeped in legacy battle command designed for high-intensity operations, the challenge presented by stability and support operations and counterinsurgency represented another significant paradigm shift. Traditional commander's critical information requirements (CCIR) and the military decisionmaking process (MDMP) were no longer easily applied to the operational environment. A whole new lexicon with supporting tasks and TTP would have to be learned and applied to theater immersion so unit leaders could see, understand, and act first.

Watchwords, such as doctrinal and situational templates, were overshadowed by pattern analysis and sanitation water energy academics trash-medical and security (SWEAT-MS) charts. Effects-based targeting, information operations (IO), and force protection working groups, among others, would move to positions of prominence during unit planning. A suite of new digital equipment would have to be embraced and employed for optimal effects throughout the formation. Meanwhile, entirely new battle rhythms would have to be learned to align with operational rhythm in theater.

A robust battle command training plan was designed and executed. This program included the leader training program (LTP) at the NTC; cultural awareness training in Jordan; pre-deployment site surveys; staff and leader IED training; a battle command training program command post exercise (CPX); a signal exercise; and a series of company, battalion, and brigade CPXs. Both brigades participated in a CPX-based MRXwith each of their division level headquarters.

The Capstone CPX, conducted at Camp Shelby, was based on the brigade/battalion simulation (BBS) system and employed the 1st Brigade (simulations), 87th (1/87th) Division, as primary trainers. Equipped with a digital division tactical operations center, 1/87th replicated higher headquarters and provided digital links for all key Army Tactical Command and Control System (ATCCS) devices across the brigades. This event provided a model of the utility of training support division simulations brigades.

The principle of Sun Tzu's often-quoted aphorism, "knowing the enemy is critical to battlefield success," is amplified in battling the AIF. Simply put, actionable intelligence drives operations. To build unit proficiency, a rigorous 11-day training plan was developed that incorporated two major areas: knowledge of the enemy to drive building intelligence products and conducting analysis of the enemy to logically develop predictive analysis for future operations.

A two-day knowledge-based training plan gave the brigades necessary baseline knowledge to understand enemy forces

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and how they are organized. During these two days, soldiers studied the nature of insurgency operations and learned about the multitude of AIF organizations currently operating in Iraq. This training built knowledge of weapons systems and IEDs to develop expertise on enemy equipment and tactics. This knowledge cannot be absorbed completely in two days; therefore, using classified computer networks becomes critical to the continued study of evolving AIF tactics.

The second element in the training plan was analysis. This part of the intelligence preparation of the battlefield (IPB) is the element that defines success or failure for intelligence organizations. A focused nine-day training plan included the all-source analysis system-light (ASAS-L), urban IPB, link pattern analysis, collection management, targeting, and analytical techniques. During the first six days, intelligence soldiers mixed classroom instruction with practical exercises to prepare for a three-day intelligence exercise, which integrated all aspects taught during the first six days of training. Moreover, the intelligence exercise allowed the brigades to develop intelligence battle rhythms and familiarized them with useful intelligence products. This was carried through other brigade staff training, to include brigade/battalion CPXs and battalion ARTEPs. All of these events possessed detailed and realistic threat scenarios to reinforce previously learned analytical procedures. Intelligence training was aggressive and mentally taxing, which gave the intelligence soldiers valuable training to set conditions for the unit's success in theater.

Given the U.S. Army's dependence on ATCCS, battle command could not be accomplished without competent signal units. Signal units define "theater immersion" as experiencing theater-like conditions in all collective signal-specific training events. Signal elements set up voice and data communications backbones in FOBs and base camps, as well as remote sites, and when required, they were moved and set up again.

Signal-specific collective training posed a couple of issues that had to be addressed: a TSB does not possess divisional or area signal asset trainers or tactical network engineers; and a garrison support unit (GSU) does not possess the requisite signal asset maintainers. The solution included a combination of contracted support for technical and maintenance expertise, tasking a signal battalion for tactical network support, and creating a signal-specific OCT team from across the 87th Division.

Under the oversight of the 3/87th's S6, the training began prior to arrival at the mobilization station. During this phase, contractors were sent to the unit's home station where they provided an initial operator proficiency assessment, operator training, and an initial equipment assessment. Moreover, they begin maintenance on the unit's equipment. These assess-

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ments were provided to the TSB's S6 and contributed to refining the training plan.

Once at Camp Shelby, the signal company was integrated into CPXs, while simultaneously polishing the unit's collective tasks. Much like the NTC, the optimal training plan enables the signal company to participate in all digital CPXs. Finally, the signal companies were provided additional digital command and control (C2) training during battalion ARTEPs.

Transformation

Juxtaposed against this aggressive and densely packed training matrix, both brigades underwent an extensive version of theater-specific transformation. Most significantly, they transformed from heavy mechanized formations to more agile motorized organizations primarily made up of HMMWVs, while retaining one mechanized infantry task force. Simultaneously, the Army fielded new equipment to these formations that many Active Component units had yet to receive, including the Army's latest digital battle command tools. The ATCCS devices, such as blue force tracker, maneuver control system-light (MCS-L), ASAS-L, and the advanced field artillery tactical data system (AFATDS) were among the systems fielded. From new individual equipment, such as M4 carbines and a host of soldier favorites in the rapid fielding initiative (RFI), to the Raven unmanned aerial vehicle (UAV) and PROPHET intelligence system, new equipment training (NET) programs where packaged and integrated into the overall training matrix in a manner that best facilitated the immediate employment of these new tools of war in unit training.

Transformation does not apply only to digital systems and new pieces of equipment, soldiers had to transform as well. In the case of mobilizing brigades, many soldiers were cross leveled. This process affected combat soldiers, such as tankers and scouts, who would gain an additional military occupational specialty (MOS) as infantrymen.

Mission Rehearsal Exercise

While a discrete article could be devoted to the subject of planning and executing MRXs at the NTC, it is important to highlight their role in First Army's theater immersion. The MRX is the culminating event in the overarching First Army strategy. Fresh off planes and trains, the brigades flowed into Fort Irwin, California, in an analog to RSOI in theater. Just as they would do immediately on arrival in Kuwait, the brigades were forced to battle track the build up of combat power and force protection, plan for training, and prepare for a long-contested move into the Mojave Desert. At the NTC, the brigades conducted long combat road marches into areas of operation and occupied FOBs as they would in country. The units faced the challenges of force protection, stability and support operations, and combat tasks prevalent in theater — all under constant attack from AIF. Training also included a robust live fire component, which included MOUT and ground assault convoy/combat patrol live fire, as well as live counter-fire missions by Paladins from the environs of the FOBs. A joint effects training (JET) live fire, analogous to the FCX conducted at Camp Shelby, was executed as well. With elections looming in theater as a crucial operational step in the overall strategy for victory, election support missions at the NTC were the graduation exercise of training units.

Theater Immersion: An Evolving Concept

First Army is not resting on the mission successes of the 278th and 155th; instead, it continues to lean forward and employ these lessons learned as a point of origin. Trainers from across the First Army descended on Camp Shelby and lessons, techniques, and methods spread rapidly to mobilization stations across the eastern United States. Various theater immersion initiatives were improved on at each mobilization station and tailored for combat, CS, and CSS formations. Likewise, innovative methods employed at other mobilization stations were brought to Camp Shelby. FOBs are being built at every major mobilization station, in some form, as are many of the other theater immersion tools pioneered in the 278th and 155th mobilization missions.

The most significant lesson learned in the 278th ACR/155th BCT effort was the need for more sophisticated and rigorous training in battalion and brigade battle command — particularly, effects-based targeting and information operations. Time is the enemy as are the multitude of training and transformation requirements that compete for leader time and attention. To mitigate the problem, the phased mobilization concept was expanded to provide more time for leaders and headquarters and CSS elements to mobilize in advance of main bodies. This would allow them to complete individual and some collective training requirements prior to the mobilization of their units. Moreover, this approach created more time to focus on critical battle command training events, to include multiple brigade-level CPXs, as well as a brigade field training exercise with multiple maneuver battalions in the field. Finally, it was determined that an OCT team, created along lines analogous to the NTC's Bronco Team, was necessary to coach, teach, and mentor brigade and battalion leaders and staffs throughout their post-mobilization training.

In the coming year, these initiatives will be put to the test in the mobilization of the 48th Brigade at Fort Stewart, Georgia, and the 2d Brigade, 28th Division at Camp Shelby, Mississippi, as well as other mobilizing units across the First Army's AOR.

LTG Russel L. Honoré is currently the commander of the First Continental United States Army, Fort Gillem, GA. He received a B.A. from Southern University and A&M College, and an M.A. in 1971. He has served in a variety of command and staff positions in CONUS, Europe and Korea, including commander, Standing Joint Force Headquarters-Homeland Security, U.S. Northern Command; commander 2d Infantry Division; vice director for Operations, J-3, The Joint Staff; deputy commanding general/assistant commandant, United States Army Infantry Center and School, Fort Benning, GA; and assistant division commander, maneuver/support, 1st Cavalry Division, Fort Hood, TX. He commanded, 1st Brigade, 3d Infantry Division, Fort Stewart, GA; was "Scorpion 07" at the National Training Center; and commanded, 4th Battalion, 16th Infantry. LTG Honoré holds a Masters Degree in Human Resources as well as an Honorary Doctorate in Public Administration.

COL Daniel L. Zajac is currently serving as commander, 3d Brigade, 87th Division, Camp Shelby, MS. He received a B.S. from the U.S. Military Academy, an M.A. from the University of Louisville, an M.M.A.S. from the U.S. Army Command and General Staff College School of Advanced Military Studies, and an M.M.A.S. from the U.S. Army War College Advanced Strategic Arts Program. His military education includes Armor Officer Basic Course, Ranger School, Airborne School, Infantry Mortar Platoon Officer Course, and Armor Office Advance Course. He has served in various command and staff positions, to include senior armor and cavalry trainer/senior brigade trainer, Operations Group, National Training Center, Fort Irwin, CA; commander, 3d Battalion, 69th Armor, Fort Stewart, GA; XO, 1st Brigade, 3d Infantry Division, Fort Stewart; and operations officer, 2d Brigade, 1st Armored Division, Baumholder, Germany.

Back to the Future:

A Company Commander's Perspective on Transformation

by Captain Raed D. Gyekis

Over the course of the past three years, the U.S. Army has engaged in large-scale combat operations in both Afghanistan and Iraq, while simultaneously negotiating the brave new path of transformation. During the course of the discussion and ongoing application of these organizational changes, the Army has modified transformation initiatives. Operations and experiences in Operation Enduring Freedom and Operation Iraqi Freedom represent a valuable opportunity to apply combat experience to the theories that underlie the transformation effort.

Iraq and Afghanistan are the most recent combat laboratories that disprove the theory of total information dominance, which assumes linear and predictable enemy reactions and does not allow for the high degree of uncertainty and friction that is certain to remain the dominant characteristic of future war. This "systems" approach to warfare, which views the enemy as adaptive but predictable, represents wishful thinking and is dangerous in its implications. If the U.S. Army is to succeed on the complex battlefields of today and tomorrow, it must acknowledge the enduring uncertainty of war, leverage the power of the combined arms team, remain flexible in thought and action, encourage decisive action at the lowest levels, remain capable of absorbing a punch, and continue to have the ability and the survivability to fight for information.

Drawing the Wrong Lessons

Actual events on the battlefield have traditionally exercised the principal reality check on the understandings and assumptions of any institutional military culture, this despite ample evidence that military institutions sometimes prove astonishingly resistant to learning from their experiences.[1]

— Williamson Murray

Many of transformation's practical aspects have only recently begun trickling down to the company/troop level. Lessons learned during combat allow us to give this effort an honest real-time assessment of current strengths and weaknesses and apply corrective measures based on the reality and frictions of a very complex war.

Much has been made of the United States' overwhelming technological superiority, and how it is leading to a Revolution in Military Affairs (RMA) that will soon overwhelm and outdate some of our most basic concepts concerning warfare (some would claim this has already happened). Proponents of this "revolution" seek to affirm that with the United States' increasingly dominant military/technological advantage, what Clausewitz refers to as the "fog of war," will be lifted, and the inherent friction of warfare will be reduced to a non-factor.

Total information dominance, the theories proclaim, will enable us to collect real-time intelligence on those who threaten us, identify targets from beyond standoff range of the enemy's weapons, engage those targets with long-range precision munitions, and cause collateral damage and its political implications to become a thing of the past. This assump-

"The Stryker brigade combat team (SBCT) and the Objective Force are both tailored to harness information dominance, to operate with a high-degree of certainty, and therefore are designed for efficiency instead of effectiveness. They do not have the ability to fight and survive under less-than-optimal conditions."

tion of complete and all-knowing intelligence and analysis allows the follow-on assumption that future engagements will be shaped and decided by long-range weapons systems. Based on these theories, there is little need for Army units that close with and destroy the enemy. This means that strategic mobility takes priority over survivability and lethality, deliberate/centralized analysis triumphs over decisive action at the tactical level, and cost efficiency prevails over effectiveness as a virtue in the design and training of these future units.

What proponents of these knowledge-centric theories fail to consider adequately is the human dimension of war. As we have seen during Operations Enduring Freedom and Iraqi Freedom, the enemy has a vote and has proven anything but predictable. As *On Point* recently concluded, "In OIF, accounting for why the enemy did some of the things they did proved difficult, if not impossible."[2] While our current enemy may not be as technologically advanced as us, he is not unintelligent and will employ many effective low-tech countermeasures to our systems.

The past 15 years (let alone a half-century of warfare) are rife with successful examples of countermeasures to our technological advantage: dispersion; intermingling with civilians; spies; and deception measures, to include camouflage and decoy targets, as well as simple electronic misdirection with mobile phones. Iraq's complete success at hiding, disguising, and moving scud launchers during Desert Storm, despite the mammoth intelligence, surveillance, and reconnaissance efforts expended by coalition forces, is now a matter of record.[3] Our similarly fruitless initial targeting efforts during the 78-day air war in Kosovo, paint a similar picture of Yugoslavian countermeasures, unforgiving terrain and weather, and political restraints significantly blunting the effects of a protracted and massive air campaign. "With no significant ground opposition and a NATO land force intervention ruled out, they (Yugoslavian military) parked their tanks and heavy vehicles, using concealment and decoys to excellent effect. They simply continued their operations on a different level than the RMA air war going on some 15,000 feet overhead."[4]

Even more recently, the successful exfiltration of Taliban leaders from the Tora Bora region in December 2001, despite an intensive surveillance and bombing campaign, which was not coupled with an effective screening ground force, highlights the fallacy of these assumptions. A strategy that relies simply on stand-off reconnaissance and targeting, without a broader strategy incorporating the complementary capabilities of a lethal and survivable ground component, is a one-legged stool. This is not to say that we should not continue to pursue, refine, and harden our amazing intelligence collection and long-range strike capabilities. However, we must acknowledge that they are a part of our overall strategy, not a strategy unto themselves. Even if we possessed the perfect sensor system, one that could accurately plot every enemy position with 10-digit accuracy, we still would not understand the psychological part of the equation. As good as our sensor systems are, they cannot penetrate the enemy's mind to reveal his intentions, resolve, power and cultural status, tribe/clan associations, nor predict the reactions of his supporters and allies. The U.S. Army must retain a capability to force the enemy to reveal those intentions, to fight for that information when it is not so easily handed to us.

The enemy thinks and reacts. Every action has a reaction, and very seldom can we even come close to eliminating the fog of war. The initial Kosovo air campaign, Operation Allied Force, provided us a real lesson in the effectiveness of standoff targeting when not coupled with an effective ground campaign. What was planned to be a five-day aerial bombardment, stretched into months. It was not successfully resolved until the Kosovo Liberation Army gained traction on the ground, the political pressure was ratcheted up, and the real threat of a ground offensive worked in conjunction with the still-ongoing air campaign to force the Yugoslavian leadership to the table.[5] Our

current struggle in Fallujah presents us with near-real-time lessons in the fallacy of the total information dominance theory. The effectiveness of our vast sensor fleet, coupled with precision stand-off weapons systems, but without the complementary capability/will to dominate the fight on the ground, has led to the term "no-go areas" being introduced into our national lexicon concerning Iraq.

The past three years (let alone the past 15) have presented us with more examples and lessons learned than necessary to drive this point home. When you introduce killing and death into the dirty laboratory of combat, mix in a very complex urban and mountainous terrain, and blend in social, political, cultural, and psychological aspects, our awesome technological advantages, the result of every operation still lacks predictability. We must be prepared for the unexpected, and for intelligent enemies who seek to exploit our vulnerabilities. We must train and equip our soldiers and leaders to win decisively under uncertain conditions.

View From the Foxhole

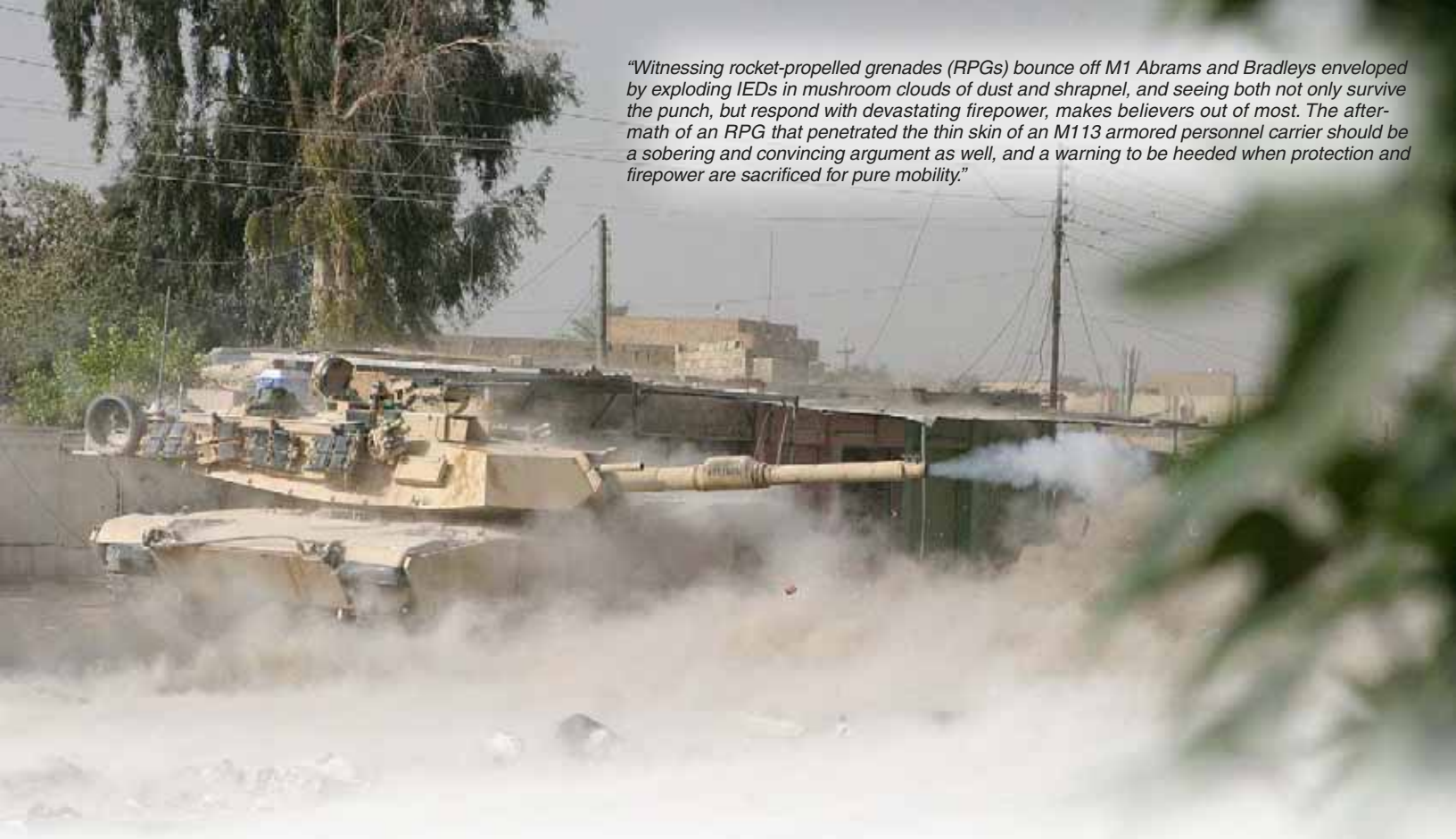
This reality is obvious to anyone who has served amid the ever-shifting reality of Iraq. Neighborhoods and city blocks are constantly changing environments. The current situation is the result of inputs from coalition forces, pro-coalition civilians, those apathetic to our efforts, and civilians and militants vehemently opposed to our presence. The dynamic includes soldiers, sheiks, religious leaders, business owners, families, criminals, foreign insurgents, and influences from an amazing array of past grievances, grudges, and blood feuds that may or may not have involved the United States in their origin, but certainly have an impact on our current relationship with Iraqi citizens.

War is much more than just targeting objects. For soldiers who spent one day fighting in the streets of Al Qa'im, Husaybah, or Fallujah, and the next day delivering humanitarian or reconstruction aid along the same streets, this simplistic assumption seems blatantly foolish. These are not situations that lend themselves to be easily categorized, patterned, analyzed, predicted, and targeted.

One of the very best daily intelligence assets we have is the scout, a living human sensor who can observe, analyze, assess, and decide (many times within seconds) the best course of action. The scout can rarely wait for the 95-percent solution to be researched and presented for discussion. On some deliberate missions, he will have time to wait for real-near-real time imagery and/or signals intelligence, but in the vast majority of missions, the scout will not have time to wait. He may have the luxury of time and the approval from several echelons higher to use centralized remote fires with such amazing stand-off capabilities; however, it is much more realistic to think he will not.

During Operation Anaconda, despite two weeks of intensive national, strategic, and tactical intelligence-gathering, focused on the specific area and enemy positions in the Shah-e-Kot Valley, U.S. soldiers were

"In short, the Army already has a great template to start building this new capability. It needs to look no further into the future, but back to units, such as the 3d Squadron, 7th U.S. Cavalry on its march up the Euphrates, the 3d Armored Cavalry Regiment during its economy-of-force operations that straddled a third of Iraq's landmass, or the critical lines of communications security function the 2d Light Cavalry Regiment provided for its extended tour in Operation Iraqi Freedom I."



