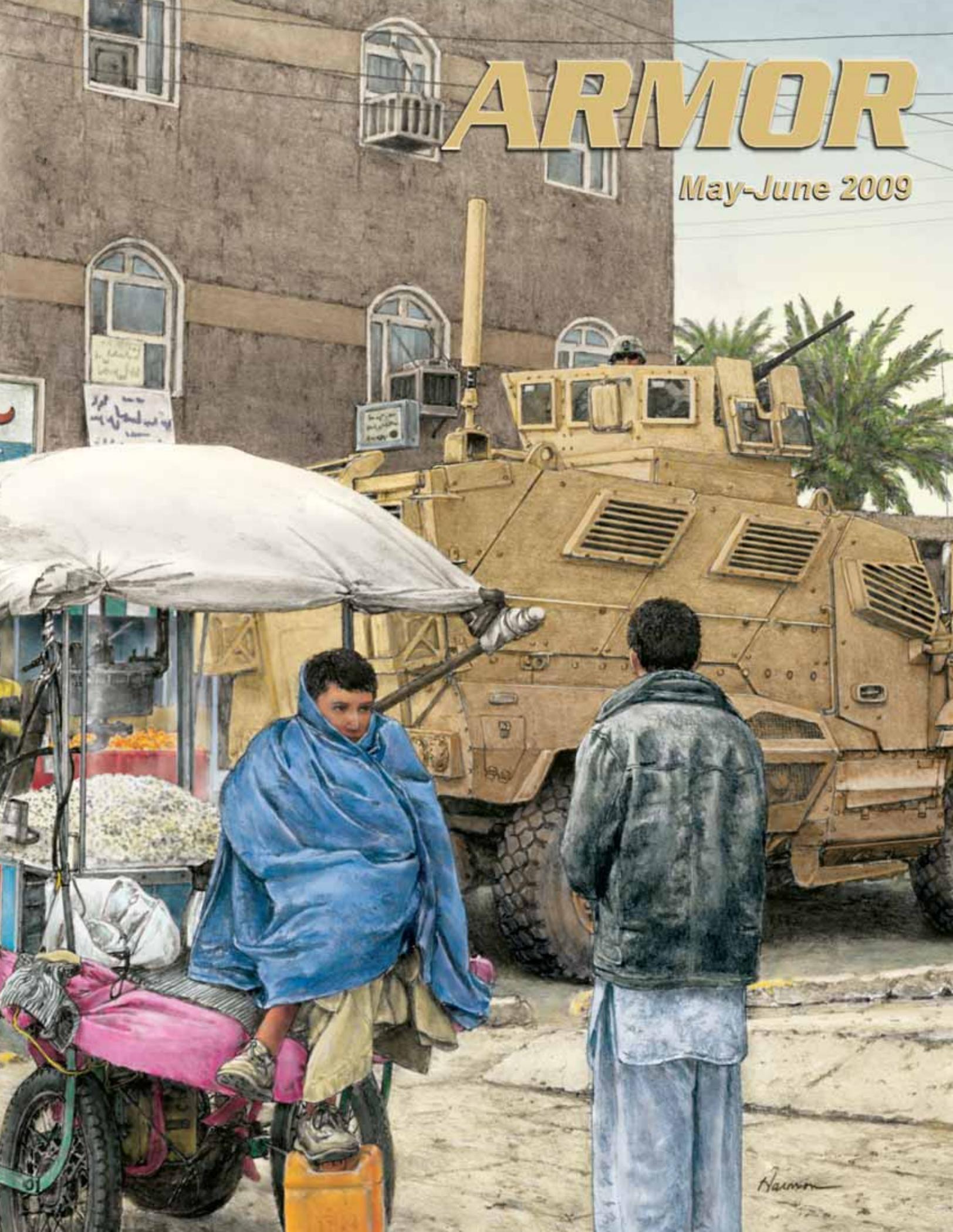


ARMOR

May-June 2009



Harmon

ARMOR

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LETTERS

Railguns: Surpassing What Was Possible a Decade Ago

Dear *ARMOR*,

The purpose of this letter is to clarify several points of confusion that arose in Lieutenant Colonel (Retired) Kojro's response to my article, "Reforging the Thunderbolt: How Railguns Can Revolutionize the Weapons of War," in the January-February 2009 edition of *ARMOR*. I disagree with LTC Kojro's assessment that there has been little progress during the 30 years of active military research on this technology, and below are some relevant examples of the steady growth in this field.

In the mid 1990s, the Thunderbolt Railgun, which was the first large-scale electromagnetic launcher in the United States (and to which the title of the original article made reference), achieved record-setting levels of kinetic energy and muzzle velocity for an electromagnetic launcher. Today, railguns routinely exceed these levels and do so with reliability and efficiency surpassing what was possible a decade ago.

In his paper, "Railgunnery: Where Have We Been, Where We Are Going," *Magetics, IEEE Transactions*, January 2001, Richard Marshall candidly describes the state of this technology and points out that "of the three outstanding railgun problems, armature transition, rail gouging, and pulsed power supplies, solutions to the first two have been demonstrated." The casual reader may not be interested in the details of the first two issues or how they were solved, but nonetheless these examples demonstrate that measurable progress is being made. Researchers today possess the scientific underpinnings of electromagnetic launch at a level not imaginable when the Army first began exploring this revolutionary technology. This insight, enabled by joint and interagency research collaboration, justifies the continued exploration of this technology. During this same time, the impetus for maintaining this area of basic and applied research has remained the same; hypervelocity launch, enabling vast increases in range and target lethality, is beyond the practical performance limit of a conventional powder cannon.

On the topic of employment, it is also incorrect to state that railguns can only shoot solid slugs of minimal size. Much of the research is focused on the deployment of long-range munitions, including the requisite guidance and fusing devices for these types of rounds. Projectile design has grown substantially in parallel efforts focused on creating bullets designed expressly for deployment from a railgun. The ballisticians that work alongside the electromagnetic launch effort have produced novel projectiles that more efficiently produce target effects. This efficiency translates to lower energy consumption, thereby decreasing the design requirements for the electromagnetic weapons system. Existing ammunition technology can withstand the g-forces of a railgun launch. Because the peak to average acceleration ratio of a railgun launch package is controlled by the energy discharge from the power supply, this ratio is, in fact, lower than an equivalent acceleration load seen in a pow-

der cannon. What this means is that a railgun can achieve higher velocity while exposing the launch package to lower peak acceleration.

As explained in "Reforging the Thunderbolt," the physics of a railgun are straightforward and analogous to the forces at work in a conventional powder cannon. The projectile is pushed by a force and, of course, recoil is present at the breech; in other words, *for every action, there is an equal and opposite reaction*. A subtle distinction between a conventional cannon and the railgun is that the momentum transfer in the former includes the bullet mass and some fraction of the burnt propellant or ejecta, while a railgun cannon recoils from the momentum transfer from the mass and velocity of the projectile alone. Anyone who has ever loaded a tank round can appreciate how much the propellant weighs, and considering this mass, one may see there is a difference between the two. Additionally, kinetic energy increases in proportion to velocity squared, while momentum and its contribution to recoil scales with velocity. Therefore, one can generate equivalent kinetic energy in a hypervelocity railgun with less mass and less recoil when compared to a higher mass, lower velocity conventional cannon shot.

So the interested reader may ask: what is the current status of this technology? Due to the relaxation of volume and mass requirements, coupled with the fortuitous vision for an all-electric ship, the U.S. Navy is currently leading the pursuit of a tactical railgun launcher. In 2009, BAE Systems and General Atomics were awarded contracts from the Office of Naval Research (ONR) to produce an advanced electromagnetic (EM) railgun for the Navy. On the ground side, 2008 saw the Defense Advanced Research Projects Agency (DARPA) demonstrate a full-scale, fully cantilevered electromagnetic railgun, which successfully launched a 120mm projectile of similar size and weight to a service mortar round. While the inspiration for such efforts may have long ago originated with science fiction, these recent accomplishments are examples of how determined engineering efforts, based on sound scientific theories, can expand the capabilities of future warfighters.

The authors of "Reforging the Thunderbolt" intended to expose readers to a developmental weapons technology that offers substantial theoretical advancements to future warfighters. These potential benefits were prioritized in the original article, and the challenges were clearly stated. At the time of submission, Navy reports declared that a fieldable railgun system is 15 years away from reaching the fleet. Because of the challenges associated with a ground-based application, one could forecast a much longer lead time for an Army system. The leader-level question posed then is: should one try to solve challenging, multidimensional, complex problems that involve high-risk, high-reward payoffs? Moreover, should these issues be attacked in parallel, such as pursuing and validating solutions to specific aspects in lieu of a complete set of answers? Receiving feedback of a critical nature is invaluable and we are sincerely grateful for an opportunity to further discuss what we saw as some potential benefits of railguns for future warfighters. If this concept

is ever used to address a threat on a future battlefield, it will only do so having proved its merit well above competing weapons technologies, namely conventional cannons and missiles.

"It is difficult to say what is impossible, for the dream of yesterday is the hope of today and the reality of tomorrow." — Robert Goddard

JOSHUA KEENA
MAJ, U.S. Army

A Requiem!

Dear *ARMOR*,

Perhaps those anxious to move the Armor School, the Armor School Research Library, *ARMOR*, and parts of the Patton Museum and its outstanding resource library have forgotten where the center of maneuver excellence really began. It was not at Fort Benning, but at Fort Knox, where, in late 1931, a group of farsighted and determined mounted warriors began the long and bumpy road to mechanization and maneuver excellence, which finally played out with the combined arms armored divisions of WWII.

At the same time, the infantry was still adhering to an antiquated French-inspired *Field Service Regulation (FSR 1923)* and clinging to obsolete, slow-moving, behemoth Liberty Mark VIIIs and the vulnerable light American Renaults. Both tanks were of World War I design and under the control of the chief of infantry. After all, these clumsy tanks kept pace with the foot soldier. For sure, the infantry was far from a thriving force of maneuver excellence. Even the chief of infantry fought against the armored force that General Chaffee was attempting to organize. Eventually, Army Chief of Staff, George C. Marshall, removed from office the recalcitrant chief of infantry.

Today, the excellence in maneuver warfare, established at Fort Knox, has a serious crack of uncertainty in its historical foundation. Soon, hundreds of U-Hauls and heavy equipment transporters (HET) will arrive and move what mounted warriors have established. Over and over, history has demonstrated that there are always troubled roads ahead when a historical fountainhead is relocated in the name of change — a change that contains a morass of confusion and unanswered questions.

While reading "From the desk of MG (Retired) George H. Harmeyer" (chairman of the National Armor and Cavalry Museum Foundation), *Armor & Cavalry Journal*, March-April 2009, I noticed there was no discussion of building and moving costs. The perplexing questions include: who will move what; at what cost; which Patton Museum facilities are targeted; what are the roles of the U.S. Armor Association and the Patton Museum Foundation; and will the corpulent move be cost effective during this period of severe economic recession and uncertainty? Surely, there will be huge cost overruns, as it is in all programs where planning is obscured and functions mismanaged. These answers are long overdue.

Continued on Page 52

MG Donald M. Campbell, Jr.
Commanding General
U.S. Army Armor Center



MG Campbell Bids Farewell and Welcomes MG Milano as the 43d Chief of Armor

In March, I was officially notified of the Army's decision to assign me to command the U.S. Army Recruiting Command here at Fort Knox. I also recently learned that Major General James "Mike" Milano will become the 43d Chief of Armor and commanding general of Fort Knox.

It was indeed a pleasure to lead the Armor Center and Fort Knox over the past 15 months. More importantly, it was a pleasure to serve in the company of the many great tankers and cavalymen who make this branch so great. The contributions these soldiers and leaders make have a special significance in the midst of a very challenging time for the armor force.

During my tenure as chief of armor, I consistently received countless comments about the armor force's effectiveness, both on and off the battlefield. Anyone who knows anything about our armor force agrees that it is *the* force to be reckoned with and it stands ready to deal with our enemies. For every tanker and cavalryman, I thank you for your help and expertise as we continue forward. Your commitment to the future of the armor branch is much appreciated.

I personally want to thank the armor leaders, battalion and brigade commanders, who lead our troopers everyday and provide such invaluable feedback to the Armor Center. I also want to thank former armor leaders for providing feedback, mentorship, and supporting the armor

community. I can't thank you and the rest of the team enough for all your hard work and dedication, well beyond the call of duty. It's been a pleasure working with you from the start.

It is also pleasure for me to introduce Major General Mike Milano as the 43d Chief of Armor. He is a native of Michigan and a graduate of Lafayette College in Eaton, Pennsylvania. He was commissioned in 1979 and has spent the past 30 years leading soldiers at all levels, from platoon to brigade combat team. He has served in various positions and locations, to include Fort Hood, Texas; Fort Knox, Kentucky; Korea; Washington D.C.; Fort Riley, Kansas; Bosnia-Herzegovina; Kuwait; Fort Carson, Colorado; and Iraq. He is currently serving as commanding general, Civilian Police Assistance Training Team, Multi-National Security Transition Command-Iraq. He is currently deployed to Iraq and will likely remain there until early this summer.

He is married to the former Kim Richmond and they have two sons, Nick and Tony. Mike, I wish you and your family the best of luck as you transition from Iraq to the Armor Center and Fort Knox. You have an exceptional group of tankers and troopers working for you and I know they are up for the challenges of the future.

As Major General Milano and I make our transitions, and our Army finds its balance, there is plenty of work to be done. The Maneuver Center of Excellence will

certainly stand up in 2010 at Fort Benning, Georgia, and the Armor Center will begin moving from Fort Knox in 2010 to Fort Benning, with an end date of September 2011. During this period, we must continue to support the wars in Afghanistan and Iraq and ensure our operational force has the right structure and equipment to succeed on these battlefields. We will continue to support the upgrade of the M1 tank so that it remains the most technologically advanced, lethal, and survivable tank on the battlefield. We also need to ensure the Abrams improves its sustainability and remains compatible with the Future Combat System. We must continue to lend our mounted combat expertise to those working on the Future Combat System to enable its success as an added highly mobile, deployable, lethal, and survivable platform. Finally, we must continue to promote new "game-changing" technology, such as the electro-magnetic gun, which will provide us the ability to overmatch our enemies well into the future.

As I move across Fort Knox to the U.S. Army Recruiting Command, I will remain close to home. The armor force has always been about teamwork and I will work as an extended member of the team to ensure troopers and tankers in the maneuver force are the best this Nation has to offer. Thanks once again to our tankers and troopers for keeping this branch the "combat arm of decision."

Forge the Thunderbolt!

CSM John Wayne Troxell
Command Sergeant Major
U.S. Army Armor Center



The Year of the NCO

“The goal of the corps of NCOs, whose duty is the day-to-day business of running the Army so that the officer corps has time to command it, is to continue to improve our Army at every turn. We want to leave it better than we found it. Regardless of the kind of unit you’re in, it ought to be an “elite” outfit, because NCOs can make it one.”

— SMA William G. Bainbridge
5th Sergeant Major of the Army

The first Year of the Noncommissioned Officer (NCO), in 1989, was announced by Secretary of the Army John O. Marsh by a memorandum entitled, “The 1989 Army Theme: The NCO.” Now for the second time in 20 years, the Army highlights the significance of its professional enlisted force — the noncommissioned officer corps.

Since 1775, the Army has set apart its NCOs from other enlisted soldiers by distinctive insignia of grade — soldiers who wear chevrons on their sleeves represent a unique Army strength. Throughout the history of our Army, the NCO has played an indispensable role in the warfighting readiness of the armor force. Baron von Steuben, while writing the first U.S. Army manual, known as the *Blue Book*, acknowledged the importance of selecting top soldiers for the rank of NCO:

“The order and discipline of a regiment depends so much on behavior that too much care cannot be taken in preferring none to that trust, but those who, by their merit and good conduct, are entitled to it.”

Today, we expect no less of our NCOs than the highest professional standards and diversity of knowledge in leading soldiers to ensure our Army is trained and ready — we will expect no less tomorrow! NCOs lead the way in educating, training, and growing soldiers to become tomorrow’s leaders. They share their character strengths with every soldier they lead, every officer they serve. We place a

great deal of responsibility on our NCOs, but none greater than they can handle. They provide day-to-day leadership to our soldiers to ensure individual soldiers attain and maintain required standards of proficiency and professionalism — the NCO must be certain of a soldier’s ability to succeed in combat.

The NCO is both a leader and a role model, serving with pride, confidence, and competence. The process by which NCOs are developed as leaders requires institutional training, operational experience, and self-development. NCOs earn and retain the respect and confidence of superiors and subordinates through demonstrated tactical and technical competence and knowing how to lead and care for soldiers. Commanders make decisions, fashion policy, and issue orders; NCOs execute the mission and provide the forward momentum, initiative, and stabilizing force that makes it happen — where the rubber hits the road, an NCO gets it done!

The U.S. Army’s NCO Corps has distinguished itself as the world’s most accomplished group of military professionals. Historical and daily accounts of life as an NCO are exemplified by acts of courage and a dedication and willingness to do whatever it takes to complete the mission. NCOs have been celebrated for decorated service in military events ranging from Valley Forge to Gettysburg, to charges on Omaha Beach and battles along the Ho Chi Minh Trail, to current conflicts in Afghanistan and Iraq.

The Year of the Noncommissioned Officer highlights the importance of dedicated, professional, and committed NCOs. It recognizes the contributions of NCOs, including the wealth of professional knowledge they bring to the Army and how their practical experiences contribute to overall effectiveness of operations worldwide.

Commanders and leaders of the U.S. Army Armor Center and Fort Knox recognize the value of its enlisted leaders at

all levels of command as it observes the Year of the Noncommissioned Officer. The command’s kickoff ceremony honored an NCO in each rank, from corporal through sergeant major, for outstanding performance. The Kentucky State House of Representatives passed *Resolution 197*, recognizing the Year of the NCO. NCOs have been honored at legislative affairs and chamber of commerce meetings throughout the Fort Knox area. Guest speaking events at Fort Knox and in the local community, normally handled by senior officers, have been assigned to senior NCOs. A senior NCO Mangudai exercise was conducted on 16 and 17 April, which was an intense 36-hour training event under extreme physical, mental, and emotional conditions for teambuilding and leader development. This entire exercise was planned, prepared, rehearsed, executed, and evaluated by NCOs. We continue to enhance the education, fitness, leader development, and pride in our NCOs, as well as recognize their dedication and commitment.

NCOs have a long history of dedicated service to soldiers, units, the Army, and the Nation. We acknowledge their unique contributions, past, present, and future, in this 2009 Year of the Noncommissioned Officer. I encourage leaders at all levels to support us in this important work. Our NCOs are an integral link in the chain of command and leadership in Armor and Cavalry. The NCO is the backbone of our Army; they make it all work and we cannot succeed without them. The commander is the point of decision, but the sergeant is the point of execution!

“Sergeant, take the lead!”



BE THE HUNTER, NOT THE HUNTED

Defeating the RKG-3 Ambush

by Lieutenant Colonel John B. Richardson IV

“Tonight, I observed a patrol staged in JSS Ghaz-1 that had just returned from yet another RKG-3 attack in Ghazaliyah. There were very few similarities from this patrol and the first three attacked patrols that had returned to Ghaz-1 since our RIP/TOA [relief in place/transfer of authority]. This time, there were no pock-marked or destroyed vehicles; there were no medics and litter bearers scrambling to treat the injured; there were no worried and apprehensive looks. Tonight’s attack had profoundly different results because of our unit’s ability to evolve against new and emerging threats.

— Major Dave Dunphy, XO, 5th Squadron, 4th Cavalry

The RKG-3 (*Ruchnaya Kumulyativnaya Granata*) high-explosive antitank (HEAT) handheld shaped-charge grenade is the most lethal and prolific weapons system in the Sunni rejectionists’ arsenal and its employment is on the rise throughout Iraq. The grenade is employed throughout the Al-Anbar, Ninevah, and Salah al Din provinces and has recently migrated down to Abu Ghuraib and into west Baghdad. Just days before its TOA with 5th Squadron, 4th (5-4) Cavalry, the 1st Squadron, 75th (1-75) Cavalry was attacked for the first time in the northwest Baghdad neighborhood of Ghazaliyah by insurgents wielding this weapon, resulting in multiple casualties and a catastrophic kill. For 5-4 Cavalry, who was assuming the battlespace, this was to be a foreshadowing of a new enemy tactic in the northwest neighborhoods in the Mansour District of Baghdad.

Following a number of enemy RKG-3 ambushes against coalition forces throughout northwest Baghdad, 5-4 Cavalry established an RKG-3 defeat working group, modeled after the successes of the joint improvised explosive device (IED) defeat orga-

nization (JIEDDO), to study enemy tactics, techniques, and procedures (TTP), develop countermeasures, and then adapt new friendly TTP and modify equipment to defeat this emerging threat. Decisive military victories result when one side can see first, decide first, and act first to seize the initiative from its opponent. In an ambush situation where the RKG-3 thrower has the initiative and has already seen first and decided first, coalition forces must establish TTP and battle drills that rapidly allow the crew to see, decide, and act decisively *before* the enemy can act first.

The RKG-3 family of grenades is handheld shaped-charge grenades. When the pin is pulled and the grenade is thrown, a four-paneled drogue parachute is deployed by a spring. This parachute stabilizes the grenade in flight and ensures that the grenade strikes the target at a 90-degree angle, maximizing the effect of the shaped charge. Earlier variants of the RKG-3 used steel shaped-charge liners, but later variants, such as the RKG-3EM, employ a copper liner and cardboard wave shaper, providing a penetrative capability of up to 240mm (9.4 inches) of armored steel.

The RKG-3 is primarily used against coalition forces (CF), although it has been used on other targets of opportunity in the battlespace. These weapons are not kept in massive caches; rather, the enemy avoids detection by moving them in small quantities, decreasing the likelihood of finding and destroying a “mother cache.” The enemy has also learned over the past 6 years not to cache incriminating items in their homes, so catching them with the goods is unlikely. The RKG-3’s small size, just slightly larger than a World War II German “potato masher” grenade, makes it easy to hide and difficult to find during checkpoint searches.

RKG-3 CHARACTERISTICS



Figure 1

RUSSIAN VARIANTS

The preferred method to defeat the RKG-3 is to attack enemy forces in their homes during planning and preparation phases of the attack. This method allows us to attack him at the time and place of our choosing, capitalizing on the element of surprise to maintain the initiative and defeat him. This is done through human intelligence (HUMINT) sources that are willing to positively identify insurgents and allow Iraqi Security Forces (ISF) and CF to obtain a warrant to conduct a raid and detain the enemy. With eyewitness testimony and evidence found during sensitive site exploitation, insurgents are prosecuted through the Iraqi judicial system and taken off the street.

Unfortunately, quality HUMINT sources are not always available, and when they are available, there is a chance that the evidence will not be sufficient enough to merit a warrant and follow-on prosecution; therefore, we must be prepared to intervene at the point of attack during the execution phase of the enemy's operation. In this scenario, the enemy has the initiative — he picks the time and place of attack and capitalizes on the principles of simplicity and surprise and all the traditional advantages of a guerrilla attack on conventional forces. To defeat these weapons during the execution phase of the enemy's operation, we must seize the initiative in a meeting engagement and kill the thrower before he engages the patrol. Current TTP do not set conditions for coalition forces to win that meeting engagement. The classified statistics on the enemy's success rate of RKG-3 ambushes from National Ground Intelligence Center (NGIC) supports this assertion.

After 5-4 Cavalry's second experience with the RKG-3, it became clear that current TTP were inadequate to counter this weapons system or the TTP used by the enemy to employ it. We quickly realized that we couldn't fight the "last war!" *We had to make changes to defeat this threat.* Many of the current TTP used in Iraq today are based on defeating past threats, such as IEDs and snipers, which were (and still remain so in some areas) the topmost killers on the battlefield. Our Army's ability to adapt to the ever-changing operational environment resulted in successful TTP and equipment modifications that significantly reduced the enemy's ability to defeat us with IEDs at the tactical level. As a result, the enemy adapted and transitioned to the RKG-3.

Snipers and IEDs cannot be discounted, but the RKG-3 is the primary weapon in Sunni Rejectionist territory and we needed

to change our TTP to focus on killing throwers before they had the opportunity to throw. This weapons system can be defeated! To defeat these attackers, changes needed to be implemented, trained, and rehearsed to enable us to go on the offense against these throwers, while simultaneously developing HUMINT to attack cells and networks that were planning attacks and supplying executors.

The first step was to stand up an RKG-3 defeat work group to determine how to counter this enemy weapons system. The results of this work group were published and disseminated to the squadron and shared throughout the brigade combat team and Multinational Division-Baghdad.

The group developed trend analysis, studied enemy TTP and characteristics by watching films and conducting after-action reviews (AARs) following attacks, and ultimately developed TTP for defeating the enemy as part of a holistic defeat approach.

On 15 February 2009, a scout platoon from 5-4 Cavalry, which had previously encountered RKG-3 attacks, made contact with an enemy armed with the RKG-3. On this evening, in a dark alley in northwest Baghdad, the hunted became the hunter. The scout platoon employed all the TTP developed by the RKG-3 defeat work group and seized the initiative from the enemy by engaging the enemy before they could throw the RKG-3, resulting in an enemy wounded in action/captured and later interrogated for further intelligence value. The TTP were validated and resulted in a decisive tactical victory for coalition forces.

The following paragraphs outline the lessons learned and TTP employed during this successful engagement. We must remember that just as we adapt to seize the initiative from the enemy, so does he. These TTP and battle drills must be modified based on intelligence preparation of the battlefield (IPB); mission, enemy, terrain, troops, time, civilian (METT-TC) considerations; and, of course, an evolving enemy. This article is not meant to be a cookie-cutter answer to defeat the RKG-3; its intent is to disclose TTP that attack the enemy's most likely current course of action.

Enemy TTP: Insurgent Employment

The 5-4 Cavalry quickly realized its role as a learning organization. To stay inside the enemy's decision cycle, we continually studied him, his TTP, and the terrain, and made necessary adjustments to counter his advantages as an evolving guerrilla warrior. To counter the enemy's threat, we immediately gathered as much information as possible and learned that:

- Since 2005, the majority of all RKG-3 attacks target the last vehicle in the convoy.
- Attacks target the sides of vehicle, not the top (RKG-3-type grenades are designed for top attack against tanks).
- The majority of RKG-3 attacks occur in Sunni areas. RKG-3-type weapons have been captured in Shia areas, but the

anti-armor task force (AATF) has not had any reports of RKG-3s used by Shia since 2004.