"Witnessing rocket-propelled grenades (RPGs) bounce off M1 Abrams and Bradleys enveloped by exploding IEDs in mushroom clouds of dust and shrapnel, and seeing both not only survive the punch, but respond with devastating firepower, makes believers out of most. The aftermath of an RPG that penetrated the thin skin of an M113 armored personnel carrier should be a sobering and convincing argument as well, and a warning to be heeded when protection and firepower are sacrificed for pure mobility."

very surprised to learn that they had to fight a completely unidentified formation of Taliban, emerging from camouflaged positions nearly directly below the wheels of the helicopters that dropped them off. "U.S. intelligence photos, listening devices, and spying had turned up no sign of al-Qaeda presence in the high ground. Analysts also believed the mountain hide-outs would be too cold for the enemy, given that even local shepherds waited out the winter in the villages below."[6] The geography and lessons learned by an intelligent and determined enemy from previous engagements offset many of our technological intelligence advantages. The scout will not have perfect intelligence and will not possess a certainty of the precise outcome. He will have lessons learned from training and education, as well as the assets with which he works and with which he has developed a habitual relationship over the course of his training and deployment.

What the scout must have prior to mission execution is a foundation of realistic training, an expectation that the unexpected can and will occur and he must be prepared for it. This training and his education must be based on the fundamentals of flexibility and mobility; proficiency at executing fragmentary orders (FRAGOs) on the fly; a capability to leverage every element of the combined arms team to reach the common objective; a survivability that allows that unit to take the hardest punch the enemy can deliver and remain standing; and a lethality sufficient to deliver a counter-punch that will ensure we impose our will on the enemy.

Back to the Future: Fighting for Information

Emerging technology will play a vital role in improving our intelligence-gathering and communications capabilities. However, the belief that this technology can eliminate battlefield friction and lead to a near-certainty on future battlefields is an intellectual crutch, which endangers our soldiers in the close fight and weakens our national capabilities to wage war successfully on our own terms. It casts our enemy as a static, one-dimensional and predictable foe, whose actions will conform to our strengths. This underlying assumption overshadows many of the more constructive portions of transformation.

Transformation is a necessary and ongoing process that incorporates many positive features. Its stated goals of a decentralized combined arms structure, improving mobility while shortening the logistics 'tail,' and improved command and control (C2) pushed down to the lowest levels are all very positive. But there are also many areas for improvement that our most recent experiences in Iraq and Afghanistan reveal. The Stryker brigade combat team (SBCT) and the Objective Force are both tailored to harness information dominance, to operate with a high degree of certainty, and therefore are designed for efficiency instead of effectiveness. They do not have the ability to fight and survive under less-than-optimal conditions. Assuming we can achieve information superiority, avoid surprise, rely on precision weapons systems to shape the outcome of the fight, and control the time and place of the fight, ignores the complexity of war and the lessons of Mogadishu, Tora Bora, and Fallujah. A strategically mobile force, lacking in firepower and survivability and dependent on near-perfect intelligence to execute a mission, will fail to capitalize on potential benefits of improved C2; intelligence, surveillance, and reconnaissance (ISR); and joint warfare capabilities.

The post-transformation Army must have survivable combined arms units that can fight for information and force the enemy to reveal his intentions, integrate intelligence and fires, and rapidly transition from combat operations to peacekeeping and vice versa. It must be flexible, decentralized, and trained to execute rapid mission changes. The unit must leverage the mobility/countermobility and survivability skills of engineers with the vital psychological/human skills of civil affairs (CA) and psychological operations (PSYOPS). It must have organic indirect fires capability and a robust intelligence gathering/analysis function. And contrary to current unit of action plans, it must incorporate the awesome flexibility, speed, and observation of scout and attack aviation that veteran cavalry commanders take for granted. This transformation unit has to combine the surviv-

ability, mobility, and lethality of an armored force and have the flexibility and capability to put infantry (scouts) into the fight rapidly and effectively. The organization must be linked early in training, forging the bonds of habitual relationships that allow disparate elements of the unit to operate effectively based on the commanders intent and concept of the operation. In short, the Army already has a great template to start building this new capability. It needs to look no further into the future, but back to units, such as the 3d Squadron, 7th U.S. Cavalry on its march up the Euphrates, the 3d Armored Cavalry Regiment during its economy-of-force operations that straddled a third of Iraq's landmass, or the critical lines of communications security function the 2d Light Cavalry Regiment provided for its extended tour in Operation Iraqi Freedom I.

The cavalry already incorporates many of these features and matches up with transformation goals to decentralize combined arms assets while improving C2 abilities. But the Objective Force and the SBCT, founded on the various theories of RMA and information dominance, relies on an under-equipped reconnaissance, surveillance, and target acquisition (RSTA) battalion to conduct reconnaissance and security operations.

As we apply lessons learned from recent and past experiences, the Army is fortunate to already have an organization that has proven its ability to fight through uncertainty, force the enemy to reveal intentions, and survive and excel in combat in complex terrain under less-than-optimal circumstances — divisional and regimental cavalry. Difficult as it may be to move an M1A2 or a Bradley into some theaters of operation, the reality is that once they are on the ground, their survivability, lethality, and versatility does not constrain the commander in the ways that Stryker-pure formations will. Witnessing rocket-propelled grenades (RPGs) bounce off M1 Abrams and Bradleys enveloped by exploding IEDs in mushroom clouds of dust and shrapnel, and seeing both not only survive the punch, but respond with devastating firepower, makes believers out of most. The aftermath of an RPG that penetrated the thin skin of an M113 armored personnel carrier should be a sobering and convincing argument as well, and a warning to be heeded when protection and firepower are sacrificed for pure mobility.

As the RSTA battalion takes shape around the unmanned aerial vehicle (UAV) capability, ground commanders, who came to rely on the ubiquitous Kiowa Warrior, will miss the responsiveness and reliability of the OH-58D and aeroscouts. The capabilities and vulnerabilities of Strykers, UAVs, and HMMWV-mounted scouts would be complemented with the addition of these "legacy" formations, and provide commanders a true combined arms force, capable of fighting through uncertainty. Ironically, while it may be feasible to move the current SBCT and units of action more rapidly into the theater of operation, once they are there, it will not be practical to use them unless conditions are nearly perfect.

There is certainly room for improving the cavalry's current capabilities by adding organic engineers to both the divisional and regimental cavalry, incorporating a robust CA/PSYOPS team, incorporating organic infantry, bolstering scout/attack aviation assets within the cavalry organization, and pushing relevant elements of the national and strategic intelligence picture down to the brigade/regiment and battalion/squadron commander levels. But the basic cavalry template is sound, as we have seen, and continue to see during less-than-perfect conditions in the Euphrates Valley, along the Syrian border, and along the ingress and egress routes of Baghdad. It is tempting to think what might have occurred had the Taliban run into a well-placed cavalry formation during their successful escape from Tora Bora. What if an armored cavalry regiment had maneuvered to blocking positions outside southwestern Baghdad when Saddam's government collapsed and the remnants of the republican guard and Baathist regime slipped away to their sanctuaries in Fallujah and the Sunni Triangle? Exploiting these organization's versatility, survivability, and mobility could have led to very different outcomes in both situations. We still have several organizations that can do many of these things very well and, until very recently, we had more.

We cannot be dazzled by the illusory promises of information superiority and the unrealistic expectation that our "dominant knowledge" alone will result in rapid, decisive, and painless victory on future battlefields. The lessons of the past 15 years hammer this home. War in the information age is still war — unpredictable, complex, ambiguous, and uncertain. War remains irrational, nonlinear, and unpredictable. Because war involves killing and death, its human and psychological dimension makes it impossible to quantify or predict the enemy's response. Information complements but does not replace protection and firepower; at some point we will engage in the knife fight with the enemy, and the battle will be resolved by the skills our soldiers possess in reacting to the unexpected and imposing our will on the enemy in a hard and confusing fight under less-than-optimal conditions.

We must continue to leverage all of our impressive technological capabilities and capitalize on every opportunity to increase our advantage through the application of even-better intelligence systems. We must also realize that there are several factors that preserve uncertainty in warfare and that the enemy will exploit our weaknesses, using an array of countermeasures to blunt our technological superiority. The enemy will seek to fight battles on terms of their choosing, not ours. Wishing it away will not work. Uncertainty and the inevitable fog of war require us to field a reconnaissance force that can fight for information and force the enemy to reveal his true intentions.

The Army must undertake immediate modifications of the current transformation plan to incorporate a flexible, mobile, survivable, and lethal combined arms team. The transformation effort should embrace uncertainty, and train and equip our soldiers and units to fight through uncertain conditions. The cavalry, with some modifications, provides us with a formidable and combat-proven combined-arms blueprint for future success in the fight for information.

Notes

[1]Williamson Murray, "Clausewitz Out, Computer In: Military Culture and Technological Hubris," *The National Interest*, Summer 1997.

[2]Center for Army Lessons Learned, *On Point: The United States Army in Operation Iraqi Freedom*, "Implications: The Way Ahead for Considering Implications," Chapter 7, U.S. Army Combined Arms Center, Fort Leavenworth, KS, online at *http://call.army.mil*.

[3]Federation of American Scientists, *Conduct of the Persian Gulf War: Chapter VI— The Air Campaign: Operational Considerations: The Counter Scud Effort*; and *Results: Scud Production and Storage Facilities*, online at *http://fas.org*.

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CPT Raed D. Gyekis is currently the G3 Aviation, 7th Infantry Division, Fort Carson, CO. He received a B.S. from the University of Washington. His military education includes the Combined Arms and Services Staff School; Military Intelligence Captains Career Course; Air-Ground Operations School; Aviation Officers Basic Course; OH-58D Advanced Aircraft Transition Course; and Initial Entry Rotary Wing Aircraft Course. He has served in various command and staff positions, to include commander, Nomad Troop, 4th Squadron, 3d Armored Cavalry Regiment (ACR), Fort Carson; adjutant, 4th Squadron, 3d ACR, Fort Carson; S3 Air, 1st Squadron, 4th U.S. Cavalry Regiment, 1st Infantry Division (ID), Germany; and platoon leader, E Troop, 1st Squadron, 4th U.S. Cavalry, 1st ID, Germany and Kosovo.

Recreating the Master Gunner Program

by Sergeant First Class Ira L. Partridge, U.S. Army, Retired

In armored combat long ago, lessons were learned that would shape the future of the U.S. Army's armor force. Although these combat lessons were not learned by tankers on the field of battle, forward-thinking mounted warriors at Fort Knox, Kentucky, had the foresight to draw the right conclusions.

The time was the mid-seventies, 1974 to be precise, when the Vietnam era was drawing to a close, the Army was developing new doctrine for the future, and the Cold War was heating up. It was a time when a new tank was midway through its development and another large scale mechanized war, with significant combined arms battles and tank-on-tank engagements, had just concluded in the Middle East. The tank would become the M1 Abrams, and the war was the October 1973 conflict between Israel, Egypt, and Syria. That conflict highlighted the need for tank crew proficiency at every level, and that sufficient force, good equipment, and sound methods of employment are not enough.[1] From these lessons and a survey of commanders in the field, the master gunner program was created in 1975. However, that forward-thinking decision was made for the 20th century, based on the Cold War battlefield. Perhaps it's time to rethink the master gunner concept and make another leap forward, setting the program up for the 21st century.

Master Gunner History

The model for creating a master gunner has worked for 30 years since the first master gunner school was started at Fort Knox in 1975, training soldiers on the M60A1, M551, and M60A2 tanks. The programs of instruction (POI) during those early years would eventually be replaced with POIs for the M60A3, M1, M1A1, M1A2, and M1A2SEP, either as entirely new POIs or as transition courses to update the already-graduated master gunner on subjects specific to each tank. Success of the tank master gunner program has been such that, as the saying goes, "imitation is the highest form of flattery." Other master gunner courses, with the exception of the Bradley Master Gunner Course, began forming in the 1990s, based on the rationale of an undisputed increase in lethality that master gunners brought to a unit's warfighting capability, as exhibited during Operation Desert Storm. Therefore, to shape and improve soldier training, master gunner programs were designed for weapons systems beyond the tank and Bradley.

The Infantry School at Fort Benning, Georgia, decided early to emulate the training approach of the U.S. Army Armor School for Bradley crewmen. Immediately after the Bradley was fielded in 1983, the Bradley master gunner program was initiated. As a mechanized armor system, the principles for training tankers and units seemed a natural fit to Bradley crewmen.

Following Desert Storm in the early to mid 1990s, the aviation community began designating certain pilots to act as unit master gunners to improve gunnery training. Although aviation master gunner training has less focus on maintenance, due to the background of the candidate soldier, the functions of the master gunner position were similar. In 2003, the Aviation School at Fort Rucker, Alabama, formalized this program into one that would produce soldiers with an additional skill identifier to fill designated master gunner positions in units.

Similarly, field artillery had unofficial master gunner programs that were training soldiers to be master gunners at division levels through the 1990s. The Artillery School at Fort Sill, Oklahoma, is currently formalizing this early attempt

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Photos courtesy of Master Gunner Branch, Fort Knox, Kentucky

at a master gunner program to standardize training and produce an artillery master gunner with an additional skill identifier. An anticipated artillery master gunner pilot course is expected in mid 2005. The Air Defense Artillery School at Fort Bliss, Texas, created a program in 2002 to produce a master gunner for Avenger units.

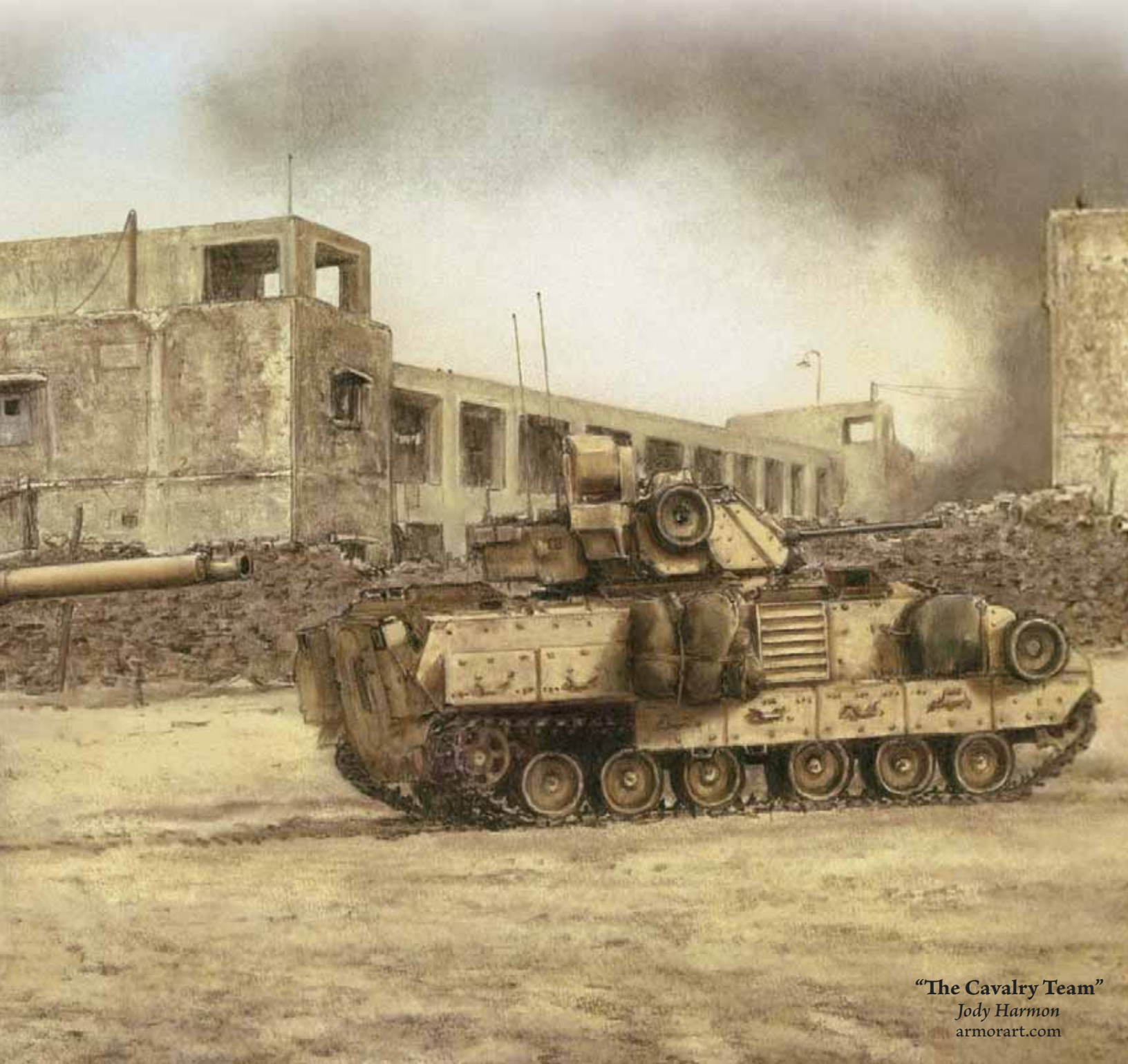
As each program was developed, the mold used to create a master gunner remained fairly consistent. The philosophy guiding each program was producing a soldier expert on maintaining the weapons system, a gunnery expert in fighting with the weapons system, an authority on training management for training others, and a true subject-matter expert (SME) on many subjects. Therefore, just as evaluations between dissimilar weapons systems are incomparable, comparing master gunner programs is irrelevant. Each master gunner program, like its weapons system, has a role to play on the battlefield. What is important is how the master gunner impacts training soldiers in a unit, regardless of the weapons system on which they achieved their master gunner position.

A Drawdown, Change, and Ranges

The master gunner program has never been without critics during its history or the drawdown following Desert Storm. Issues and changes between Desert Storm and Operation Iraqi Freedom (OIF) go beyond the Master Gunner Course structure. Insincere support for the military during this period of drawdown also took its toll. As a result, during the lead-up to combat during

OIF, some found that soldier readiness was lower than reported under peacetime conditions, especially when judged against the looming reality of "tomorrow we ride into combat." This begs the question: under the new contemporary operating environment (COE) of the War on Terror, what lessons can be learned from OIF to shape the master gunner program for the future? Changes needed by the master gunner program have been proposed, but other areas of the Army are already in the process of change, to include the transformation and reconfiguration to units of action (UA)/units of employment (UE), initiatives in transportation doctrine for convoy operations, and changes to aviation gunnery in response to a new/old threat. Each of these changes makes a fundamental leap forward, and in some cases backward, in the Army's doctrinal philosophy on warfighting tactics, techniques, and procedures. Their importance cannot be exaggerated when considered as separate topics, nor are the impacts of these changes limited to the isolated topics.

The concept of a UA/UE and other initiatives put forward by the Chief of Staff, Army, draw on both future concepts of configuration and new lessons, with a goal of modular, cohesive, and combat-ready unit formations that allow more stability and predictability for soldiers and their families, as well as the ability to better fight the evolving Global War on Terror with units that can react to various levels of threat while retaining an inherent warfighting ability to sustain battlefield lethality.[2] However, these changes are not limited to the physical restructuring of how the UA/UE is equipped and manned. Changes also



"The Cavalry Team"
Jody Harmon
armorart.com

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involve schools and training centers that train soldiers and leaders. These changes may be predictable in the short-term view regarding changes to instruction. But the long-term effect on soldier abilities cannot be assessed until students integrate back into units and time has passed. However, the case of a master gunner is much different. The delay in evaluation will be longer, and may be too late to roll back if changes are made to fit an arbitrary mold. Changes to master gunner training will not be apparent until soldiers trained by a new master gunner are assessed, long after that master gunner has graduated under revised instruction. Transformation to modular UAs/UEs is a step forward, but not all training and courses should be arbitrarily conformed to any schedule for the sake of convenience. Basing master gunner training on a rotation schedule is hardly the best course of action, especially when considering the role a master gunner plays in unit readiness.

Another area being transformed is convoy operations and protection, which has long been relegated to the "if we have time, we'll train that" status. Convoy protection as a topic is driving changes in range design and producing undeveloped doctrine. Doctrine and live fire training for convoys was largely ignored prior to combat in Iraq. However, this often ignored area of vulnerability in soldier skills has been driven to the forefront by combat operations increasingly focused on softer targets rather than direct confrontation with maneuver units. Even though many lessons in convoy defense were learned during Vietnam 35 years ago, many have been forgotten. Changes instituted for deployed soldiers in the interim have addressed the issue, which concurs with the statement made by the Chief of Staff, Army, that "every soldier (is) a rifleman first." Along with new doctrine has emerged a requirement to conduct convoy live fire exercises, creating a need for a new range type that would allow travel along the center axis of the range, while firing outward. Once this range is combined with new doctrine on convoy training, the result will be an enhancement in the lethality of combat support soldiers.

Combat in Iraq has also driven changes in aviation. Prior to action in Iraq, the aviator's primary threat for being shot down was opposing anti-aircraft capabilities, so doctrine and training focused on lower-flying aircraft to minimize this threat. However, in Iraq, Army aviators have learned lessons similar to convoy lessons that trace back to Vietnam, which concluded that the old technique of flying above small-arms and rocket-propelled grenade (RPG) capabilities is more important than the threat of anti-aircraft. They also found that due to higher elevation, it is necessary to reintroduce the engagement technique of "running and diving fire" into the latest aerial gunnery doctrine.[3] For this reason, recent discussions have proposed an aviation range complex, which requires a firing lane down the range center to practice and evaluate aviation door gunnery, with running and diving avenues of approach on the edges of the range, which would engage targetry reconfigurable to directions of fire from either avenue. An urban target environment should also be added on the downrange end of the range complex, which could be engaged or assaulted by aviation assets. Comparatively, the proposed range for convoy live fire doctrine is very similar. Doctrine writers for convoy live fire training also want to move down a course road through targetry, and possibly move into urban terrain. This similarity in range design provides an opportunity to design and construct one range to address two distinctly different doctrinal requirements. Creating a multi-use range to conduct a variety of training is beneficial to the modularity intended in emerging doctrine and transformation, in addition to being cost effective.

Changes to armor doctrine, documented in "The Future of Tank Gunnery," have also identified areas that will require range changes for armor, including new skill sets that tankers will need in the COE and how training must be changed.[4] In contrast to a new convoy/aviation range, armor has company in transforming its doctrine with impact on range design. Why is range design important to the master gunner? Because changes to range design are modifications to the realm on which the master gunner culminates the unit's gunnery training program. Live fire of the unit's weapons systems, whatever they may be, defines the lethality of that unit. The ability to deliver accurate, decisive, and lethal fire is a critical indicator of master gunner success and a soldier's battlefield survival.

Combat is the ultimate test of training, but lessons learned on the battlefield are sometimes learned at a high price. Ranges must provide the means by which such training can be accomplished. However, the concept of ranges can no longer be limited to existing definitions of the multipurpose range complex (MPRC) or multipurpose training range (MPTR.) Future ranges must also include the ability to train urban warfighting skills. Reconfiguring to UA/UE, implementing new doctrine, and improving range infrastructure must all be integrated with a COE master gunner to maximize affordability of these changes.

Conventional Wisdom in an Urban Environment

Although change is inevitable, conventional wisdom before change is not always accurate. Following the introduction of the Stryker brigade combat team (BCT) and the horrific events of 11 September, there was some debate concerning the role of the Abrams tank, especially in urban environments. Many thought it was a subject better left alone because of the uncertainty of how the Abrams would fare in urban combat. Prevailing theory held that future conflicts may not even require the weight and battlefield dominance of the Abrams tank — even mentioning the employment of the Abrams in urban fighting was often met with resistance.

In spite of this conventional wisdom, strides were taken in the area of urban combat. Fort Knox designed and built the first of its kind urban training environment, specifically designed for tanks and other vehicles. During 2001, various published articles proposed modifying an existing M1A1 tank with various add-on options to enhance its lethality and survivability in an urban environment, which led to test exercises intended to develop evaluation criteria of mounted forces on an urban battlefield. Though the focus of these initiatives was on modifying tanks for future deployments, developmental work has continued in this area by the U.S. Army Tank-automotive and Armaments Command (TACOM). It may not be long before devices, such as the counter-sniper anti-material machine gun (CSAMM), are seen on an Abrams tank fighting in an urban environment. Though changes in urban lethality and survivability have been slow, progress on a limited scale for a few add-on options, such as CSAMM, may soon be seen on tanks deployed to Iraq. Therefore, changes that connect urban combat to COE gunnery training will play a critical role in future events.

Thunder Run – Great Battles, OIF, and Tank Lessons

Optimism can be found among commanders of maneuver elements in OIF who obviously missed the memo about the Abrams' vulnerability in an urban environment, since these apprehensions did not come into being and the élan and skill of tankers and soldiers were never more apparent than during Thunder Run.

Looking back at the history of the Abrams tank serves to highlight the significance and achievement of Thunder Run. The Abrams tank was named after General Creighton W. Abrams Jr., who commanded the 37th Armor during World War II and whose tanks were the first to reach the besieged town of Bastogne during the Battle of the Bulge. The pivoting of General George Patton's 3d Army from a winter attack to the east into a headlong rush north has long been considered one of the most audacious and spectacular military maneuvers ever, that is until 5 April 2003, when a few Abrams tanks and Bradleys, combined with a philosophical audacity, making Thunder Run possible.

When units of the 3d Infantry Division reached and secured Baghdad airport on 2 April 2003, it became clear to maneuver commanders that perhaps intelligence on Iraqi intentions to turn Baghdad into another Grozny was not entirely correct. "Baghdad looked difficult, but it did not look like Grozny."[5] This assessment led the 3d Infantry Division commander to direct his 2d Brigade to conduct a thunder run — or what 1st Battalion, 64th (1-64) Armor's history would later refer to as "a show of force"— through central Baghdad and loop back southwest to the Baghdad Airport. The 2d Brigade commander subsequently ordered Task Force 1-64 Armor (the Rogues) to execute the first thunder run on 5 April. In assessing the situation, the Rogues concluded the mission would be a true raid, by definition a short duration operation, with the explicit objective of demonstrating freedom of action and gauging the reaction of the Baghdad defenses. Task Force 1-64 had conducted two such thunder runs in advance of reaching Baghdad, but neither had encountered significant enemy resistance. Nonetheless, nerves were on edge when 29 Abrams tanks, 14 Bradleys, and assorted other combat vehicles, including M113s, crossed the line of departure at 0630 hours on 5 April 2003.[6]

The simple daring brilliance of this operation should serve as a lasting testament to the heroic prominence of America's mounted force, and accounts have touted the tactical aspects of this achievement. But make no mistake; in absolutely no other single operation has the lethality of U.S. armor been so apparent in its tactical superiority. Battlefield glory, however, is not without cost. Perhaps the sacrifice of one tank commander, who gave his life during Thunder Run I defending his crew, should serve as an example to all tankers. In the words used by his comrades during his memorial, he died "helping his crew, his platoon, his company team. He saw the need to be up there, exposed to fire, engaging the enemy to protect his crew. He didn't need to be asked, he just did it."[7]

Regardless of such gallantry, the 2d Brigade commander and the chain of command were less than satisfied with the tactical results of Thunder Run I. The attack proved it was possible, and all soldiers fought magnificently, but "Baghdad Bob" was still declaring that U.S. forces were repulsed and none of them were in Baghdad. Therefore, on 7 April, the 2d Brigade embarked on Thunder Run II, with the objective to "test defenses and maintain initiative" in going downtown.[8] The 2d Brigade commander also realized from this established intent that it may be easier to stay downtown than to continue to conduct thunder runs again and again.[9] The resultant fight was valiant and the battle fervently intense, but the outcome is a true testament to the voracious fighting spirit of the American soldier. The morning of 8 April dawned with Abrams tanks sitting in front of Saddam's palace on the banks of the Tigris in downtown Baghdad. There they were, there they stayed, and there they remain.

The thunder runs established that the Abrams could maneuver and be strategically relevant in the urban fight and the gallant actions of well-trained tank crews could employ the Abrams tank in ways contrary to conventional wisdom. However, existing issues of capability, vulnerability, and training must change to address the evolving contemporary operating environment as the war on terror proceeds. Such issues are being addressed in changes to tank gunnery doctrine and range design. Other areas include the abilities of master gunners and the role they played, and continue to play, on the battlefield in Iraq. Master gunners are doing what is needed, often without being asked — a true testament to the master gunner program. The rewards of the master gunner go far beyond personal recognition, which is epitomized by the phrase, "if things are going good, where's the commander; if things are going bad, where's the master gunner." The master gunner is central to initiatives needed to adapt and train soldiers, to transform and reshape the Army; not to re-fight Thunder Run, but for future fights. Therefore, an interconnected plan for merging the master gunner with the contemporary operating environment will be critical.

One Tanker's Thoughts on the Way Ahead

There are many conclusions that can be drawn from lessons learned on the subject of tank and mechanized actions in OIF, including transformation efforts by other branches of the Army, the reconfiguration to UA/UE, aviation and transportation communities, and modifications to range design. The U.S. Army Armor Center and Doctrine Division, Directorate of Training, Doctrine, and Combat Development at Fort Knox are well on their way to implementing doctrine changes, and new gunnery tables will soon be a reality. Radical changes, such as these,

would normally take years and include prolonged discussion in going from concept to published doctrine. However, in the current wartime atmosphere, approval was not as difficult as anticipated, for two reasons. First, the changes proposed no increase to the number of main gun rounds needed; and secondly, machine gun ammunition was only increased by a small amount. Because the change in resources was not significant, approval was quick since it is tempered by the potential value of training soldiers, particularly when addressing weaknesses that may affect the lives of soldiers in combat zones. Therefore, one thing is certain, lessons learned from OIF have already started to impact the way the Army and armor units will train in the future.

Changes will not be limited to the way training is conducted. As stated, changes to range design are equal in magnitude to the generational leaps forward that have occurred in the past. Imagine the period before the first standardized MPRC or MPTR template was defined. Today's range changes for armor, compared to changes driven by aviation and convoy live fire scenarios, may prove just as far-reaching. New designs must train emerging skill sets, with new types of targetry, new designs in grouping targetry on qualification ranges, and even new types of target mechanisms. At any rate, soldiers must continue to train to fight on Army ranges long into the future, with tactics and doctrine no doubt continuously debated in many forums. But the unassailable characteristic of this issue is that changes must enable soldiers to maintain and achieve a level of lethality unsurpassed in the world.

So, what about the Master Gunner Course? What can be done to improve a course that can be directly tied to the success of armor in major combat operations and 30 years of success? Perhaps the answer lies in simply analyzing the thought process involved in creating the original Master Gunner Course. Perhaps it is time to take another generational leap forward to ensure a viable, relevant, and critically essential master gunner.

There are three areas with potential to improve the skills for a COE master gunner, continuing the tradition of a subject-matter expert for the dynamic training of soldiers. First, throw out the aforementioned preconceived time limit. The first Master Gunner Course was not built by picking an amount of time and then filling in subjects. The course length for a COE master gunner should be driven by content, not any arbitrary preconceived time allocation. This is not to say that the course for a COE master gunner must be longer or shorter than the current course; simply, the time should be content based. Lessons learned from OIF and other operations should be actively analyzed to determine

"Throughout the history of the tank master gunner program, one reality has always held true and has constantly been under assault: a candidate gets a set number of tries and is held to a set standard to display proficiency, or is otherwise removed from the course. Maintaining this standard may not be a politically correct or an enjoyable experience, and some would characterize it as a waste of resources, but it has been a key element in the success of the master gunner program."

what subjects are still relevant, what subjects should be culled, and any subjects that should be added. As the commander's gunnery expert, advisor, and subject-matter expert, this is not a soldier on which to restrain training resources or training time. Something to consider is that one well-trained crewman may improve the lethality of the tank crew, but one well-trained master gunner improves the tanks, crewmen, and soldiers in that unit. The goal must be a soldier with the skills to serve this critical function in every unit. The length of the course must be driven by the skill sets required by the successful candidate; proficiency cannot be achieved if based on a predefined time allocation.

Secondly, a COE Master Gunner Course needs to address issues relating to broader skills and standardization, not standardization in how a tank master gunner relates to armor units, but standardized training that allows master gunners to broaden skills to better function within the combined arms team and the UA/UE. Areas such as ammunition management, urban gunnery, patrolling or dismounted operations, enhanced surface danger area diagrams for weapons beyond tank-mounted weapons, training live fire for other than tank weapons, building ranges from scratch, conducting gunnery training programs in war zones, and battle damage and repair assessment are all topics that could better prepare the COE master gunner for future challenges. Additionally, some of these areas that focus beyond armor and specific weapons platforms offer the opportunity to standardize at Army level for the various master gunner schools. The concept put forward by General Schoomaker in January 2004, that, "every soldier is an infantryman first," should not be limited to the cross-leveling of various generalized soldier skills.[10] It only makes sense that certain subjects should apply equally to various master gunner schools. It is time to forego the individual allegiance that some profess to a branch or school in order to benefit the greater good of the Army. The effective benefit of this standardization to the combined arms team will surely increase as the Army transforms. Standardizing master gunner schools will transcend the benefit to soldiers from the particular branch, as well as facilitate easier integration of the combined arms team. Standardizing certain subjects would broaden the versatility of master gunners and enable uniform skills to be available to units of action.

Finally, the COE master gunner must be held to a higher standard. Throughout the history of the tank master gunner program, one reality has always held true and has constantly been under assault: a candidate gets a set number of tries and is held to a set standard to display proficiency, or is otherwise removed from the course. Maintaining this standard may not be a politically correct or an enjoyable experience, and some would characterize it as a waste of resources, but it has been a key element in the success of the master gunner program. Not every soldier can achieve the standards, nor is meant to become a master gunner, and it should not be any other way. The result of lowering standards goes well beyond the calamitous effect felt by the individual soldier. At its heart, master gunner training must be guided by the intended goals of gunnery training programs. Credibility of the master gunner as a subject-matter expert is vital to the unit's success. Without high standards, such credibility cannot be maintained, and once lost, will be extremely difficult to regain. As the current war on terror and the COE illustrate, these programs need change, but making master gunner or unit training easier will only force these lessons onto the battlefield. The consequences of a less-capable master gunner getting it wrong are potentially ominous and catastrophic. Remember that a good soldier impacts the unit by one, but a good master gunner impacts the abilities of *every* soldier in that unit.

Many lessons learned about our equipment and the master gunner's role in combat have been recent and a direct result of OIF. Lessons learned before OIF (during the final ramp up to combat operations and the march to Baghdad) and in the transition to support and stability operations can be characterized many ways, but none without mentioning the role of the master gunner. Therefore, the changes needed are not simply refinements to the current Master Gunner Course; lessons from OIF should produce ideas as innovative as the philosophy that drove the creation of the master gunner program.

In 2005, the armor community can celebrate the tank master gunner program, produced by forward-thinking armored warriors 30 years ago. The generational leap back then has produced today's armor force, which can arguably be characterized as having no equal on the battlefield. Today's soldiers, in particular armored soldiers, are more lethal, audacious, adaptable, compassionate, capable, and skilled than at any other time in the history of U.S. mounted warfare. However, those abilities do not equate to a cumulative end state; there is room for improvement in many areas. This commitment to improvement forms the basis for the Army's transformation in the midst of fighting a war on terror in a contemporary operating environment.

A key component to how units and soldiers will prepare, fight, and persevere on future battlefields is undoubtedly linked to the soldier known as the "master gunner." Now is the time to look at how the master gunner of the past 30 years can be transformed into the COE master gunner who will shape Army units long into the 21st century. We owe this to every soldier who takes his first steps to becoming a tanker; to tankers, such as the tank commander who gave his life defending his tank, epitomizing the phrase "freedom is not free;" to all soldiers who become master gunners; and to those soldiers who will be trained by master gunners. Creating the master gunner program took a bold step forward in 1975; creating a COE master gunner program should be the bold step forward in 2005.

Notes

[1]LTG J.R. Deane Jr., "Keynote address: Armor Today and the October War," *ARMOR*, July-August 1974, p. 35.

[2]GEN Peter Schoomaker, Department of Defense News Transcript, "Defense Department Special Briefing on U.S. Army Transformation," 26 July 2004, online at *http://www.globalsecurity.org/military/library/news/2004/07/mil-040726-dod01.htm,* retrieved 7 September 2004.

[3]Briefing given by LTG Richard Cody, Deputy Chief of Staff, G3, Headquarters, Department of the Army, before the Tactical Airland Subcommittee, Armed Services Committee, U.S. Senate, 30 March 2004, *http://www.globalsecurity.org/military/library/congress/2004_hr/040330-cody.pdf,* para. 2, page 11.

[4]Herbert L. Skinner, and Michael Dunfee, "The Future of Tank Gunnery," *ARMOR*, September-October 2004, p. 20.

[5]Global Security Website, "On Point, The United States Army in Operation Iraqi Freedom, Regime Collapse," Center for Army Lessons Lessons (CALL), U.S. Army Combined Arms Center, Fort Leavenworth, KS, Chapter 6, online at *http://www.globalsecurity.org/military/library/report/2004/onpoint/index.html,* retrieved 7 September 2004.

[6]Ibid.

[7]Ibid.

[8]Ibid.

[9]Ibid.

[10]Global Security Website, "Future Force," online at *http://www.globalsecurity.org/military/agency/army/future-force.htm,* retrieved 7 September 2004.

Retired Sergeant First Class Ira L. Partridge is currently serving as master gunner, System Integration Team for the New Generation Army Target System, Computer Sciences Corporation, Huntsville, AL. His military education includes M1A1 Master Gunner Course; Senior Instructor/Operator, Unit Conduct of Fire; M1A2SEP Operators Course; and Basic Noncommissioned Officer Course. During his career, he served in various positions, to include operations sergeant, Master Gunner Course, Fort Knox, KY; battalion master gunner, 1st Battalion, 32d Armor, 2d Infantry Division, Fort Lewis, WA; company master gunner and platoon sergeant, 5th Battalion, 77th (5-77th) Armor, Mannheim, Germany; and tank commander, 5-77th Armor, 1st Armored Division, Mannheim.

"GUNNER, MPAT . . ."

by Greg Kolasa, Wakeland Kuamoo, and Michael Bono

The 120mm M830A1 high-explosive, multipurpose tracer round, generally referred to by tankers as MPAT, was first used in combat during Operation Iraqi Freedom (OIF). The MPAT round proved to be quite versatile during OIF, even though there were no real air threats. MPAT quickly became the "round of choice" against ground-type targets.

The round has been available for more than 10 years; however, there seems to be some misunderstanding on exactly how it functions. The combustible cartridge case is built to specifications similar to all other 120mm rounds, no surprises there. The warhead consists of a point-initiating, base-detonating (PIBD) fuse, along with a chemical explosive content encased in a steel cylinder approximately 80mm in diameter. This steel case is surrounded by three sabot petals, which discard shortly after exiting the muzzle during firing. At the top of the warhead is an electronic proximity sensor with a ground/air selection switch.

When firing MPAT, the loader can use ground mode (the normal setting) or switch the proximity sensor to "air" if instructed to do so during the fire command. The round is then loaded into the gun and fired. This is the easy part; the tough part is understanding how the fuse, switches, and proximity sensor on the MPAT round function.

We will start with the M774 PIBD. When the round is fired, "setback" occurs. Setback is similar to sitting in a quickly accelerating car or airplane. As the vehicle moves forward, it feels as if you are being pushed further back into your seat. As the round starts to accelerate, components within the PIBD are pushed further back toward its base. During this setback period, two things happen: the setback generator is activated and produces a voltage, which is stored on a capacitor and used later to detonate the explosive composition; and the latches within the base fuse are set in motion to begin lining up the firing mechanism. When the round clears the muzzle end of the gun tube, it will start to decelerate and "set forward" occurs. When the speed decreases, you feel yourself moving forward in your seat, as in the example of the speeding car or airplane. This set-forward action allows further movement within the base fuse and completes alignment of the firing mechanism. The round is now fully armed and awaits the voltage that was initially stored on the capacitor. This setback and set-forward action assures the round is bore safe out to a minimum of 11 meters from the muzzle, which poses the question: is the round fully armed after 11 meters from the gun? As with any mechanical device, not all things happen at exactly the same time. By design, no fuse can be armed below 11 meters, and at 60 meters, all fuses must be armed. In between the two ranges, fuses can arm at different points with most armed at approximately 35 meters from the gun.

We will now look at the M74 proximity switch located at the front of the round. When ground mode is used, on impact with a target, the crush switch is closed. This action allows the voltage stored on the capacitor to flow to the firing mechanism and the warhead detonates. Approximately three inches behind the front crush switch is the shoulder switch. When closed on impact at an angled surface (such as the upper glacis of a BMP), it will function the same as the front crush switch.

The "air mode" selection causes a couple of other things to occur before detonation. First, during setback, a small battery is activated in the nose, which powers up the proximity sensor. As with the base-detonating fuse, there are variations in range when the proximity sensor would be fully activated. Four-hundred meters is the minimum range for activation of the proximity electronics, and at 1,000 meters, all sensors must be fully powered up. Generally, a significant amount of the sensors would be fully active in the 600- to 800-meter range band. A radar-like procedure is used by the proximity sensor to detect a target and receive a significant radio frequency return. This target is generally a mass of a certain size and density, which could be a real target or ground clutter. Once a sufficient return is sensed, the proximity sensor closes a circuit, allowing the voltage stored on the capacitor to flow to the firing mechanism, detonating the warhead. The radar

searches in a circular scan; however, it does have a blind spot, which prevents any type of return from an object in that zone. The good news is that this blind spot was put there intentionally, so that a round flying directly toward a target, such as a helicopter, would fly right into that target, closing the crush switch and detonating the round, which gives greater lethality than if the round airburst in front of the target. The blind spot does not affect the way a round is fired.

There is a trembler switch located in the base fuse, which can also detonate the warhead. The trembler switch is similar to a tilt switch found in a pinball machine, except it requires more than just tilting the round for the trembler to function. When the round impacts a soft target or area, such as a sandy surface, which may not be solid enough to close the nose crush switch, the trembler switch closes and allows the round to detonate. The ability of the trembler switch to activate on all surfaces (ground self-destruct capability) ensures no duds are left on the battlefield.

To further reduce duds in the field, the MPAT has a self-detonation feature. When the round is fired in the air mode, an electronic clock is activated. This clock provides a self-destruct capability if the round does not detonate after approximately nine seconds of flight.

The MPAT round defeats enemy targets by penetration or fragmentation effects. When the round detonates, explosives within the body of the warhead form into a molten jet of plasma and copper. This jet, traveling at approximately 7,000 meters per second, literally "melts" its way into the object and defeats the target. As detonation occurs, the metal body of the warhead is fractured, exploding into many smaller pieces thus creating fragmentation. This fragmentation allows the round to defeat targets, such as a helicopter, without having to actually hit the target.

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Concerns from the field indicate there were times when the round did not appear to detonate when fired. Tankers must remember if you fire the round in ground mode, the minimum arming distance is 11 meters, maximum arming range is 60 meters, and most fuses should arm at around 35 meters. In the air mode, a target fired at less than 400 meters means the proximity sensor would not activate. However, if a target is impacted and one of the crush switches close, the round would detonate on the target, provided the fuse had fully armed. If air mode must be used, crews should engage targets at approximately 1,000 meters to ensure the proximity sensor will activate. However, if a reduced range is required, the 600- to 800-meter range band should provide a good confidence level of assurance that the proximity switch will activate as designed. Remember, the round could get a return from normal ground clutter or other objects, which could cause detonation before contact with its intended target.

The MPAT round has proven to be extremely effective against all types of targets. The key here is to fully understand its functions and capabilities. Used correctly, the MPAT round is a great combat multiplier.

There is currently another round being used in Iraq, which is very similar to the MPAT, called the M908 high-explosive, obstacle-reduction tracer (HE-OR-T). Generally, you will hear tankers refer to this round as the MPAT-OR or just the OR round. The major difference between the MPAT and the OR is that the OR round does not have a proximity sensor in the nose of its projectile. Instead, this sensor has been replaced by a yellow-colored steel nose. The steel nose allows additional penetration of the target by the warhead before detonation. The M774 fuse-safe and arming distances for the M908 are the same as for the MPAT round.

In the current war, the OR round is being used against walls and obstacles. Tankers must remember to select MPAT on the fire-control system when firing this round; there is no separate selection for the OR round.