- Typically, multiple RKG-3s are thrown by multiple people to increase probability of a hit and are often used in pairs.
- Insurgents target lighter armored wheeled vehicles, such as up-armored HMMWVs, and mine-resistant ambush protected (MRAP) and route clearance vehicles, rather than heavy tracked vehicles. Historically, up-armored HMMWVs have been the main target, but Strykers, and now MRAPs, are being targeted as they replace the HMMWV.
- Attacks have also been made from the midst of crowded market areas because CF will not readily counterattack a crowded pedestrian area, making it is easier to avoid capture or targeting.

The enemy will have distinct characteristics during an RKG-3 attack. The attackers will not necessarily attack from the side of the street or attack a particular vehicle, even though they have set definite patterns in the past. Below is a list of ten common enemy and terrain characteristics that will help rapidly assess potential threats as units transit through the battlespace. All soldiers should be aware of and on the lookout for:

- Males between 16-35 years old.
- Covered or buried hands, tucked under arm, hidden inside jackets, deep pockets, or behind back. An attacker may even show his hands to a select vehicle, but will reach for the weapon unexpectedly and swiftly.
- Suspicious males wearing jackets (winter) or carrying bags (summer/winter).
- Suspicious males with an easily accessible escape route in urban terrain, possibly leading to a getaway car.
- Suspicious males watching your convoy (will most likely conduct reconnaissance in the area prior to the attack).
- Suspicious males that begin to move or amble toward the convoy after the second vehicle passes.
- Suspicious males not wearing sandals, flip-flops, or a dish-dasha.
- A video cameraman in the area, often in plain view.
- Suspicious males hiding alongside buildings for concealment.
- Suspicious males wearing dark clothing, such as black, brown, or dark blue, at night.

Equipment Modifications

This article addresses all patrols as 4-vehicle patrols; for example, truck 3 is second to last in the column and truck 4 is the last vehicle in the convoy. If you run 3-vehicle or 5-vehicle patrols, adjust as appropriate to meet the intent of "second to last" and "last vehicle" in the patrol.

The meeting engagement, or more accurately stated, the counter-ambush between gunner 3 or 4 and the enemy thrower is a race to the trigger. This engagement happens in less than 3 seconds for gunner 3, or in less than 1 second, if gunner 4 is the

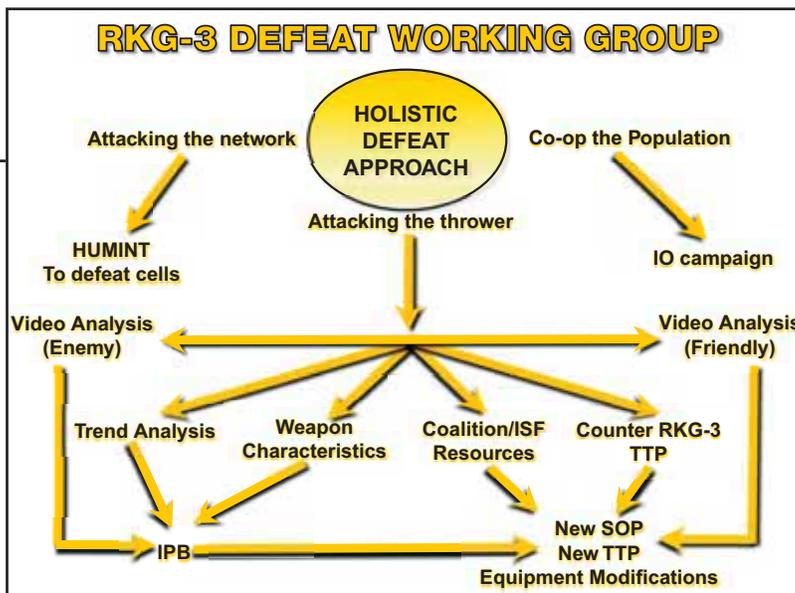


Figure 2

first to positively identify the enemy and his hostile intent. As such, the gunners must be experts in target acquisition, have clear fields of observation and fire, have a clearly defined and limited sector of fire (see first), be well-versed in the rules of engagement (ROE), be intensely rehearsed (decide first), and have the weapons and munitions to rapidly engage the throwers multiple times before the enemy can initiate the RKG-3 ambush (act first).

We recommend a number of equipment and weapons modifications to increase the speed and accuracy of target acquisition and allow the gunner in the cupola to win the meeting engagement. First, modify the cupola for gunners 3 and 4 by cutting down the crew-served outer steel shield to provide the gunner unobstructed observation and freedom of movement in his sector of fire. For trucks 3 and 4, which are most likely to engage the thrower with limited engagement time, remove the crew-served weapon to provide even better fields of observation and fire and improve reaction time. Arm gunners 3 and 4 with shotguns loaded with nonlethal and lethal rounds. Acceptable collateral damage with the crew-served weapons is questionable at best.

The enemy will use the local population to mask his intent. Acquiring the target, leveling the crew-served weapon, and firing a lethal burst of accurate .50-caliber or 7.62mm machine gun fire will not be possible with time available, not to mention, it tests the threshold of military necessity in regards to proportionality. The M4 carbine requires multiple aimed shots, and based on conditions, may not be the correct weapon to suppress throwers. These conditions include the fact that the throwers usually attack in pairs, in threes, or even in fours, and a gunner on the move with an M4 will not be able to engage multiple precision targets in time to prevent at least one RKG-3 grenade from being thrown. The shotgun loaded with a nonlethal munition is the best weapon to suppress throwers and mitigate collateral damage. It provides a distinctive blast and peppers the throwers, thereby disrupting their attack and preventing the throw. The enemy will likely attempt to break contact and run for the easily accessible escape route — now, you have the initiative. As he separates from innocent bystanders, the gunner shoots a blast of lethal buckshot at the fleeing enemy. This suppression allows for the truck commander (TC) to rapidly dismount and engage the enemy with precision M4 carbine, 5.56mm, firepower.

We also modified our turrets by placing Hellfire spotlights above each gunner's head, attached to the sniper screen, which moves

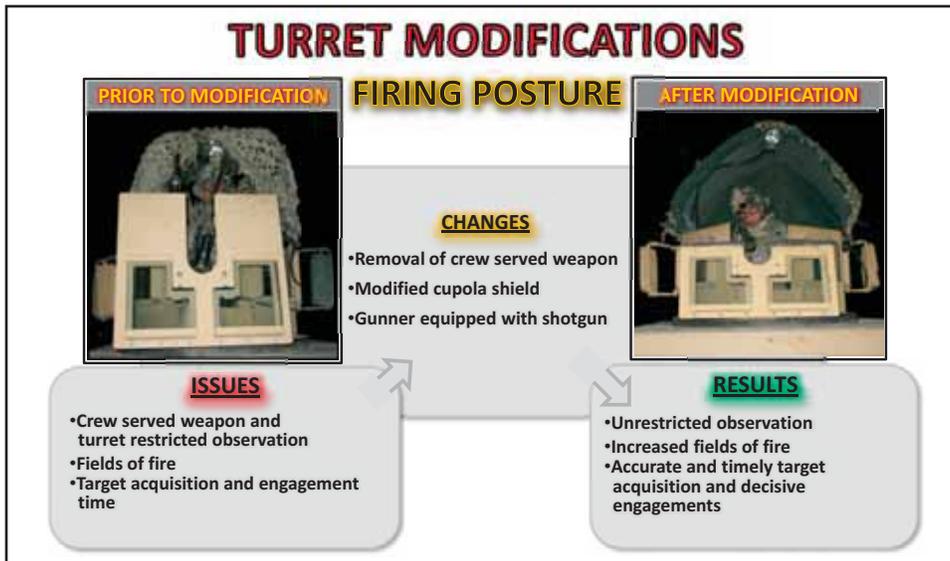


Figure 3

with the turret and frees the gunner's hands. These lights, plus the Hellfire spotlights attached to the crew-served weapons on trucks 1 and 2, help illuminate dark alleys and streets where nighttime RKG-3 throwers prefer to position themselves to conceal their intent.

New TTP

Understanding the age-old adage of "tried and true," the 5-4 Cavalry developed new TTP based on work group findings and recommendations and mission success:

Speed. Speed is based on METT-TC, but we found that 12 to 17 mph is optimal hunting speed. If vehicles are moving slower than 12 mph, the attackers know you are hunting them, and will not attack, but discreetly retreat before you see them. You have deterred the attack, but not destroyed the enemy; the goal is to

as it passes by the thrower. By the time an attacker demonstrates a hostile intent, the last truck is in enemy target range. To protect the last truck, close the distance between the last two trucks to 15 to 25 meters. The correct distance must be achieved and maintained to allow gunner 3 the correct angle and distance to shoot the thrower as he prepares to attack truck 4. Truck 4 should be prepared to protect itself as well. In tight maneuver areas with egress routes left and right, truck 4 must own the left flank, knowing truck 3 has the right flank (and his back).

Stopping. There is great risk in stopping once a TC, usually TC 2 or 3, identifies a suspicious-looking individual. The risk is mitigated by a thoroughly rehearsed and rapid dismount by the TC and other soldiers in the vehicle. Once the vehicle stops and soldiers quickly dismount, the attackers will do one of three things: run with the RKG-3 in hand and attempt to escape; try to play it cool, at which time a search is conducted and either nothing is found (innocent) or an RKG-3 is found stuffed inside a jacket; or rapidly pull the pin and toss the RKG, which allows the attacker to displace. In all three scenarios, you seized the initiative by closing with the enemy, which is not how he had envisioned the ambush. The enemy does not have a branch plan to counter your reaction; you now have the initiative. We made it a policy to immediately stop and close with suspicious individuals — you will know if someone is carrying an RKG-3 by observing his actions.



Figure 4

close with and destroy the enemy, not deter him, leaving him free to prey on softer targets. Moving at speeds greater than 17 mph increases the risk of an attack; there is no way to definitively identify characteristics of an attacker if traveling faster than 15-17 mph, until it is too late.

Turret orientation and manipulation. It is vitally important for truck 3 (the second to last truck) to protect truck 4 (the last truck). The only way to get a suppression or killing shot at a positively identified act of initiating a RKG-3 throw is to observe it from the second to last truck

Other Recommendations and Best Practices

The work group's effort to determine how to counter the RKG-3 weapons system resulted in a number of best practices:

- Staggered column is the ideal formation when terrain permits. Do not, however, "tuck" truck 4 in behind truck 3, which creates a bigger target, such as a mega-last

vehicle, and does not give truck gunner 3 the proper fields of fire or time to make positive identification (PID) and shoot the thrower. Maintain 15 to 25 meters between trucks 3 and 4. This allows truck 3 to pass by the threat. The threat then exposes himself in truck 3's four o'clock kill sack as he prepares to ambush truck 4.

- In known or likely RKG-3 "hot spots," lock down gunner 3 on the 4 o'clock. With a modified cupola, he can "scan" with his peripheral vision the 3 to 5 o'clock range, but he must be stable and ready to engage at 4 o'clock. Tank commander 3 must assist the gunner in target acquisition. Gunner 3, actively scanning by moving the turret, will slow target acquisition and could interfere with his ability to see, decide, and act first. He must remain locked at the 4 o'clock.
- Crew members must keep thumbs on the headset toggle switch to allow for an immediate contact report as soon as PID is determined. This is a split-second engagement and the TC cannot fumble with the radio, for even a second.
- The TC, especially in truck 3, must angle his rear-view mirror to allow him to check suspicious individuals after he passes by the threat, in case the enemy conceals himself at the very last second.
- Shotguns equipped with Surefire lights or lasers are a premier suppression weapons system for initial contact.
- The lead TC remains focused on identifying IEDs, while the lead gunner identifies potential RKG-3 and sniper targets, and hands over or passes back the target to the rest of the patrol, reducing target acquisition time for follow-on vehicles.
- Like tank gunnery, all crew members are target acquisition participants, and must be prepared to quickly action the gunner on a potential or confirmed threat.
- All crew members must be empowered and rehearsed to announce a contact report.

Mounted maneuver techniques. Column and staggered column are the best movement techniques to hunt for an RKG-3 thrower. In the staggered column, truck 3 has the closest position to the curb and truck 4 is closest to the median, which prevents truck 4 from masking the fires of truck 3, and develops a clear 'kill sack' between the two vehicles.

It basically comes down to the difference between *driving* through sector, moving tactically, or *hunting*. For example, if you are just out for a Sunday stroll, you are low-hanging fruit for the enemy and he will attack. If you move tactically, as most of us were trained and drilled to do, you will *not win* the meeting engagement in an RKG-3 ambush. To win the RKG-3 meeting engagement, you must *hunt* the enemy.

Hunting is the extreme form of tactical movement. It incorporates: continuous IPB (block by block); proper speed; disciplined sectors of fire; every soldier is a sensor concept; discipline on the radio; discipline in the truck; absolute focus on the threat; and crosstalk. Every potential target must be identified, assessed, passed back, and reassessed from truck to truck. *Every* soldier is empowered to announce a contact report to alert the crew and platoon. Crew members have thumbs on the safety switch; TCs are ready to bound out of their vehicles and engage with direct fire. You must be on the hunt if you are going to seize the initiative from an RKG-3 attacker. *You must have the mentality to be the hunter, not the hunted!*

Staying Ahead of the Enemy

The methods and battle drill described in this article, along with modified equipment, outline just one approach to win a meeting engagement. These methods were proven effective when a scout platoon, driving back to the joint security station after its mission, treated the movement home as a movement to contact and hunted the enemy that was hunting the platoon. The battle drill and training, rehearsals, and in-theater situational training exercise (STX) lanes conducted by the platoon prior to this engagement validated the drill as an effective means of seizing the initiative. It allowed the platoon to see, decide, and act faster than the enemy. The platoon's success also meant that the enemy would do its own AAR and attempt to counter our countermeasures. The process of assessing, learning, and adapting does not end with this tactical success. On the contrary, the process is continuous, much like a jet pilot's observe, orient, decide, act (OODA) loop in a dog fight, we must stay ahead of our enemy and stay inside his decisionmaking cycle to maintain the initiative and stay on the offense. Make no mistake about it — on the street, this is a thinking man's knife fight.

The Final Note States the Obvious

Viewing slides that depict a battle drill, and reading materials on lessons learned and TTP, help leaders understand the situation, but STX lanes allow leaders and soldiers to visualize what an attack looks like in time and space. It is a real eye opener for soldiers when they realize just how little time they have to seize the initiative back from an enemy who has all the advantages in this ambush scenario. Using a wooden/rubber RKG-3 to run a rehearsal with an opposing force will force soldiers to think of ways to better position their weapons for rapid dismount; adjust their rear-view mirrors to see possible threats; have their thumbs on the toggle for an immediate contact report; focus during the hunt; and make other adjustments to reduce reaction time.

Be a Learning Organization

"We must remain a learning organization and we must adapt if we want to seize the initiative back from the enemy with RKG-3s. ...The enemy is in our OODA loop and we are reacting to him... We must get into his decisionmaking cycle and get ahead of him with new TTP, new/modified equipment, and quality IPB. We must adapt and react faster than he can, to take the initiative back... study, learn, adapt, and attack."

— Commander, 5-4 Cavalry,
to his commanders and first sergeants



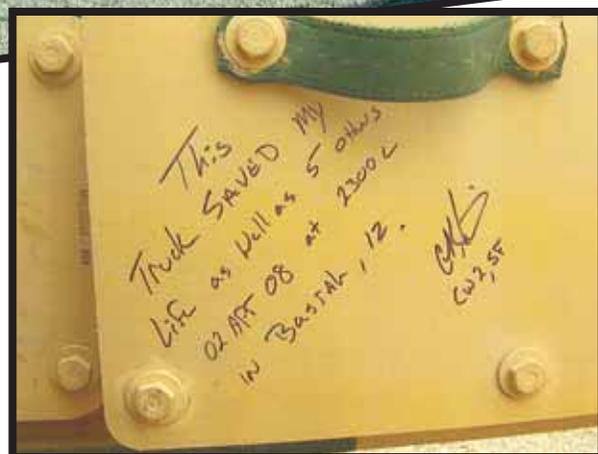
Lieutenant Colonel John B. Richardson IV is currently serving as commander, 5th Squadron, 4th Cavalry Regiment, Fort Riley, KS, and Multinational Division-Baghdad, Iraq. He received a B.S. from the U.S. Military Academy and an M.S. from Long Island University. His military education includes Armor Officer Basic Course, Maneuver Captain Career Course, and U.S. Army Command and General Staff College. He has served in various command and staff positions, to include platoon leader, XO, and battalion maintenance officer, 4th Battalion, 67th Armor, Friedberg, GE; liaison officer to the Nordic-Polish Brigade, 1st Armored Division, Bosnia (IFOR); tank company commander, and headquarters and headquarters company commander, 1st Battalion, 34th Armor, Fort Riley; S3, 2d Squadron, 2d Armored Cavalry Regiment (Light), Operation Iraqi Freedom I, Baghdad, Iraq; and S3, 2d Armored Cavalry Regiment, Fort Polk, LA.

Mine Resistant Ambush Protected (MRAP) Vehicle and the Contemporary Operational Environment

by Christopher D. Geeding
and Thomas J. Stafford



“Insurgents and improvised explosive devices (IEDs) were the actors and variables that created the conditions within the COE for a new system — the mine resistant ambush protected (MRAP) vehicle. MRAPs have saved lives and prevented injuries in the COE.”



The U.S. Army is fighting an enemy that gets to choose when and how it will engage or interact with our forces. This is the contemporary operational environment (COE) and is defined as the synergistic combination of all the critical variables and actors that create conditions, circumstances, and influences that affect military operations today and in the near- and mid-term. Insurgents and improvised explosive devices (IEDs) were the actors and variables that created the conditions within the COE for a new system — the mine resistant ambush protected (MRAP) vehicle. MRAPs have saved lives and prevented injuries in the COE.

Background

The MRAP vehicles are a family of armored fighting vehicles designed to sur-

vive IED attacks and ambushes. While the MRAP program began as U.S. Marine Corps initiative, it became a joint program involving the U.S. Navy, U.S. Marine Corps, U.S. Army, U.S. Air Force, and U.S. Special Operations Command. All five of these groups were looking to acquire MRAP-type vehicles for a variety of mission profiles required during experiences in Operation Iraqi Freedom and Operation Enduring Freedom.

Based on COE requirements, the following joint urgent operational needs statements (JUONS) built the requirements for this type of vehicle:

March 2006: U.S. Army Training and Doctrine Command (TRADOC) Comprehensive Force Protection Initiative (CFPI) Platform Demonstration reviewed the

worldwide state-of-the-art protected vehicles.

May 2006: Multi National Force–West submitted JUONS for 185 medium mine protected vehicles.

July 2006: Received second JUONS for 1,000 MRAP vehicles, which increased total requirement to 1,185; validated by Joint Requirements Oversight Council, December 2006.

November 2006: U.S. Marine Corps Project Manager assigned to manage MRAP acquisition with Marine Corps Systems Command executing procurements for Department of Defense.

January 2007: Designated Acquisition Category II by Assistant Secretary of the Navy for Research, Development, and Acquisition.

May 2007: Total vehicle requirement increased to 7,774.

September 2007: Designated Joint Acquisition Category Incremental Development, Major Defense Acquisition Program by Office of the Under Secretary of Defense for Acquisitions, Logistics, and Technology. Army (Program Executive Office-Ground Combat Systems), Navy (Naval Facilities Engineering Command), Air Force, and Special Operations Command representatives integrated into Joint Program Office.

September 2007: Joint interim vehicle requirement increased to 15,374.

March 2008: Joint Requirements Oversight Council approved refined service and special operations command requirements, including cruising range for Army.

MRAP Family of Vehicles

The MRAP family of vehicles provides warfighters with a multi-mission platform capable of mitigating IEDs, underbody mines, and small-arms fire threats. These threats are currently the greatest casualty producers in overseas contingency operations.

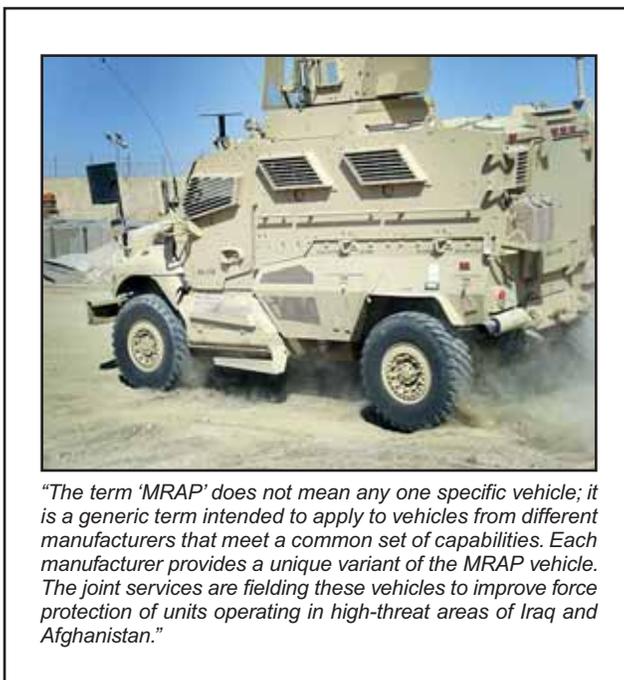
The term “MRAP” does not mean any one specific vehicle; it is a generic term intended to apply to vehicles from different manufacturers that meet a common set of capabilities. Each manufacturer provides a unique variant of the MRAP vehicle. The joint services are fielding these vehicles to improve force protection of units operating in high-threat areas of Iraq and Afghanistan.

The U.S. Army Infantry Center was initially given proponentcy for the MRAP, with the Directorate of Combat Developments as the lead. As the Maneuver Center of Excellence (MCOE) stood up in October 2008, the Mounted Requirements Division of the MCOE Capabilities Development and Integration Directorate took the lead for the Army’s MRAP effort, assuming the responsibility of representing the user, which refers to all deployed, or deploying, warfighters in Operation Iraqi Freedom and Operation Enduring Freedom.

The MCOE executed its mission by sending subject-matter experts (SMEs), who were soldiers with recent deployment experience, from the MCOE to various

MRAP platform test sites. During initial platform testing, these SMEs worked with the Marine Corps Operational Test and Evaluation Activity (MCOTEA), Army Test and Evaluation Command (ATEC), and Operational Test Command (OTC) to provide leaders and decisionmakers with professional military judgment and concerns on the MRAP family of vehicles.

The MCOE is involved in all doctrine, organization, training, materiel, leadership and education, personnel, and facilities (DOTMLPF) areas of the program, includ-



“The term ‘MRAP’ does not mean any one specific vehicle; it is a generic term intended to apply to vehicles from different manufacturers that meet a common set of capabilities. Each manufacturer provides a unique variant of the MRAP vehicle. The joint services are fielding these vehicles to improve force protection of units operating in high-threat areas of Iraq and Afghanistan.”

ing operational needs statements coming out of each theater. The MCOE maintains constant communications with both the Iraq and Afghanistan theaters of operation, and the MRAP project manager, to convey the warfighter’s needs and concerns. Too many times a program will focus on “cost and schedule” concerns and not on the warfighter’s concerns. We continue to send SMEs, serving as user representatives, to ensure the warfighter’s concerns come first.

The MRAP program is a success story. By fielding the family of vehicles to the warfighter in unprecedented time, the MRAP program achieved its greatest accomplishment — saving lives. The MRAP does what it was designed to do and does it very well. There are limitations to the MRAP family of vehicles; however, the MCOE is working diligently to ensure

leaders and warfighters at all levels are informed of these limitations.

The MRAP family of vehicles is not a new light tactical wheeled vehicle, nor is it an interim replacement for the HMMWV fleet or a bridge to the joint light tactical vehicle (JLTV). The MRAP objective is to *rapidly* provide *protected, effective, and suitable* tactical mobility to deployed forces with *force protection* and *survivability* as critical attributes. Heavy emphasis on protection and survivability required trading expeditionary, transportability, maneuverability, and off-road capabilities.

There are still concerns to be considered:

- What role will the MRAP family of vehicles have outside the counterinsurgency/IED operational environment?

- Considering the total core mission essential task list (CMETL) of the brigade combat teams, support brigades, and functional brigades, the MRAP addresses only a narrow portion of the CMETL support capability. In what other operational environment can the MRAP be employed?

- Within its limitations, will the MRAP be an organic piece of equipment or a special item that can be drawn to fit the brigade’s needs within the COE?

The Maneuver Center of Excellence continues to refine user requirements for the MRAP. We are using our expertise to determine the requirements for future wheeled and tracked vehicles.



Chris Geeding is a combat developer and operational architect, Mounted Requirements Division, Capabilities Development and Integration Directorate, Maneuver Center of Excellence, Fort Knox, KY. His armor experience spans more than 30 years of total service as a Department of the Army Civilian and an active duty armor soldier.