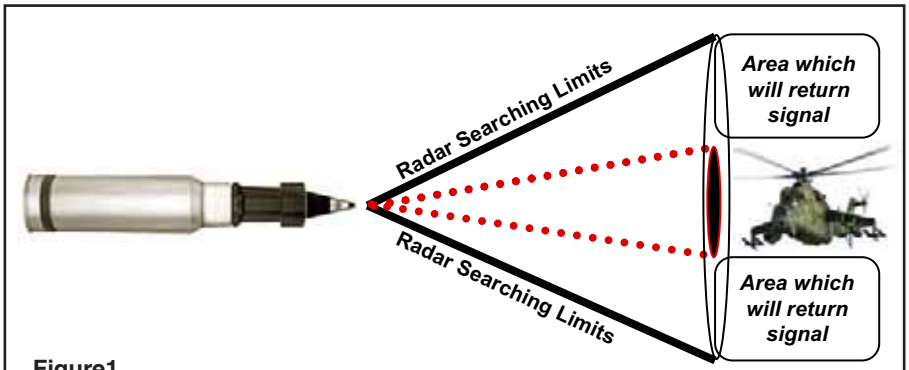

Figure1.
MPAT in Air Mode searching for an enemy helicopter

Greg Kolasa is currently project leader for M830A1 MPAT, U.S. Army Research Development and Evaluation Command, Picatinny Arsenal, NJ. He received a B.S. from Newark College of Engineering at New Jersey Institute of Technology. Between 1980 and 1984, he served as project leader for various 105 and 120mm tank ammunition programs and has been involved with the MPAT program from its inception.

Wakeland Kuamoo is currently an armament and munitions consultant for Program Manager-Maneuver Ammunition Systems, Joint Munitions Command, Fort Knox, KY. He also provides contractor support for tank main gun ammunition to the Program Manager-Maneuver Ammunition Systems at Picatinny Arsenal, NJ, and to the tank team of the Joint Munitions Command at Rock Island Arsenal, IL. During his military career, he served as senior live fire trainer, Bosnia and Herzegovina; chief, Master Gunner Branch, Fort Knox, KY; first sergeant, A Company, 2d Battalion, 35th Armor, Fort Carson, CO; senior armor trainer, Technical Assistance Field Team, Republic of Yemen; and division master gunner, 2d Infantry Division, Korea.

Mr. Michael Bono is currently a tank ammunition production engineer, Picatinny Arsenal, NJ. He is currently involved with the XM1002 training round program, which was developed to simulate the firing of the M830A1 MPAT round on training ranges. He received a B.S. from Virginia Tech University. He has served in a variety of positions, to include lead test engineer for 120mm ammunition accident investigations; and as a member of the Tank Training Ammunition Production Team, Picatinny Arsenal.

Developing a Heavy Reconnaissance Company

by Captain Robbin A. Hafen, First Lieutenant John P. Gilmour, and First Lieutenant Matthew E. Wright

The opposing force (OPFOR) at the National Training Center (NTC), Fort Irwin, California, has gone through some significant organization and doctrine changes during the past two years. The NTC has transitioned from the Soviet-based "Krasnovian" doctrine to the contemporary operational environment (COE) OPFOR doctrine.

The new COE doctrine calls for a very flexible and adaptable threat force capable of conducting a variety of functions from conventional mounted operations in support of high-intensity conflict rotations to paramilitary and civilians on the battlefield operations in support of stability and support rotations. However, the one tenet that has not changed from the old "Krasnovian" doctrine is the importance of reconnaissance.

U.S. Army Field Manual (FM) 7-100.1, *Opposing Force Operations*, states, "Reconnaissance plays a critical role in all OPFOR strategic courses of action."[1] At the NTC, the division tactical group (DTG) continues to deploy two- to three-man division reconnaissance teams (DRTs) to set up observation posts deep in blue forces (BLUFOR) territory to set conditions for the brigade tactical group (BTG). The BTG continues to deploy its reconnaissance company to key positions throughout the disruption zone to conduct shaping operations and support the deployment of its mechanized infantry battalions (MIBs). The MIBs are equipped with four to six BMP-2s that are deployed as reconnaissance patrols (RPs) to clear routes of march for the MIB and set conditions for deploying the mechanized infantry companies (MICs). The MICs can use one or two of their BMP-2s as a forward patrol to set conditions for the mechanized infantry platoons (MIPs). Relying on designated reconnaissance units using recon pull is the cornerstone of OPFOR's success at the NTC.

Recent organizational changes at the MIB level have allowed MIB commanders to experiment with a new reconnaissance organization, the heavy reconnaissance company (HRC). The HRC uses the survivability and firepower of T-80 tanks to augment the strengths of the BMP-2s when conducting reconnaissance patrols during MIB attacks or counterreconnaissance in a disruption zone during MIB defenses.

MIB Reorganization

In January 2004, we completed fielding of the OPFOR surrogate vehicle-tank (OSV-T) T-80s, which replaced the aging, visually modified, M551 Sheridan T-80 fleet. Based on the M113 chassis, the new T-80 tanks complement the OPFOR OSV BMP-2s. All OPFOR tracked vehicles can now move at the same rapid pace, and possess night fighting capabilities with gunner thermal sights and similar boresighting procedures with the like fire control systems. In addition, the M113 platform eases the logistics burden with reduced maintenance down time and prescribed load list/authorized stock level (PLL/ASL) stock requirements. This new vehicle capability allows MIB commanders to deploy their T-80s at the lead of formations and use tanks to fight at night.

Because of the need for more OPFOR light infantry in COE operations, we have

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All photos courtesy Dudley Harris, *Fort Irwin - Prepare For Desert War*

recently converted all of the 3d Mechanized BMP-2 platoons in 2d Squadron, 11th (2/11) Armored Cavalry Regiment (ACR) to light infantry platoons. This has caused the combat power of 1st MIB to drop from a 10/28 to a 10/20. Troops from 1st Squadron, 11th (1/11) ACR and 2/11 ACR combine to form MIBs, and the BMP-2 infantry fighting vehicle (IFV) platoons from 2/11 ACR and the T-80 tank platoons from 1/11 ACR combine to form the 1st, 2d, and 3d MICs with a combat power of 3/8 each. The new organization left our 3d tank platoons (T-80) in 1/11 ACR with no BMP-2 platoon with which to combine. The 1st MIB (A and E Troops) decided to combine the three T-80s from 3d Platoon with the one T-80 command tank and the four recon BMP-2s to form a 4/4 heavy reconnaissance company, as shown in Figure 1.

Traditional RP Doctrine

MIB commanders traditionally used RPs as their eyes forward. Basic task organization included four BMP-2 tracks, as well as two command and control (C2) BRDM vehicles. Any attachments, such as mounted AT-5 BRDMs, 2S6s, engineer assets, or smoke trucks, were assigned to the RPs based on mission, enemy, terrain, troops, time available, and civilian (METT-TC) factors and combat battlefield instructions (CBI).

One of the main advantages of the RP element was the flexibility provided to the MIB commander for tasks, such as route reconnaissance, setting support by fire positions on key terrain, as well as confirmation of intelligence reads given by BTG or DTG reconnaissance assets. On the offense, the RP was critical to guiding follow-on MICs to contact, apprising the MIB commander of the situation to his front and flanks, as well as cross-talking with other MIBs to facilitate mass and momentum, depending on the commander's intent.

In the defense, RP elements provided a forward security force in the MIB disruption zone. The disruption zone is critical in allowing MIBs to execute counterreconnaissance operations, as well as occupation of ambush positions once the BLUFOR crosses line of departure (LD). The major setback for the RP was that BMP-2s very rarely provide a significant problem for BLUFOR armor and mechanized units due to weapons system constraints, especially considering that each BMP-2 is allocated only five missiles. Advantages of the RP include use of thermals for target acquisition, and target handoff between BMP-2 commanders and antitank assets. The new HRC possesses many advantages over the RP in both the offense and defense.

HRC Doctrine in the Offense

The HRC provides the MIB commander maximum flexibility for task organization, firepower, and maneuver options.

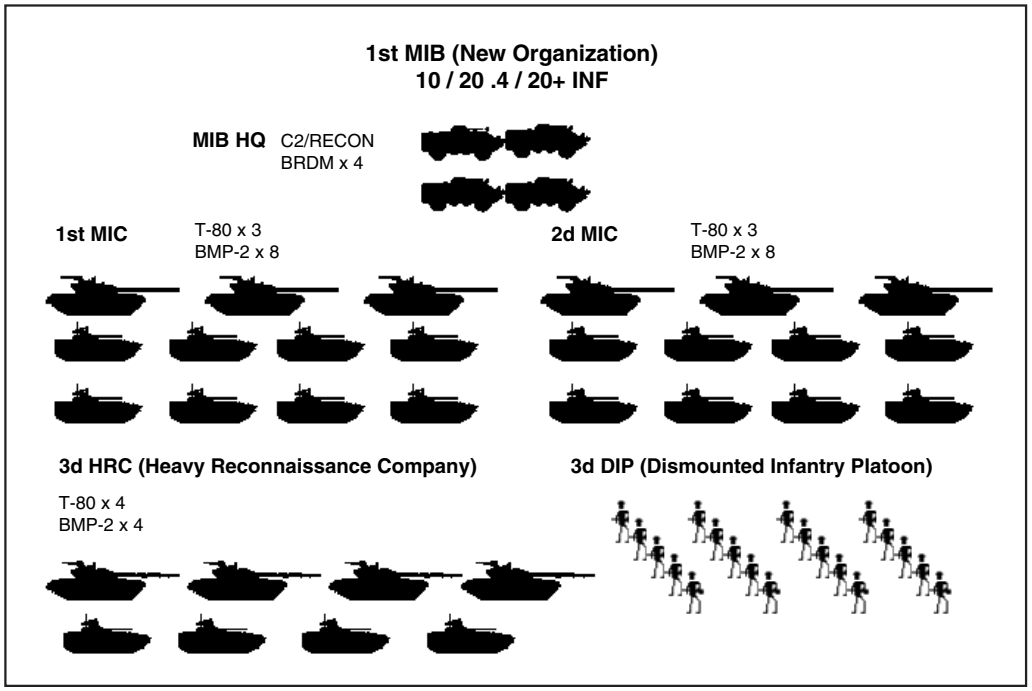

Figure 1. The new mechanized infantry battalion organization has less combat power. However, the heavy reconnaissance company allows more flexibility and firepower forward. If kept at the MIB level, the light infantry platoon can help seize or secure key terrain. The new organization gives the MIB commander more options for the deployment of main body forces.

In the old organization, the RP was limited to four tracked combat vehicles; the MIB commander may now task organize the HRC into as many as four RP elements, either two T-80 pure sections with two BMP-2 sections, or four 1/1 T-80/BMP-2 hunter-killer teams. The two MIB executive officers (primary and deputy), with their two C2/recon BRDMs, travel with the HRC elements to control movement, employ shapers, and develop the situation for the MIB commander. METT-TC and CBI considerations ultimately dictate the best mix of combat power. Attachments, such as mounted AT-5 BRDMs, 2S6 air defense vehicles, the MIB mortar battery, or smoke vehicles, add to the shaping effect the HRC can have in the offense.

If the MIB commander needs to perform multiple route reconnaissance efforts, he has the ability to task sections from the HRC that can move independently of each other. One of the main advantages of the HRC is that the MIB commander increases the likelihood of making contact with BLUFOR units with the smallest element possible. This capability is most desirable when an MIB is tasked as the fix or assault element for the BTG. The HRC leads the main body by about 5 to 15 minutes, clears multiple routes, makes first contact, and develops the situation to allow the deployment of the MIB main body. Historically, the RP BMP-2s would make visual or direct fire contact with BLUFOR and quickly find they were facing a mounted superior force in the form of M1 tanks or M2 Bradley companies. Although each BMP-2 is armed with five AT-5 Spandrel missiles, a well-disciplined tank platoon easily disrupts RP operations, especially during fights in and around key terrain. Once initial contact is made, BMP-2 commanders attempt to maneuver to get eyes on BLUFOR elements and bring indirect fires on the positions. If the RP cannot hold a position long enough to pull the MIB into contact, the MIB commander is forced to commit lead mechanized infantry platoons to reseed any loss of combat power in the RP. The OSV-T (T-80) and OSV (BMP-2) composition found in the HRC brings a significant increase in the lethality and survivability of the MIB's reconnaissance element. One tank in the HRC is equipped with a mine plow and all vehicles in the HRC are trained and equipped to conduct manual breaches. The mine plow gives the HRC the ability to conduct hasty breaches of lightly defended situational obstacles. The bottom line is that T-80s forward are able to affect BLUFOR in smaller, more flexible, more maneuverable elements to retain initiative and mass follow-on MICs into the BLUFOR formations.

HRC Doctrine in the Defense

One of the most important operations occurring during the MIB defense is the counterreconnaissance fight. Significantly outnumbered, the OPFOR MIB commander is spread thin in terms of terrain, which he must cover with limited assets. Typically, he is fighting with no more than an MIC+ sized element, plus attachments, such as 2S6 air defense or AT-5 vehicles. Depending on effectiveness of smoke operations and any deception effort, the MIB main defensive area is easily compromised if BLUFOR successfully infiltrates into sector and maintains eyes on defensive preparations. Denying BLUFOR reconnaissance platforms to key terrain is vital to maintaining the integrity of the defensive plan. To do this, the MIB commander relies on his RP vehicles to provide him early warning, as well as a quick reaction force to any infiltrations or attempted covert breach operations by BLUFOR during periods of limited visibility.

Historically, BMP-2 tracks provided the only reliable thermal capability for the MIB due to the aging, visually modified, M551 Sheridan T-80s. The newer OSV-T T-80 tanks provide a more reliable thermal capability to the MIB. Older version T-80 tanks were almost never placed in ambush positions within the disruption zone during the defense because their limitations outweighed their benefits. When the main battle began, Sheridans were outmatched nine times out of ten.

Ambush positions can now be manned by the HRC T-80s, placed throughout the MIB battlespace, providing a powerful punch against BLUFOR reconnaissance units. This capability, placed hand-in-hand with counterreconnaissance, means a T-80/BMP-2-equipped HRC is more capable than ever to disrupt the lead company teams during the initial push from BLUFOR brigade combat teams. BLUFOR

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"BLUFOR company commanders will find themselves facing contact to their front, flanks, and rear as the HRC fights from ambush positions to deny BLUFOR the ability to mass on the MIB main defensive area. This will cause confusion and early deployment by BLUFOR into battle formations to deal with the threat, and make attacking BLUFOR formations more susceptible to battlefield shapers at the MIB and BTG levels."

company commanders will find themselves facing contact to their front, flanks, and rear as the HRC fights from ambush positions to deny BLUFOR the ability to mass on the MIB main defensive area. This will cause confusion and early deployment by BLUFOR into battle formations to deal with the threat, and make attacking BLUFOR formations more susceptible to battlefield shapers at the MIB and BTG levels. Ultimately, the MIB will experience increased success in the counterrecon fight, increased lethality during direct fire contact as BLUFOR enters the disruption zone, and a decrease of attrition due to the HRC's ability to deny BLUFOR the capability to mass direct fire effects on the main defensive area.

HRC Training Plan

Mission essential task list (METL)-focused training of the HRC occurs during predeployment training. The OPFOR training and evaluation outlines (T&EOs) are found in the 11th ACR MIC Handbook, November 2003 edition.[2] The MIC Handbook contains the offensive and defensive collective tasks applicable to every maneuver element found in a BTG mission. To supplement the training of the HRC, the MIB commander uses tactics, techniques, and procedures (TTPs) and T&EOs found in Army Training and Evaluation Program (ARTEP) mission training plan (MTP) 17-57-10, *Scout Platoon;* ARTEP MTP 17-57-11, *Scout Crew and Team*; FM 3-20.98, *Reconnaissance Platoon*; and FM 17-97, *Cavalry Troop*.[3] The idea is to combine individual, crew, section, and unit level training from BLUFOR and OPFOR doctrine in an attempt to get the best of both worlds.

For training, the HRC is composed of four T-80 OPFOR OSV-Ts, four BMP-2 OPFOR OSVs, and two BRDM C2/reconnaissance trucks. Tasks that the HRC focuses on for training include OPFOR-OFF001, conducting a reconnaissance patrol forward through the battle zone and into the disruption zone; OPFOR-OFF002, conducting fixing force operations; OPFOR-005, conducting operations as a disruption force; OPFOR-008, conducting a fighting patrol; OPFOR-DEF001, conducting disruption force operations; and OPFOR-DEF003, conducting defensive operations to deny.[4] During MIB predeployment training in early January 2004, the HRC was able to focus on OPFOR-OFF001, conducting a reconnaissance patrol; OPFOR-OFF002, conducting fixing force operations; and OPFOR-DEF001, conducting disruption force operations.

HRC in Practice

The HRC proved its worth during Rotation 04-03 at the NTC against the 3d Brigade Combat Team, 3d Infantry Division. For Training Day 1-2 BTG attack, the HRC had an authorized strength of four T-80s, two BMP-2s, two C2/recon BRDMs, one AT-5 BRDM, three TDAM smoke BRDMs, and the MIB mortar battery. It was assigned the mission of clearing routes for the main body and guiding the MIB main body into contact on the objective.

The benefit of having tanks in the reconnaissance force was seen at first light on Training Day 2, when several close air support (CAS) sorties attacked the MIB. The CAS cost the HRC one T-80 and both of its BMP-2s. The tank's survivability paid off; if the HRC had consisted only of BMP-2s, the MIB could have lost its entire reconnaissance element to CAS before crossing start line (OPFOR equivalent of LD). The remaining three vehicles split into two sections, cleared two passes for the MIB, and established an overwatch position on the far side of the two passes, while the two recon BRDMs laid a smoke screen using smoke pots. On the MIB commander's order, the HRC continued its move. From this point on, the MIB was assigned only one route and operated as a three-tank platoon four to eight kilometers in front of the main body. En route, the HRC executed the tasks normally expected of an MIB RP element, such as coordinating with adjacent units, clearing a defile, and conducting a forward passage of lines. The HRC's unique capabilities did not become apparent until first contact.

The HRC made contact in the complex terrain of the Bike Lake Pass/Valley of Death/Shelf area. The HRC was suddenly in contact at extremely close range with three Bradley IFVs. The tank-heavy HRC actioned on the Bradleys, destroyed them, lost one T-80, and continued its push forward to clear the route ahead of the MIB main body through the Thermopylae Pass defile. The HRC cleared the defile and set another overwatch position with an AT-5 BRDM on the far side, while deploying three TDAM smoke vehicles to create a smoke cover in the pass and at the exit. While in the overwatch position, the HRC made contact with the lead platoon of an M1A1 tank company. Before losing its two remaining T-80 tanks, the HRC was able to destroy the M1 tank pla-

toon, report the contact to the MIB commander, and fix the M1 tank company long enough for the lead MIC to deploy into a firing line. Due to the close range and extremely restricted terrain, a section of BMP-2s placed in a similar situation would have been lucky to report contact.

This battle shows that a dedicated T-80-equipped HRC provides the commander with a reconnaissance asset that is survivable, can fight for information, and can pull the main body deeper into contact than would be possible with a more lightly equipped unit. As a result, the MIB was able to maintain an aggressive tempo and go into contact with a much clearer picture of the enemy situation. In short, the HRC allowed 1st MIB to "find the bastards and pile on" in the traditional 11th ACR OPFOR manner.

The HRC has also proven its value in defensive operations when used as a screening or disruption force. During the 1/11th ACR's predeployment training in January 2004, the HRC was tasked with establishing a disruption zone defense based around two critical passes as part of MIB night lane training exercises. In the past, BMP-pure units assigned this mission were limited largely to establishing observation posts (OP)/ambushes, and relying heavily on indirect fires. Incorporating tanks into the disruption zone allowed the HRC to operate a much more active defense.

In both iterations of the lane, the HRC, with a combat power of three tanks and four BMPs, was tasked with establishing a disruption zone counterrecon screen, centered on two passes. Their purpose was to disrupt an enemy comprised of three to four tanks and eight IFVs attempting to secure one of the two passes. The HRC commander placed a 0/2 in OP/ambush positions on high ground outside the passes that provided good observation of suspected avenues of approach. In hasty defensive positions, he placed a 1/1 in one of the passes to deny the enemy access to the pass. The remaining 2/1 were assigned an identical mission in the second pass. Routes from one pass to the other were rehearsed both day and night and timed by the platoons to allow for quick reinforcement anywhere in the area of operations.

Visual contact with the enemy was first made by the BMPs in OP/ambush positions. They maintained visual contact and reported the position and movement of the enemy to the HRC commander. Based on these reports, the HRC commander tracked the movement of the enemy until the enemy committed to one of the passes. At this time, the BMPs in OP/ambush positions readied to engage the enemy from the rear with their Spandrel missiles. The platoon in the unaffected pass began to reposition onto the flank of the enemy forces, which took approximately 20 minutes. During this interval, the lead platoon of the enemy made contact with the HRC platoon blocking the pass. In both iterations of the lane, the enemy was in contact from the front, flank, and rear. In one iteration, the repositioning HRC element created confusing reports of contact in the rear that caused the enemy's center platoon to engage the trail platoon. While the HRC took heavy losses, the result in both iterations was that the enemy company was severely disrupted and attrited down to a section-sized element.

The mobility and firepower of the tanks in the HRC allowed it to do much more than simply disrupt the enemy by attriting one or two vehicles and causing him to deploy. When used in conjunction with good situational awareness and accurate reporting from the OPs, the tanks allowed the HRC to quickly take advantage of the tactical situation. Rather than simply disrupt, the HRC effectively destroyed the combat power of a superior force.

The OPFOR has always relied on dedicated reconnaissance and security forces at all levels. Using recon-pull tactics, the OPFOR uses reconnaissance to set the conditions for follow-on forces. When BLUFOR is successful in the counterrecon fight, their chances of success in the main battle is significantly increased. The experimental HRC, developed by 1st MIB, shows great promise for future OPFOR battles, but the organization and TTPs developed by this experimental force could also be integrated into our future armor and cavalry organizations.

As the Army transforms, it is important to address how we organize, equip, train, and deploy reconnaissance and security forces. Armor heavy reconnaissance forces that can fight for information as they set conditions have proven their value in our division cavalry squadrons and armored cavalry regiments. However, as we transform, it appears these units will be integrated into units of action and combined arms battalions. Currently, at brigade and battalion levels, there is no heavy armored force to conduct close combat reconnaissance and security operations.

The reconnaissance, surveillance, and target acquisition (RSTA) squadron in Stryker brigades is equipped with all of the new digital and sensor technology; however, it lacks a survivable platform that can hold its own in a direct firefight and set conditions for main body forces. The reconnaissance troop in the proposed Objective Force organization looks very promising because it puts a variety of dedicated technically advanced reconnaissance assets at the battalion level; however, survivability and firepower remain important issues for the close fight. As we look forward to transformation, let us not forget the value of proven combined arms cavalry organizations that have always set the conditions for success in battle.

Notes

[1]U.S. Army Field Manual (FM) 7-100.1, *Opposing Force Operations*, U.S. Government Printing Office (GPO), Washington, D.C., 27 December 2004, Chapter 6, p. 6-10.

[2]The 11th Armor Cavalry Regiment Mechanized Infantry Company Handbook, National Training Center, Fort Irwin, CA., November 2003.

[3]Army Training and Evaluation Program (ARTEP) mission training plan (MTP) 17-57-10, *Scout Platoon*, GPO, Washington, D.C., 23 December 2002; ARTEP MTP 17-57-11, *Scout Crew and Team*, GPO, Washington, D.C., 12 December 2002; FM 3-20.98, *Reconnaissance Platoon*, GPO, Washington, D.C., 2 December 2002; and FM 17-97, *Cavalry Troop*, GPO, Washington, D.C., 3 October 1995.

[4]The 11th Armor Cavalry Regiment Mechanized Infantry Company Handbook, Chapter 8, pp. 8-1 through 8-40.

CPT Robbin A. Hafen is currently serving as commander, A Troop, 1st Squadron, 11th Armored Cavalry Regiment (ACR), National Training Center (NTC), Fort Irwin, CA. He received a B.S. from the University of Idaho. His military education includes the Armor Officer Basic Course, Armor Officer Advance Course, Combined Arms and Services Staff School, and the Cavalry Leaders Course. He has served in various command and staff positions, including assistant S3 and S4, 1st Squadron, 11th ACR, NTC, Fort Irwin; XO, B Company, 3d Battalion, 8th (3-8) Cavalry Regiment, 1st Cavalry Division (CD), Fort Hood, TX; and tank platoon leader, A Company, 3-8 Cavalry Regiment, 1st CD, Fort Hood.

1LT John Gilmour is currently serving as the scout platoon leader, 1st Squadron, 11th ACR, NTC, Fort Irwin. He received a B.S. from the United States Military Academy. His military education includes the Armor Officer Basic Course, Scout Leaders Course, and Airborne School. He has served is various command and staff positions, to include tank platoon leader, C Troop, 1st Squadron, 11th ACR, Fort Irwin, and XO, A Troop, 1st Squadron, 11th ACR, NTC, Fort Irwin.

1LT Matthew Wright is currently serving as the XO, C Troop, 1st Squadron, 11th ACR, NTC, Fort Irwin. He received a B.S. from the United States Military Academy. His military education includes the Armor Officer Basic Course and Scout Leaders Course. He has served as a tank platoon leader, A Troop, 1st Squadron, 11th ACR, NTC, Fort Irwin.

The Human Intelligence Game for Armored/Mechanized Units

by Captain Timothy J. Morrow

A mechanized infantry or armor unit is not, per its equipment, training, and structure, fundamentally prepared to operate in an insurgency/counterinsurgency operation, such as the "terrorist hunt" currently underway in Iraq. Instead, it is equipped and trained to fight in a mechanized fight where mechanized scouts and aviators locate or fix enemy formations so they can be destroyed by follow-on tanks, fighting vehicles, or other assets. However, the current number of "hot spots" around the world have established the need for armored and mechanized infantry units (as well as many others types) to conduct counterinsurgency operations.

Targeting is the biggest difficulty an armored force faces when confronted with an unconventional environment. There are no tank columns or other enemy formations to fix and destroy; the enemy does not use BRDMs and BMPs for reconnaissance. Instead, an armored force is faced with finding enemy operatives hidden within the general population — a population that may or may not be hostile toward us.

Targeting in this environment requires collecting, sorting, and analyzing a great variety of intelligence media. However, in the insurgency environment, the chief intelligence media (if a commander wishes to maintain the initiative and keep the enemy on the defensive) is human intelligence (HUMINT), more commonly known as "word of mouth." Unfortunately, the skills needed to collect and use HUMINT are not skills armor and mechanized infantry unit commanders normally have in their intelligence sections.

Before entering into any counterinsurgency operation, heavy units must understand that normal intelligence preparation of the battlefield (IPB) procedures will not help prepare for battles ahead. Observation and fields of fire, avenues of approach, key terrain, obstacles, and cover and concealment (OAKOC) and mission, enemy, terrain, troops, time available, and civilians (METT-TC) are hard to judge with any certainty, and overlays showing anything resembling enemy locations are, at best, entertaining and, at worst, deplorably misleading. To conduct a thorough IPB of an insurgency/counterinsurgency area of operation (AO) requires talking with locals, lots of locals. Until you hear their opinions and scraps of enemy information, it will be difficult to answer even the most basic intelligence question of all: who is the enemy?

To develop an effective counterinsurgency IPB, at a minimum, you should: identify the enemy; determine if there is more than one enemy organization operating in the AO; determine how the enemy is organized; determine how the enemy operates; determine if there are different enemy factions operating independently or in concert; ascertain the enemy's mission; identify enemy leaders; establish how and who he will attack; and determine local populace opinion about the enemy and about you, such as if they hate the enemy, support them, or are indifferent, if they hate, mistrust or support you, if they will support you or the enemy when forced to choose, if they understand your stance and objectives, if they support your objectives, and if they understand the enemy's *real* stance and goals. These things must be thoroughly understood before operating effectively in a counterinsurgency AO. The local populace's answers, the understanding of which is paramount to your success, all depend on acquiring, sorting, cataloging, and analyzing good, accurate HUMINT.

"To conduct a thorough IPB of an insurgency/counterinsurgency area of operation (AO) requires talking with locals, lots of locals. Until you hear their opinions and scraps of enemy information, it will be difficult to answer even the most basic intelligence question of all: who is the enemy?"

In the case of Iraq, the enemies we are now dealing with (no matter their factions) are ones who act clandestinely, with little equipment and training. They do not need vast supply lines or other support structures that a traditional unit would need because they can find supporters everywhere they go. This makes it very difficult to track down and destroy enemy supply lines and other needed infrastructure in attempts to deny the enemy support.

This is not the first time we have dealt with such an enemy — it began during our own American Revolution when dealing with the Tories loyal to the English crown. Answering questions of who was friend or foe or how loyalties stood were chief among the internal problems our forefathers faced while trying to win our independence. We also had to deal with very similar situations during the Civil War, the Indian wars, and nearly every other war since. The most similar and recent situation in which we had to deal with these circumstances was during the Vietnam War. Like modern day Iraq, the enemy looked just like any other local citizen and enemy insurgents did not wear uniforms. Spotting enemy spies and infiltrating operatives was impossible (barring catching someone red-handed) without HUMINT collection and analysis.

HUMINT is so effective because of the mixed allegiances that can be found in a broken country such as Iraq. HUMINT (when collected correctly) will be gathered while playing on the differences between groups within a given area of responsibility (AOR). Although the enemy will likely have groups and individuals friendly to their cause, there will also likely be groups and individuals who are not friendly to their cause. Those who are not friendly to the enemy's cause may be coerced into supporting your cause, or at least choosing allegiance to you as the lesser of two evils. In either case, locals will hear gossip and will likely notice suspicious activity and when outsiders arrive. If they support you, or at least want your help in ridding their country of the enemy, given proper protection and anonymity, they will help you locate the enemy. In essence, they will become a network of "spies" working for you. Beware; informants have many reasons for feeding you information, not the least of which is treachery, aimed at misleading you into eliminating their political, business, or familial adversaries.

Learning how to handle and properly analyze information gained through HUMINT collection is more of an art than a science; discerning between useful and false HUMINT reports will make or break your chances for success. Analyzing the HUMINT source to understand his reasons for giving you information (and not taking reports at face value until they are corroborated by other sources) will save you from making many costly mistakes, including falling into treachery. Not all informants are honest patriots!

Success in HUMINT collection relies on your ability to start/collect a productive informant network and your ability to manage and handle this network and information properly. It has been said time and again that "nothing is free," which certainly pertains to HUMINT. All informants will have some special motivation for giving you information. It may be an attempt to help eradicate enemy presence, or an interest in monetary rewards, jobs, obtaining military contracts, eradicating competition (business, religious, social, or romantic) or even settling old family scores (very common in Iraq). The informant may even be an honest-to-goodness patriot.

Whatever the motivation, to keep local informants in your service, you will need to find ways of motivating them so they will keep coming back with accurate and timely information. They will realize that they are risking their lives and the lives of their families by giving you information. To keep them working *with* you, you must always be cognizant of their sacrifices and, if the information turns out to be honest and valuable to your operations, do your best to appease and develop them as members of your organization. This is where the art comes in — you have to win their allegiance and fulfill their expectations, keep their identities secret, and show them they are important members of your "team," without breaking any laws and squandering all of your resources. A very tall order!

Before building a useful informant network, it is important to understand how the Iraqi people feel about our western ideas of democracy and individual freedom. Iraq has never had a democratic form of government, nor have they ever had the freedom to experiment with one — they have always been ruled by tyrants. From the caliphs to Saddam Hussein, they have never had a system based on individual freedom and individual rights. Instead, they have known only strict, tyrannical discipline from monarchs and religious leaders, generally mutually supportive of each other in controlling the population of Iraq.

You will find that most Iraqis do not generally have a strong knowledge of life beyond the Islamic states. They generally have very little knowledge about the western world, except what they have been told by religious and political leaders, most of whom are fundamentally anti-western in ideology and motivation (a western-style government would rob them of their power and privileges). In essence, they have been enslaved since early childhood by their own religious and political leaders, who have demonized commonly held views about the west in attempts to curtail the desire for individual freedoms and rights.

Despite these obstacles, you will find that many Iraqis realize that modernization and western influence is good for them and their people. They are often very willing to work with the coalition and its representatives for the good of their families and their nation. Problems surface because several small groups do not want a western way of life, nor do they want westerners in their region. Their reasons may stem from traditional friction between middle easterners and westerners, religious views, or be rooted in the desire to prevent a shift of political and monetary power from the wealthy to the lower classes. Those who would lose power and wealth by Iraq becoming a free, democratic society will be against you, and those who would benefit will support you and your efforts if properly educated, motivated, and protected. Those are the ones you should recruit as members of your network.

Once you understand the feelings of the people in your AOR, and you have started an informant network, you will quickly have a need to catalog reports. If you are in a battalion-sized task force (or a smaller unit), three important methods for cataloging, analysis, and reporting HUMINT reports are recommended: intelligence summaries (INTSUMS), activity overlays, and a HUMINT database in the form of a *simple* spreadsheet.

The first of these, the daily INTSUM, merges pertinent reports from higher with reports from within your AO. This will give you glimpses of the bigger picture and will allow you to start meshing the events in your AO with those of "the bigger picture." This is also the place to use predictive analysis and speculate about what all of these events may mean to you and your task force.

Think of your INTSUM as a newspaper. You cannot go wrong if you cover the five Ws: who, what, where, when, and why. Use charts and graphs that show the levels of differing types of activity such as mortar attacks and direct-fire attacks. In the graphs, show the numbers of each type of incident in calendar time so you can see relationships between events, such as your activities and the enemy's reactions to them throughout a given time period. Also, include pattern wheels to track events by time of day. This will allow you to see relationships, but these relationships will be for time of day. For example, if you always perform an IED search at 0700 hours and you notice that most IEDs are being set off around noon, then you know (with pretty good reassurance) that the enemy is emplacing them sometime after your searches at 0700 hours. This will aid commanders in identifying peak times of enemy activity, which will enable them to plan more effective spoiling operations or other operations aimed at eliminating the enemy when he is most likely to be active.

Notice that in Figure 1, the spike of small arms activity is on the 24th day of the month. Are there any reasons for this? Check your HUMINT reports. Were there any threats made by anybody prior to this date about an ensuing attack? If so, do you have the names and locations of possible perpetrators? Also, notice the text block, which points out a 19-percent increase in overall incidents per day since the past month. Is there any reporting that may be linked to this? Are there names of individuals associated with that reporting? An example would be receiving reports about a sheik who had recently de-

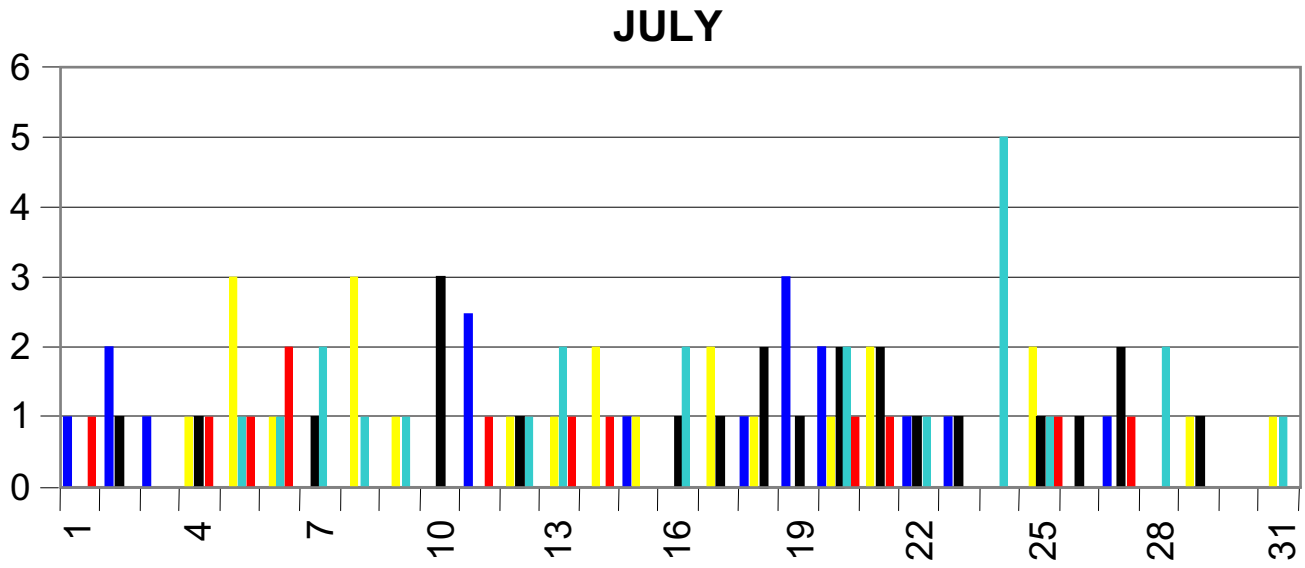

Figure 1

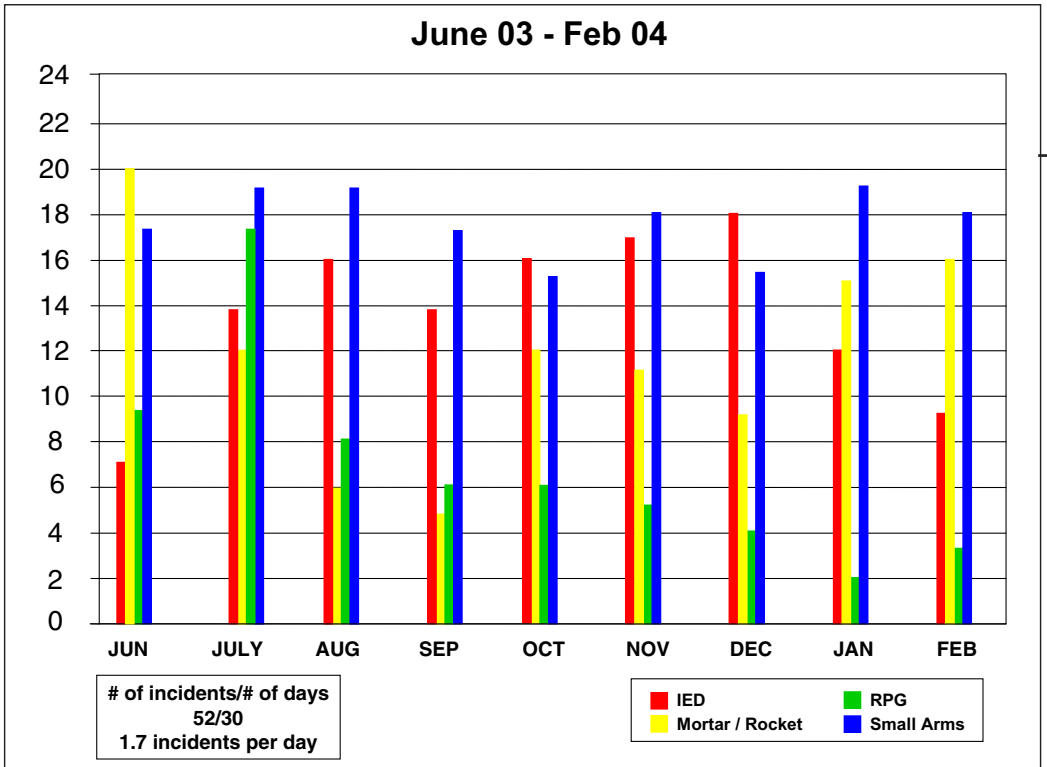

Figure 2

cided to support the insurgency in your area because of a dispute with the local governor. A possible link of this nature helps focus your intelligence gathering and may prioritize your efforts. It may be a good time to pay more attention to the reports about the sheik and focus on collecting more information about him and his associates.

In Figure 2, notice the almost-linear decline in RPG incidents over the covered months. Is there good reason for this? Check your HUMINT sources, which may show there are no more RPG rounds coming into your area from abroad; however, a HUMINT report provides another answer, such as the sheik who stole RPGs from local military bases and sold them to insurgents instead of using them for attacks. Also, notice the fluctuations in mortar firing incidents. Could it be that the spikes of activity show deliveries of new munitions to the resistance, or could it signal the periodic return of an insurgency leader to your AO? Check your HUMINT reports; the answer may already be in your hands.

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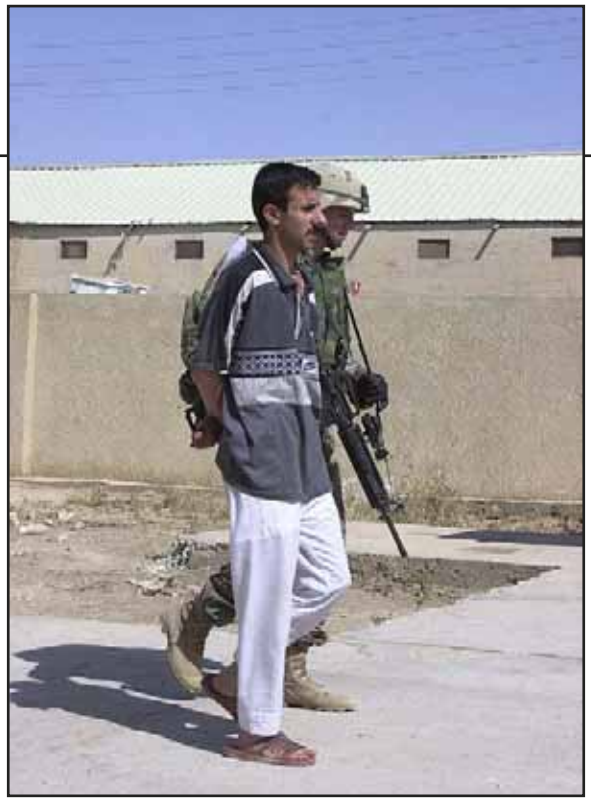
Adding maps to your INTSUMs that show the *same types* of activity as the figures represent, will give you spatial references. These will be exceedingly useful in comparing parts of your AO and for tracking individual cells, as well as for planning operations. By simply tracking major events, such as IED incidents, RPG firings, mortar attacks, and direct fire incidents, you will be showing the "what," "when," and "where" of the five Ws. The "who" and "why" are up to you to collect from HUMINT resources, such as informants, local police, and other officials, or from the many random reports you will receive from concerned citizens. For example, the map of your AO shows mortar points of origin along a road on the east side of the river, in the same area as a couple of unexplained explosions. Could this mean that the mortar firers are moving along that road in a vehicle? Possibly. The unexplained explosions are possible mortar shots that were not identified because they were in obscured locations. Either way, it would be wise to use your HUMINT sources to find out who may be shooting mortars on that side of the river. You may luck out and find somebody who has already been reported as a mortar shooter who lives in that vicinity. This would probably deserve a search.

If your map shows that IED attacks all appear be occurring in two different parts of the city, it might be the presence of two different insurgent cells planting IEDs. Do you have any reports of bombers living in those areas? If you do, then you know where to focus your collection efforts. The same applies to RPG attacks. Paying attention to where RPG activity occurs will aid in discerning a pattern. A study of the pattern may reveal the shooters do not like to drive around town

with RPGs in their car for fear of being stopped. If this is so, then the shooters must have a local cache in the area and they may be operating on foot. If there is any truth to this, it may be time to talk to your commander about placing snipers in the area to watch for shooters. A man carrying an RPG cannot move far without being noticed.

Cross-referencing the collected HUMINT information with the information on your graphs and maps will help track the validity of reports and show exactly where a certain individual or cell is operating. If there are several HUMINT reports of a certain individual being an IED maker, and it is apparent that there is a large amount of IED activity in his section of town, you can focus efforts through your informant network to find out exactly where he is located. In simple terms, we are laying the groundwork for the early phases of counterinsurgency targeting. These conditions allow you to focus informant network resources on specific individuals and their associated operating areas (seen by tracking the IED activity "hot-spot" on an event map), which will increase your chances on catching the bomber.



"Used properly, a database allows you to successfully track reports of operatives without loosing continuity brought about through various name spellings used by different agencies. It will also help identify insurgent targets. Over time, as your database grows in size, your knowledge of the enemy's numbers, identities, strengths, and locations will grow. You will uncover targets and be able to focus your efforts more efficiently."