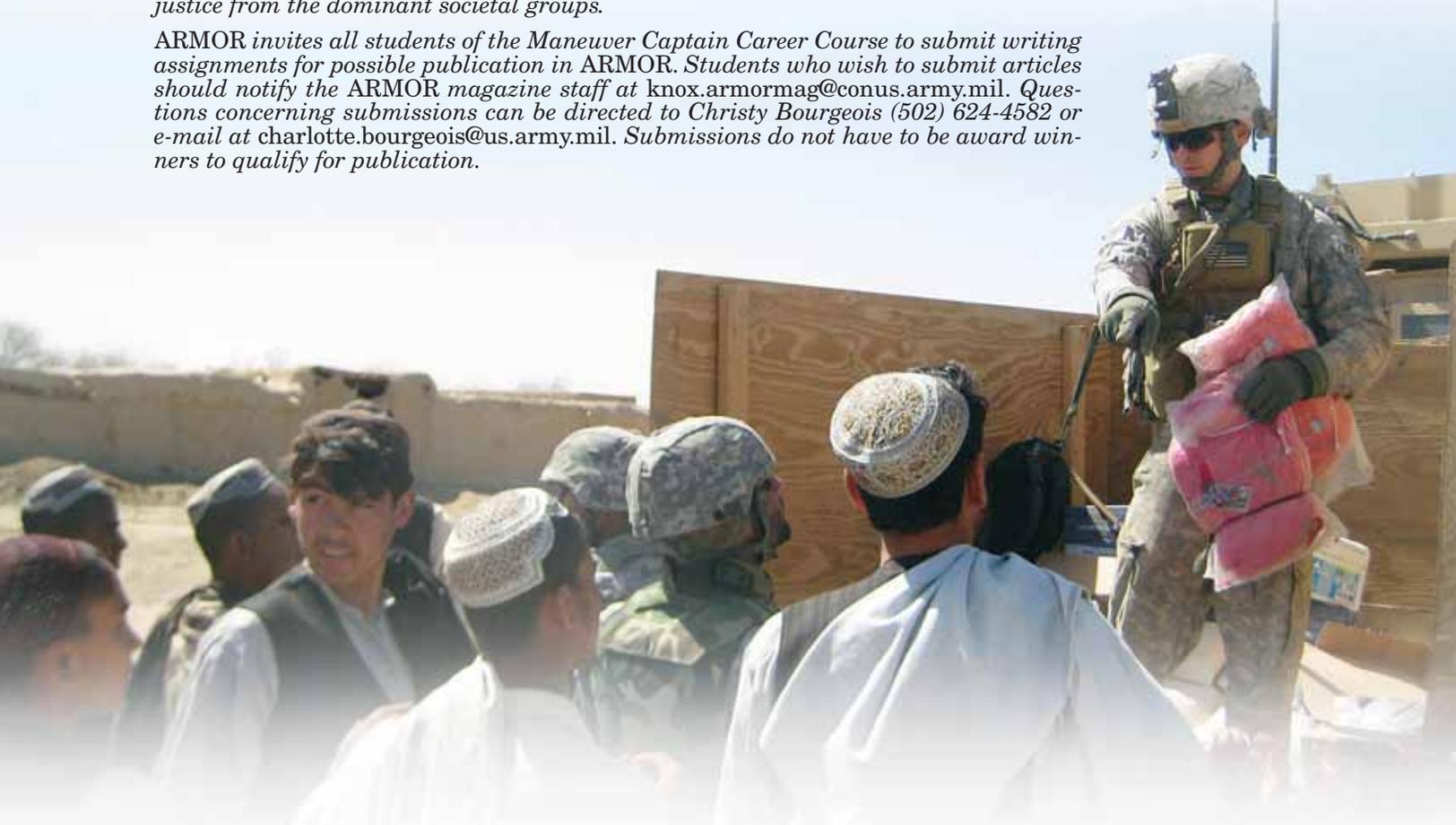
Thomas Stafford is currently the lead MRAP combat development specialist, Capabilities Development and Integration Directorate, Maneuver Center of Excellence, Fort Benning, GA. He received a B.S. from North Georgia College and an M.S. from the Florida Institute of Technology. During his career as an infantry officer, he served in various command and staff positions with the 2d Armored Division, 197th Infantry Brigade, and U.S. Army Materiel Command.

Abraham Maslow's Hierarchy of Needs and Its Applications in Counterinsurgency Warfare

by Captain Nicholas C. Williams

ARMOR is proud to announce Captain Nicholas Williams as the recipient of the Maneuver Captain Career Course Class 08-06 writing award. Captain Williams' article highlights Maslow's theory and relates that theory to the contemporary operating environment. Williams specifically bases his article on the idea that, for the most part, physiological and safety needs are reasonably well satisfied in the "first world." The obvious exceptions, of course, are people outside the mainstream — the poor and the disadvantaged. If frustration has not led to apathy and weakness, such people still struggle to satisfy the basic physiological and safety needs. They are primarily concerned with survival: obtaining adequate food, clothing, shelter, and seeking justice from the dominant societal groups.

ARMOR invites all students of the Maneuver Captain Career Course to submit writing assignments for possible publication in ARMOR. Students who wish to submit articles should notify the ARMOR magazine staff at knox.armormag@conus.army.mil. Questions concerning submissions can be directed to Christy Bourgeois (502) 624-4582 or e-mail at charlotte.bourgeois@us.army.mil. Submissions do not have to be award winners to qualify for publication.



This article discusses the relevancy of Maslow's hierarchy of needs, a theory describing individual's attitudes and motivations, and its applications in counterinsurgency warfare. It discusses the theory's application to my past experiences and failures as an infantry platoon leader during Operation Iraqi Freedom (OIF) 05-07, as well as its application in the successful Sons of Iraq (SOI) program and its practical applications and integration in current counterinsurgency doctrine.

It is neither a sweeping paradigm shift nor a groundbreaking observation to say

that counterinsurgency warfare is difficult. The hardships and confusions associated with the counterinsurgency fight became a reality when I assumed duties as an infantry platoon leader during OIF 05-07.

One of my largest frustrations in dealing with the Iraqi people was what I perceived as a lack of nationalistic pride. I could not understand why the Iraqi people would not stand and fight for their rights. Conversely, I saw Iraqis who refused to vote in local elections and an overall lack of motivation to become a better people and country. I returned home from my first

deployment disheartened by the plight of the Iraqi people; a nation is nothing without its people, and if the people are unwilling to stand, the nation will surely collapse.

During my second deployment, I witnessed the birth of the SOI, which changed my opinion. While lying awake on a sleepless night, I distinctly remember wondering why we had seen such a great decrease in violence in our area of operation since the inception of the SOI. The answer was suddenly obvious — we were employing former insurgents. While this answer is

convenient and correct, it did not harness the deeper truth behind what we were seeing.¹ It was during this sleepless night that the answer finally dawned on me — Abraham Maslow was right.

Description of Events

Abraham Maslow, a psychologist I studied as a psychology major in college, was made world famous for his research in human personality and motivation. His groundbreaking 1943 paper titled, “A Theory of Human Motivation,” details his greatest theory, which has come to be known as “Maslow’s hierarchy of needs.” This theory details the milestones *individuals* need to achieve to feel comfortable with themselves and their place in society. As the theory’s title suggests, these milestones are hierarchical in nature and, as such, a higher-tier milestone cannot be achieved without having satisfied the lower-tier milestones. Maslow identifies these tiers as physiological needs, safety needs, love/belonging needs, esteem needs, and self-actualization needs, and defines them below:

- Physiological needs are the lowest-tier needs and are simply what humans need to survive at the most basic level. They include breathing, food, water, sex, sleep, homeostasis, and excretion.
- Safety needs are the second tier and are security of the body, employment, resources, morality, family, health, and property.
- Love and belonging needs, the third tier, are individual interactions with friends, family, and intimacy.
- The fourth tier, esteem needs, are characterized by self-esteem, self-confidence, personal achievement, the respect of others for the individual, and the respect of others by the individual.
- The fifth, and often most confusing tier, self-actualization needs, is defined by morality, creativity, spontaneity, problemsolving, lack of prejudice, and factual acceptance.

These five tiers, as shown in Figure 1, are often depicted in a pyramid structure.

Outcomes

As a military, we have generated countless acronyms, mnemonics, and other tools to assist in painting a picture of a population. Acronyms, such as sewage,



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water, electricity, academic, trash-medical and security (SWEAT-MS) and area, structures, capabilities, organizations, people, and events (ASCOPE), attempt to describe the relevant information associated with a society. However, in all of our attention to detail we have forgotten to define the characteristics that describe the most basic building blocks of society — the people themselves. For lack of a better adage, “we cannot see the forest for the trees;” Maslow’s theory gives us vision to not only see the trees, but their branches, leaves, and roots. So how does

this apply to the conflict in Iraq and my initial observations?

As a young platoon leader, I engaged individual Iraqis by appealing to their morality, factual acceptance, self-confidence, and sense of achievement; in doing so, I marked my own defeat. My platoon operated on a different level of need relative to that of the Iraqi’s with whom we worked. As a platoon, my soldiers and I met the requirements of the first four tiers (sex excluded for obvious reasons). We had as much food as we could eat; our

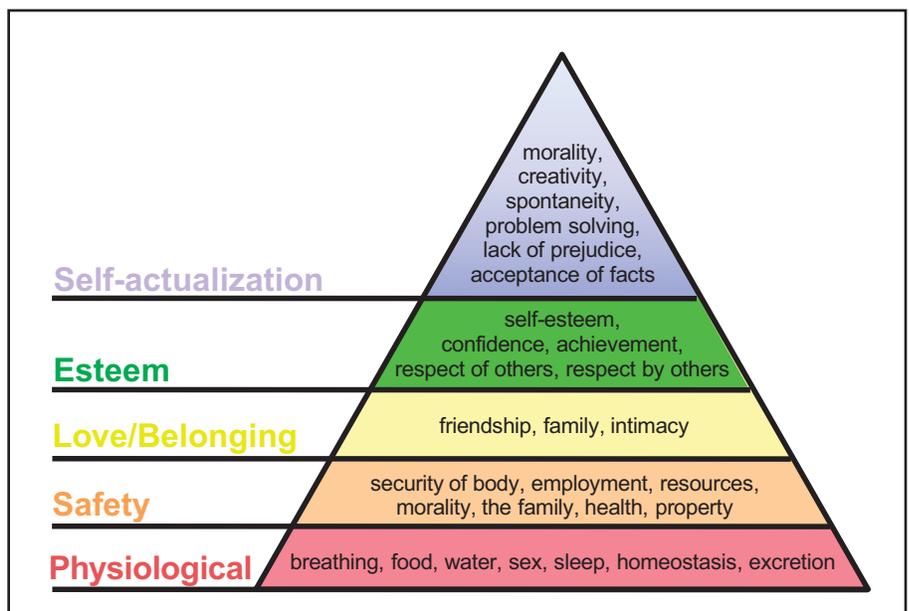


Figure 1

safety was relatively high; we had a sense of belonging with one another in the platoon and company; we took pride, gained esteem, and confidence in our professional accomplishments; and we had the opportunity to solve problems, to act with great moral authority, creativity, and spontaneity. We had met our physiological, safety, belonging, and esteem needs, and were operating at a level of self-actualization rarely accomplished.

Conversely, the Iraqi people in our area of operation had no concept of self-actualization. Their access to clean water was severely limited, food was scarce since many families were too afraid to shop in local markets, and their sleep was disturbed by countless nights punctuated by IED detonations and mortar attacks. Their safety needs were constantly threatened by al-Qaeda in Iraq (AQI), tribal rivalries, and lack of resources. The Iraqi people had not met their most basic physiological and safety needs; as such, they had no way to relate to our rationalizations, all of which were made on a level of self-actualization. It was as if we were speaking an entirely different language.

Once I acknowledged the vast discrepancy between the needs of U.S. forces and the Iraqi people, I realized why the SOI were so successful. It is true that we had co-opted the same people we were once fighting; however, the truthful answer is deeper.

Establishing the SOI allowed the Iraqi people to meet the first two tiers of need, physiological and safety, and begin the third, belonging. The SOI program provided income to impoverished Iraqi people; a means to have the basic amenities; and a better means of security. Rather than rely on the intermittent and relatively infrequent patrol of coalition forces to pass through their neighborhoods, the Iraqi people were now authorized to secure their own lands and provide safety to their own people. Finally, in a culture bound by honor, the SOI provided a means of belonging to those who participated in the program. It gave them a flag to rally behind. Perhaps most importantly, it was a not a tribal flag, but a national symbol uniting the SOI across the country. The SOI program succeeded because it not only turned our enemies, but fulfilled the basic needs necessary to set the foundation for future improvement in the country.

There are criticisms of Maslow's hierarchy of needs, as there are with most psychological theories; however, for the most part, these criticisms regard the individual components of the hierarchical tiers. Critics argue that needs depend on the societies in which people live, and as societies change, so will the needs defined by that society. Interestingly, critics have not challenged the individual tiers or their precedence indicating a relevant validity in Maslow's claims.



"...the Iraqi people in our area of operation had no concept of self-actualization. Their access to clean water was severely limited, food was scarce since many families were too afraid to shop in local markets, and their sleep was disturbed by countless nights punctuated by IED detonations and mortar attacks. Their safety needs were constantly threatened by al-Qaeda in Iraq (AQI), tribal rivalries, and lack of resources."

Lessons

Perhaps the most important lesson learned from Maslow's hierarchy of needs and its relevancy to counterinsurgency is that it provides a quantifiable matrix with which to analyze a group's placement on Maslow's hierarchy. In analyzing a group's placement, one can identify where that group is deficient and where a unit should focus its efforts to meet that group's personal needs. For instance, if a group of people has security concerns, as well as a deficiency in clean water, according to Maslow's hierarchy, a unit should first focus its efforts on providing a clean water source *before* attempting to solve security issues. Addressing the water shortage first is important because it addresses physiological needs before security needs. If possible, a unit could attempt to provide both at the same time; for instance, a unit might repair a water treatment facility and employ the local populace to secure it.

The U.S. military has done a satisfactory job of patterning societies in the counterinsurgency fight. However, in our patterning, we have forgotten to focus on society's foundation — the people. Maslow's hierarchy of needs provides a tool with which one can critically analyze an individual's level of need, thereby his motivations and intentions, potentially predicting his actions. Furthermore, Maslow's hierarchy can be used to specifically target demographic needs, prioritize unit missions to meet those needs, and in doing so, motivate an individual and society to comply with coalition force missions.



Note

¹In my humble opinion, it was akin to saying that "stars are small things that twinkle in the night's sky," rather than referring to them as "hundreds of billions of tons of helium and hydrogen, whose gravity causes millions of nuclear fusions per second, thusly emitting photons, which travel for thousands of years before reaching our eyes."

At the writing of this article, Captain Nicholas C. Williams was attending the Maneuver Captain Career Course. He received a B.A. from the University of Arizona. His military education includes Maneuver Captain Career Course, Infantry Officer Basic Course, Ranger School, Airborne School, Combatives Level I and II, and Air Assault School. His has served in various command and staff positions, including S4, 2d Battalion, 502d Infantry Regiment, 101st Airborne Division (Air Assault), Fort Campbell, KY; rifle platoon leader, A Company, 2d Battalion, 502d Infantry Regiment, 101st Airborne Division, Fort Campbell; and distribution platoon leader, F Company, 2d Battalion, 502d Infantry Regiment, 101st Airborne Division, Fort Campbell.

Developing Intelligence to Drive Follow-on Missions

by Lieutenant Colonel Jeff Broadwater

Developing and collecting intelligence that leads to follow-on missions is the goal of every patrol within every unit in any environment. Patrols are tasked to answer commander's critical information requirements (CCIR) or enhance situational understanding. Properly preparing patrols, incorporating enablers into operations, and conducting detailed analysis support a unit's ability to achieve its stated purpose and enables reallocation of combat power for other missions.

Focusing patrols to collect intelligence means that everyone must first understand what is important to the commander. Staffs and subordinate commanders must understand the commander's intent and purpose of the mission to help develop CCIR that are nested and understood by all. Priority intelligence requirements (PIR) and friendly force information requirements (FFIR) help commanders make a well-informed decision. Some decisions are easier to identify than others in a continuous environment. Decisions are developed from each line of effort (LOE) and

concentrate on moving the formation forward to achieve the next intermediate objective within each associated LOE.

Most units have a solid understanding of information gaps, such as target location, additional details about the physical description of the target, and patterns of life, which must be answered to action a lethal target, but struggle to identify information voids required for nonlethal target execution. Analyzing and visualizing potential decisions beforehand and what the project will achieve at endstate will help. CCIR must constantly be reviewed to ensure the unit remains focused in the right direction as conditions are constantly changing. It could be that the wrong information is being collected because conditions change, the focus has shifted within the population, or the enemy has adjusted its actions based on how coalition forces are operating.

Once the commander's guidance is articulated and understood by all, subordinate commanders and staff then focus on

developing specific information requirements (SIR) to collect, allocate resources, and request additional enablers where gaps exist in the collection plan. Realizing, for some targets, all the required information will take time to collect before the target becomes actionable, a system must be in place to store all the intelligence as it becomes more refined.

The chart in Figure 1 is a very simple tool that can be used at platoon and company levels to help any unit keep up with information as it is answered. Once information is collected, it is color-coded green, yellow, or red depending on if the SIR were completely, partially, or not answered. The information is then stored until all pertinent information requirements are met and the target becomes actionable. Other information can be added to the sheet, depending on the unit's desires, such as a high pay-off target list (HPTL) to increase situational awareness.

The patrol operations order (OPORD) and the pre-brief are two important steps



AO BONE Weekly Recon tasks for 20 SEP 2008

SQDN PRIORITY INTELLIGENCE REQUIREMENTS

1. Is Ashraf Tariq Abdul-Qahhar still operating in the AO?
2. Is Hashim Bakhtiyar still operating in the AO?
3. Are illegal checkpoints still being conducted IVO the Al Zahoor? If so, where are they being conducted, by who, and where are the bodies being taken?
4. Are insurgent groups in the Al Karma Area planning attacks? If there are attacks being planned, what are the targets?

Bone Trooper TASKS/SIR

- A** 1. Take pics of vehicle make, model, and license located at 38S NV 3990696238; Take pics of house; it's supposed to be residence of Talal Saraj (HPT #10). (PIR#3)
- G** 2. Area Recon Fakir Uthman's house at 38SNV4012995605. Search for weapons especially PKCs and RPGs (HPT # 8). (PIR#3)
- A** 3. Photograph the residence of Ubaid Shadi at 38S NV 4012995605. (PIR#3)
- R** 4. Area Recon, method cordon and knock the homes of Ashraf Tariq Abdul-Qahhar, Abdul Hussein, and Khalid Ahmed Saleh Alhabi, suspected IED emplacers. Look for IEDs and IED components in each of the homes. The three residences are located at 38SNV4010995779, 38SNV4035395651, and 38S NV4014095747. (PIR#1)
- R** 5. Take a picture of Abdul Hussein, as well as any MAMs in the area. (Contractor for wall project)
- R** 6. Report to CAT-A the schedule of when schools will be in session.
- R** 7. Take a picture of Ubaid Shadi's house at NV4035395651. Take pic of MAM's near house.

SQDN HPT List (as of 20 SEP 08)

- 1** Ashraf Tariq Abdul-Qahhar (AI Jaff Senior Leader) – responsible for coordinating AQI activities between senior leader and groups in Al Jaff.
- 2** Hashim Bakhtiyar (AI Wahde AQI Leadership) – Finances, develops, and executes attacks against Coalition forces in Khadaa Wadhe. Left after raid of his house in August 2007. Current reporting has him out of the country.
- 3** Amr Faqih Ghazi – IED emplacer and arms supplier works directly under Jamal Idris Husam.
- 4** Basil Fadi al Din – cousin of Akil Hatim Sahib, sniper responsible for shooting an American soldier. Last Seen vic of Kut Adeera.
- 5** Abdul Hussein (AI Jaff Cell) – responsible for coordinating insurgent activities between the Al Karma Cell and an insurgent group in Khadaa Wasl.
- 6** Idris Dabir Muta (Kut Adeera Cell) – responsible for emplacing IEDs. He holds daily meetings with Hashim Bakhtiyar's insurgent group in a mosque in Al Wadhe. HUMINT reports say he left the area after raid of his house in April 07; location unknown.
- 7** Jabir Cernal Alaa (formerly Bobcat) – in charge of a terrorist cell that conducts sniper, IED, and mortar attacks. Believed to have left the area; location unknown.
- 8** Fakir Uthman (possibly Market or SEO) – mid-level terrorist in Market and Bobcat. Responsible for multiple murders in Kifri. Believed to have left area for possibly Laqlaq or Tawuq.
- 9** Ubaid Shadi (AI Zahoor Cell) – IED emplacer and arms supplier.
- 10** Talal Saraj (AI Zahoor Cell) – Allegedly transports weapons for the cell and works directly for Ubaid Shadi.

○ In Troop AO

□ Outside of Troop AO / In Squadron AO

R Not answered

A Partially answered

G Answered

Figure 1

in ensuring all members of the patrol know and understand what information is to be collected and the recon focus before mission execution. The patrol pre-brief serves as a method for leaders to update all patrol members on current enemy and friendly situations in the area of operations (AO), concentrating on significant activities over the past 24-hour time period and any updates or changes to the recon focus. By doing this, all members of the patrol have the most current information before mission execution. Close interaction between the intelligence support team (IST), S2, and S3 is paramount to maintain persistence so that the information given to patrols remains current and constantly updated.

The rehearsal remains a key component to developing actionable intelligence as it provides time for the patrol to verify all soldiers understand what information is going to be collected and that enablers and special equipment are ready for the mission. The patrol has many pieces of equipment, such as handheld interagency identification equipment (HIIDES) and ro-

botics, for use at IED and cache locations that must be checked and uploaded regularly. All members of the patrol must understand how to properly use X-Spray and how to handle evidence and prepare appropriate documentation prior to the evidence being collected. The integration of human intelligence collection teams (HCT), psychological operations (PSY-OP), civil affairs (CA), explosive ordnance disposal (EOD), weapons intelligence team (WIT), human terrain teams, interpreters, and, most importantly, host-nation security forces greatly enhance the likelihood that SIR will be collected, but requires extensive time to rehearse and ensure everyone understands their roles and responsibilities.

Sharing information with coalition partners not only helps everyone better understand the sources of instability and threat, it also ensures all forces have unity of effort within the AO. All parties stay nested by verifying they are targeting the same individuals and enemy cells. The best way to do this is through a multinational targeting meeting that includes all security

forces, as well as key leaders, operating in the AO.

Key leaders can help with the information and consequence management phases of the operation by explaining to the population why an individual was detained by security forces. Target packets and other products must be translated and declassified. Multiple interpreters must be available to translate and record the information to ensure it is properly disseminated to all parties. The meeting also ensures that everyone understands which nonlethal targets are being executed and what effect they might have on the population. If local security forces know the current status of a lengthy project in their area, they can have a huge calming effect on the population by showing the people that their leaders are working toward a solution.

Combined targeting meetings also teach and establish standards/triggers for mission execution with host-nation units, giving them credibility with the population once an individual is detained. Enforcing

evidence collection and teaching host-nation units how to collect evidence is extremely difficult. Figure 2 is an example battle drill used to help separate security forces understand what is expected at a crime scene, and how each security force can use its unique capabilities to work together to develop intelligence at the scene.

During mission execution, synchronizing the maneuvering force with additional sensors that cue, mix, or layer can be difficult if not rehearsed and all parties understand the capabilities and limitations of each asset. Tactical unmanned aerial systems (TUAS), such as Raven and Shadow, help provide additional security to a maneuvering unit. TUAS enablers can also act independently and re-harvest combat power. Ground forces can action in one area while TUAS assets are focused in another, which allows the unit to collect on multiple targeted areas of interest

(TAI) simultaneously. Adding signal intelligence (SIGINT) capability is the most complex and challenging enabler to incorporate into formations, but greatly enhances collection and development of enemy network structures.

The main issue units experience during mission execution is conducting incomplete tactical site exploitation (TSE). Units fail to fully exploit an objective by not allowing soldiers, EOD, and WIT adequate time to collect valuable intelligence or evidence once the area is secure. The unit must reinforce the idea that every tactical site, such as an IED found or detonated, a cache discovered, or raid conducted, must be inspected as meticulously as a crime scene to gather all possible evidence that will lead to a follow-on mission or prosecution of an individual in the host nation judicial system. Leaders must ensure their soldiers and host-nation soldiers wear gloves, and that all possible

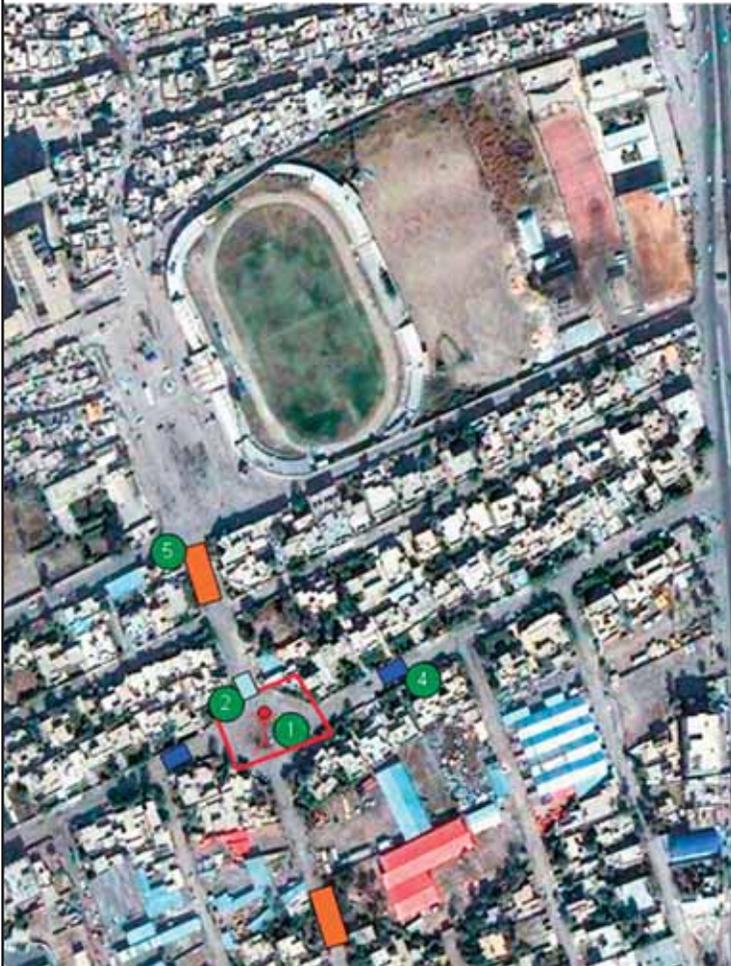
evidence is collected without being destroyed so it can be analyzed. A cigarette butt, coke can, string of tape, or blast fragment can contain fingerprints or DNA that can be analyzed by agencies and result in leads to an enemy network or irrefutable evidence in a detainment.

Minimum Tactical Site Exploitation (TSE) Kit Contents

- ✓ TSE bag to carry exploitation contents to and from target location.
- ✓ Digital camera to document the scene and evidence collected (never enough pictures). HIIDE systems.
- ✓ Batteries (AA/AAA) for cameras, flashlights, wand.
- ✓ Graph sketch pads to sketch target locations.
- ✓ CD case to store media to prevent evidence damage/destruction.

**ADHAMIYAH SECURITY FORCES
DEAD BODY RESPONSE BATTLE DRILL**

TTP STEPS



- 1 Dead body reported to Adhamiyah local police.
- 2 Local police respond to the murder scene, cordon off the area without touching anything and immediately canvas the immediate area for witnesses (car type, description of person, time of crime, location).
- 3 Local police dispatcher alerts high crimes that they need an investigator, then coordinate with the Adhamiyah patrol police to pick up the investigator and take him to the scene if no local police are available.
- 4 Adhamiyah patrol police arrive on the scene and assist local police in security and interviewing witnesses.
- 5 If necessary, Iraqi army is called to the scene to further assist in security.
- 6 Murder investigator takes photographs of the scene, collects evidence, such as bullet casings, and assesses bodily injuries.
- 7 Once the investigator is finished with the crime scene, the local police load the body to transport it to the DJSS while the investigator talks to any witnesses to gather more intel.
- 8 Once the investigator has talked to witnesses, taken statements, and obtained contact information, the local police cordon and additional security collapse and return to their respective stations.
- 9 The dead body is brought to the DJSS to be documented by coalition forces then taken to medical city to await identification by the family.