The next and most important HUMINT media is a *good, simple database.* I know there are some very high-tech ones out there, but scrap them all and use a simple spreadsheet for compiling HUMINT reports. Spreadsheets are easily browsed and make connections between people and events easier (if the spreadsheet is set up correctly). A spreadsheet makes it easy to scroll up and down, searching for names and events to link trends. This scrolling process is a very useful part of your analysis. It will familiarize you with the names in the database and allow you to identify repeat offenders in your AO, who are evident by multiple entries.

Another benefit of using a spreadsheet is that it allows you to easily sort information by any of the data types in the columns. If you wish to compile information by something other than a first name, such as by father, tribe, or title, you simply sort the chosen column by alphabetical order (using the sort button) and scroll down until you find the group you are seeking. If you use a title column for titles, such as Imams or bombers, all of your bomber and Imam reports are automatically grouped for review. This allows you to easily identify a person who is reported repeatedly and who is reporting him. If a person has multiple reports for the same activity, and the reports are from different people, then you probably have identified a viable target.

Using spreadsheets will help easily identify targets, and tracking informant names will help discern who is really an enemy operator and who is just disliked by a certain informant or family. Creating, managing, and using a spreadsheet will lead to successful, accurate targeting, and if you require more than single-source HUMINT for your targeting, it will prevent you from wasting time and being a pawn in family feuds.

Handling names is one of the biggest problems you will face in handling HUMINT in Iraq. It will cause problems in collecting information, and targeting and handling detainees. A queried database will not make the connection between the two Ahmeds, but a trained human eye will, which makes handling intelligence reports much more efficient.

If data is handled poorly, it will leave you open to being "used" by the Iraqis to settle family feuds, and the enemy will keep you chasing shadows and phantoms instead of real enemy operatives. Used properly, a database allows you to successfully track reports of operatives without loosing continuity brought about through various name spellings used by different agencies. It will also help identify insurgent targets. Over time, as your database grows in size, your knowledge of the enemy's numbers, identities, strengths, and locations will grow. You will uncover targets and be able to focus your efforts more efficiently.

The importance of HUMINT for the counterinsurgency battlefield cannot be overemphasized. It was key to capturing or killing the top four people on the top-55 list in Iraq. If you do not want to fight a totally defensive war against insurgents who you cannot identify by their uniforms or "looks," then you have to rely on information provided by those who can identify them by their "looks." That is the realm of HUMINT — no computer or satellite gadgetry can replace it, nor can they equal in effectiveness. By treating locals honestly and with respect, you will be overwhelmed with good, solid enemy information.

Take my advice, using the systems outlined in this article will provide a strong beginning in developing systems to capture or defeat enemies in your AO. Remember, be suspicious of free information and take care of your informants. Good hunting!

CPT Timothy J. Morrow is currently serving as deputy IG, 4th Infantry Division (ID), Fort Hood, TX. He received a B.S. from Kent State University and University of Texas at San Antonio. His military education includes Special Forces Qualification Course, Ranger School, Infantry Officers Basic Course, and Scout Leaders Course. He has served in various command and staff positions, including S2, Task Force 1st Battalion, 22d (1-22) Infantry, 4th ID, Fort Hood and Tikrit, Iraq; assistant S3/chief recon planner, 1-22 Infantry, 4th ID, Fort Hood and Tikrit; XO, A Company, 1-22 Infantry, 4th ID, Fort Hood; and scout platoon leader, A Company, 1-22 Infantry, 4th ID, Fort Hood.

Combined Arms Training Strategy Executive Summaries: The Commander's Tool for Planning Unit Training

by Ann Meyers

We are all pressed for time, especially Army commanders and trainers. Training has to meet the many constraints that beset units, as well as provide collective training in a crawl-walk-run fashion, using live-virtual-constructive environments. With the continuing edict of, "do more with less," comes the executive summary (EXSUM) for the Combined Arms Training Strategy (CATS) to streamline and facilitate the planning process. EXSUMs of armor and cavalry unit CATS are now available, and can be downloaded from Army Knowledge Online (AKO) at https://www.us.army.mil. *The EXSUM provides a user-friendly management tool that will assist in developing the unit's training path.*

CATS in a Nutshell

CATS establishes unit, soldier, and leader training requirements, and describes how the Army will train and sustain the desired band of excellence (BOE).[1] CATS consists of three integrated strategies: unit; individual; and self-development.[2] This article focuses on unit strategies. A unit CATS is a descriptive unit collective training strategy for reaching and sustaining the training readiness within the BOE, and serves as a training management tool for commanders and unit trainers.[3] CATS is a flexible system that does not limit leaders.

Unit CATS are doctrinal training and resource templates that armor/cavalry commanders use to develop unit training guidance, training strategies, and calendars.[4] Unit CATS also drive Headquarters, Department of the Army, training resource allocations of operational tempo (OPTEMPO), ammunition, ranges, facilities, and training aids, devices, simulators, and simulations (TADSS).[5]

The U.S. Army Armor Center, Directorate of Training, Doctrine, and Combat Development (TDCD), Fort Knox, Kentucky, examines current doctrine and organization, and designs unit CATS based on training requirements units should conduct annually to sustain combat readiness.[6] Unit CATS defines a sequence of events for conducting collective training, using live-virtual-constructive training domains.[7] These CATS enable the commander to compare the unit's training strategy with the unit's mission essential task list (METL), readiness training level, and training constraints, such as OPTEMPO, available training time, and training resources, to determine and manage unit training.[8]

CATS construction follows regulatory guidance established in U.S. Army Regulation (AR) 350-1, *Army Training and Education*; U.S. Army Field Manual (FM) 7–0, *Training the Force*; FM 7-1, *Battle Focused Training*; U.S. Army Training and Doctrine Command (TRADOC) Regulation 350-70, *Systems Approach To Training Management Processes and Products*; and applicable training analysis data, to include visits to units in the field. Additionally, AR 220-1, *Unit Status Reporting (USR)*, provides guidance to commanders on using CATS when assessing training readiness.[9]

Origin of the CATS EXSUM

Initially, the primary delivery method for CATS was, *Special Text 17-12-7-1/2/3, Task-Based, Event-Driven Combined Arms Training Strategy: Armor (CATS)*, a massive paper-based document. These paper-based CATS evolved into the automated documents now resident on the Reimer Digital Library (RDL). During 2002, the U.S. Army's Deputy Chief of

Operations and Training directed TRADOC to develop a more effective and efficient automated CATS delivery tool. In response, TRADOC developed a prototype EXSUM, which later was approved by the Training and Leader Development General Officer Steering Committee. Subsequently, a total of 115 EXSUMs were developed for all Army proponents, 13 of which are armor/cavalry units, and are posted on AKO for review.

Locating Armor/Cavalry EXSUMS

Access AKO at *https://www.us.army.mil* — you may have to subscribe to subfolders not already existing within your communities.

➢ Select "MACOMS" under "Army Organizations."

➢ Select "TRADOC."

➢ Select "CATS."

➢ Select "Go to the CATS Knowledge Centers" beside cabinet/filebox in center of screen. If you are not subscribed, a subscription screen will appear. Check the box to left of CATS cabinet/filebox in middle of screen under "Knowledge Centers." When box is checked, a toolbar on top of the screen will change. Select "Subscribe." You should receive a notification message, select "Finish."

➢ Choose CATS cabinet/filebox in the center of screen.

➢ Choose "CATS – Executive Summaries" folder.

➢ Choose "Armor" folder.

➢ Locate and choose desired unit type; this will open a file download dialogue window from which you can either open or save to your computer.

Benefit to Commanders and Trainers

CATS EXSUMs provide the means for unit commanders and trainers to easily navigate through the detailed unit CATS using hyperlinks. These strategies account for personnel turbulence, skill decay, and the training of complex tasks.[10] CATS EXSUMs provide commanders and trainers with a concise snapshot of doctrine-based training strategies, including tasks, training events, gates, and resources from which they can plan and manage training. CATS EXSUMs identify a mix of live training and simulation resources for conducting training, and addressing training for staff sections, staff groups, and the full staff.

The CATS EXSUM organizes collective tasks into groups within training events, which allow commanders and trainers to focus on armor and cavalry core competencies, such as capabilities and tasks that a unit is organized and equipped to perform in any type of warfare environment, and identifies appropriate training events. Other information provided includes the training audience, the frequency of training, appropriate TADSS, suggested duration of training events, training gates, multiechelon training, class III (petroleum) and class V (ammunition) resource requirements, and considerations for training, planning, and execution.

Armor/Cavalry EXSUM Design

The armor/cavalry CATS EXSUM depicts unit training for a notional year in both calendar and table format for brigade and below level training. The EXSUM offers an understandable view of the training path over a one-year period. By clicking on hyperlinks, the user can "drill down" and access a greater level of detail about particular task groups and training events, and all associated elements of the primary units.

EXSUM Navigation

The tank battalion EXSUM is used as an example for navigating hyperlinks to CATS data. For the purpose of this article, we will use the tank company core competency, "Conduct a Company Defense," which identifies eight supporting tasks and three types of training events.

Clicking on any of the event hyperlinks on the calendar provides access to a greater level detail about the selected event, taking you directly to the appropriate page within the strategy. In this example, Tank Company Situational Training Exercise (STX) (L[ive]) is selected; (7) indicates the number of STXs within this training event. (See Figure 1)

The user is then taken to an intermediate page that identifies tank company core competencies. The various live STXs, attack by fire, support by fire, conduct a company defense, assault an enemy position, and breach an obstacle,

Continued on Page 48

Tank Battalion Training Strategy

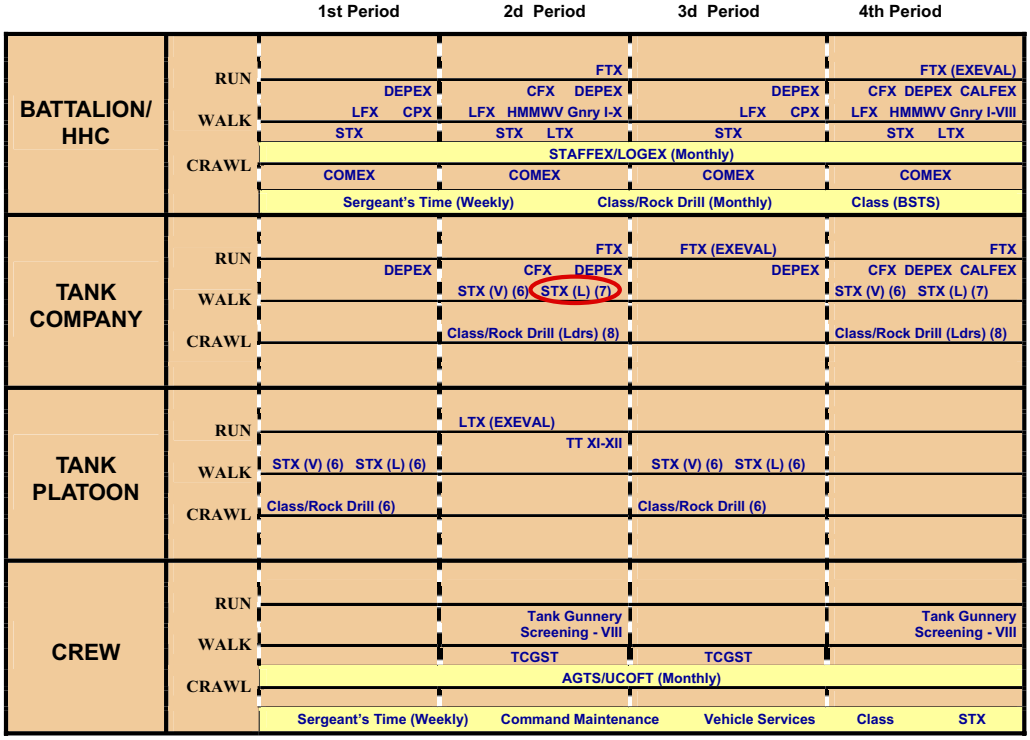
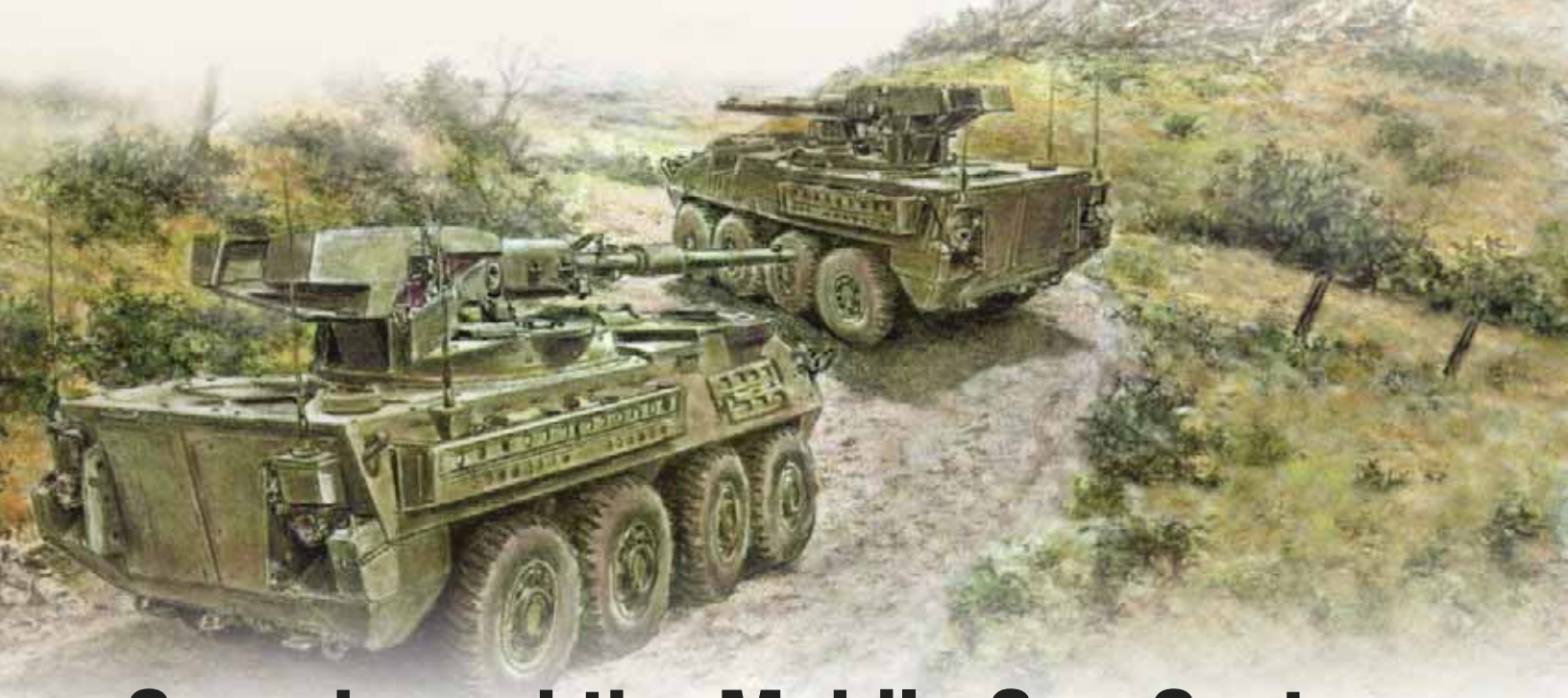


Figure 1



Canada and the Mobile Gun System:
Overhauling the Canadian Armoured Corps

by Major Chris Young and Major Paul Peyton

Canada has made a commitment to the mobile gun system (MGS), the same system that the U.S. Army is using as part of its Future Combat System (FCS) program. The MGS for the Canadian Army will fulfill an integral part of our own transformation into an agile, knowledge-based and tactically decisive medium-weight force, capable of being task-tailored for deployment across the spectrum of conflict.[1]

To understand our decision to move toward a medium-weight force, you must first understand that the Canadian Army predicates future deployments on the concept of being interoperable and only deploying within a coalition environment. Hence, the reality is that our legacy force, consisting of Leopard tanks, will be replaced by a system that is not a tank, but is considered more relevant to our current and future operating environment. In keeping with that intent, Canada has decided to move toward what we are calling the 'direct fire system' (DFS) as a system of systems. Essentially, the DFS system involves three distinct platforms: the MGS; the light armored vehicle (LAV) III tube-launched, optically-tracked wire guided missile (TOW)-under-armor (TUA);[2] and the multi-mission effects vehicle (MMEV).[3]

As the Legacy Force exists now, its tactics, techniques, and procedures (TTPs) and tactical formations are based on a Cold War orientation. We now face a much different threat — asymmetrical, unpredictable, and increased operations within complex terrain (urban in particular), which requires the conduct of operations to emphasize precision engagements and maneuver, network enablement, to include joint, interagency, and multinational, and effects-based results. Accordingly, the Directorate of Army Doctrine in Kingston, Ontario, has begun work on the new contemporary operating environment (COE), which will allow for the introduction of a formalized threat package, to include a likely threat environment and culture.

Despite the absence of a current formalized threat package, the Armoured Corps is nonetheless in the position of having to press on with developing TTPs for the DFS system in light of the delivery dates for MGS (sometime after Spring 2007, but not prior to the end of the year). Toward that end, my regiment, The Lord's Strathcona's Horse (Royal Canadians) (or LdSH(RC)), an armored unit, was tasked with conducting a series of progressive trials of possible DFS organizations in a variety of tactical scenarios and under various field conditions, with an aim of producing recommendations on future DFS TTPs and organizations.

The trials are intended, very simply, to accomplish the following: "build the [DFS] package, evaluate the package, and refine it so that it produces the greatest capability with minimal limitations."[4] These trials are ongoing and are scheduled as follows:

November 2004 – Exercise Initial Strike, was conducted at Canadian Forces Base (CFB) Wainwright, Alberta, using eight direct fire weapons platforms (four Leopard tanks, two air defense antitank systems (ADATS), and two M113 TUA), which aimed to establish fundamentals required to operate an integrated direct fire subunit (a company-sized element). The exercise sought to provide a familiarization of the characteristics, capabilities, and limitations of the equipment; determine the necessary echelon composition to replenish the eight weapons platforms; and determine the best command relationship options for this subunit organization. Two direct fire teams (DFTs) were created, each of which included the eight direct fire systems above, two local protection vehicles (LPV) and a command element. DFT 1 saw the Leopard troop, the ADATS section (consisting of the two ADATS and two LPVs), and the TUA section, each operating as independent elements, responsive to the DFT commander operating from a LAV command post (CP). DFT 2 saw two groupings: the Leopard troop and a missile pack, consisting of the ADATS section and the TUA section, grouped together under the command of a missile commander.

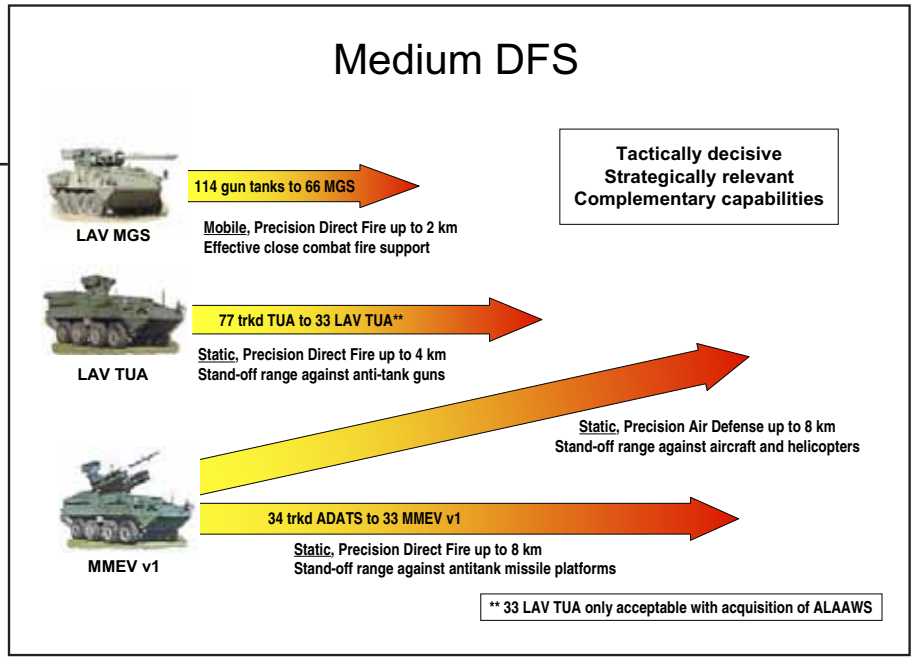
Spring 2005 – The next stage is the conduct of combined arms team (CAT),

including the DFS component, computer-assisted exercise (CAX). This will be held from 11 through 15 April 2005, and will seek to validate or refine the draft TTPs that will be used in a follow-on discovery trial (Worthy Strike). This will be followed by a live fire effects demonstration, using the three systems, from 18 through 22 April 2005, which will be held at CFB Suffield, Alberta. The field discovery trial (Worthy Strike) will be held in Edmonton, Alberta, from 25 April to 12 May 2005, and will use the garrison and surrounding access routes as the training location.

Summer 2005 – A CAT dry field training exercise will be conducted.

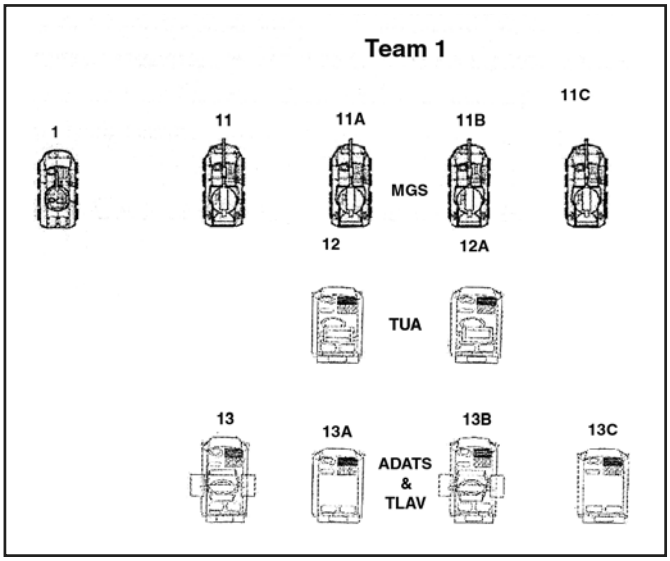
Fall 2005 – The culminating battle group CAX and live confirmation will be conducted. Some of the pertinent observations that Exercise Initial Strike will achieve include: the DFT operating effectively over extended ranges either independently, with an attached infantry element, subordinate to an infantry element, or dispersed as required for specific tasks. The command structure that provides the greatest flexibility in fulfilling these roles includes a squadron headquarters (a commanding officer, a second in-charge, an operations captain, and a liaison officer), an MGS troop leader, a missile commander, and an administrative troop.