Figure 2

Developing Actionable Intelligence

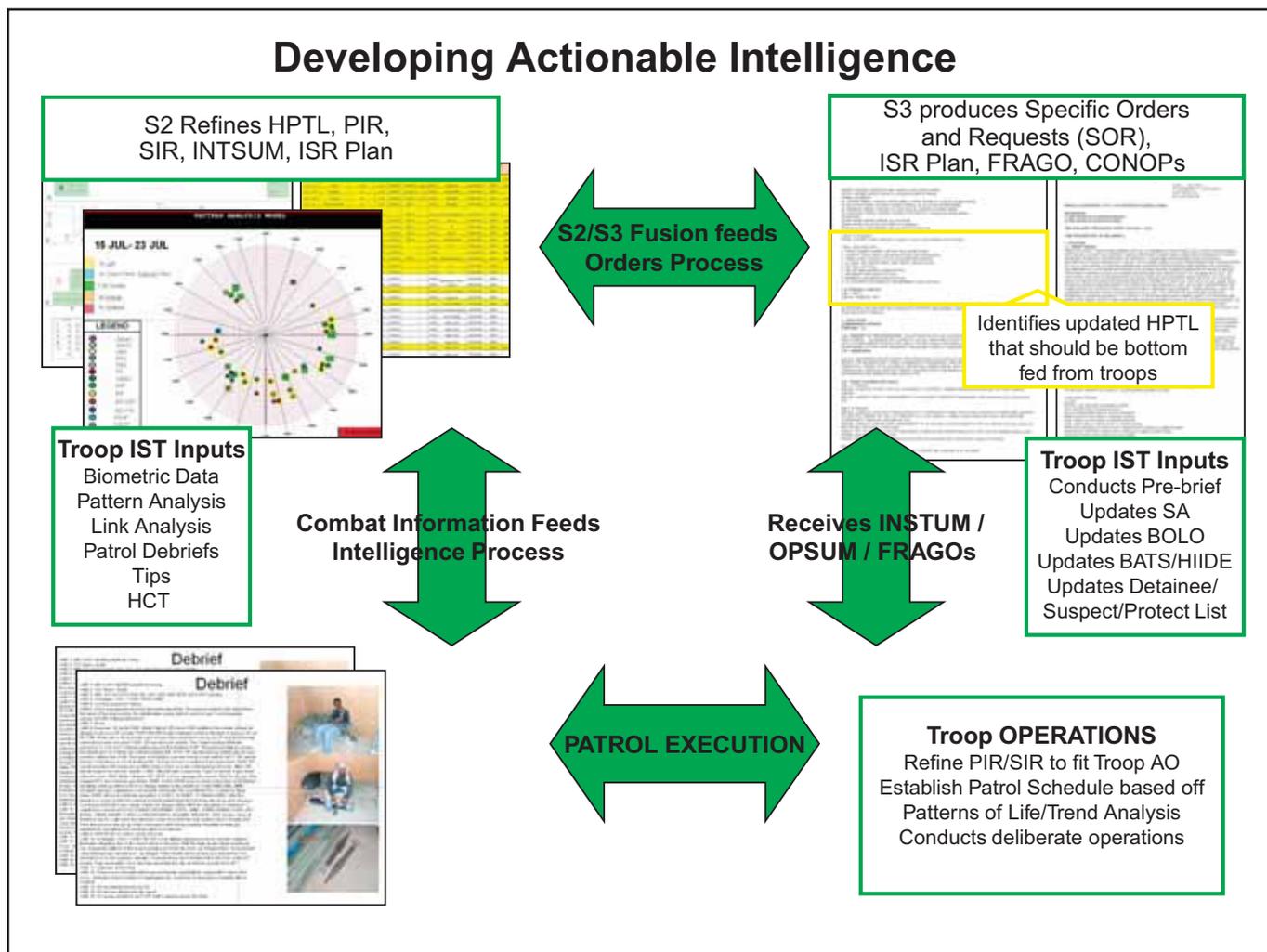


Figure 3

- ✓ Chain of custody tags.
- ✓ Chalk (multicolored) for room numbering.
- ✓ Chemlites (multiple colors) to mark evidence consolidation points.
- ✓ Duct tape to secure evidence, mark areas, etc.
- ✓ Forms such as Arabic sworn statement forms, bilingual evidence inventory form, team evidence inventory forms, etc.
- ✓ Evidence tape for marking/sealing evidence.
- ✓ Flashlight for searching dark areas.
- ✓ Goggles (blacked out) to blindfold detainees.
- ✓ Heavy-duty trash bags to carry and consolidate evidence.
- ✓ Packages of latex gloves; *very important to maintain integrity of the evidence.*
- ✓ Measuring reference rules (metal) for photograph relationship and drawing the sketch.

- ✓ Metal detector wand for searching females or detecting metal.
- ✓ Paper for notes, sketches, etc.
- ✓ Paper bags/burn bags for placing large items or to preserve latent prints.
- ✓ Property tags to tag various pieces of equipment.
- ✓ Sharpie permanent markers to mark evidence bags, etc.
- ✓ Zip ties to secure prisoners or weapons.
- ✓ Ziploc bags (multiple size) to hold/secure evidence.

Analyzing information collected and turning it into intelligence is extremely time-consuming. How a unit is organized at the squadron/battalion and troop/company levels is a major decision leaders will make because it requires individual soldiers to be reallocated from other roles and formations. There is no magical number of soldiers required to man the IST at the company level or enhance the battal-

ion S2 section; it depends on the talent level and experience within each team. Principally, the IST needs to be resourced to conduct analysis to develop lethal and nonlethal targets, maintain both enemy and friendly situational awareness, and maintain all forms of intelligence/evidence collected to exploit each incident.

Managing microgrants and tip-line calls, and monitoring the progress of essential service projects and numerous other systems and sources of information that the company is collecting and executing, requires a company commander to have a committed staff. The IST must be able to assist the commander in analyzing and assessing the problem set they are facing so the commander can articulate his assessment and recommendations to the battalion.

Everyone, from the soldier on patrol to the battalion commander, has a hand in the analysis of information collected. The three most important items the commander adds to the unit's system include focus through his CCIR, allowing subordinate commanders and analysts the freedom to

make and develop opinions and recommendations based on analysis, and his personal assessment. The commander must constantly shape his assessment as he will be the best collector of information in his AO, but he must ensure he shares this information with *everyone*. He is no different than any other intelligence collector in the unit; the information he collects must be disseminated not only to subordinate commanders, but to his staffs as well.

The S2 and S3 have the lead in the unit's collection plan, but additional staff personnel must assist in the process. For example, EOD and WIT must maintain situational awareness on evidence such as fingerprints collected and turned over to other sources for additional analysis. They can also help develop and analyze enemy patterns for developing tactics, techniques, and procedures (TTP), analyze similarities/differences between enemy cells/groups working within the AO, and coordinate with adjacent units to assess trends or find supply routes. PSYOP and civil affairs disseminate debriefs to ensure that current prioritized projects have a positive impact in the community and meet the expectations of the community and the commander's intent. They can also

help analyze and assess the impact of wanted posters to determine if they meet the desired effect or have a negative impact. They can analyze if the good people, targeted to help influence the population, are achieving positive results and are working in concert with government officials. Lastly, the staff and IST must understand the system in which the intelligence will be disseminated within their organization to their higher headquarters and adjacent units.

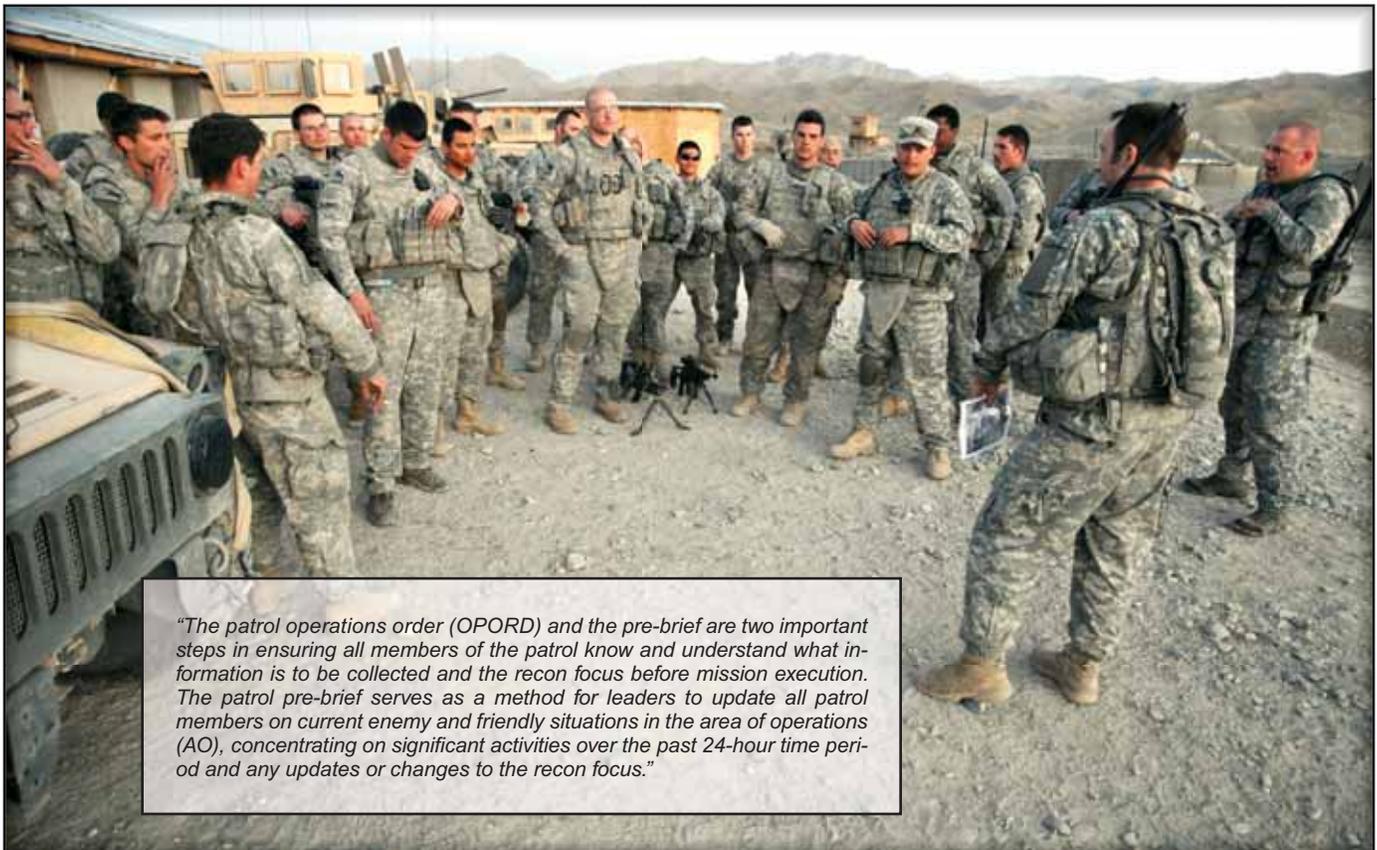
Maintaining fresh intelligence requires constant attention. There are many intelligence analysis database programs that can help organize information to maintain assessments, evidence, draft intelligence information reports (DIIRs), photos, and documents collected. Adding law-enforcement personnel can help the unit establish a system. Units can prepare for this task by developing a knowledge management system before deployment and practicing it daily. Using a multiechelon training approach during simple field problems, or taking a report with associated evidence in the form of a patrol debrief, is a valid technique. The information can be analyzed at the company level, passed to the battalion for further anal-

ysis using the intelligence digital architecture, and then stored so it can be retrieved at a later date. This system will help everyone understand the process before deployment.

Collecting, analyzing, disseminating, and acting on intelligence takes time, a solid understanding of all the variables within the operating environment, attention to detail, and unyielding teamwork among all involved. Once all parties are operating at this level, a unit will achieve more throughout its lines of effort, using less combat power and other resources.



Lieutenant Colonel Jeff Broadwater is currently serving as Cobra 7, senior armor/reconnaissance squadron trainer, National Training Center, Fort Irwin, CA. He received a B.S. from the University of Kentucky and a M.S. from the Naval Post Graduate School. His military education includes the U.S. Army Command and General Staff College, Armor Officer Advanced Course, Armor Officer Basic Course, Ranger School, and Airborne School. He has served in various command and staff positions, to include commander, 3d Squadron, 7th Cavalry, Fort Stewart, GA, and Iraq; and XO and S3, 1st Brigade, 1st Infantry Division, Fort Riley, KS, and Iraq.



"The patrol operations order (OPORD) and the pre-brief are two important steps in ensuring all members of the patrol know and understand what information is to be collected and the recon focus before mission execution. The patrol pre-brief serves as a method for leaders to update all patrol members on current enemy and friendly situations in the area of operations (AO), concentrating on significant activities over the past 24-hour time period and any updates or changes to the recon focus."



The Next Generation M109A6 Paladin

by Major Corey B. Chassé

The Paladin battalion strikes throughout the depth of enemy formations to suppress, neutralize, and destroy ground forces, direct-fire weapons, indirect fires systems, and air-defense systems. The battalion is organized and equipped to perform any of the four standard tactical missions — direct support (DS), general support (GS), general support reinforcing (GSR), and reinforcing (R) — or any other non-standard missions as described.

Under the M109A6 Paladin integrated management (PIM) program, Fort Sill's U.S. Army Training and Doctrine Command (TRADOC) Capability Manager Cannon (TCM Cannon) and BAE Systems are upgrading the M109A6 Paladin self-propelled 155mm howitzer, and the field artillery ammunition supply vehicle (FAASV), which will collectively be called the "M109 PIM Family of Vehicles (FOV)."

The M109 PIM FOV will fire precision rounds/fuzes such as Excalibur (XM982)

and precision guidance kit (PGK) fuze. The M109 PIM FOV program is being designed as a sustainment program engineered to improve readiness, avoid components obsolescence, and increase sustainability of the platform(s) out to the year 2060.

The M109 PIM FOV simplifies and streamlines logistics functions and support efforts. These capabilities ensure operational compatibility with the Bradley FOV (BFV) and Abrams main battle tank (MBT) in the heavy brigade combat team (HBCT) and future combat systems (FCS) in the future force brigade combat team (FBCT). PIM will ensure this fire-support platform continues to meet the needs of the Army's HBCT maneuver commander. Operationally, the PIM will be faster, more maneuverable, more easily sustained, and more lethal.

The M109A6 PIM FOV uses the existing main armament (39-caliber cannon) and recently designed cab structure, while

replacing outmoded chassis components with advanced sustainability and commonality across the HBCT. It also incorporates select technologies from the non-line-of-sight (NLOS) cannon, including an automated (modified electric) projectile rammer and modern electric gun drive systems to replace the current hydraulically operated elevation and azimuth drives that were designed in the early 1960s. Additionally, there will be improved side and belly plate armor for improved survivability of the crew and the platform. In addition to armor improvements, both platforms will be fitted with blue force tracker capability to ensure compatibility with future modernization architectures, which will significantly improve operational awareness on the battlefield. This revolutionary technology will significantly reduce the logistics footprint within the HBCT.

The electric gun and rammer components, as well as a micro-climate air con-

ditioning system, will be powered by the common modular power system (CMPS). This system, which will be installed on the Stryker and has also been installed on high-mobility, multipurpose wheeled vehicle (HMMWV) demonstrator vehicles, is based on architecture jointly developed by the Army Tank-Automotive Research Development and Engineering Center (TARDEC) and the Program Executive Office-Ground Combat Systems (PEO-GCS).

The program will be executed as a public/private partnership between the Army's Project Manager-HBCT (PMHBCT), Anniston Army Depot, and BAE Systems, leveraging both public and private sectors to ensure the best value for soldiers. It is expected that a total of 600 sets (Paladin and FAASV) of the M109A6 PIM FOV will be upgraded. The first prototype vehicles are expected to be complete in 2009, and ready for testing, with a pro-

jection of first unit equipped (FUE) in 2012. There will continue to be a mix of current Paladin and FAASVs in the fleet with the new M109 PIM FOV sets. This will be balanced through an effort called "National Level Recapitalization." This program will be in place to maintain the current fleet through 2020, at which point it is expected the current fleet will then be completely replaced by the now sustainable M109 PIM FOV.

In summary, the HBCT commander will now have more confidence in the field artillery's ability to maintain speed and deliver accurate predicted timely fires where and when needed. There will not be a loss of existing capability, but a gain in complete sustainability for the current and future fleet of Paladins and FAASVs.

The M109 PIM FOV is a cost-effective, low-risk solution to ensure the Paladin/FAASV platform remains ready for the fight today and tomorrow.

The goals of the program are to ensure the platform's long-term viability and sustainability, and support tomorrow's warfighters. Based on these goals, the modernization planners decided to integrate components they knew worked well, including:

- Commonality with HBCT Bradley platforms; reduced logistics footprint.
- Improved survivability; significant growth potential.
- Additional on-board ammunition stowage; more kills.
- M109 FOV Paladin projectile stowage of 43:
 - ✓ 2 forward vertical (under the weapon).
 - ✓ 10 in hull extension "ready racks."
 - ✓ 8 rear vertical (hull extension).
 - ✓ 7 right-side sponson.

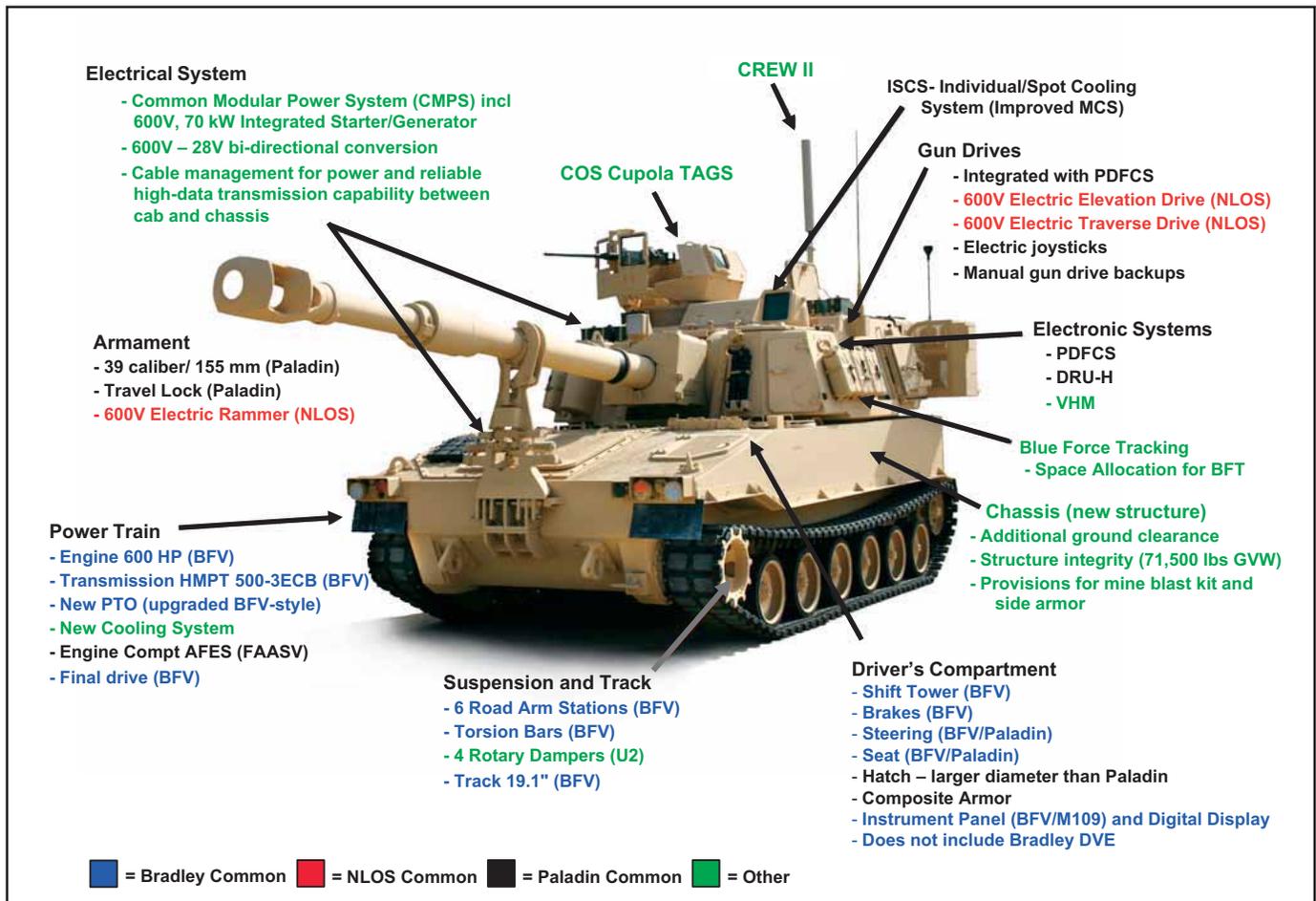


Figure 1



“The PIM program will also improve crew survivability and add technology insertions, such as Force XXI battle command brigade and below (FBCB2) or blue force tracker, better communications, transparent armor gun shield (TAGS) for crew-served weapons station, and bolt-on belly and side armor capability.”

- ✓ 10 left-side sponson.
- ✓ 6 cab “ready rack.”
- M109 FOV FAASV projectile stowage, approximately 95.
 - ✓ 90 in forward projectile racks.
 - ✓ 5 in vertical rack on left-side sponson.
- Improved mobility; keeps pace with maneuver forces.
- Sustains the M109 FOV out to 2060.
- Architecture to support future modernization.

M109 FOV Rollup

Sustainment is the main reason for the PIM M109 FOV. Obsolescence has driven us to replace parts and components that can no longer be maintained or obtained beyond FY12, thus not keeping pace with other platforms in the HBCT. PIM will leverage fleet commonality for key components such as the Bradley engine, transmission, final drives, and suspension, and FCS cannon rammer. PIM will also:

- Leverage Abrams and Bradley improvements as they arise.
- Reduce the HBCT logistics footprint.
- Increase fire support response.
- Maintain mobility with the HBCT.
- Reduce operational and support cost.
- Maintain performance.
- Increase mean time between failures.

The PIM program will also improve crew survivability and add technology insertions, such as Force XXI battle command brigade and below (FBCB2) or blue force tracker, better communications, transparent armor gun shield (TAGS) for crew-served weapons station, and bolt-on belly and side armor capability. Additional improvements include power train, track and suspension, slip ring (communications), ammunition rammer, and digital fire control system (PDFCS).

The program will also add new technology, including vehicle health management (VHM), which provides maintenance prognostic and diagnostic capability to the

gun and ammunition carrier; survivability add-ons such as TAGS, side armor, and belly plate armor; and electric drives versus hydraulic drives (rammer and traversing mechanism).



Major Corey B. Chassé is currently serving as the field artillery organizational integrator, National Guard Bureau, Arlington, VA. He received a B.S. from Liberty University, an M.A. from Farleigh Dickerson University, and a Ph.D. from Salisbury University. His military education includes the Field Artillery Officer Basic Course, Field Artillery Captain Career Course, Combined Arms and Services Staff School, and U.S. Army Command and General Staff College. He has served in various command and staff positions, including chief, Current Cannons, TRADOC Capability Manager-Cannon, Fort Sill, OK; Excalibur action officer, TRADOC Systems Manager-Cannon, 1st Battalion, 30th Field Artillery, Fort Sill; assistant S3, Headquarters and Headquarters Battery (HHB), 3d Battalion, 112th (3-112) Field Artillery (FA), New Jersey Army National Guard, Morristown, NJ; and commander, Battery B, 3-112 FA, New Jersey Army National Guard, Lawrenceville, NJ.

POST-TRAUMATIC STRESS DISORDER



A PERSONAL STORY OF FIGHTING BACK

by First Sergeant James Black

Even though I'm not a doctor, or even a medic, recent and ongoing events have compelled me to reveal very personal information in hopes of offering encouragement to fellow soldiers in their quests to fend off "the demons."

As a 22-year active duty soldier, I have served in Korea, Bosnia, Desert Storm, and twice in support of Operation Iraqi Freedom (2003-2004 and 2006-2007), the latter making up the bulk of this story's base. During my most recent 15-month deployment, I was assigned as a first sergeant to a Stryker-based cavalry troop. We were composed of scouts, mortarmen, infantrymen, forward observers, medics, and counterintelligence soldiers.

Time in country aside, we observed and experienced a wide spectrum of daily combat events and the occasional "bad" days that no one seems to forget. Like so many of our comrades, we lost a brother over there; he died behind his weapon, fighting bad guys who

were firing at us. We saw our share of enemy mortar attacks, improvised explosive devices (IEDs), and fire fights, like nearly every other unit that passes through.

I returned from deployment in September 2007 to the regular post-deployment schedule we all go through. We were, of course, briefed on what to expect; good times during the 90-day "honeymoon" period, followed by the chance times that we might experience discipline problems. As a unit, not only did we conduct scheduled briefings and doctor visits, but we also assembled in a group, removed our ACU shirts (devoid of rank), and discussed things. This was my attempt at self-therapy for the guys, by the guys. There were no expectations; I just wanted the guys to realize that the things we were experiencing were shared by the group, and were not one man's mental hell. I shared my own experiences, such as walking into a large department store and



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suddenly having an unexplained nervous breakdown, and my grown children had to escort me back to the parking lot where I felt secure again. When finished sharing these stories, I asked my soldiers for a show of hands — more than 85 percent raised their hands and said that they were experiencing the same issues!

It has been about a year and a half since our return, and I have stayed in touch with a few of the guys, but it is difficult to say if they still struggle with the demons. At this point, I only feel comfortable discussing my situation and using it as an example to understand how some things get better and others linger on. I have been diagnosed with chronic post-traumatic stress disorder (PTSD) and am undergoing professional medical treatment to help deal with the issues. I am no novice when it comes to understanding this subject; I have done a lot of research on the disorder. Information does help; however, it seems that I lose control of my faculties and emotions at the most inopportune time. I attempt to talk myself through these breakdowns by reassuring myself that nothing is wrong, I am in no danger, and there is nothing to be emotional about. Nonetheless, I break down and cry about nothing at all, and losing control only breeds a little anger inside, which leads to other problems, mainly concerning family.

For those of you who are struggling with feelings of hurt, resentment, guilt, and confusion, I want to share the three things that help me cope. Before I share these things, know that many credible studies show that 90 percent of all PTSD cases resolve themselves, if only partially, even without treatment. Now, before you say to yourself “see, I will be fine,” let me remind you of the remaining 10 percent who may not get help and really need it. I whole-heartedly recommend professional help, regardless!

My first line of defense is something that is missing from so many soldiers’ lives — immediate family. When my symptoms surface, which usually happens at home, not at work, my kids silently withdraw from the room and my wife takes her place by my side as the rock on which I throw this unknown person, lest he drown in unknown waters. I cannot fathom what my single soldiers must have gone through during their struggles, alone in the barracks, with no family to help them through. Unfortunately, many soldiers came back and tried to self-medicate, to numb the demons that would not go away, nearly to the point of self-destruction — they should have sought help!

My second line of defense is far more readily available to all soldiers — fellow vets. I use this line of defense whenever

I find a suitable source. At this writing, I have a fellow first sergeant, a wingman of sorts, who commiserates with me on my bad days, and I with him during his. We share commonalities that we can comfortably discuss, which otherwise might fall on deaf ears if shared with counselors or family members. There is a strange sense of comfort and camaraderie in the knowledge that others are still fighting a silent war of keeping the demons in the closet. Before you look at this problem dismissively, know that some of these guys are among the toughest soldiers I know. Someone once said that combat is made up of 99 percent boredom and routine, and 1 percent of absolute mind-scrambling horror. Not everyone experienced that horrific 1 percent and some experienced it at different levels; some not too bad, some much worse than could or should be described herein.

My third line of defense is obvious — counseling. I failed to seek help when I first experienced symptoms; I really thought I could fight my way through or it would go away. I was wrong! Since the demons were not interfering with my work (so I thought) and were only visiting me at home, I did not see the need to take an hour out of my important day to visit a counselor. I could not have been farther off the correct path. I know to this very day that I may have started too late. It took me

a while to see what this was doing to my family, the constant anger over nothing, the short fuse when dealing with small matters; it took a toll on those who could help me, if I had let them.

Granted, everyone will get different results from this type of help, but it is well worth the try. I have foregone the use of any recommended medication, but that was a personal choice. Yet another piece of common ground between me and my wingman, we chose to fight this drug free. Professionally, I am not opposed to using medications to assist in the fight; it is a purely personal choice and one that has pros and cons that each individual should research.

Even with these three lines of defense at my disposal, the battle is ongoing. I did not intentionally bring these demons home with me and would gladly send them back, if I knew how. Recently, I have felt the pull to rejoin the fight, which does not bode well with my family. My inner desperate side believes I can take the demons back and leave them there. The demons seem to be crushed into silence when I put on my uniform and go to work, something the counselor links to a “mental safety net.”

These days, while trying to be physically, mentally, and emotionally strong, the steps taken in the fight against PTSD are more important than ever. The Army has made leaps and bounds in recognizing PTSD, how it affects our soldiers, and how important it is for us to continue to address it at every given chance. Notably, as with many other things, there are those who take advantage of this newly readdressed issue, and it has muddied the waters for those who still fight their demons every day. I encourage all leaders to take this unfortunate fact into account, but stand behind those soldiers who have difficulty coping with these demons.

If the first line of defense is unavailable and the third line is not used (which is the best line of defense), the second line is always available, but only if we are there for each other and drop the “he-man” crap, recognize the issue, apply any help we can, and get on with the job of training and preparing for the next trip overseas. I do not believe PTSD can completely stop us, and it is incumbent on us to stay trained and ready to deploy, if needed. I think the invaluable experiences we derive from our fight against PTSD should be used as a teaching tool to raise the awareness of younger soldiers so they

have a better chance of leaving the demons in country when they return from the fight. This preparation is as important as mission essential task list (METL) training for young soldiers headed to the fight.

Finally, while not a doctor, I do consider myself a veteran of more than one type of fight, and if not for my fellow veterans, who are also struggling with that “other” fight, life would be a little rougher and harder to deal with these days. Find a wingman, someone who stomped some of the same ground, fought the same fight, dealt with the same issues, and you may just find out that they brought the same demons back with them as well. You may also learn that they have a trick or two up their sleeve on the TTP they use to fight, and effectively keep, the demons locked away with no chance of returning.

One final thought: if the battle seems to be rolling in the demon’s favor some

days, take solitude in the fact that there are more of us in the fight than you know. Good luck in your fight, and just know that the demons will eventually lose; they have to.



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Part 2 of the *ARMOR* Series:

Highlighting the Most Significant Work of Volume II (1831 to 1872) of the Multivolume Collection

by **Commander Youssef Aboul-Enein, U.S. Navy**

Foreword

Understanding the area of operations, in particular, the Middle East, requires much reading, discussion, and reflection. For years, Commander Aboul-Enein has been committed to bringing Arabic works of military significance to the pages of Army professional journals. The multivolume work of the late Iraqi sociologist, Dr. Ali al-Wardi (hereafter Wardi), represents six concentrated volumes in eight books that provide a comprehensive look into the complex facets of Iraq from an external and internal view. Much like the Cold War, when Soviet military thought was translated and analyzed, we must make an effort to translate the works of Arab academics, counterterrorism specialists, and military leaders and yes, even terrorists. A measure of success for any military writer is determined by the use of his writings to stimulate debate and train a future generation of leaders. Commander Aboul-Enein's essay on the Muslim brotherhood published in Military Review was used in teaching electives at the Joint Forces Staff College, and his assessment of Bin Laden was used at the Joint Advanced Warfare School. I commend the U.S. Army's ARMOR journal for dedicating several issues to highlighting the importance of Wardi's work, offering future and current American military leaders access to this important work published only in Arabic.

— Admiral James Stavridis, U.S. Navy, Commander, U.S. Southern Command



Iraq's Social, Political, and Military History: of Dr. Ali al-Wardi

In the March-April 2009 edition of *ARMOR*, Wardi's Volume I of "Social Aspects of Modern Iraqi History," features the internal and external pressures on Iraq from during the struggle between the Persian Safavid and Ottoman Empires from the 14th to late 18th centuries. In this edition, Volume II focuses on the arrival of French forces in Egypt, the heart of the Ottoman Empire in 1798. This sent a shock through the Islamic world, and according to Wardi, who quotes an Ottoman chronicler of the period, Sultan Selim III did not know of the occupation of Egypt by Napoleon until 2 months after the invasion. The Sultan called for a jihad, but it was ineffective and took Horatio Nelson's fleet to evict the French from Egypt, but not before Napoleon left an indelible mark on the region during 3 years of occupation, which saw his forces push into Palestine and the Levant.

Napoleon's arrival with his army was the first time a Christian force invaded the heart of the Islamic Ottoman Empire. The Ot-

tomans and other Islamic sultanates challenged Dutch, British, and French encroachment on the periphery, the Caucasus, India, the Persian Gulf, and the Red Sea, but these incursions were small and unnoticed by the mass of Muslims. The arrival of 30,000 French trained troops and their easy victory against Mameluke warriors could not be ignored by the Muslim populace, or easily hidden from public view by Ottoman authorities. Wardi spends half of Volume II discussing events outside Iraq that were followed with interest, as Iraq's fate was tied to the fortunes of the Ottoman Sultan.

Muhammad Ali Pasha of Egypt

From this shock of French arms emerged the Macedonian cavalry officer in Ottoman service, Muhammad Ali, who seized upon 4 years of chaos imposed by the withdrawal of French forces in 1801 to impose order on Egypt and become supreme leader of





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Sultan Selim III in Audience
by Konstatin Kapidagli (1803)

Egypt. Muhammad Ali would expand his reach from Egypt to Syria, the Balkans, Arabia, the Sudan, and threaten the Ottoman Empire. This leader would modernize Egypt and, in particular, Egyptian forces. Born in 1769, the same date as Napoleon, Muhammad Ali would view the French forces with awe. In 1801, he was nearly killed as Anglo-Ottoman forces fought French forces in Abu Qir in Alexandria. By 1805, he would start what would be 43 years of rule and extract from the Sultan the concession to be *Khedive* (Viceroy) versus *Vali* (Governor) of Egypt, giving him autonomy and allowing him to pass on the vice-regency to his heirs.

ers, commenting that Egyptians were worthy only of manual labor and driving donkeys.

The first order of business for Muhammad Ali was the modernization of his forces, transforming the Egyptian system from village levies, in which communities provided and equipped forces based on the demands of Mameluke or Ottoman masters, to a regular standing modern force. In Arabic, this medieval feudal system was called *firqa* (groups) and each *firqa* had a commander. The Egyptians faced Napoleon's squares, cannons, and modern drill tactics with separate commanders fighting as individuals with the support of their *firqa*.

Muhammad Ali coveted a Napoleonic-style army, and in 1819, imported the first of what would be a string of western military advisors that, by the 1870s, included former Confederate officers. Muhammad Ali could not wait for his forces to modernize when he was challenged by the Wahabis. Sultan Mahmud II ordered Muhammad Ali to address the rabble that had occupied the holy sites of Mecca and Medina and were attacking pilgrims. The Sultan declared the Wahabis *kharijeen* (outside the place of Islam) for their brutality and intolerance.

In 1811, Egyptian forces landed in Yenbu under the command of Muhammad Ali's eldest son, Tousson Pasha, and easily took Mecca and Medina; however, in the summer of 1812, Wahabi forces from the interior collected, struck leading Egyptian forces, and garrisoned in Mecca and Medina. Muhammad Ali personally arrived in Arabia with reinforcements and to rally his forces. The defeat can be attributed to Egyptian soldiers who resented their non-Egyptian overlords and felt that while the Wahabis were primitive, the Muslim call to prayer could not be heard in Egyptian camps, and their officers partook of alcohol, surely God was not on their side.



The Battle of the Pyramids
by François-Louis-Joseph Watteau

"Napoleon's arrival with his army was the first time a Christian force invaded the heart of the Islamic Ottoman Empire. The Ottomans and other Islamic sultanates challenged Dutch, British, and French encroachment on the periphery, the Caucasus, India, the Persian Gulf, and the Red Sea, but these incursions were small and unnoticed by the mass of Muslims. The arrival of 30,000 French trained troops and their easy victory against Mameluke warriors could not be ignored by the Muslim populace, or easily hidden from public view by Ottoman authorities."

Tousson would die in the Wahabi campaigns and Muhammad Ali returned to Egypt from Arabia, determined to annihilate the Wahabis. He sent his second son, Ibrahim Pasha, who would emerge as a brilliant military commander; his first campaign was against the Wahabis in 1816. First, he prayed at the Tomb of Prophet Muhammad in Medina and then set out to roll up the Wahabis through force, French tactics, cannon, and undermining the tribal fabric through bribes and protection that made up the First Saudi State established in 1744.

"From this shock of French arms emerged the Macedonian cavalry officer in Ottoman service, Muhammad Ali, who seized upon 4 years of chaos imposed by the withdrawal of French forces in 1801 to impose order on Egypt and become supreme leader of Egypt. Muhammad Ali would expand his reach from Egypt to Syria, the Balkans, Arabia, the Sudan, and threaten the Ottoman Empire. This leader would modernize Egypt and, in particular, Egyptian forces."

*Mehermet-Ali, Viceroy of Egypt
by Auguste Couder (1841)*



Ibrahim vowed he would release his slaves and never touch alcohol if God granted him victory against the Wahabis. After returning to his military camp, he ordered every drop of wine dumped, which may have been done to motivate the foot soldiers, made up of Egyptian and Sudanese peasants. In 1818, he arrived with his army in the Wahabi capital of Dir'iyah, leveling the city and capturing Abdul-Aziz al-Saud alive, he would send him to Istanbul as a gift to Sultan Mahmud II. Cannon was not only a tactical weapon, but a psychological one against the Bedouin; it was the first crack of cannon they had heard and it demoralized al-Saud's forces. Iraqis rejoiced at the Egyptian victory against the Wahabis, as Iraq suffered from consistent tribal raids and never forgave the sacking of Karbala by the Wahabis in 1802. Ibrahim Pasha also held Wahabi clerics responsible for inciting tribes, and invited them to 4 days of religious debate that ended with execution of all Wahabi clerics present.

Greek War of Independence

The Ottomans would face a challenge in 1821 with the yearning for Greek independence and support from western groups,

such as the Friends of Greece. Among the prominent volunteers was British poet Lord Byron, who died in the Greek rebellion against the Ottomans. Victor Hugo wrote of the romantic side of the Greek war. The Ottoman Sultan ordered the Vali of Damascus to conduct a massacre of Syrian Orthodox Church members, an order he avoided by referring the matter to consultation and deriving an opinion that there are no rebels among the Christians in Syria. The Sultan's order was a reaction to the massacres conducted against Muslims in Greece and Macedonia. In 1824, stuck in a quagmire, Mahmud II called for help from Muhammad Ali Pasha in Egypt, who sent a fleet within months, holding 17,000 troops under the command of Ibrahim Pasha. Upon landing in Peloponnese, Ibrahim linked with Ottoman forces and rallied them to victory upon victory until they arrived and occupied Athens in 1827, setting camp on the Acropolis. The combined Egyptian-Ottoman victory was on the verge of suppressing Greek resistance, when a combined British, French, and Russian fleet destroyed the Egyptian fleet in the Battle of Navarino. Ibrahim consolidated his forces and returned to Egypt.



*Battle of Navarino (1827)
Ambroise-Louis Garneray*

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Muhammad Ali Demands Compensation

Muhammad Ali, to make up for his losses, demanded that the Sultan grant him the governorship of the Levant for his services against the Wahabis in Arabia and the Greeks. His demands were dismissed, and Muhammad Ali sought to seize the Levant by force. He dispatched Ibrahim Pasha once more with an army up through Gaza and toward Acre. It was Acre and, in particular, the Citadel that frustrated Napoleon, a fact that was not lost on Ibrahim, who laid a 6-month siege, bombarding the city walls and the Citadel. In one day alone, 3,000 grenades and 10,000 cannonballs rained on the city; finally, a breach was achieved and a three-pronged assault ensued, leading to the Vali of the Levant Abdullah Pasha to surrender in 1832. Muhammad Ali must have been pleased with his adopted son, whose mother, a Greek, married Ali and he adopted Ibrahim as his own.

A century after the fall of Acre in 1932, one of Cairo's main streets and city centers was renamed Ibrahim Pasha, where his statue, astride a horse, still remains. Taking Acre demoralized Ottoman forces, which was no match for the tactics of Ibrahim and his use of European methods of warfare. In 1833, the Ottoman Sultan capitulated, granting him the title, "Khedive of Egypt," a hereditary title, and "Vali of the Levant," a nonhereditary title.

Ibrahim Pasha took the governorship of the Levant, and set about using Arab identity to rule. He named himself *Siraskar al-Jaysh al-Arabi* (commander of the Arab Armies), and delivered speeches in which he stated, "I arrived Egypt a boy, and my blood was shaded, and soul given an Arab coloring." But Ibrahim's popularity was eroded by taxes that were three times higher than the Ottoman authorities. However, these taxes were used partly to modernize the Levant, much like Muhammad Ali modernized Egyptian arms. One chief complaint of the people of the Levant was forced conscriptions into the military that Ibrahim had imposed, coupled with the disarming of the local population. As Egyptian soldiers attempted to apprehend conscription evaders, draft reports surfaced of people seeking asylum in foreign consulates, retreating into the hills and mountains, and even throw-

ing themselves into the Mediterranean Sea. Muhammad Ali faced similar problems of Egyptians engaging in self-mutilation to avoid conscription; it was deemed by the Egyptian viceroy that Egyptians as farmers were more valuable than them serving as soldiers, so he acquired Sudanese slaves and conscripts.

Ibrahim Pasha would find problems in suppressing the autonomy of Palestinian families, beginning with Abu Ghoush of Jerusalem, and the rebellion would grow, to include the Nablus families of Toukan and Jazar, who rejected conscription and taxation. In 1833, these families charged Ibrahim Pasha of being a drunkard, eating the flesh of pigs, and not praying inside the mosques. It is estimated Ibrahim Pasha lost 4,000 troops to suppress these Palestinian families, in an Egyptian scorched-earth policy.

In 1836, Ibrahim diverted his attention to subjugating the Druze. The problem was an invitation sent by Sherief Pasha, Ottoman Overseer of Damascus, when Yahya Hamdan, the leader of the Druze, arrived in Damascus, the Ottoman Vali requested 170 Druze youths for military conscription. The Druze leader said he could not fulfill this request, as every able bodied Druze male was needed to deter Bedouin incursions. In retort, the Ottoman Vali slapped him, creating a revolution by this assault on the dignity of Sheikh Yahya that cost Ibrahim Pasha 10,000 casualties and mired him in a 10-month rebellion.

In 1839, the Ottoman Sultan felt strong enough to challenge Muhammad Ali and sent an army to challenge his authority in the Levant. The Ottoman and Egyptian armies met north of Halab, near the Syrian-Turkish border. The Egyptians were commanded by Joseph Anthelme Sève, an officer under Napoleon, who trained Egyptian forces and converted to Islam, taking the name "Suleiman Pasha al-Fransi" (the Frenchman); the Ottomans were commanded by Helmuth von Moltke (the Elder).

Little is known about the details of the battle in Wardi's book, except that Ottoman Hafiz Pasha refused to alter his plans, despite Moltke's advice, and the Egyptians fought a fluid campaign, crushing the Ottomans in what would be called, "the Battle of Nizip." The power of Muhammad

Ali was challenged by the Europeans, which led him to withdraw from the Levant in 1840. Both Muhammad Ali and Ibrahim Pasha died in 1848 and were succeeded by Abbas, and later Said Pasha, who started the Suez Canal Project, which would be completed in 1869 under Ismail Pasha. The Muhammad Ali dynasty would continue until the removal of King Farouk I from power in 1952 and the declaration of Egypt as a republic.

Ali Rida Pasha: Re-Assertion of Ottoman Rule over Iraq

In Volume 1, Wardi introduces us to strong Ottoman Valis of Baghdad such as Ahmed Pasha; however, there were weak Pashas, who became overwhelmed with internal tribal dissent and the external incursions from the Wahabis in the south and Mamelukes from the west. The Mamelukes would forcibly take over Baghdad, and the Ottoman Sultan conceded their authority until 1831, when he found a commander and army strong enough to regain this territory. Ali Rida Pasha, a Bektashi Shiite from Tarbzon, a city on the Black Sea, was a good



"Ibrahim Pasha took the governorship of the Levant, and set about using Arab identity to rule. He named himself Siraskar al-Jaysh al-Arabi (commander of the Arab Armies), and delivered speeches in which he stated, "I arrived Egypt a boy, and my blood was shaded, and soul given an Arab coloring." But Ibrahim's popularity was eroded by taxes that were three times higher than the Ottoman authorities."

Ibrahim Pasha by Charles-Philippe Larivière (1846)

general, but incapable of handling the pestilence, disease, and Euphrates River flooding that characterized Baghdad. A drunkard, Ali Rida Pasha left power to rest on three ruthless brigands in Baghdad, Ali Agha Sirji, Abdel-Kader Mosuli, and Ali al-Khasi, who used extortion, assassination, murder, intimidation, rape, racketeering, and crime to rule Baghdad and its environs. As long as these gangsters paid tribute to Ali Rida Pasha and subjugated themselves to Ottoman authority, they were given free hand. The torture of a protected woman and the violation of her honor would lead to the Jameel Zadah rebellion.

In 1832, the Mufti (religious scholar) protecting the women, would be violated in the cleric's home by an angry mob, which violated not only the sanctity of the cleric's home, but also the right of the cleric to protect those seeking shelter, both inherent in Iraqi tribal custom. This violent protest led to Ottoman intervention, which led to Ottoman cannons being turned on the protestors and causing a massive fire in Baghdad's central market. Another challenge came the same year, when the Shammar tribe threatened Baghdad. Ali Rida Pasha used their nemesis, the Anayzah tribe, to fight the Shammar, promising them a reward that was never forthcoming, so the Ottoman Vali Ali Rida turned and allied with the Shammar against the Anayzah, all in an effort to remain in power in Baghdad. Under Ali Rida Pasha, the Shiites of Iraq were allowed to express their public mourning ceremonies over the martyrdom of Hussein, Prophet Muhammad's grandson, who was ambushed in Karbala. Overall, the stewardship of Ali Rida Pasha, which ended in 1842, was disastrous for Baghdad and Iraq.

Neguib Pasha

In 1842, Neguib Pasha took over as Vali of Baghdad, sent by the Ottomans to reform Iraq. His tenure was marked by the competition between Britain and France over the good graces of Ottoman officials. Neguib was pro-British and visited the British consul first, which offended the French. This led to the deterioration of the relationship between the French and Neguib Pasha, which included retaliations such as four European women being accosted for being at a local address with an unrelated male, their Iraqi servant.

Neguib Pasha is better known for the 1842 massacre in Karbala, which was rooted in the trend that Karbala had evolved into a city in which every criminal, brigand, smuggler, and escapee from Ottoman authority convened. The city became a no-go zone for Ottoman forces, and Neguib Pasha resolved to address this criminal autonomous region. Neguib Pasha sent notice that the criminal oligarchs of Karbala, led by Ibrahim al-Zafarani, were to disarm in one month. This order was ignored and Neguib laid siege in Karbala, a holy city and site of the martyrdom of Hussein, and began bombarding it with artillery. Neguib had explained what he was doing to British and French consuls, as well as the Persian *Wakil* (representative). The Qajar Persians and Ottomans nearly declared war over the shelling of Karbala and a peace by the European powers.

In 1846, an Ottoman warship appeared near Basra, which led to Persian protests. Neguib Pasha's tenure was also marked by several charismatic religious movements and significant events in Iraq that included:

- The arrival of Muhammad Ali, the Bab, Muhammad Ali al-Shirazi, who was believed by some to be the 12th Imam returned; he was executed by Qajar Persian Shiite city leaders of Tabriz. This movement evolved into the Baha'is.
- A cholera epidemic in Baghdad.
- Struggles for power between the Ottoman Vali and the Mufti of Baghdad Sheikh al-Alusi.

- Intrigues by the French consul.
- The charismatic female, Qurat Ayn (1814-1852), a striking blonde who advocated and preached the arrival of the Bab. Both the Bab and Qurat Ayn advocated the views of Shiite cleric Ahmed al-Ihsaai (1753-1826), such as the 14 infallible ones (Muhammad, Fatima, and the 12 imams). Qurat Ayn was executed in 1852 by the Qajar Shah for heresy and not renouncing the Bab as the awaited Imam.

Wardi's book delves into a series of Ottoman governors of Baghdad after the tenure of Neguib Pasha ended in 1849. They were unremarkable, except for Rashid Pasha (1852-1857), who collected funds and taxes for the Crimean War from 1854 to 1856, in which the Ottomans sided with the British and French against the Russians. The British Royal Navy sent two warships to the Shatt al-Arab waterway to dissuade Persians from taking advantage of their Ottoman ally.

Omar Pasha (1858-1860), who with Ottoman forces, faced down a posturing of 20,000 Persian troops along the border, which was the first serious threat by the Persians since the end of the Safavid Dynasty in 1760. Finally, Midhat Pasha (1869-1872), who renewed conscription and faced tribal rebellions of the Shammar, began converting tribal leaders into bureaucrats, which worked to pacify sub-clans, such as the Saadoun, but not all clans abandoned their hatred of central authority. Midhat Pasha organized a military expedition of 4,000 regulars and 1,500 tribal irregulars aboard 80 ships with cannons that left Kuwait to rid the Persian Gulf coastal region of al-Hasa of Wahabis of Ibn Saud; he succeeded in 40 days and appointed an Ottoman *mutasarif* (overseer) in al-Hasa.

Today, the region is the oil-producing area of Saudi Arabia. Midhat hosted the visit of Nasr-al-Din Shah of the Persian Qajar Dynasty to visit the Shiite holy cities of Iraq. It was the first time an Ottoman official had hosted a Persian ruler for the purpose of facilitating his pilgrimage to Shiite sites.

The next expose, Volume III of Wardi's seminal work, takes readers through the events of Iraq and the wider Middle East, Persia, and Ottoman Empire from 1876 to 1914. Wardi's work must be translated, analyzed, and taught to future American military leaders deploying to Iraq.



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Altitude and Cold Weather Effects on the Contemporary Battlefield

by Captain Russ Nowels, Captain Coley Tyler, and Dr. Phil Henson

Preparing soldiers for today's battlefield seems primarily directed toward heat adaptation and the extremely warm temperatures associated with the desert climate of the Middle East. However, military operations have been conducted at altitude and in cold weather throughout history.

For example, during the Second Punic War (218 BC–201 BC), Hannibal crossed both the Pyrenees and the Alps to attack the Romans.¹ Napoleon's Grande Armée was devastated by the winter of 1812 during its invasion of Russia.² The Battle of San Matteo in 1918, during World War I, was fought between the Italians and the Austro-Hungarians on the Punta San Matteo (at more than 11,500 feet).³ Cold weather had a significant impact on soldiers fighting during World War II (1939 - 1945; Battle of the Bulge and Operation Barabossa are especially well known), the Korean War (1950 - 1953, Chosin Reservoir), British forces in the Falkland Islands (1982), and Russian forces in Afghanistan (1980 - 1988).⁴ The Kargil Conflict (1999) was fought in terrain with peaks ranging from 13,000 feet to 18,000

feet, and valley floors upward of 7,000 feet between India and Pakistan.⁵

A more recent example of challenging environmental conditions faced by soldiers is Operation Enduring Freedom in Afghanistan against the Taliban regime and al-Qaeda terrorist network. During Operation Anaconda in 2002, fighting took place against al-Qaeda forces on the 10,000 foot mountain of Takur Ghar.⁶ In these conflicts, a large proportion of non-battle injuries directly resulted from cold weather.⁷

This trend of conflicts at altitude and in the extreme cold is likely to continue in the future with "hot spots" around the globe in places such as Iran, China, Russia (including former republics), and North Korea. The possibility of future conflicts in these geographical regions makes it imperative to understand these types of environment and their effects.