The sensor capabilities of the three platforms were complementary. As an example, in many cases, the ADATS (MMEV) would acquire a target very quickly, but at extended ranges and in limited visibility, it often could not obtain the fidelity necessary to describe the target and would require another system to fulfill that function. The ADATS (MMEV) were also employed to identify targets and then identify for the MGS and TUA routes that allowed them to move into engagement range protected from the enemy. At the same time, the system can effectively engage in close battle when required. More work is required to identify additional protective measures to increase the system's survivability (particularly MGS) in close battle.

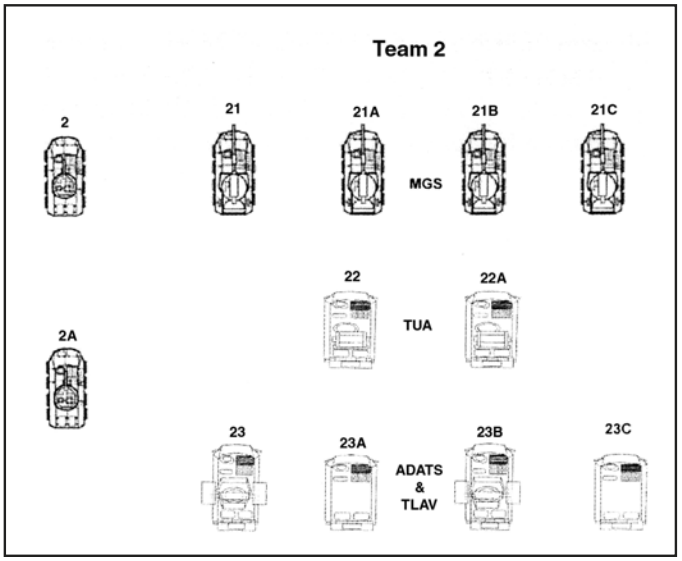


The DFT was determined to be self-sufficient for up to six hours of continuous operations, and 24 hours when supported by its echelon. The support echelon's size, configuration, and replenishment drills are very similar to that currently practiced by a Canadian armored squadron's "A Echelon."

In real life, the Strathconas have just finished integrating the first TUA platoon (previously grouped within an infantry battalion) into the regiment. A second platoon, plus the TUA company headquarters will be integrated into the regiment later this year. A third platoon will be added sometime in 2006. Additionally,



DFT 1 saw the Leopard troop, the ADATS section (consisting of the two ADATS and two LPVs), and the TUA section, each operating as independent elements, responsive to the DFT Commander operating from a LAV CP.



DFT 2 saw two groupings, the Leopard Troop; and a Missile Pack, consisting of the ADATS section and the TUA section, grouped together under the command of a missile commander.

Canada

from previous page

the regiment has expanded its regimental headquarters to include an infantry major as the regimental operations officer; an air defense captain, likely as the regimental training officer; and an infantry senior noncommissioned officer (NCO) as the TUA training NCO.

Overall, the initial results from Exercise Initial Strike have shown that the DFT possesses an achievable effective, flexible, and lethal capability. The exercise provided an excellent start to the definition of TTPs for the DFS and in defining its potential capabilities to a task force commander. Clearly, there is much more work to be done, but these trials are beginning the process of determining the optimal DFS organizations and TTPs.

The most beneficial aspect of the trials has been the motivation displayed by those Strathconas involved and those at the regiment who are working to ensure this concept becomes a successful reality. The challenges to implement this concept have been met and overcome: the work now is in maintaining the momentum to see these changes through to the finish!

A copy of the full trial report on Exercise Initial Strike is available from the Canadian Forces Liaison Officer at Fort Knox; please contact at email address *christopher.young@knox.army.mil.*

Notes

[1]A medium-weight force (MWF) is defined as "An Army of Tomorrow concept … [which] exploits technology to achieve the high levels of lethality and protection formerly provided by weight, to enhance strategic responsiveness and operational and tactical agility and combat power." A heavy-weight force (HWF) is "characterized by large physical mass, particularly in its major weapon systems. Such a force is most suitable for show of force and area suppression tasks due to its ability to deliver large volumes of fire. Due to its large physical mass, a HWF is not designed for rapid deployment." A light-weight Force (LWF) is "designed for rapid deployment … [and] … maximizes strategic deployability and responsiveness in order to compensate for a relative lack of combat power." Source: Canadian Army publication, *Advancing with Purpose: The Army Strategy*, May 2002.

[2]LAV III is essentially a Stryker with a 25mm DELCO turret. For more information on Canadian equipment, the following site provides an excellent synopsis of all Canadian Forces equipment: *http://www.sfu.ca/casr/101.htm*

[3]MMEV is the future vehicle concept that combines direct-fire, beyond- line-of-sight, and air defense weapons on a single 'platform.' Testing is currently ongoing, using a configuration that sees the ADATS turret mounted on a LAV III chassis.

[4]See Major Paul Peyton's article, *On Making it Work*, published in the *Canadian Armour Bulletin,* October 2004, available online at *http://www.army.forces.gc.ca/Armour_school/bulletin/index_e.asp*

Major Chris Young is the Canadian Forces Liaison Officer, Fort Knox, Kentucky; and Major Paul Peyton is the Officer Commanding, A Squadron, Lord Strathcona's Horse (Royal Canadians), Edmonton, Alberta, Canada.

Draper Award Is Temporarily Suspended

Army transformation and the operational tempo of the force have made it increasingly difficult to fairly administer the small-unit level Wickliffe P. Draper Award and provide parity across the armor force. As a result, the U.S. Army Armor Center has made the decision to temporarily suspend the program. The suspension of the program will also encompass a recall of all Goodrich Riding Trophies. This is only the second time the unit competition has been suspended. The first was during World War II from 1941 to 1946. At the end of the war, the competition resumed.

The Draper Armor Leadership Award has been recognizing excellence in cavalry and armor since 1924 when Lieutenant Colonel Wickliffe P. Draper established the award to test the leadership of small cavalry units.

The short-term suspension will ensure the long-term prestige and value of the program. Recalling the Goodrich Riding Trophies will provide the opportunity to service the trophies and maintain accountability of this valuable asset while the Army realigns, transforms, and potentially moves headquarters elements. The temporary suspension will also allow the Draper Council to relook current policy and present a revised award criterion that more fairly supports the restructured Army and the combined-arms formations.

The suspension will not affect Individual Student Draper Armor Leadership awards or the Commander/Command Sergeant Major Draper Armor Leadership Awards, which recognize armor officers selected for command of a command selection list position and armor noncommissioned officers appointed as command sergeants major.

The Armor Center is committed to maintaining the history and dignity of this great program, which was Colonel Draper's intent when he established the program over 80 years ago. The central focus of any revision to the program will be recognizing and supporting excellence in armor and cavalry combat leadership.

Comments on revising the unit award and any questions concerning the Draper Armor Leadership Award are appreciated. These can be directed to the Draper Custodian at: commercial (502) 624-1439; DSN: 464-1439; or e-mail: *draper@knox.army.mil.*

CATS EXSUM *from Page 45*

are the primary STXs trained. Nuclear, biological, and chemical (NBC) and combat service support (CSS) operations are trained in a multiechelon manner, but can be trained as a stand-alone STX.

By clicking on the "Conduct a Company Defense" hyperlink, the user is taken to the appropriate page in the CATS that provides detailed information of the training event. Information includes the training audience, means (event) (TADSS), estimated duration, replication of conditions (A-D), multiecheloned training opportunities, critical training gates, the purpose, outcome, and execution guidance of the training, and estimated class III and class V requirements. To view the eight associated supporting tasks, the user can scroll directly up one page, from this template, to the "Task: Conduct a Company Defense" template.

For more information on armor proponent CATS, please telephone DSN: 464-5656, or commercial: (502) 624-5656, or email *TDDTDCD@knox.army.mil*.

For more information on collective training and proponent CATS, please email *charles.larsen@leavenworth.army.mil* or telephone DSN: 552-7613, or commercial: (913) 684-7613.

Notes

[1]U.S. Army Regulation (AR) 350-1, *Army Training and Education*, U.S. Government Printing Office (GPO), Washington, D.C., 9 April 2003, paragraph 1-10.

[2]U.S. Army Training and Doctrine Command (TRADOC) Regulation (TR) 350-70, *Systems Approach To Training Management Processes and Products*, GPO, Washington, D.C., 9 March 1999, Chapter IV-2.

[3]FM 7-1, *Battle Focused Training*, GPO, Washington, D.C., 15 September 2003, pp. 4-30.

[4]Ibid.; and Department of the Army Training Strategy – Army Training Strategy Guidance, Headquarters, Department of the Army, Washington, D.C., 27 August 2004, Section 1.

[5]TR 350-70, Chap IV-2-7.

[6]AR 350-1, paragraph 1-10.

[7]FM 7-1, pp. 4-33.

[8]AR 350-1, paragraph 1-10.

[9]AR 350-1; FM 7-0, *Training the Force*, GPO, Washington, D.C., 22 October 2002; FM 7-1; TR 350-70; and AR 220-1, *Unit Status Reporting (USR)*, GPO, Washington, D.C., 10 June 2003.

[10]FM 7-1, p. 4-30.

Ann Meyers works for the New Systems Training Development Division at the Directorate of Training, Doctrine, and Combat Development, Fort Knox, KY.

LETTERS from Page 3

see if you need another dose of clear thinking to see the uprights.

MATTHEW H. JOHNSON
SSG, U.S. Army, Retired

Armored Infantry: A New Branch

Dear *ARMOR*,

I have been following the U.S. Army's reorganization plans for several months, partly in connection with my work and because I have a special love for military history and good, solid military organization.

With the new unit of action reorganization, there is a need for combining the armor branch with mechanized infantry to form a new branch. It could be named "armored infantry," or for the more romantically inclined, "mounted warfare," "mounted rifles," or "Dragoons." Its insignia could be an M1A2 Abrams tank superimposed over crossed M16A2 rifles. Its branch color could be orange (2d Regiments of Dragoons/ 2d Cavalry — Colonel Robert E. Lee's old regiment) or green (from the old Regiment of Mounted Rifles — J. E. B. Stuart's old regiment). The infantry branch would remain what we now call light infantry. The branch home for this newly-established branch would be Fort Knox, Kentucky.

The infantry branch would be responsible for training light infantrymen. The cavalry branch would then be reestablished to train the mounted and dismounted reconnaissance forces that are going to be needed. The branch home for the new cavalry branch would be its old, traditional home at Carlisle Barracks, Pennsylvania; Fort Riley, Kansas; or possibly Fort Hood, Texas. Its branch insignia would continue to be crossed sabers and its branch color would remain cavalry yellow.

ROBIN M. CATHCART
CPT, U.S. Army, Retired

Replacing Tanker Boots Could Be Hazardous

Dear *ARMOR*,

The new advanced combat uniform (ACU) will soon be in general issue to deploying units and eventually to all soldiers. The ACU will be worn with hot climate, tan-colored suede desert boots. Soon, the smell of Kiwi will be a thing of the past. It is therefore time for the armor and cavalry communities to address the issue of the historic and much prized "tanker boots."

There are two basic types of tanker boots: the wrap-around-strap type and the cavalry-side-strap type. While I am sure that there is a certain amount of historical tradition in wearing a distinctive piece of footgear, our tanker boots exist for several very good reasons that relate specifically to our role as mounted warriors.

The first concerns the fit of the boot, as dictated by the duties of the wearer. Unlike issue boots, tanker boots are designed for wear by soldiers who will not be moving around much, but will instead be sitting or standing in an enclosed space for extended periods. The boot is designed to allow for blood circulation: a stationary man's foot swells over time as the blood pools in the lower extremities, due to circulation that is relatively lower than that of a walking man. Hence the straps: tanker boots are intended to be fairly loose fitting. This is why we don't wear tanker boots on road marches.

In the days of the horse cavalry, boots were high (reaching to mid or upper thigh) and had straps and buckles on the outside to spare the horse's flank (some designs had straps that ran all the way around.)

During World War II, these strap designs became useful for another reason — the second greatest cause of combat injury to tank crews during World War II (after fire) was shattered foot and leg bones resulting from mine strikes. While the hull of the tank could be pierced, many mines lacked the penetration to do so, but still inflicted casualties by transmitting the shock of the explosion into the underside of the tank. The underside then reacted like a large bell-spring, flexing up at a high velocity, transmitting that shock into the feet and legs of tank crewmen. The value of boots with straps was learned in combat — it was easier for medics to remove the strapped boots off shattered feet.

Tanker boots have other safety-related characteristics, making them important functional pieces of equipment:

- They are all leather in case of fire — all tankers are aware of the prohibition of non-leather footgear in the tank, just as we are all aware of the prohibitions on clothing made of synthetic material.
- They have flat soles instead of thick lugs or treads — thick treads can catch on a projection and cause injury or a fall.
- They are made of petrochemical resistant materials, whereas normal boot soles are partially soluble in JP8, DF2, and FRH, resulting in extra slick soles.

The mounted warrior will remain an important part of the combined arms team. As program managers design and redesign our combat vehicles, clothing, and equipment, they must not forget the footgear. Standard no-polish boots are great, but we need tanker boots for safety, functionality, and historical reasons. Currently, only the general description of the boot is provided in U.S. Army Regulation 670-1, *Wear and Appearance of Army Uniform and Insignia*. This general description should be maintained with only appropriate changes describing the use of brown suede, instead of black leather, to allow some freedom of choice. As a minimum, the boots should be all leather, have straps, have flat or reduced-tread soles, and have non-leather parts made of petrochemical resistant material.

While we're on this topic, how about a redesigned Nomex coverall to incorporate the new camouflage pattern?

MICHAEL R. EVANS
MAJ, U.S. Army

HATCH from Page 4

gun on the M1A2 tank. This system allows the M1A2 tank commander the capability to fire his .50-caliber machine gun 360-degrees remotely during day and night operations, while remaining in the closed-hatch position.

- The armor gun shield (TAGS/ LAGS). This bolt-on shield moves with the M240 (7.62mm) machine gun on the skate ring to protect the loader during open-hatch machine gun operations.
- Thermal weapons sight (TWS). The TWS mounts to the loader's M240 machine gun feed mechanism cover and provides thermal imagining capability. The loader uses a pair of goggles that are aligned to the sights. This allows him to fire the weapon from inside open hatch, while viewing the thermal sight image, and exposing only his arms.
- Tank infantry phone (TIP). A TIP is attached to the rear hull of the Abrams, which allows external communication between infantry forces and the tank crew to better coordinate mounted and dismounted operations.
- Rear protection unit (RPU). Slat armor is mounted to the rear of the Abrams to provide increased protection to the Abrams engine compartment.

Some of the above-described features may not be included in the TUSK. Ultimately, the features selected are planned to be incorporated into a kit, designed to be installed and removed in the field as a pre-positioned component, and may be issued to the next Abrams unit deployed. Some TUSK items may be installed permanently in the Abrams fleet. Commanders' estimates may dictate the need for a combination of TUSK items to support the warfighting mission. It is anticipated that TUSK items could reach the field later this year.

Thanks for everything you are doing for our Army and I look forward to more feedback on the Abrams' performance and how we can make it even better over its next 40 years of service. I am proud of you and proud to call myself a tanker and a cavalryman!

FORGE THE THUNDERBOLT!

REVIEWS

Organization and Markings of United States Armored Units 1918-1941 by Charles Lemons, Schiffer Military History, Atglen, PA, September 2004, 224 pp., $59.95 (hardcover)

This work addresses the tactical organization and marking schemes used by American tank and mechanized units throughout the interwar period. In this era, unit organizations underwent numerous and sometimes confusing changes. Lemons clearly charts these developments and traces the parallel shifts in vehicle marking. The unique nature of this subject makes his work a valuable complement to the existing body of literature regarding America's interwar armored developments, which tends toward analysis of the tank's role in the context of doctrine, technology, and force structure. Moreover, Lemons provides a comprehensive approach to his subject through parallel coverage of Regular Army, National Guard, Marine Corps, and mechanized cavalry units.

The book's straightforward, chronological organization enhances its reference value, and it offsets the absence of an index. Principal developments are presented in sixteen chapters. Each begins with an overview of key organizational trends, followed by a detailed depiction of related marking schemes, camouflage patterns, and their roots in Army or Marine Corps policies. All chapters are heavily illustrated with color diagrams and photographs. The first chapter addresses the Tank Corps and Tank Service from their establishment in World War I through passage of the National Defense Act of 1920. Chapters two through five focus on the infantry tank force in the 1920s and early 1930s, including Regular Army and National Guard tank regiments, battalions, and companies. Chapter six discusses the early mechanized cavalry experience, and chapters seven through eleven address infantry tank and mechanized cavalry units through the 1930s to the creation of the Armored Force in 1940. Chapters twelve through fifteen focus on the first four armored divisions in the period 1940 to 1941. The final chapter addresses Marine Corps tank units throughout the interwar period.

The author currently serves as the curator of the Patton Museum of Cavalry and Armor, Fort Knox, Kentucky, where he has worked since 1986. Through years of studying armor-related artifacts, Lemons accumulated a detailed knowledge of his subject, which is manifested in the meticulous attention to detail throughout this work. His familiarity with the Patton Museum's extensive collection of technical materials related to tanks provides the basis for much of the text.

This book constitutes an excellent reference for American armor and mechanized units. It chronicles organizational and armored vehicle marking changes, linking them with the broader evolution of American tank use during the interwar era. This work benefits from clarity and readability. The large number of photographs included also offers a pictorial history of American armor, clearly showing the evolutionary stages in tank design. These photos depict nearly every tank model used by the American military, often in field conditions, and provide clear depictions of the unit markings and camouflage patterns described in the text. Many of these images are part of the Patton Museum's photograph collection, which this book showcases. Color organizational diagrams, which are accurate, attractive, and easy to understand, complement the photos.

Organization and Markings of United States Armored Units 1918-1941 is not a stand-alone history of American armored development. No attempt was made to chronicle the key discussions and tactical experimentation that shaped the Army's use of the tank. However, Lemons has captured vividly an important and often overlooked dimension of the early development of American armor. His book will complement any study of period doctrine and tactics, which were influenced by the unit organizations adopted.

DR. ROBERT S. CAMERON
Armor Branch Historian
U.S. Army Armor Center

Brotherhood of Iron by Ralf W. Zimmermann, iUniverse, Inc., New York, July 2003, 360 pp., $20.95 (paperback)

In *Brotherhood of Iron,* Retired U.S. Army Lieutenant Colonel Ralf Zimmermann creates a fictional story of combat in France during the summer of 1944 from the experiences of two German brothers, Rolf and Emil Kramer. The former is a highly decorated Luftwaffe pilot, and the latter is his younger brother, a new Panzermann. This is the story of their lives during the middle months of 1944, as told from their perspectives, fighting against the massive onslaught of allied power that drives the German army back toward the borders of Germany.

The introduction provides a very interesting preamble to the book. Zimmermann devotes these pages to expostulating on the ways in which the common soldiers of the German army have been misrepresented and misunderstood in the past half-century, particularly in the United States. His commentary is somewhat disconcerting, and causes the reader some trepidation as to what exactly one can expect in the pages of the book. Zimmermann does make some valid and very accurate comments; for example, he is completely on track in his criticism of American cinema and its depiction of the common German soldier. But he couches the whole introduction in a framework of excusal that is not entirely agreeable. Is he a Nazi apologist? No. But he discounts many of the truisms of national socialist Germany and tries to condense human behavior into one-dimensional black and white, good versus evil, paradigms that rest entirely on levels of ignorance or logic. Life in Nazi Germany was never so simplistic, and German soldiers possessed many more psychological dimensions than Zimmermann allows.

Two other minor problems must be mentioned. First, the book is horribly edited, and there are many grammatical errors, to the point of detracting from the flow of the story in places. Second, the characters for the most part share ambivalence toward Adolf Hitler, which is out of place, and occasionally Zimmermann allows certain individuals to digress into stereotypical monologues that reinforce some of the base premises of his introduction. Happily, these are few and far between, and he returns to the strength of his book — the human story of Emil, Rolf, and their fellow warriors as they struggle against immense odds.

Aside from the problematic introduction, the book is very good. Fortunately, Zimmermann does not dwell on those themes on which he expounds in his introduction and instead concentrates on telling the story of the Kramer brothers and their comrades in arms. The author has an exceptional eye for detail, and one of the reasons this book works so well is that the author captures small things that are often overlooked in military fiction — those seemingly minor, mundane things that soldiers understand are important. The maintenance woes of both the Panther fleet and of the Luftwaffe machines are covered consistently throughout, and even though the main characters are quite successful in their combat endeavors, they do not hit their target every time, and are not immune to becoming targets.

Notwithstanding the troublesome introduction, the author tells a story that needs told, and does it well. The reader cares about these people, and finds himself cheering for them in spite of the cause for which they are fighting. The ending of *Brotherhood* provides little closure and is ripe for a sequel; hopefully Zimmermann will oblige.

MICHAEL A. BODEN
LTC, U.S. Army

From Chivalry to Terrorism: War and the Changing Nature of Masculinity by Leo Braudy, Alfred A. Knopf, New York, October 2003, 640 pp., $30.00 (hardcover)

Leo Braudy's latest work chronicles the changes in masculinity and warfare from the Middle Ages to present day. Using numerous wars and warriors throughout the time period, both real and literary, Braudy explores both male behavior and the male identity, ultimately arguing that studying these two things over time allows one to understand how men behave today.

From Chivalry to Terrorism does an outstanding job capturing the transformation of warfare from the mid 800s to the current Global War on Terrorism. Most soldiers and leaders will appreciate the author's ability to describe the important innovations and military strategies throughout history, which still remain part of warfighting today. Braudy discusses the decisive use of archery by English longbowmen in the Hundred Years' War, the influence of religion on military activities, the impact of the industrial revolution and technology on modern warfare, and how recent conflicts have blurred the distinction between civilian and soldier.