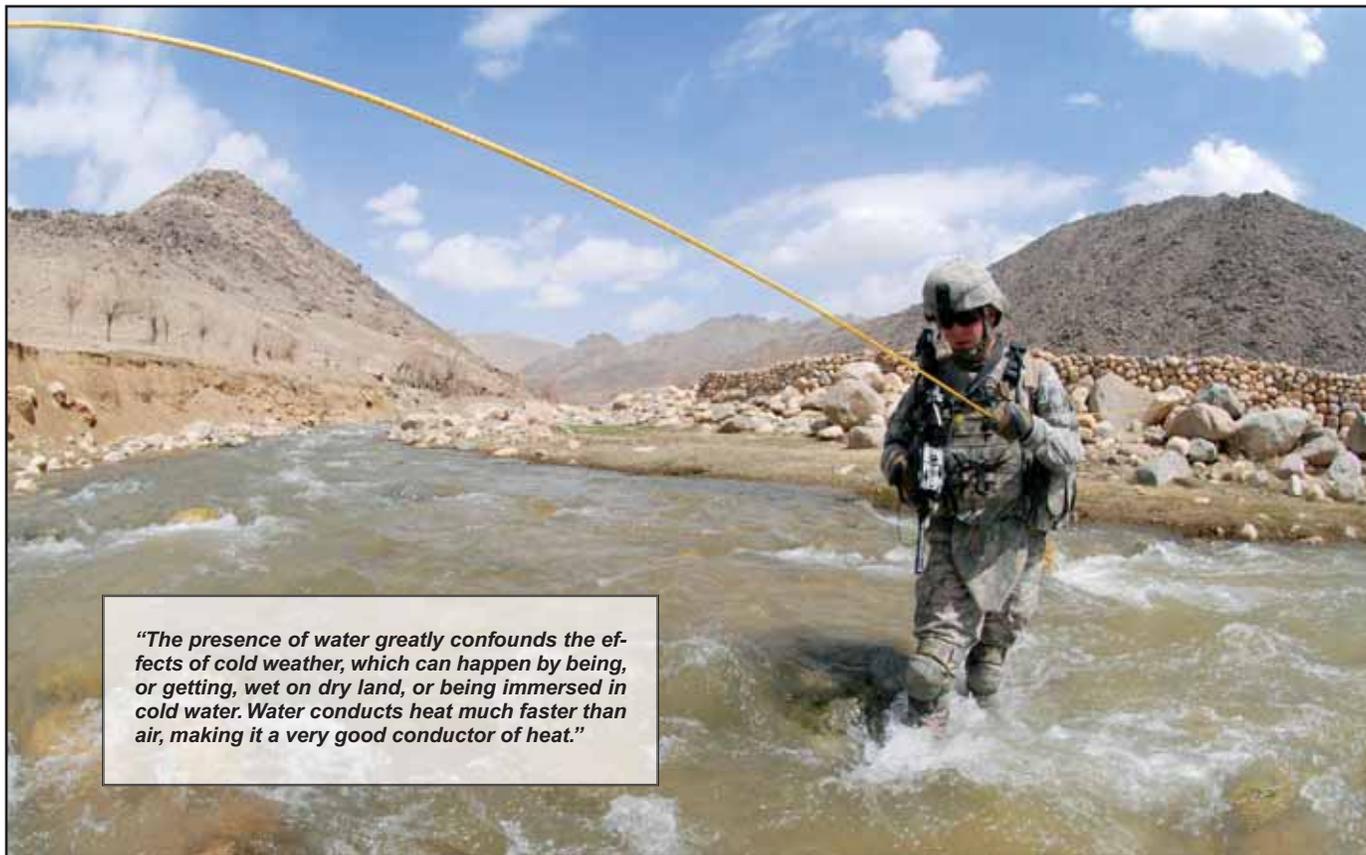
Environmental Conditions

Before discussing how the body adapts physiologically to altitude, or how it re-

sponds to cold weather, we must understand exactly what occurs to characterize these conditions. Since there are few negative physiological effects below 1,500m (4,921 feet), we will consider the term *altitude* any elevation above this height.⁸ High altitude settings are referred to as hypobaric environments due to decreased barometric pressure (P_b) or the weight exerted by the atmosphere at a given altitude.⁹ No matter where someone is on earth, the air around them is always made up of approximately 79.04 percent nitrogen, 20.93 percent oxygen, and 0.03 percent carbon dioxide.¹⁰ With increased altitude, the weight of the atmosphere decreases, which results in a proportional decrease in the partial pressure of oxygen (PO_2) or the amount of the air that is oxygen.¹¹

Another condition to consider at altitude is the air temperature, which decreases at an approximate rate of 1°C (1.8°F) for every 150m (or 490 feet).¹² Cold air cannot hold very much water, so in addition to being just plain cold at high altitudes, the partial pressure of water or water va-





por pressure (PH_2O) is also low.¹³ This low PH_2O creates a situation where a very large PH_2O gradient exists between the outside air and the skin, and the outside air and the air within the body. This sizable gradient increases the risk for dehydration at altitude; therefore, it is very important to continue proper fluid intake and normal hydration strategies to prevent dehydration.

An increase in solar radiation is related to the decreased P_b and PH_2O at high altitudes. Light from the sun travels through less of the atmosphere before reaching earth, and there is less water vapor to absorb its radiation, which increases radiant exposure.¹⁴ The reflective properties of snow, usually found at high elevations, also intensify solar radiation exposure.¹⁵ Skin protection with clothing, sun block, lip balm, and sunglasses are essential. In fact, there have been reports of people being sunburned on the roof of the mouth by breathing with their mouths open.

Characterizing cold weather is a bit difficult; what seems cold to one person is not necessarily considered cold to another. A good definition of cold weather is any environmental condition that causes a loss of body heat that threatens homeostasis mainly through air and water.¹⁶ The cooling effect of wind (wind chill) also drastically increases the effects of cold weather by increasing convective heat loss

and the rate of bodily cooling.¹⁷ High, strong winds are very common at altitude. The presence of water greatly confounds the effects of cold weather, which can happen by being, or getting, wet on dry land, or being immersed in cold water. Water conducts heat much faster than air, making it a very good conductor of heat.¹⁸

Altitude and Cold Weather Effects and Adaptations

At Altitude

One of the first and most noticeable responses to being at altitude is a respiratory response. Pulmonary ventilation increases within seconds of exposure at altitude.¹⁹ The low PO_2 is detected by chemoreceptors in the body that signal the brain to increase ventilation or breathing.²⁰ This increased rate of ventilation remains elevated for several hours, or days, at a level proportional to the altitude.²¹ Increased ventilation causes the body to expire lots of carbon dioxide (CO_2), lowering the partial pressure of carbon dioxide (PCO_2) in the blood, which raises blood pH.²² This condition is referred to as "respiratory alkalosis," which helps offset hypobaric hypoxia by increasing the binding of oxygen to hemoglobin (the oxygen carrying component of the red blood cell) from around 80 percent to 89 percent.²³ Hypobaric hypoxia is the state of inspiring decreased levels

of PO_2 , creating an oxygen deficiency to bodily tissues.²⁴ Respiratory alkalosis allows more oxygen to be carried to working tissue, such as muscle, to fuel work; however, the flip side of the coin is that respiratory alkalosis makes unloading oxygen to working muscle in the peripheral capillaries more difficult. Eventually, the hypoxic drive (the need for oxygen) begins to override respiratory alkalosis by the kidneys, excreting additional bicarbonate buffering carbonic acid formed from CO_2 .²⁵ This process allows increased ventilation to continue.

More importantly than the decreased saturation of oxygen in the lungs at altitude is the 75 percent decrease in the diffusion gradient between arterial and tissue PO_2 .²⁶ This gradient is responsible for driving oxygen from hemoglobin in the blood into muscle tissue for use. The greater the gradient, the quicker gases, such as oxygen, can pass from one area to another. Gases continuously move back and forth in the body according to these partial pressure gradients. Decreased gradients slow diffusion of oxygen to the muscle inhibiting work capacity. Another way the body adapts to the conditions at altitude is by increasing levels of erythropoietin (EPO), which stimulates the production of erythrocyte (red blood cell [RBC]) production.²⁷ EPO levels will drop back to normal in about a month, but increased RBCs will be present up to 3 months or longer.²⁸



“To avoid health risks, such as acute altitude (mountain) sickness (AMS), high-altitude pulmonary edema (HAPE), and high-altitude cerebral edema (HACE), ascent should be slow and gradual, refraining from climbing more than 984 feet (300m) per day at elevations above 9,840 feet (3,000m). If proper time for acclimatization is not available (common with military operations), leaders must pay extra attention to warning signs of high altitude physical and mental issues.”

More RBCs means an increased capacity for oxygen transport within the body.

These physiological responses are the underlying causes of decreased physical capacity, motor ability, and possible alterations in mood and personality at altitude and must be considered in mission planning with as much time allowed for acclimatization as possible.²⁹ A general rule is to allow approximately 3 weeks for acclimatization at moderate altitudes and an additional week for every 1,970 feet (600 m) after that.³⁰ To avoid health risks, such as acute altitude (mountain) sickness (AMS), high-altitude pulmonary edema (HAPE), and high-altitude cerebral edema (HACE), ascent should be slow and gradual, refraining from climbing more than 984 feet (300m) per day at elevations above 9,840 feet (3,000m).³¹ If proper time for acclimatization is not available (common with military operations), leaders must pay extra attention to warning signs of high altitude physical and mental issues.

Cardiovascular and metabolic responses also occur once exposed at altitude. Cardiac output initially increases due to an increased heart rate, pumping more blood to active muscles to compensate for decreased oxygen per liter of blood.³² This peaks after about 6 to 10 days, after which

cardiac output and heart rate begin to decrease.³³ Basal metabolic rates also increase at altitude with a growing reliance on carbohydrates for bodily fuel, but decreased appetite as being at altitude makes maintaining body weight and muscle mass very difficult.³⁴

The eyes, along with internal body parts, have also been shown to be affected at altitude, primarily a decrease in color discrimination of the tritan (blue) color vision axis.³⁵ This effect has proven to be transient and is highly correlated to increased heart rate and decreased oxygen saturation, which have been mentioned previously.³⁶ Not only is the body affected at altitude, but the mind is as well. Decrements in individual performance in problem solving (IPPS) have also been demonstrated at altitude; however, these results seem to be more of a combination of altitude effects and anxiety generated through problems faced at altitude.³⁷

These occurrences warrant attention at the leader level to ensure soldiers eat, regardless of a lack of appetite; are aware of possible changes in their vision, so they can still operate at 100 percent without increased anxiety or fear; and leaders should consider relying more heavily on added input before making decisions to avoid dangerous errors in judgment, which have

been shown to occur in high altitude problemsolving.

Finally, one of the factors most easily influenced by leaders is aerobic fitness. Aerobic adaptations are closely related to the physiological responses at altitude. Thus, emphasis should be placed on aerobic fitness when preparing for altitude. Soldiers, who are more aerobically fit before being placed in a high-altitude environment, will have a higher level of performance and a greater chance of adapting.

In Cold Weather

The foremost goal of the body in cold weather is to maintain a core body temperature of around 37°C (98.6°F).³⁸ When the weather is cold, the body has three main responses. The first response is peripheral vasoconstriction, which decreases blood flow to the periphery of the body, reducing convective heat transfer between the body and the outside environment, thereby increasing insulation and heat conservation.³⁹ Next, is an increase in basal metabolic rate, which increases internal heat production (non-shivering thermogenesis).⁴⁰ When both these responses are not enough to maintain core body temperature, the body responds with shivering, an involuntary and rapid contraction

and relaxation of the skeletal muscles, which can increase heat production 4 to 5 times normal values.⁴¹ These responses make the extremities (hands and feet) of the body particularly susceptible to the effects of cold weather.

Cold weather can severely retard muscle function. The cooling of the periphery affects the neural recruitment of muscle fibers, force production, and the viscosity of the fluid and tissues that are crucial to appendage movement and sensory perception.⁴² This translates into decreased manual dexterity and causes fine motor movements to be much more difficult such as knot tying.⁴³ If performance of military skills and tasks is to be maintained in cold weather, it is imperative that those skills and tasks be practiced in warm weather beforehand.⁴⁴ There is some evidence that over time some acclimatization or habituation can occur in the hands through repeated exposure and a more effective cold-induced vasodilatation response (CIVD).⁴⁵ However, heavy loads, such as rucksacks, can impair blood flow to the hands and inhibit the CIVD response.⁴⁶

Cognitive performance can also be adversely affected by cold weather with performance deficits being shown at core body temperatures of around 34-35°C.⁴⁷ It appears that race may also be a factor in the occurrence of cold weather injuries (CWI). African Americans, in past stud-

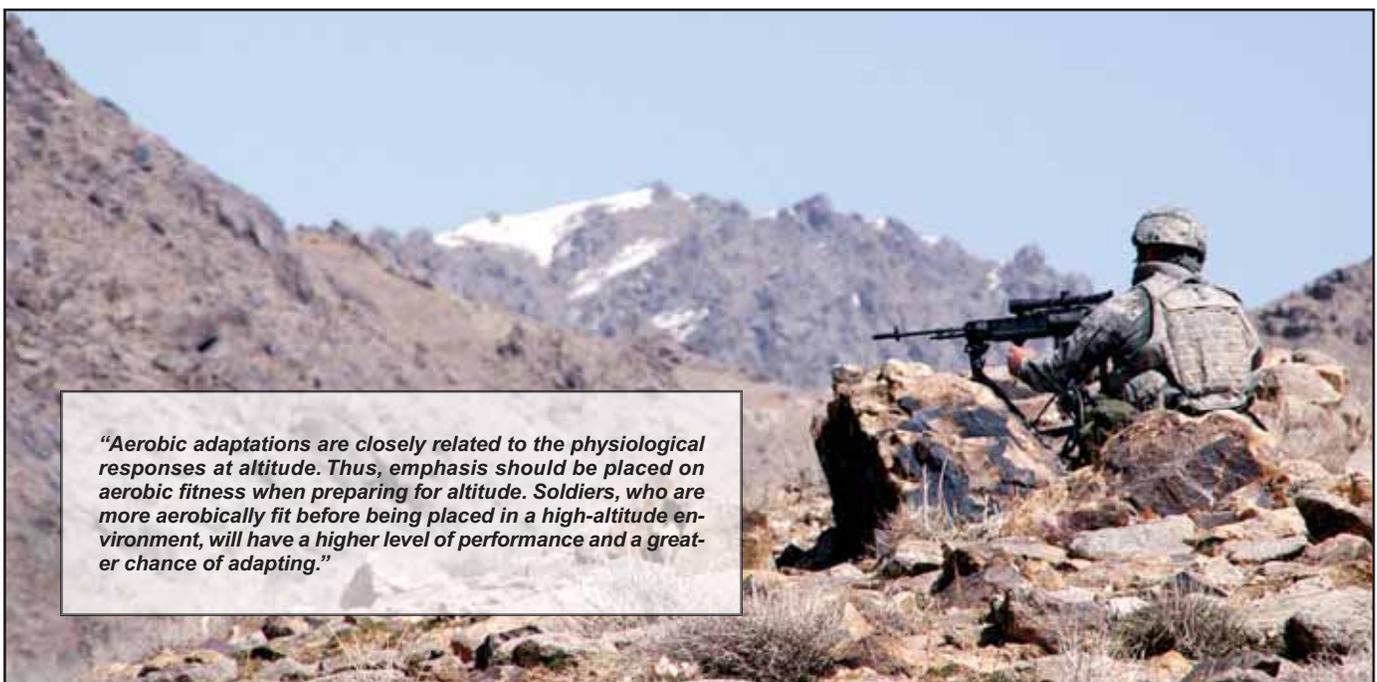
ies conducted between 1980 and 1999, experienced CWI at a disproportionately higher rate than Caucasians.⁴⁸ However, another study conducted in 1993 showed that African Americans did not show any difference in incidences of nonfreezing cold injuries (NFCI) compared to Caucasians, but possibly the factor of smoking history may play a bigger role.⁴⁹ Regardless, if smoking is or is not a factor for increased risk of CWI (both freezing and nonfreezing), it is not an advantageous habit to have in this environment, especially at altitude for reasons already discussed. Alcohol also warrants discussion; alcohol restrictions, despite personal opinions, are scientifically warranted in a cold weather environment. Alcohol has been shown to impair shivering thermogenesis, helping lower core body temperatures, as well as blunting cold perception.⁵⁰

Unlike gradual cooling of the body on dry land, immersion in extremely cold water can cause death before the body even experiences a drop in core temperature.⁵¹ It is known that some people are allergic to cold, and sudden exposure can cause anaphylactic shock.⁵² Sudden entry into cold water can also cause severe cardiovascular responses, leading to death from stroke and myocardial infarction (heart attack).⁵³ Uncontrollable hyperventilation is also a response to sudden contact of cold to the skin, which may lead to impaired consciousness (marked re-

spiratory alkalosis), tetany (cramps), and a decrease in voluntary breath-hold, often leading to a person drowning before they experience other effects such as hypothermia.⁵⁴ If a person survives the initial response to cold water, it is very unlikely that the person could swim more than 50 to 100m to dry land due the decreased muscle function previously mentioned.⁵⁵

Body composition, the amount of body fat and muscle, can greatly affect the strategy chosen for survival in cold weather. Leaner people should stay put and move as little as possible to make the most of limited natural insulation (fat and muscle).⁵⁶ If they attempt to use physical exertion to keep warm, they lose heat quicker because their limited natural insulation does not retain heat as well due to increased convective heat loss. Larger people would have a better chance of employing beneficial physical exertion; however, they are still subject to diminished muscle function mentioned above. Both types of people are ultimately subject to certain time constraints; they must either be removed from the cold water or heat the entire body of water to an acceptable temperature to prevent hypothermia and death.⁵⁷

This article briefly discusses some of the fundamental physiological occurrences at altitude and in cold weather situations. Although mitigation strategies and



“Aerobic adaptations are closely related to the physiological responses at altitude. Thus, emphasis should be placed on aerobic fitness when preparing for altitude. Soldiers, who are more aerobically fit before being placed in a high-altitude environment, will have a higher level of performance and a greater chance of adapting.”

techniques to combat these environments is not a topic of this article, it is written to provide a knowledge base for leaders to assess their actions in these environments and ensure everything possible is done to preserve combat power and take care of soldiers. We can always improve how we do business through education, and learning how to manage altitude and cold weather is no exception.



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THE MODERN ASSAULT GUN

by First Lieutenant Joe Morsello

The assault gun was essentially designed as a direct-support weapon mounted on a tank or other vehicle chassis. The gun was not deployed as self-propelled artillery, but in a direct-fire role supporting infantry forces. Designed during World War II as a cost-effective alternative to tanks and as additional infantry fire support in the great expanses of the eastern front, assault gun battalions were also employed as tank destroyers in both armored and infantry divisions.

After the war, assault guns found a home in airborne units, which lacked firepower and whose light infantry roles were limited without effective antitank weapons. Lightweight and proven effective in combat, the assault gun was an excellent weapon; however, missile technology began to supersede guns, especially in antitank roles. The assault gun/tank destroyer was replaced by antitank guided missile (ATGM)-carrying vehicles and ar-

mored personnel carriers (APCs), as well as infantry fighting vehicles (IFV) mounting direct-fire weapons. The assault gun, used in infantry support and antitank roles, has two major advantages, cost and flexibility, over modern APCs and IFVs, which may warrant its return to combat service.

The assault gun is the perfect infantry support weapon; it is capable of being used as direct-fire, antitank, and antiaircraft weapons, depending on the gun system mounted. Its use in armored formations could be a valuable economy-of-force asset, freeing tanks for rapid offensive action, as opposed to costly assaults. The assault gun's low silhouette offers protection from enemy fire and its battlefield mobility offers an effective gun platform.

During the 1982 operation into Lebanon, Israeli forces came under attack from

Syrian SA-342 Gazelle helicopters. Using self-propelled 20mm M-163 Vulcan guns, Israeli forces repelled Gazelle attacks and raked Syrian antitank hunter teams with fire. The multiuse and effectiveness of vehicle-mounted gun systems as infantry support weapons proved to be invaluable.

In today's operating environment, U.S. forces fighting on the frontlines can employ assault guns against enemy infantry, fortified houses, and bunkers, as well as technical weapons mounted on civilian vehicles. This would give infantry commanders an immediate source of fire support without calling for airstrikes that produce collateral damage. Medium- and large-caliber assault guns are capable of firing high-explosive (HE); armor-piercing, high-explosive antitank (HEAT); armor-piercing fin-stabilized discarding sabot (APFSDS); and fragmentation (FRAG) rounds, which are very effective

against enemy infantry, vehicles, armor, and aircraft when used with multifunction fuzing (point detonating, proximity, and all-way acting).

Modern-day HEAT and APFSDS ammunition presents an opportunity for the assault gun to be used once again as a tank destroyer. Tanks destroyers, armed solely with ATGMs, are very effective against armored formations and could be employed against other hardened targets; however, blasting away against pillboxes, bunkers, and light-skinned vehicles with expensive ATGMs is not cost effective. Using ATGMs against enemy infantry would require dual-use missiles, incorporating a FRAG round sleeve or other HE feature, further increasing cost. Additionally, the rate of fire for missile-armed tank destroyers is considerably lower than gun-armed systems. While missile systems can be effective against multiple targets, the assault gun offers simplicity and improved reliability, cost, rate of fire, and ammunition storage options.

Lessons from World War II and multiple Israeli-Arab conflicts demonstrate the need for various ammunition types during modern engagements. During the Battle of Stalingrad, German tanks required HE shells for buildings and infantry because AP shells would merely blast a hole through the structure; on the other hand, HE shells were useless against Soviet T-34 tanks. Israeli armored forces also experienced this during fighting in Lebanon against Hezbollah and Syrian forces. They had to employ HE or FRAG rounds against enemy infantry hiding in buildings or in the open; their usual supply of AP shells would blast through multiple structures, leaving little more than 2-foot diameter holes.

Luckily, tanks are gun armed and can carry various types of ammunition, but are expensive to produce and maintain, and difficult to transport. They are also designed to engage enemy forces in mobile warfare, exploiting breakthroughs in enemy defensive positions through rapid maneuver. Employing tanks for assaults

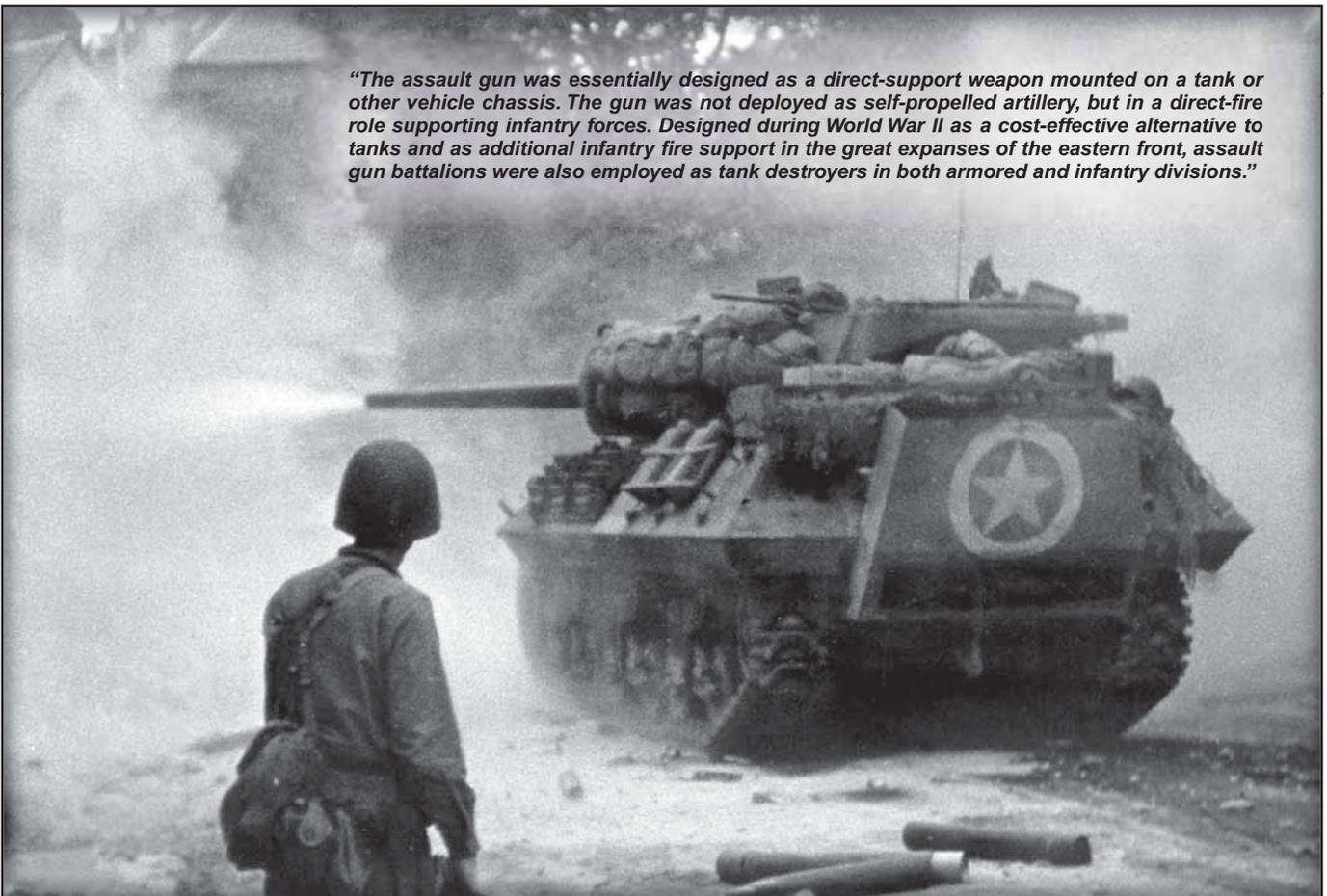
on fortified positions and urban engagements is not the best use of their abilities, nor is it good economy of force.

Fighting in cities during World War II and in Chechnya during 1994, tank guns could not elevate or depress enough to engage enemy forces on rooftops or in basements. Russian troops used anti-aircraft guns to “reach the Chechen hunter-killer teams lurking above or below a tank’s main gun elevation and depression limits.”¹ Soviet and Israeli forces often resorted to anti-aircraft guns when engaging enemy infantry in mountainous terrain in Afghanistan, Chechnya, and Lebanon.

While assault guns are not meant to replace tanks (the tank undeniably has its place in the combined arms team), they are a flexible, cost-effective tool in maintaining America’s ability to wage higher intensity conflicts while contributing to the battle against Islamic radicalism.

Modern assault guns can mount any gun or howitzer currently fielded, regardless

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of its original purpose, to include the autocannon and Gatling gun.

The autocannon is any single-barrel weapon, 20mm or larger in diameter, capable of automated firing and loading much like the cannon mounted on the M2 IFV. Instead of recoil actuation, chain guns use an external power source and chain-fed system to cycle the weapon, which is a feature that has been added to various modern guns.

Typically mounted on aircraft, the Gatling gun uses multiple rotating barrels also driven by an external power source and chain-fed system. Miniguns are Gatling guns, which fire standard rifle calibers such as 5.56mm or 7.62mm rounds. Gatling guns are very reliable when using an external power source for weapon functioning, and their rates of fire are inversely related to the size of round they fire. Miniguns have a very high rate of fire, but consequently fire small-caliber ammunition. Either way, the auto-Gatling gun has the highest rate of fire available on any gun weapons system. Although this would not preclude using single-barreled guns as assault guns, the Gatling is more flexible.

Low-caliber guns are not practical for use in an assault gun system; they are not very effective against hardened structures and armored vehicles. Small-caliber weapons mounted on vehicles are characteristic of a gun truck or armored car system, as opposed to an assault gun. Large-caliber weapons of 105mm and higher are more effective against tanks, armored vehicles, and hard targets, but do not offer target engagement flexibility against infantry and aircraft of a more rapid firing gun. Medium-caliber weapons, such as the 20mm and 30mm, offer the best balance between destructive power, variety of targets that can be engaged, rate of fire, and ammunition variety and capacity. The auto-Gatling gun is capable of very high rates of fire and reliability; using the 30mm caliber would give the greatest ammunition variety, as currently it's the smallest caliber to fire APFSDS rounds and offer sufficient size for hard target destruction using HE/FRAG.

Modern assault guns can be mounted on either a wheeled or tracked chassis and have traditionally been turretless. The lack of a turret, however, severely limits the gun's ability to engage air targets and ground targets when on confined roads or in urban areas. The modern assault gun should have a 360-degree capable turret with a gun elevation range of -45 degrees



"During the Battle of Stalingrad, German tanks required HE shells for buildings and infantry because AP shells would merely blast a hole through the structure; on the other hand, HE shells were useless against Soviet T-34 tanks. Israeli armored forces also experienced this during fighting in Lebanon against Hezbollah and Syrian forces. They had to employ HE or FRAG rounds against enemy infantry hiding in buildings or in the open; their usual supply of AP shells would blast through multiple structures, leaving little more than 2-foot diameter holes."

to +90 degrees to engage the widest variety of targets in most battlefield situations. Small design considerations, such as gun elevation and depression, are critical to combat effectiveness.

A tracked version would be more mobile over rough terrain, better on mud, snow, and sand, and more maneuverable. A wheeled version would require much less maintenance and be faster and kinder than tracks on paved roads, something the civilian population would appreciate. Because a modern assault gun employed with infantry would have to be mobile over all terrain types, especially debris-strewn battlefields, tracks would be the better choice.

Developing multiple variants would certainly increase the assault gun's versatility and expand its capabilities. For example, one option is to mount a large-caliber gun on a tracked chassis with no turret for use in conventional airborne units or on systems that mount other gun calibers, such as 37mm through 100mm, not considered, but available worldwide. Wheeled variants may also have a place; however, assault gun development is driven by tactical experiments and efficacy testing.

There are many possibilities in the development of assault guns; however, any development should produce simple, robust, easy-to-use systems borne of tactical necessity, rather than a desire for new gadgets and hardware. Assault guns are cheaper to produce, maintain, and transport than

any other vehicle in the Army's inventory that rivals its capabilities.

More cost effective as an infantry support weapon and capable of employing more varied and cheaper ammunition, the assault gun would be a valuable addition to the combined arms team. Organized as four-vehicle platoons, or two- to three-vehicle sections, assigned to infantry or cavalry platoons, or armor, infantry, or cavalry companies/troops, the assault gun is a more flexible, transportable, and cost-efficient weapon on both the conventional and unconventional battlefield.



Notes

¹Olga Oliker, *Russia's Chechen Wars 1994-2000: Lessons from Urban Combat*, RAND Corporation, 25 November 2001.

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Not a Rear Detachment

by Major Joseph Berg, Lieutenant Colonel Bob Whittle, and Colonel J.B. Burton

From the outset of his tenure in command, Dagger 6, like most current brigade commanders, knew his organization would deploy in support of overseas contingency operations. Operational planning for the reset and reorganization of the brigade combat team (BCT) began even before the previous deployment to Operation Iraqi Freedom (OIF) II ended. As part of the deliberate military decisionmaking process (MDMP), which produced his intent and directives for forming and training the BCT for combat, Dagger 6 identified an operational need for a dedicated and parallel effort to sustain operations at the BCT's home in Schweinfurt, Germany.

Given Dagger BCT's home in Germany, the sustainment of its warfighting readiness required a deliberately formed, trained, certified, and resourced organization. This formation would use less than 2 percent of the BCT's authorized strength. Furthermore, this formation included soldiers unable to deploy due to injury or other issues. Only a well-led and empowered

team of professionals could effectively support a deployed brigade while concurrently sustaining families in Germany within an isolated garrison community during the long war. This team had to accomplish critical condition setting for the next iteration of redeployment, reintegration, reset, and retraining (R4). This team was Task Force (TF) Guardian — the Dagger brigade combat team's rear detachment, and the recognized model of effectiveness in U.S. Army Europe (USAREUR).

What Had to be Done

The first step in forming TF Guardian was identifying the tasks required for success and leveraging the authority already inherent to a BCT commander in task organizing his formation to achieve success. The task force's key tasks included:

- ❖ **Staffing TF Guardian with quality soldiers and training them in Guardian operations.** From the outset, com-

manders at every echelon recognized that soldiers selected for this duty would handle responsibilities exceeding those normally expected. As an economy of force effort, Guardian soldiers would hold more than one duty position and perform effectively with great autonomy. Those selected to perform duties as members of TF Guardian were hand-picked through an interview process governed by the BCT commander's intent that "these soldiers were the ones you want to have with you in combat." The commander of TF Guardian held a key developmental assignment as the 9th Engineer Battalion executive officer when the task force formed.

- ❖ **Establishing TF Guardian standard operating procedures consistent with 1st Infantry Division, 1st Armored Division, V Corps, and U.S. Army Garrison (USAG) Schweinfurt policies and directives.** In a modular Army, TF Guardian had to be ready to succeed under the administrative or operational control of any likely higher headquarters. The con-



stant rotation of headquarters in and out of USAREUR necessitated the assignment of TF Guardian directly under 1st Infantry Division (IID), 1st Armored Division (IAD), TF Iron Sentinel, and V Corps. Additionally, USAG Schweinfurt became the principal source of logistics support for Guardian, almost in the manner of a habitually associated forward support battalion. The strong framework laid out in USAREUR regulations for operations at home station assisted in accomplishing this task. TF Guardian leaders had to have the agility and presence of mind to operate effectively despite the ever-changing command and control relationships in USAREUR.

❖ **Maintaining continuous contact with forward deployed commanders, TF Guardian commanders, and Family Readiness Group (FRG) leaders.** Current technologies on the battlefield simplified the coordinating requirements for TF Guardian to some extent. The joint node network (JNN), fielded by the Dagger BCT just prior to deployment, allowed real-time “radio” communications between the BCT forward and Schweinfurt. This enabled the Guardian commander to communicate effectively in BCT net calls. However, the sheer number of subordinate formations, community agencies, host nation leaders, lateral and superior headquarters in Europe, and the constant need to provide effective communications with families demanded a fully formed task force staff.

❖ **Fostering teamwork and coordination between TF Guardian, USAG Schweinfurt, other tenant units, and FRGs.** To avert “information fratricide,” it was critical that the total community spoke with one voice on key issues. Accomplishing this entailed establishing several new forums within the entire community. For example, under the direction and intent of the BCT commander, Guardian formed a sentinel working group specifically to integrate military, FRG, and local community leaders into a functional working group focused on families negotiating the unique aspects of health care in Germany. They concurrently developed systems to support our wounded warriors in Schweinfurt and Landstuhl.

❖ **Honoring the fallen of the Dagger BCT through professional memorial ceremonies and assisting family members.** In this task, Guardian could not fail;



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it is the cornerstone that demonstrates that soldiers in the Dagger BCT exist in a two-way relationship. Loyalty, a core value, extends not only to the command, but from the command. TF Guardian executed 59 memorial ceremonies from across the command. Every leader present attended along with the entire task force.

❖ **Caring for Dagger BCT wounded by ensuring they received professional medical care and organizing visits to hospitalized patients.** This is not solely the responsibility of the medical community. Every wounded soldier received a visit from their chain of command the day of their arrival in Germany. TF Guardian supported soldiers’ administrative and personal requirements outside the hospital. Also, Guardian played a key role in notifying family members of wounded soldiers and coordinating visits to distant facilities.

❖ **Working in conjunction with FRGs to establish outreach programs to contact family members and engage them throughout the deployment.** Study after study demonstrates that families cope best with deployment when they are part of the team, not glued to the 24-hour news networks. Powerful FRGs provided the most effective partnership organization for TF Guardian, while concurrently providing a vital network of support. They understood the military family situation innately and relieved the chain of command from the necessity to resolve all but the most serious challenges.

❖ **Empowering families and TF Guardian soldiers to thrive as members of the Dagger BCT by keeping them in-**

formed and enabling them to be self-reliant, informed, and fulfilled. It is becoming an axiom that the Army recruits soldiers, but it retains families. To sustain the effort for the long term, it is critical that families understand the need for their sacrifice and a BCT demonstrates a commitment to mitigate their burden in every way possible. Also, effective home station operations are impossible if the “us here/them there” mentality prevails. Soldiers in Schweinfurt were in touch with the realities of life in theater, and their efforts clearly related to enabling the success of the entire BCT.

❖ **Receiving, processing, equipping, and training incoming soldiers to deploy.**

Guardian never forgot where the main effort was. Personnel actions in USAREUR are complicated by transformation, stop-losses, a diminishing manpower footprint, and the oddity of the date of expected return from overseas (DEROS) system. TF Guardian overcame this friction to ensure that every eligible soldier not permanently assigned to a position in the Guardian task organization arrived at the fight within 45 days. During OIF 06-08, TF Guardian trained and deployed more than 500 soldiers.

❖ **Maintaining and improving property, facilities, and left-behind equipment.** Deployment represents a unique opportunity to recapitalize infrastructure during times of limited usage. TF Guardian provided the leadership energy to ensure that Schweinfurt retained its capacity for resetting and retraining the BCT.

❖ **Supporting the deployment and redeployment of Dagger BCT; planning, coordinating, and supporting reintegration for Dagger BCT.** Not only did TF Guardian function as a command post for the BCT, it freed the BCT to concentrate on operations in theater by assuming oversight of deployment and redeployment. This ensured Dagger’s ability to maintain the maximum combat power forward.

Forming the Team

Once our MDMP provided the key tasks, Dagger 6 established the task organization for the task force. TF Guardian was led by a lieutenant colonel, a captain executive officer, and a task force sergeant major. The TF staff represented every



“Every wounded soldier received a visit from their chain of command the day of their arrival in Germany. TF Guardian supported soldiers’ administrative and personal requirements outside the hospital. Also, Guardian played a key role in notifying family members of wounded soldiers and coordinating visits to distant facilities.”

normally constituted staff section with primary staff in the grade of E-7 or above. Each forward deployed battalion constituted a D Company, not a rear detachment. Delta companies had a permanent establishment of one commander in the rank of captain, one first sergeant, and a company noncommissioned officer in charge (NCOIC)/family readiness liaison (FRL) in the grade of E-6 or above for each deployed company within the battalion. These company NCOICs were rated as platoon sergeants since their units operated as enhanced platoons.

TF Guardian’s policy acknowledged these nontraditional duty descriptions, but it was essential for promotion boards to understand the performance and potential of all the leaders selected. *Therefore, the term “rear detachment” did not appear in any evaluation.* Delta company commanders were rated alongside all other commanders in a battalion, as were company first sergeants; they had a clear, published rating chain and standards for performance.

The 2d BCT attached the delta companies to TF Guardian when the brigade initially task organized 8 months prior to deployment. Further, the BCT’s four separate companies’ home station efforts were consolidated under a single commander and first sergeant and formed “Team Patriot.” Over the course of the deployment,

these companies varied in strength from 10 to 200 soldiers as wounded soldiers, new arrivals, and intra-theater transfers from returning units arrived in Schweinfurt. See Figure 1 for Guardian’s organization chart.

The next priority was establishing Guardian’s mission essential task list (METL) and training soldiers. This effort was an integrated part of the BCT’s full force training and mission rehearsal exercises. TF Guardian’s METL was fully nested within that of Dagger BCT and IID, and the following missions and key tasks:

- Command and control Task Force Guardian.
- Sustain effective Family Readiness Groups.
- Enable family members to be informed, self-reliant, and fulfilled.
- Maintain and improve property, facilities, and left-behind equipment.
- Receive, process, equip, and train incoming soldiers for deployment.
- Honor the fallen and care for Dagger wounded.
- Support Dagger BCT deployment, redeployment, and reintegration.

Training and Certifying the Team

TF Guardian leaders and soldiers had to be trained on non-MOS specific and spe-

cific tasks for home station operations. The TF Guardian commander identified the requirement to bring subject-matter experts to Schweinfurt to train TF Guardian soldiers on their duties and responsibilities. This empowered leaders to understand the linkages between regulations, policy, and local military community practices. This approach developed TF Guardian soldiers as experts in navigating the myriad agencies associated with soldier and family support, and also helped develop functional relationships between the Guardian team and the garrison team.

As the Dagger BCT entered its collective training cycle, TF Guardian began collective training and certification focused on their METL. The systems and techniques established as the BCT “deployed” to the Joint Multinational Training Center (JMTC) and Joint Maneuver Readiness Center (JMRC) were critical to later success during deployment. The task force validated reporting formats, conducted video teleconferences with the training units, and established its ability to communicate using secure communications. Guardian received incoming soldiers, coordinated individual readiness training, and moved them forward to train with the BCT at JMRC. Soldiers evacuated from the training units for any reason (emergency leave, family additions, soldiers injured during training) were assisted using the same procedures established for soldiers returning from Iraq. This emphasis on validating METL tasks under real conditions and distances from the supported BCT was essential to success in the year to come.

TF Guardian conducted casualty notification training with the aid of volunteers from the local community. The training was so realistic that one notification officer reported, “If I ever have to do this again, it will be the second notification that I do.” Likewise, TF Guardian conducted a full-dress memorial ceremony rehearsal. The rehearsal exercised every step from the deployed unit’s requirements, through the unit’s own memorial ceremony “in theater,” to the ceremony conducted in Schweinfurt with full military honors with FRG leaders in attendance to further validate the totality of processes and actions associated with this vital event.

Home station operations are not business as usual for most units. They involve unique challenges of distance, anticipated events, and battle handover. Failing to train with the supported BCT is a

recipe for failure when the time for execution arrives. The nested, deliberate training plan of TF Guardian left no soldier questioning how to execute this complicated mission set.

Command and Control: Who Does What

The key to success in home station operations is identifying the resources required from each level of command, such as processing personnel actions, budgetary responsibility, and command reporting, and then ensuring that these responsibilities are acknowledged by all parties. Just as we no longer fight on a linear battlefield, units at home station may no longer have linear command and control relationships. At one time, TF Guardian conducted command reporting through IAD's TF Iron Sentinel, some personnel actions directly with V Corps, and maintenance operations funded through USAREUR. They were able to do this quite ef-

fectively through clear and explicit handovers of responsibility as other headquarters entered and exited Europe.

TF Guardian functioned as a command and control node for the Dagger BCT in USAREUR. Guardian was the key communication node for all facets of operations that transited Europe. Obviously, this included movement control and tracking the deployment and redeployment of the BCT, but it also included tracking individual soldiers entering and exiting Iraq. This required liaison officers (LNOs) at major transportation nodes, some temporary and others permanent. Guardian had a permanent LNO at Landstuhl Regional Medical Center (LRMC) and established temporary LNOs, as needed, at Ramstein Air Base, Headquarters, IAD, and even with USAG Schweinfurt during critical events. These LNO cells were critical for ensuring that the correct leaders had communications at the right time and place.

Volunteers were a critical source of reinforcements to the unit. Many of the BCT's spouses worked in community agencies or had key skills that enhanced our knowledge base. Other volunteers led community and unit activities that might fall dormant with half of Schweinfurt's American community absent. Most importantly, our FRGs were integrated parts of the command, control, and support systems. The network of support available through the FRGs relieves military leaders of the responsibility to provide immediate care. Guardian could be rapidly overwhelmed by the friction of maintaining adequate quality of life to families without these efforts.

Command, Control, and Teamwork with FRGs

It is simply impossible to recount all the individual acts that accomplished Guardian's mission. Guardian regularly planned activities to ensure family mem-

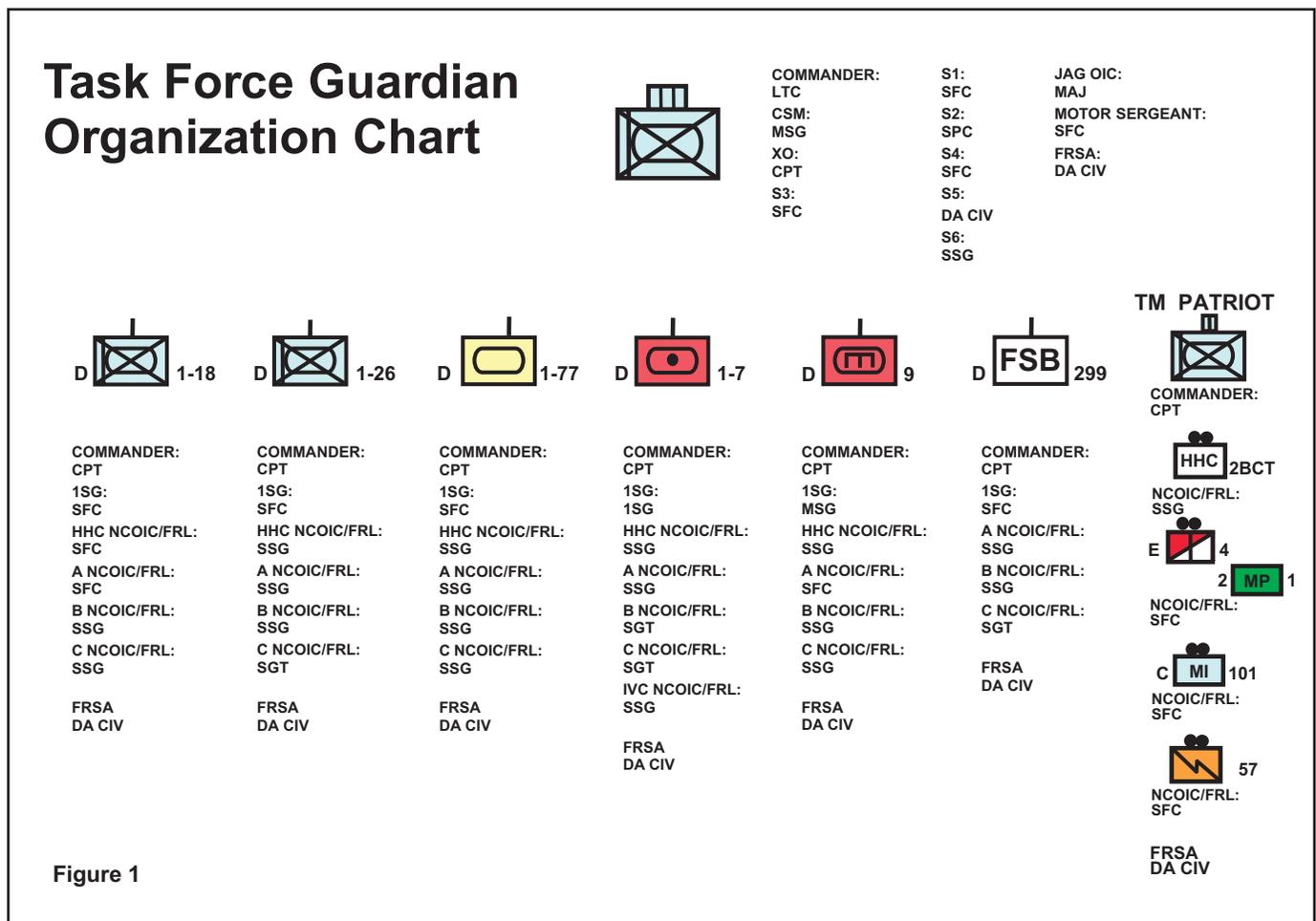


Figure 1



“Not only did TF Guardian function as a command post for the BCT, it freed the BCT to concentrate on operations in theater by assuming oversight of deployment and redeployment. This ensured Dagger’s ability to maintain maximum combat power forward.”

bers felt the same sense of ownership and belonging that uniformed members felt. Further, USAREUR resourced the BCT and its battalions with family readiness support assistants (FRSAs) and they served as administrative assistants to the Guardian headquarters and in every delta company. Close, continuous contact and interaction with volunteers brought a better understanding of community and family support shortfalls to the command’s attention.

FRSAs serve as liaisons, sounding boards, event coordinators, and administrative assistants for both the commander and FRG leader. They are a tremendous additional resource for maintaining continuity within FRG organizations. Many of our FRSAs were retired military leaders who had lived in the community for many years, which went a long way to eliminating friction and solving problems. As this USAREUR program continues, these FRSAs will become the equivalent of the battalion master gunner in facilitating quality FRG events.

Volunteers Deserve Recognition and are Needed

Volunteer recognition ceremonies are essential to a strong volunteer force. If the Army cannot reward their efforts monetarily, every effort is required to show respect for those who see someone else’s

need and fulfill it. The process was both democratic and standards-based with steering committees nominating those worthy of recognition and TF Guardian leaders vetting the recommendations to ensure they conformed to established policies for awards. The process was published in Guardian policy letters and closely modeled from the Army’s own procedure for recommending awards, which ensured integrity was maintained. Ceremonies were carefully planned, held monthly, and rehearsed for accuracy, appropriate duration, and cost-free for recipients. Whenever possible, distinguished visitors were invited to attend and speak.

Sustaining the Effort

Unit status reporting (USR) is normally deferred for deployed units; however, the needs that led to creating USR remain. TF Guardian maintained a personnel-centric USR that tracked the status of every assigned soldier, including permanent cadre, arrivals to Schweinfurt, transfers from a redeployed unit, injured soldiers, individual readiness training (IRT), and so on. This report provided a common format to communicate our status across the formation and to higher headquarters. Units at home station vary dramatically in strength from month to month as soldiers transition the formation. A clear USR format, routinely reconciled, pro-

vides clarity and precision to recurrent status inquiries.

Management of table of organization and equipment (TOE) property is constrained by numerous policies, regulations, and laws. At the beginning of the deployment, all non-deploying organizational equipment was formally transferred to the property books of delta company commanders. However, this was not a static process; property was constantly transiting in and out of Iraq as soldiers deployed and returned. TF Guardian required a dedicated property book team to ensure that property leaving Schweinfurt was properly laterally transferred to the property books of the gaining unit in Iraq. Lack of a dedicated property team could result in numerous and needless inquiries into liability for lost property. Finally, the transformation effort within the BCT continued, even while the unit was deployed. For example, 57th Signal Company did not deploy more than 50 major end items of their MTOE made superfluous by their conversion to the JNN MTOE. Many of the items were needed elsewhere in the Army and TF Guardian’s ability to execute lateral transfers and turn-ins proved to be a combat multiplier to the unit and the Army.

A final logistics issue was properly handling fundraising and donations to support the BCT. The legal ramifications for

how funds are raised, accounted for, and distributed are, to understate, complicated. TF Guardian leveraged the capabilities of the Schweinfurt Law Center and the FRsAs to ensure that it complied with law, tax codes, and Army regulation. A key breakthrough was the establishment of the Dagger Guardian Association, a non-profit, private organization dedicated to supporting the BCT in Schweinfurt and forward deployed. Staffed by volunteers, this organization complies with laws regarding the solicitation of funds by Government representatives, while ensuring that every available asset is brought to bear in support of soldiers and families.

TF Guardian was a support unit acting in an economy of force role. If Dagger BCT diverted assets from the main effort in Iraq to reinforce home station, the mission suffered a major defeat. In deployment and redeployment, TF Guardian became the main effort and was reinforced by advance or trail parties as appropriate. If Guardian held on to personnel eligible for service in Iraq to accomplish home station tasks, then it was stealing resources from the main effort and the Army at large. If cadre were not trained and ready to reinforce the main effort on demand, the effect was the same. Every deployable soldier in TF Guardian was individual readiness training (IRT) qualified and equipped to deploy within 48 hours of notification. Finally, any family or military problem resident in Schweinfurt that required attention in the form of time or other resources of the command in Iraq, or if any joint problem (a power of attorney, for instance) failed through Guardian's inaction, TF Guardian had failed. Being mindful that failure is a possibility reinforced the sense of urgency and mission orientation that drove Guardian to success.

A Model for Transformation

As the Army continues to transform, there are advocates for building the capabilities resident in TF Guardian into local garrison commands. This is not only ill-advised, but impractical as long as tactical and garrison commands operate under different chains of command such as USAREUR and Installation Management Agency-Europe (IMA-E). Transferring the TF Guardian role to the USAG violates the fundamental military principle of unity of command and, ultimately, unity of effort as priorities between the two chains of command are not always nested. Adapting the U.S. Army Transformation in Europe model to formally identify the senior military commander

of the installation as both the tactical and garrison commander provides an opportunity worth exploring. For now, we advise against placing Guardian responsibilities under the USAG.

It is possible to task organize soldiers and families into a cohesive unit, but even the Army is incapable of severing the bond between soldier and family. General Sherman remarked: *"Man has two supreme loyalties — to country and to family... As long as their families are safe, they will defend their country, believing that by their sacrifice, they are safeguarding their families also. But even the bonds of patriotism, discipline, and comradeship are loosened when the family itself is threatened."*

Families cannot be divorced from the BCT's chain of command or command responsibilities. Regardless of the notion that USAG and IMA are designed to relieve the senior tactical commander of garrison command responsibilities, commanders are responsible for the welfare of soldiers and family members of the tactical unit, and thus, in practice, heavily involved, along with the command team's spouses, in day-to-day operations of the garrison command. Formally subordinating USAG and its directorates to the BCT would result in the current garrison commander being identified as the deputy commanding officer-staff (DCO-S) of the BCT. Each directorate of the garrison command would work as deputies to the BCT's primary staff officers. Upon deployment of the warfighting units of the BCT, the DCO-S could then assume command as TF Guardian and provide the continuity of a unified command of enduring, non-deploying directorate heads. This organization would provide a more powerful sustainment capability to the force, one that is more willing and able to formally integrate family members of the deployed force into decisionmaking bodies.