Braudy's main focus, however, is how the aforementioned developments and others throughout history have contributed to the alteration of masculinity. While the military reader may question the need for chapters on performance anxiety, brainwashing, the antiwar movement, and terrorism as a gender war, the author makes powerful arguments against the innateness of human behavior and in favor of its changeability and responsiveness to circumstances.

Overall, *From Chivalry to Terrorism* is a worthwhile read. Not only does it present the reader with interesting insights, it also challenges the reader to think about the relationship of man to war. In the end, by explaining the changing nature of masculinity in the course of warfare over the past thousand years, Braudy has made an important contribution to both military history and the study of man.

MIKE MONNARD
MAJ, U.S. Army

Union Cavalry Comes of Age: Hartwood Church to Brandy Station, 1863 by Eric J. Wittenberg, Potomac Books, Inc., Washington, DC, September 2003, 432 pp., $39.95 (hardcover)

Union Cavalry Comes of Age: Hartwood Church to Brandy Station, 1863 is a detailed examination of the evolution or "coming of age" of the Union cavalry during the American Civil War. Conventional historical wisdom states that the Union cavalry was not an effective force until after the Battle of Gettysburg. Furthermore, the Confederacy has often been portrayed as possessing the "natural" cavalrymen, while the Union supposedly had to turn merchants and mechanics into horsemen. The author, Eric J. Wittenberg, argues that, on the contrary, the Union possessed skilled and knowledgeable cavalrymen from the beginning of the war. The early commanders of the Army of the Potomac, he argues, should attribute the relative ineffectiveness of the Union cavalry in the eastern theater during the first two years of the war to poor organizational decisions. Wittenberg believes that it was the distribution of the Union cavalry in separate regiments and brigades, rather than the unified structure used by the Army of Northern Virginia that led to its ineffectiveness.

Wittenberg has established a solid reputation as the author or editor of several other works on the Union cavalry during the Civil War, most importantly, *Protecting the Flanks: The Battles for Brinkerhoff's Ridge and East Cavalry Field, Battle of Gettysburg, July 2-3, 1863,* Ironclad Publishing, 2002; and *Gettysburg's Forgotten Cavalry Actions,* Thomas publications, 1998, and winner of the 1998 Bachelder-Coddington Literary Award. *Union Cavalry Comes of Age* is organized into nine chapters, which offer a chronological history of the Union cavalry from the formation of the Cavalry Corps, Army of the Potomac, in February 1863, to the Battle of Brandy Station in June 1863. Wittenberg also focuses on the careers of several prominent Union cavalry officers, including George Stoneman, William W. Averell, Alfred Pleasonton, John Buford, and Wesley Merritt.

Wittenberg has produced a well-written and well-researched volume that goes a long way toward dispelling myths regarding the Union cavalry. The volume includes more than 1,000 endnotes, a 21-page bibliography, and five appendixes containing the orders of battle for cavalry forces at Fredericksburg, Kelly's Ford, Stoneman's Raid, Alsop's Field, and Brandy Station. I highly recommend this volume to those interested in the Civil War and/or horse cavalry.

ALEXANDER M. BIELAKOWSKI
2LT, U.S. Army Reserve

A Question of Honor: The Kosciuszko Squadron: Forgotten Heroes of World War II by Lynne Olson and Stanley Cloud, Alfred A. Knopf, New York, September 2003, 512 pp., $27.95 (hardcover)

I am not one to claim that one book, written from the perspective of one person, should cause all of us to change how we view the broad sweep of history. Of course, *ULTRA SECRET* and *Bodyguard of Lies* did cause me to do that in the early 1980s. This book comes very close.

"Honor," to some, is a word to be used casually without understanding the deep meaning behind the word. Some people denigrate the feelings as archaic and "old think." *A Question of Honor* caused me to reflect very deeply on this word because if even half of the subject of this book is true (I have no reason to doubt its integrity), then the western allies of World War II stained the honor of that victory over fascism in the name of realpolitik. I know that war is an extension of policy but, as Churchill wrote and said, "Honor should guide the course of our lives."

The book opens with a prologue describing the victory parade in London at the end of World War II. Every nation of the British Commonwealth, and those who stood by her in the dark hours of the war, were represented in the parade, save Poland. The Poles, who fled their country and fought beside the British in the Battle of Britain, who jumped into Arnhem attempting to rescue the British 1st Airborne, and the men of Anders' Polish Corps who seized Monte Cassino in Italy, were forbidden to participate in the parade. The reason — no one wanted to offend Josef Stalin.

This book relates a tale of astounding courage in the face of despair and adversity, a trail of tears that would have caused much lesser men and women to abandon hope. The Poles did not. Swept from their country by the Nazis and the Soviet Communists, Polish soldiers, sailors, and airmen made their way across Europe to France and England to continue the fight. The fact that they were initially rejected by the Royal Air Force (RAF), until a critical need for seasoned fighter pilots arose, amazes me. However, as I reflect on my own career, I remember stories of looking down on other soldiers as being less well trained, if for no other reason than they could not speak English. This is a reminder to all.

The central story describes the heroes of the Kosciuszko Squadron, RAF Squadron 303, which set records for aerial combat among the RAF for air-to-air kills against the Nazi air force. Woven into this really well-written book is also an exploration of political dealings, a reality of sorts, different from courage on the battlefield, that caused policymakers to privately dismiss promises to the Poles in the name of expediency and coalition unity, while at the same time, publicly professing steadfast resolution to the cause of the restoration of Polish liberty.

There is much to learn from this book. I recall hearing stories of brave, but futile, Polish Lancers on horseback charging Nazi tanks and being slaughtered. There is no basis in history for that assertion, according to the authors. Polish Lancers fought like the Dragoons and Mounted Rifles of our past, riding to battle and fighting dismounted. Wartime Soviet and Nazi propagandists promulgated urban legend in an effort to denigrate the fighting skills of the Poles. That was accepted as fact then, and to this day, is a testament to the efficacy of "The Big Lie" theory of propaganda.

In light of current events, it would be easy to say that all's well that ends well. After all, there is a free Poland now. Poland is a member of NATO and contributing to the multinational forces in Iraq. The recently deceased leader of the Roman Catholic Church in Rome was a Pope of Polish origin. Why not let the past take care of itself and as the saying goes, "Give roses to the living." The fact is: honor demands that the record be set straight.

Read this book, read this book, read this book. When you get to Iraq, seek out an officer of the Polish Division and make a friend. These soldiers know the meaning of honor.

KEVIN C.M. BENSON
COL, U.S. Army

A Bell for Adano by John Hersey, Vintage Books USA, reprint edition, New York, March 1988, 288 pp., $13.00

Robert Kaplan, the author of, *Balkan Ghosts*, which was required reading for anyone headed to Bosnia with the 1st Armored Division in 1995 and 1996, writes prolifically on the U.S. role in trouble spots around the world. His article, titled "Supremacy by Stealth," in the July-August 2003 *Atlantic Monthly* intrigued me. In it, he writes of the role of America's global power today and lays out 10 rules for "managing the world." Rule one on his list is "produce more Joppolos." Joppolo is the protagonist of John Hersey's novel, *A Bell for Adano*, which won the Pulitzer Prize for fiction in 1945 and is still in print today. In Kaplan's mind, this character can serve as the model for our soldiers if our nation is to succeed in the audacious pursuits on which we have embarked.

The character of Joppolo is an Italian-American who was plucked out of a clerk's position in New York City and made into a civil affairs officer with the intention of having him follow the combat troops into Italy and become the military mayor of an Italian town. After the invasion and "liberation" of Italy, Major Joppolo is the face of American military government of occupied territories (AMGOT) to the people of the little Italian-seaside fishing village of Adano.

A fair-minded man, who is intent on being a just and well-liked city administrator, Joppolo works diligently at settling the disputes of the town from punishing the fascist former mayor to helping local fisherman get permission from the U.S. Navy to fish at sea, and finally, to hunt down a replacement for the town's bell that Mussolini had melted down for armaments.

He has certain advantages to succeed in this environment, which differ from our current operations. He speaks Italian, he understands the culture, and he has a personal connection to Italy being an Italian-American, so to compare him to our men serving in Afghanistan and Iraq is a stretch. However, we do ask our civil affairs folks to be just as successful as Joppolo, even though they do not speak the language, have little understanding of the cultures in which they are immersed, and have no connection to these countries. Even more troubling, we do not ask specially trained civil affairs folks to take on these endeavors, but combat arms officers and noncommissioned officers to accomplish these tasks. We do not live in a military of full mobilization, so city clerks do not pull up as tankers and cavalrymen move forward. So while Joppolo may be a civil affairs officer running a town in World War II, the modern Joppolo is an infantryman or tanker in Iraq or Afghanistan charged with the same mission.

Retired U.S. Central Command Commander, Marine Corps General Zinni, put this mission best in a recent speech, "On one hand, you have to shoot and kill somebody; on the other hand, you have to feed somebody. On the other hand, you have to build an economy, restructure the infrastructure, and build the political system. And there's some poor lieutenant colonel, colonel, brigadier general down there, stuck in some province with all that saddled to him, with NGOs [nongovernmental organizations] and political wannabes running around, with factions and a culture he doesn't understand." John Hersey understood this and his character, Joppolo, tries to balance all of these responsibilities, sometimes successfully, sometimes unsuccessfully. These responsibilities are being juggled right now in Iraq and Afghanistan by our tankers and cavalrymen and Joppolo is a great model for what they should be like.

Hersey created a little town in Italy and populated it with entertaining characters with whom Joppolo could interact, including the former fascist mayor and police chief, and women waiting for their husbands to return from prisoner of war camps. The novel is, in essence, a study of interpersonal relationships between Joppolo and the locals, and between Joppolo and his fellow American military officers and soldiers. In this way, the novel has the value of Anton Myrer's *Once an Eagle*, without the illustrative comparison of Sam Damon to his antagonist Courtney Massengale. Here, Hersey only shows us the Sam Damon archetype, but in Joppolo's actions we are given the standard for this element of our profession.

A Bell for Adano is a wonderful novel that is entertaining and, for the nation-building and constabulary missions we find ourselves in today, it is enlightening. Every cavalryman, turned de facto civil affairs officer, should read this book to put his new mission in perspective and to help put himself into this mission's perspective. Remember, the cavalry groups in Germany in 1945 served as the nucleus for the constabulary corps. Prior to that, our men rode the plains conducting peace operations, so it is not unprecedented to have tankers and cavalrymen conducting these missions in support of our Nation's goals.

PATRICK J. DONAHOE
LTC, U.S Army

A Time of Our Choosing: America's War in Iraq by Todd S. Purdum, Times Books, Henry Holt and Company, New York, 303 pp., 2003, $25.00 (hardcover)

There are yet countless volumes to be written on the war in Iraq and its ultimate stabilization; it is incumbent on this generation of soldiers to begin reading about this new conflict and its importance to our nation's security. Todd S. Purham joins dozens of *New York Times* reporters to discuss the events leading to the war in Iraq, Operation Iraqi Freedom, and the aftermath.

The opening chapter rationalizes the invasion of Iraq in terms articulated by Vice President Cheney, Defense Secretary Rumsfeld, and Deputy Defense Secretary Wolfowitz. They make an eloquent argument of the need to remove an abhorrent regime in Iraq as a mechanism to bring prosperity and stability to the entire Middle East. Anti-democratic oligarchs, who have no idea how to manage a population explosion, but possess the need to globalize and create jobs for hundreds of thousands in each Arab nation each year, beset the region. This creates an environment in which Islamic militancy becomes an alternative for those angry and unemployed.

A Time of Our Choosing summarizes what is known about Saddam Hussein's weapons of mass destruction (WMD): that the United Nations (UN) destroyed over 38,500 shells and warheads in the nineties and millions of gallons of chemical agent. Saddam has used WMD on his own people and in his war against Iran (1980-1988). After 1998, the Iraqi despot expelled UN inspectors and a great gap was created on Saddam's WMD program, this coupled with his utter lack of cooperation to disclose his stockpile and allow access to inspectors, further drives the United States to tighten sanctions. With the spread of al-Qaeda and the events of 9-11, Saddam offers thousands of dollars to families of suicide bombers who kill Israelis, and sponsors a violent Palestinian terror faction. His dalliances with terrorist groups and his track record with WMD, makes it untenable for America to allow Saddam to remain in power.

A chapter focuses on UN Security Council Resolution 1441, which gave Saddam one last chance to fully cooperate with weapons inspectors. The language of the resolution shows divisiveness among the world's democracies on Saddam. The United States saw Saddam's offer of conditioned cooperation as the usual trap; France and other powers saw it as progress. One might speculate that if the members of the Security Council had been unified in their position, Saddam may have granted unconditional access to UN inspectors.

Half the book focuses on the war and the development of "1003 Victor," the plan to capture Iraq. It relied on flexibility, precision munitions, and 'round-the-clock battlespace surveillance. *A Time of Our Choosing* also discusses the negative influence of Arab news networks that keep the ghosts of Saddam and Bin Laden alive in the region. Take time to read books on Operation Iraqi Freedom and the importance of long-term commitment to the success of Iraqi reconstruction. You may not agree with the author's conclusions, but it provides a thought-provoking read on American national security and strategy.

YOUSSEF ABOUL-ENEIN
LCDR, USN

Red Wings Over the Yalu: China, the Soviet Union and the Air War in Korea by Dr. Xiaoming Zhang, Texas A&M University Press, College Station, TX, 2002, 320 pp., $39.95 (hardcover)

He will win who knows how to handle both superior and inferior forces.

— Sun Tzu

Numerous written accounts of the Korean War primarily addressed the ground war that invokes images of the Chosin Reservoir and Pusan Perimeter. In *Red Wings Over the Yalu,* Dr. Xiaoming Zhang not only brings a new perspective of the war as seen from the air, but he does it through the eyes of the communist pilots who flew against U.S., Commonwealth, and South Korean air forces under the United Nations Command.

Korea was not the first time U.S. soldiers fought communist ground forces, but it was the first time the U.S. and communist air forces from China, North Korea, and the USSR engaged one another in open battle. It was also the first time the concept of independent-minded air forces clashed with air forces subordinate to ground forces. Unlike the U.S. Air Force and England's Royal Air Force (RAF), the communist air forces were never completely independent services. In particular, both the Chinese and North Korean air arms were filled with ground war veterans. Most had experience with guerrilla and People's War doctrines developed by Mao Zedong. The Chinese or Peoples Liberation Army Air Force (PLAAF), an air force created by the Chinese communists out of the remnants of the old Kuomintang air force (trained by the 14th Air Force under Major General Claire Chennault), fought the bulk of the communist air campaign over the Korea

Peninsula. The Korea War was a pivotal event in China's modern military history. It was the test case for the PLAAF, surplus Soviet aircraft, and a military tradition based on centralization and political domination. The PLAAF efficacy of man-over-weapon doctrine made it a unique opponent for UN air forces.

Zhang's book provides new insights for two reasons. First, *Red Wings Over the Yalu* fills an important void about the air war over Korea. Images of William Holden flying an F9F fighter-bomber in *The Bridges at Toko Ri* fill most of the historical records about the air campaign. Zhang's book provides greater insight into the how the communist forces developed leadership, organizational, and tactical doctrine in the early Cold War era. Of particular interest to readers is Zhang's assessment of the battles over Mig Alley between communist and UN air forces. While the UN did manage to achieve a measure of air superiority over the Korea Peninsula, air power achieved few of the political and military goals outlined by Washington.

Complaints that UN airmen fought the war "with one hand tied behind their backs," had less to do with political decision and more to do with low consumption rates by communist forces and large cadres of soldiers available to make up any technological or materiel shortages. In fact, political restrictions worked both ways. While political considerations limited air strikes north of the Yalu River, similar rules of engagement developed by Moscow, Peking, and Pyongyang applied to communist air force leaders who wanted to attack UN air bases in South Korea and Japan. Nevertheless, the air battles of Mig Alley provided communist aviators an opportunity to both develop tactics to counter a technologically superior UN air force and prove they were equal in both skill and courage to any U.S. Air Force, Commonwealth, or South Korean pilot.

Second, Zhang offers considerable material on training Chinese aviators and the role Soviets played in that training. In particular, he probes the impact of the Korean War on China's conception of the role of air power, arguing that it was not until the success of the U.S. Air Force during the Gulf War in the 1990s that Chinese leaders engaged in a broad reassessment of the strategy adopted during the Korean War. Prior to the Gulf War, Chinese air planners saw the PLAAF as a defensive force, not unlike the RAF during the Battle of Britain. Following the Gulf War, the emphasis has changed to an air force capable of seizing the initiative at the beginning of future conflicts, which means the PLAAF will play a major, rather than a supporting, role in future high-tech wars, particularly, against an opponent such as Taiwan, whose own air defenses have grown and modernized since 1990. Instead of a purely defensive force, the PLAAF now focuses on a broad strategy that includes offense, defense, and air blockades.

Military strategists and historians interested in foreign affairs and aviation will find *Red Wings Over the Yalu* of special interest. The book is unique in that it presents the communist point of view, which stands as a counter to previous accounts of the war. *Red Wings Over the Yalu* is not with out some minor flaws, as seen in the photo of B-17 Flying Fortress bombers, which are incorrectly labeled as B-29 Super Fortresses. The book's minor contretemps aside, Zhang's level of expertise is suggested by the book's dedication to his father, a former officer in the PLAAF. Dr. Zhan, who is an instructor at the U.S. Air Force Air War College, carries the warning that the collapse of the Soviet Union implies Chinese airpower provokes serious concerns for Asian regional security and world peace. Zhan asks the most relevant questions since the implementation of the new proactive Bush doctrine: "How will China use her new military strength in the post 9-11 world with regards to Taiwan and Korea?"

JAYSON ALTIERI
MAJ, U.S. Army

Across the Dark Islands: The War in the Pacific by Floyd W. Radike, Ballantine Books, New York, August 2003, 261 pp., $24.95 (hardcover)

Brigadier General Floyd W. Radike's book *Across the Dark Islands: The War in the Pacific,* is perhaps one of the best books ever published on the National Guard at war during World War II. Radike, who led a rifle platoon and was an original member of a National Guard regiment that had been federalized prior to World War II, provides a diary-like account of his experiences during some of the heaviest fighting in the Southwest Pacific Theater during the war. Radike's unit participated in all of the major campaigns throughout the Solomon's Islands and the Philippines, where his outfit, part of the 37th Division, experienced its heaviest fighting, starting in January 1945.

The main thrust of Radike's book deals with the fighting in the northern Solomons and the Philippines at individual soldier and platoon leader levels, against the backdrop of the larger operational aspects of the war. Indeed, this is one of the major strong points of this excellent book, as the author provides an excellent and detailed description of the day-to-day operations of a rifle company in action. Adding to his description of the fighting at squad and platoon levels, Radike provides an excellent descriptive analysis of both the American and Japanese armies, how they were equipped, organized, and led. He likewise provides an explanation on the motivations and impact of the fighting on both American and Japanese soldiers. Indeed, contrary to popular myth, Radike repeatedly emphasizes the fact that the Japanese soldier was skilled in using weapons and knew how to employ them. Also, the Japanese were masters of nighttime attacks, and hence used the evening hours to their advantage, much to the consternation of the American soldiers, who were kept off balance and fully awake in anticipation of an enemy attack. In a rare and honest assessment, Radike attributes this Japanese success to, "Japanese cunning and American lack of training and leadership … that resulted in one of the dark pages of our military history."

To compensate for this lack of jungle training, General Radike provides a lengthy discussion on the Americans' use and dependence on heavy firepower — artillery and tanks — to beat back Japanese attacks. Indeed, Radike emphasizes that when employed alongside infantry and artillery, tanks oftentimes provided the key to victory in many company and battalion actions against the Japanese. Yet, as the author writes, tanks oftentimes proved ineffective in the jungle, or became prone to Japanese antitank fire as they became "sitting ducks when stuck in the mud," or were forced to take narrow jungle trails (if one existed). As for artillery support, it sometimes failed to materialize when an attack commenced.

After the campaign on New Georgia, Lieutenant Radike's platoon was sent to New Caledonia to rest, absorb new manpower, and retrain. Once refitted and rested, the 37th Division set out for the Philippines to join the fighting north and west of Manila. It was at the Battle of San Manuel in January 1945 that now-Captain Radike's unit experienced the full furry of Japan's 2d Armored Division in some of the most sustained and concentrated fighting during the Second World War. During this battle, which was fought block by block in the city of San Manuel, Radike admits that, "Progress was very slow … advances were made here and there by small groups, but the enemy resisted savagely and often a small gain was canceled by a counterattack." It was during this battle that Radike admitted his outfit, "applied all our different patterns of firepower, mortars, artillery, self-propelled cannon, tank guns, machine gun fire, grenades and bazookas." As for the Japanese, "they replied in kind, which caused us to dig even deeper entrenchments while they did the same. There was probably more massed firepower per square foot in San Manuel than anywhere else in the Pacific." The results of this battle were not surprising, as there were heavy American casualties and, as Radike writes, the problem became how to remove the many wounded, as the Japanese targeted the medics and stretcher bearer teams engaged in removing them from the battlefield.

Radike points out that the Battle of San Manuel was one of the largest tank battles of the war in the Pacific, which is a little-known fact. During the fighting for this city, the Japanese employed more tanks than at any other time during the whole war against the Americans in the Pacific. General Radike recalls one particular battle in the city that involved tanks versus infantry, where American infantrymen, aided by bazookas, point-blank artillery, and Sherman tanks, methodically destroyed every Japanese tank that clambered toward the dug-in Americans. Radike concludes his book with the war's anti-climatic ending after the dropping of the two atomic bombs, and of his unit's brief stint of occupation duty of Japan. It is at this point, the author writes, that all of the men in his battalion were grateful that the war was over and, after four years, they could go home.

While Radike's *Across the Dark Pacific* is in need of more maps, showing some of the tactical and operational aspects of the war in the Southwest Pacific and in the Philippines, it nevertheless remains as one of the best books on small unit warfare to date.

LEO J. DAUGHERTY III
Command Historian,
U.S. Army Accessions Command

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