Until Then...

Army units will continue to deploy and redeploy regularly from a fixed home station. The concept of home station as merely a deployment node from which both units and families would depart to be replaced by follow-on formations is outdated and amateurish. The ability of news, rumor, fact, and misinformation to transit in and out of the combat zone in a matter of minutes makes a formed and focused task force the only element capable of winning the information fight at home station. One soldier or family member standing before dilapidated housing

can discredit the entire Army. Conversely, a spouse who testifies before CNN cameras during a visit by the Chairman of the Joint Chiefs of Staff that "I've never been anywhere where the soldiers tried harder to help," is a battle won.

General McKiernan, USAREUR Commander, recognized TF Guardian as "an example for the Army of how to do this business." General Craddock, the Supreme Allied Commander in Europe said that, "Task Force Guardian is the model for the Army of the future and needs to be studied and emulated."



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Major Joseph Berg is currently pursuing a Masters degree in strategic intelligence at the National Defense Intelligence College. He received a B.S. from the U.S. Military Academy. His military education includes Armor Officer Basic Course, Armor Captain Career Course, and the Combined Arms and Services Staff School. He has served in various command and staff positions, to include commander, Team Patriot, 2d Brigade Combat Team (2BCT), 11D, Schweinfurt, GE; assistant operations officer, 2BCT, 11D, Schweinfurt; deputy G3 (training) and division battle captain, 11D, Wurzberg; and XO, Headquarters and Headquarters Troop, 1st Squadron, 7th Cavalry, Fort Hood, Texas.



BRAC: National Armor and Cavalry Museum Moves to Fort Benning



by Len Dyer and Daniel Nelson

When Congress passed the Base Realignment and Closure Act (BRAC) in 2005, it directed the transfer of the U.S. Army Armor School from Fort Knox, Kentucky, to Fort Benning, Georgia. Because the study of the evolution of armor and cavalry equipment is an important part of training new soldiers and leaders at the Armor School, the museum's collection was included in this directed move. The U.S. Army Training and Doctrine Command (TRADOC) Chief of Museums, Dr. Charles H. Cureton, and the Center for Military History recognized the opportunity this presented to the Army and its effort to inform soldiers, Marines, and the public about the history and lineage of our military. The new National Infantry Museum at Fort Benning was already under construction; if the new Armor and Cavalry Museum could be located near-

by, it would provide a unique opportunity to combine two of the world's premier collections of military artifacts.

First, a project had to be developed and funded. Dr. Cureton worked with Mr. Ken Holloway, Fort Benning Master Plans Division, to develop the estimated size and cost for construction of the facility, which resulted in construction being programmed for FY10.

The initial design of the new facility began in the spring of 2008; the Patton Museum staff was interviewed and all of the museum's support facilities were toured to determine requirements. The new storage facility design will include a huge open-bay space to house the large armored vehicles currently in the armor collection at Fort Knox. This includes those pieces of equipment on display in the Patton

Museum, stored in the landing ship tank (LST) building off of Eisenhower Avenue, and inside and outside of Richardson Motor Pool, a total of more than 190 "macro-artifacts," such as tanks and other armor vehicles. The facility will also include space for archives, administrative offices, secure storage for smaller artifacts, an arms room for weapons storage, a workshop for building displays, and a separate maintenance facility.

However, classrooms, auditorium, gift shop, and exterior design features (upgrading the grounds, monuments, and displays) are not included in the new facility. The U.S. Army Armor Association recognized this need and established the National Armor and Cavalry Museum Foundation, headed by Major General (Retired) George Harmeyer. The foundation plans to take on the responsibility to fund these additions, as well as additions to the maintenance facility, which supports the restoration of the armor collection. Any additions made to the new facility will occur after the completion of the military construction (MILCON) phase and will not interfere with the relocation of the armor collection.

This April marks the end of the design phase as a request for proposal (RFP) to elicit bids from prospective contractors will be issued. Once this process meets all regulated requirements and a contract is awarded, construction can begin.

The Move

The transfer of the Armor Center from Fort Knox to Fort Benning is on schedule according to BRAC timelines. A major part of the Armor School's relocation includes the transfer of its historic museum collection, which encompasses the history and technical development of the American armored force. The Patton Museum of Cavalry and Armor was dedicated in honor of General George S. Patton in May 1949, and has remained a critical element in the education of soldiers, Marines, foreign officers, and public visitors for 60 years.



An M4A1 Sherman Flame Tank currently stored inside the historic LST building on Eisenhower Avenue, along with the 20 other vehicles 'mothballed' in this facility, will be on display at the new facility at Fort Benning.

A plan has been developed to separate the current Patton Museum into two main elements. The first element, the Armor School's museum, the new National Armor and Cavalry Museum, which contains 75 percent of the museum's collection, will move to Fort Benning. This museum will be located right outside Fort Benning's main gate and will be located adjacent to the National Infantry Museum. Jointly, this museum "campus" will become the largest military museum complex in the southeastern United States.

A part of the collection, which contains many of Patton's personal items, a selection of military vehicles that covers his military career, and the Patton series of tanks, will remain at Fort Knox with the "General George S. Patton Museum," which will focus on leadership in the Army. The vacant space within the museum will be used by newly arrived units to Fort Knox, including the U.S. Army Accessions Command and Human Resources Command, as well as other military units assigned to Fort Knox. Included in remaining artifacts will be armored vehicles on display at main gates and specific traffic locations at Fort Knox.

The packing and movement plan for the Armor School's collection will begin once construction of the new facility begins at Fort Benning, which is estimated to begin in March 2010 and be completed in September 2011. During this period, the galleries at Fort Knox that house the Armor School's collection will be completely closed to the public to allow the museum's staff to dismantle the galleries and exhibits, inventory the collection, and begin packing the artifacts. Once the new facility is completed at Fort Benning, the armor collection will be moved "door to door." During the move, the Patton Gallery, auditorium, and gift shop at the museum will remain open to the public, however, the museum staff will be busy with preparations for the move and will not be available to answer questions, provide guided tours, or assist in research.

Once the Armor School's collection has been moved, the museum will continue its tradition of training future armor soldiers and Marines. It will also develop new educational programs for students from public schools, focused on the history, physics, math, and science of armored vehicles and their development.



Len Dyer is currently serving as director, Patton Museum of Cavalry and Armor, U.S. Army Armor School, Fort Knox, KY. He enlisted in the U.S. Marine Corps Reserve as an artilleryman. He received a B.A. from Oklahoma State University and an M.A. from University of Central Oklahoma. He was commissioned by the U.S. Marine Corps and assigned as a Marine armor officer. His military education includes Amphibious Warfare School, the Armor Officer Basic Course, Armor Officer Advanced Course, and the Cavalry Leaders Course. He has held numerous platoon and company command positions, with a wide-ranging experience level in armor. Prior to his assignment to the Patton Museum, he served as curator, 2d U.S. Cavalry Museum, Fort Lewis, WA.

Mr. Daniel C. Nelson is an associate with Booz Allen Hamilton serving as a strategic planner for the U.S. Army Armor Center and School BRAC relocation and transformation task. He is responsible for project planning, design review, and construction oversight of facilities being built at Fort Benning in support of the Armor School move. In 2006, he retired from U.S. Army Corps of Engineer as a lieutenant colonel.



The T28 U.S. Super Heavy Assault tank currently sits outside the Patton Museum. This tank's new home will be inside the National Armor and Cavalry Museum at Fort Benning.



In addition to relocating artifacts, displays will be disassembled, packed, shipped, and reassembled at the new facility at Fort Benning. A display work room, adjacent to the main storage bay, is planned for the new facility. The work room will be soundproofed to permit display work to continue during regular hours of operation.

ENTER THE M1002

by Wakeland Kuamoo and Paul Valenti

“Train as you fight and fight as you train.” This philosophy has been the cornerstone of military training for many years. Our tankers who fire 120mm tank ammunition know how important this philosophy is for mission success and, at times, even their very survival. In line with that philosophy, our ammunition developers and fielding teams have developed another tool for our tankers to train as they will fight.

Feedback from Operation Iraqi Freedom (OIF) soldiers and Marines has clearly shown the importance of 120mm tank ammunition to defeat hostile forces. M830 high-explosive anti-tank (HEAT) rounds and M1028 canister rounds have been widely used in combat and are key force multipliers for our tank crews. During armor unit training, the M831A1 target practice-tracer (TP-T) round provides a realistic substitute for the M830 service HEAT round. Additionally, M1028 canister rounds have been approved and made available for our tankers to fire during training prior to movement into theater. The employment and successful use of the M830A1 multipurpose antitank (MPAT) round against various targets in Iraq has shown that it is more than capable of carrying the fight to the enemy.

Unfortunately, a training round for the M830A1 MPAT did not exist, which would support the train-as-you-fight concept — that is, not until now! The Program Manager-Maneuver Ammunition Systems (PM-MAS) and the U.S. Army Research and Development Engineering Center, both located at Picatinny Arsenal, New Jersey, in conjunction with other Government agencies and U.S. industry partners, developed and began fielding a training round for the M830A1 (MPAT), namely the M1002 target practice, multipurpose-tracer (TPMP-T) round.

The M1002 replicates the M830A1 tactical round in length and weight. This similarity is critical to allow the tanker to become familiar with the feel and handling of the MPAT round. The nose of the M1002 has a plastic ring, which can be turned by the loader during gunnery exercises to simulate the ground and air selection capability found on the M830A1 round, although the M1002 is only intended for ground mode training. The combustible cartridge case and aft cap are similar to other 120mm cartridges. As with other training rounds, the M1002 is easily identifiable as a training round by its blue-colored projectile and white lettering.

The introduction of this new round does require a unique M1002 ballistic solution to support live-fire accuracy. All M1A2SEP and active duty M1A1 tanks already contain the appropriate firing solution. The M1A2SEP tank crewmen must select “MPAT” on the ammunition select unit and then select “ammunition sub-designation M1002” on the gunner’s control and display panel (GCDP). M1A1 tank crewmen (with the appropriate ballistic solution on the tank system) must select “MPAT” on the ammunition select unit and then select “ammunition sub-designation number 1” on the computer control panel (CCP). The computer correction factor for the M1002 is azimuth right .10 and elevation is up .55.

M1A1 tanks in the U.S. Army National Guard will have the M1002 solution implemented into their fire-control systems in the near future. To verify which M1A1 tank units in National

Guard have the appropriate solution, follow ammunition information notice (AIN) 77-08. Tanks that do not have the M1002 ballistic solution *should not* fire this round until their systems have been properly updated.

U.S. Army Field Manual (FM) 3-20.12, *Tank Gunnery (Abrams)*, provides the table for the employment of M831A1 training practice-tracer (TP-T) rounds against various targets. The M1002 will also be used against similar targets and requires no change to current scenarios. Fielding this round will take several years as the stockpile is built-up to support the entire armor force. As this fielding moves forward (starting in FY09), the M831A1 TP-T will continue to be used, for a period of time, by various armor and cavalry units.

During the initial fielding phase, M1002 rounds will be shipped to the National Training Center (NTC) at Fort Irwin, California. These rounds are intended to assist heavy rotational units in increasing their skills on handling and employing the MPAT round prior to deploying. During FY13, the M1002 will be fully fielded to the armor force and the remaining M831A1 rounds should be near full expenditure.

As previously mentioned, the M831A1 TP-T round was designed to support training replication of the M830 service HEAT metal-piercing-tracer (HEAT-MP-T) round. Final expenditure of the M831A1 will coincide closely to the ending service life of the M830 round. Once this occurs, and the M830 is no longer available for combat, there will be no further need for the M831A1 training round. The M1002 will be fully fielded by then and used along with the M865 target practice, cone stabilized, discarding sabot-tracer training sabot round to support tank gunnery requirements

“Train as you fight and fight as you train;” 120mm tank ammunition continues to support this philosophy — enter the M1002.



Wakeland Kuamoo is currently working as a contractor, Large Caliber Ammunition, Training and Doctrine Command Capabilities Manager-Heavy Brigade Combat Team, Fort Knox, KY. He received an A.A. from Pikes Peak Community College and a B.S. from University of Louisville. His military education includes Basic Noncommissioned Officers Course, Advanced Noncommissioned Officers Course, Master Gunners Course, and Air Assault Course. During his career, he has served in various duty positions, to include senior armor 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.

Paul Valenti is currently the item manager for the 120mm M1002, Office of the Project Manager for Maneuver Ammunition Systems (OPM-MAS), Picatinny Arsenal, NJ. He received a B.S. from Rutgers University and an M.S. from Stevens Institute. He has served in various positions, to include project leader, for the 120mm M865, U.S. Army Research and Development and Engineering Center, Picatinny Arsenal; and engineer on the 120mm M865 program, Army Research and Development and Engineering Center, Picatinny.



REVIEWS

Enduring the Freedom: A Rogue Historian in Afghanistan by Dr. Sean M. Maloney, Potomac Books, Inc., Washington, DC, 2005, 320 pp., \$27.50 (hardcover)

Enduring the Freedom: A Rogue Historian in Afghanistan is a journal of Dr. Sean Maloney's trip to observe the war in Afghanistan. Not only is it his personal story from 11 September 2001 through early 2003, but he also provides a summarized history of Afghanistan and a glimpse at the campaigns of the International Security Assistance Force (ISAF) against al-Qaeda and the Taliban.

To know more about Dr. Maloney, I visited his website, where he establishes his personal mission as, "historian, professor, writer, and traveler to make my material and observations available so that it can stimulate thought, produce new perspectives, and hopefully enhance your understanding of these complex issues."

His extensive writings include topics of peacekeeping and stabilization operations, Canadian military involvement in the Balkans, Canada's NATO Brigade in Germany, Canadian national security policy, Canadian army history, and the ISAF in Afghanistan. He currently teaches at the Royal Military College of Canada and is the strategic studies advisor to the Canadian Defence Academy. As a soldier, he served as the historian for four Canadian mechanized brigades in Germany and the Balkans.

In *Enduring the Freedom*, Maloney moves out with rucksack and notepad to chart the front lines of the war on terror. Maloney asserts that if Canada was going to commit troops to the anti-al-Qaeda campaign, he wanted to bring his talents to bear. He wanted to record the operational history unfolding in Afghanistan. In his view, contemporary history should be gathered at the front end; moreover, a thorough understanding of the operational environment by a trained historian is a crucial tool in capturing crucial information.

Part one of the book provides the background to the American-led campaign against al-Qaeda and its Taliban hosts in Afghanistan, as well as the conduct of war from September 2001 to early 2003. Maloney provides an understanding of events in and around Afghanistan and links those events to events in 2003 for which he was present.

Parts two through four discuss ISAF and OEF. Maloney provides a great deal of order of battle information; particular emphasis is placed on special operations forces, from all nations, and U.S. intelligence services. A significant portion of the book is devoted to the coalition militaries operating in Afghanistan. Maloney possesses an acute knowledge of the European militaries based on his experience at ground level. He writes about his temporary comrades with affection, and often admiration, conveying their working conditions, complaints, and sense of mission. His is a picture of perhaps significant experience as they are militaries not culturally distinct from our own.

Maloney pays particular attention to "der Bundesrepublik Deutschland Bundeswehr" (unified armed forces of Germany). His knowledge of the Bundeswehr is no doubt from his personal observations and studies while stationed in Germany. Thankfully, my German is only slightly "rostig" (rusty) since he regularly uses German to reference rank, title, description, and organization, often without benefit of translation. In fact, due to his choice of "uniform," Maloney is nicknamed "der Talibanjaeger" (Taliban-hunter) — a name that precedes him throughout theater.

During his time in Kabul, he reflects on history brought forward. He makes particular note of Gebirgsjaegers 233d Battalion (mountain hunters), Princess Patricia's Canadian Light Infantry, and the U.S. Army's 10th Mountain and 82d Airborne Divisions, all of which fought against the Gebirgsjaegers of Nazi Germany in Italy during World War II.

What remains constant throughout the book are his observations that soldiers in one nation's army are strikingly similar to soldiers in another nation's army. In this case, tracking ISAF and OEF troops across Afghanistan obliged Maloney to endure any number of shared battlefield conditions, all of them carefully enumerated, such as subsisting on combat rations, going without showers, enduring dusty road marches with heavy rucksacks, jostling around in drafty cargo planes, rollercoaster rides on helicopters, patrolling in cramped armored vehicles, and sleeping on dirt floors using a helmet for a pillow.

The book's operational history focus does not develop until part four. While in Kandahar, Maloney provides a firsthand account of operational planning and execution with the 82d Airborne Division, 504th Parachute Infantry Regiment (PIR), Task Force Devil. Maloney shadowed Bravo Company, 2d Battalion, 504th PIR, during Operation Valiant Strike, a company-level air assault and cordon and search operation in the vicinity of the Pakistani border east of Kandahar. He provides operational sketches, pictures, and a personal account from planning through mission completion. He even lends his professional insight by helping Bravo Company identify weapons found in caches.

Enduring the Freedom is immediate and personal. After a while, segments of the book begin to read more like self-enhancement than history; they are, in any event, a distraction from the purpose of the book, which is to depict the operational history of ISAF and OEF. At times, it is difficult to determine the difference between adventure writing and analysis.

Enduring the Freedom is definitely not a complete military history of the war. The book will disappoint anyone looking for a detailed examination of ongoing war in Afghanistan. That said, the few chapters that did discuss the operational history and orders of battle were informative and well written. In fact, the whole book was decent. *Enduring the Freedom* is too romantic and sentimental to be called "analysis," and yet too journalistic to be straightforward history. Just when Dr. Maloney, the historian, is ex-

ercising his talents to their best advantage, Dr. Maloney the "Talibanjaeger" interrupts with his personal adventures. Maloney is a historian who has bravely gone to dangerous places and returned with some fascinating stories.

JOHN P.J. DeROSA

The Foreigner's Gift: The Americans, The Arabs, and the Iraqis in Iraq by Fouad Ajami, Free Press, New York, 2006, 344 pp., \$26.00 (hardcover)

For those who want to expand their understanding of the Middle East beyond basic history, Fouad Ajami is required reading. Ajami's latest book offers deep insight into Arab perspectives of American foreign policy and Middle Eastern politics, derived from interviews conducted during six trips to Iraq. He introduces readers to the divergent views of what remains of Arab intellectualism through interviews with leading members of Iraq's Sunni and Shiite communities. Although Ajami jumps from topic to topic, his accounts illustrate the perspectives and rhetoric that breed anti-Americanism. This, coupled with the useful Arabic terms laced throughout the book, serve as a useful reference for those who wish to counter anti-American sentiment in the region.

Ajami's accounts reveal the discrepancies between Islamist rhetoric and the viewpoints of individual leaders, figureheads, and intellectuals in Iraq. An example of this includes his observations of the 2005 Iraqi elections, in which he saw the country's willingness to shed the culture of terrorists, statues, and informers that Saddam Hussein represented. Interviews with prominent Iraqi clerics reveal that not all Muslim leaders desire an Islamic state. In discussions with Shiite cleric, Sheikh Humam Hamoudi, of the Supreme Council for Islamic Revolution in Iraq (SCIRI), Hamoudi says: "a turbaned man should not be head of state, for religion would then be made to bear the burden of executive decisions." This appears to be the view of Grand Ayatollah al-Sistani, and on more than one occasion, Shiite Iraqi clerical leaders have declared that they do not want a government on the model of Iran's Islamic Republic.

Ajami also highlights intricacies often overlooked in Arab politics. He makes the salient point that Islamist groups have evolved into the only organized opposition to entrenched single-party regimes. Because these groups use anti-Americanism as a rallying-point, the United States is trapped in a vicious cycle. Ajami also comments on the regional balance of power. He is not kind to neighboring Arab regimes and is highly critical of Egypt, who has historically competed with Baghdad to steer the Arab course. A strong, stable Iraq is not in Egypt's interest because it only undermines Egypt's leader position in the Arab world.

Ajami's treatment of cleric Muqtada al-Sadr is worth reading, as Muqtada has received much criticism from senior ayatollahs in Iraq for plac-

ing dispossessed Shiites in harm's way and bringing war from Sunnis and coalition forces to the doorstep of the Najaf seminary. Ajami also comments on how Egyptian Sunni cleric, Sheikh Yusuf al-Qaradawi, is a household name for appearing on a regularly broadcasted al-Jazeera program, calling for resistance against the United States while his children are educated in America.

Ajami's book goes a long way in highlighting the reality that Arab politics are not black and white. By illustrating that not all clerics espouse Islamist political views, pointing to the discrepancies in anti-American discourse, and discussing regional political issues that go beyond the U.S. occupation of Iraq, Ajami provides a baseline that should be considered by Americans and Arabs alike to engage in constructive political dialogue.

YOUSSEF ABOUL-ENEIN
CDR, U.S. Navy

Kentuckians in Gray, edited by Bruce S. Allardice and Lawrence Lee Hewitt, University Press of Kentucky, 2008, 344 pp., \$40.00 (hardcover)

As a native Kentuckian, whose great, great, great grandfather lived in central Kentucky and fought for the Confederacy (his brother went to Indiana to fight for the Union), I found this book an incredible wealth of information. *Kentuckians in Gray* is a well-written narrative of field grade officers (major to colonel) and the general officers (brigadier general to general) from Kentucky who served both the Confederacy and the Union.

The style applied is not a flowing story from chapter to chapter, but one that allows each chapter to speak of specific general officers who served the commonwealth of Kentucky. Not only does *Kentuckians in Gray* illustrate each general officer's life with a quick narrative of his career, but goes on to describe each officer's personal life, in great detail, from birth, through battlefield accomplishments, and finally death.

My favorite chapter is devoted to General John Bell Hood. He was born 40 miles east of Lexington in the town of Owingsville, Kentucky. His parents were land and slave owners, and he was able to attend the U.S. Military Academy through the help of his uncle in Congress. It was on the battlefield where he showed his bravery and brilliancy. He resigned from the Army on 16 April 1861 and immediately received a Confederate commission. After recruiting in Kentucky, he was sent to Virginia and promoted to major, and subsequently assigned the colonelcy of Fourth Texas Infantry. His bravery at the second Manassas and Antietam eventually won him promotion to major general. He was injured at Gettysburg and hospitalized for more than 2 months. He later again displayed his bravery at Chickamauga and during Sherman's assault toward Atlanta. In January 1865, General Hood asked to be relieved; his request was granted. He settled in New Orleans after the war to write

his memoirs; *Advance and Retreat* was published a year after his death in 1879 from yellow fever. He was the second-highest ranking Confederate officer from Kentucky, Johnston being the highest, and the youngest to reach the rank of full general at the age of 33.

Kentuckians in Gray is a masterful compilation of Kentucky general officers, as well as field grade officers. The book provides detailed information on all Confederate officers serving from Kentucky and is a great reference to any Civil War collection.

SCOTT K. FOWLER
LTC, Kentucky Army National Guard

Bunker Hill to Bastogne – Elite Forces and American Society by Briton Cooper Busch, Potomac Books, Inc., Washington, DC, 2006, 305 pp., \$29.95 (hardcover)

In *Bunker Hill to Bastogne*, the late Briton Cooper Busch writes an interesting account of American military elite units from the colonial period through World War II. While not an all-encompassing volume on elite forces, Busch details the exploits of scores of elite units from both the average-American perspective and the views from inside the military. The author does an exceptional job of not only telling the story of specially trained and equipped units, such as Roger's Rangers or the paratroopers of World War II, but he also tells the story of units that became elite through exceptional battlefield and operational exploits, such as the Marine Corps and the Tuskegee Airmen. Busch discusses the training and wartime exploits of numerous military organizations and he manages to provide just enough detail to make his point in writing about each unit, avoiding an unnecessarily long text of minutiae and making *Bunker Hill to Bastogne* (at approximately 250 pages of text) an easy read for just about anyone.

The author makes one very interesting point in this book: elite forces may become elite based on a perception of the fighting abilities and courage of the members of a particular unit, not necessarily because of any specialized training. According to Busch, soldiers have a need to live up to the reputation of a unit, which makes them better fighting men. For example, neither the 2d Wisconsin nor the Stonewall Brigade (both of Civil War fame) were initially known to contain any exceptionally trained soldiers or leaders and only became famous for their fighting abilities after they had proven themselves in several battles. In fact, the commanders of both these units would later receive the best soldiers from across their respective armies to maintain their "elite units" at the best possible fighting condition.

Readers will enjoy Busch's discussion on the relationship between marksmanship training and proficiency and the perception of elite status. He points out that throughout American history, elite soldiers and units, from Rogers' Rangers to the better infantry units of World

War II, have typically excelled at marksmanship. While the reader can judge for himself, the correlation that Busch makes between exceptional marksmanship and an elite status is compelling.

The one drawback to Busch's book is the publisher's atrocious text editing. Perhaps it was a computer glitch, but the reader will be challenged to complete sentences throughout the book. In the next revision, the publisher should seriously consider a more thorough job of proof-reading.

Bunker Hill to Bastogne is an interesting, easy-to-read book that provides historical insights into some common characteristics that make some units better than others. Most *ARMOR* readers will enjoy this book.

DALE MURRAY
MAJ, U.S. Army

Urban Guerrilla Warfare by Anthony James Joes, University Press of Kentucky, Lexington, KY, 2007, 232 pp. \$35.00 (hardcover)

With the U.S. military arguably embroiled in one of the largest urban guerrilla fights in the history of modern warfare, Anthony James Joes has chosen the perfect time to critically examine eight urban guerrilla conflicts that transpired since World War II. Military professionals, historians, and those concerned with the future outcome in Iraq will enjoy Joes' effort and certainly gain an understanding of why urban guerrillas are relatively successful in the short term, but ultimately fail.

Joes clearly takes a scientific approach toward his study of urban guerrilla warfare. He identifies the specific variables required for guerrilla warfare to occur in an urban environment, and skillfully compares, and contrasts, them with the strategies of both Clausewitz and Mao. From Warsaw in 1944, through Algiers and Saigon, and finally to Grozny in the mid-1990s, Joes' analysis covers a spectrum that respects time and geography, as well as the counterinsurgency methods of the opposing force.

While some may question the author's recommendation to the U.S. Government and its military leaders, to "adopt a policy against committing U.S. forces to counterinsurgency operations in cities," there is no doubt that being familiar with the historical failures of those engaged in urban guerrilla warfare will reduce the loss of blood and treasure associated with these types of operations. Perhaps most important to the current situation in Iraq, Anthony James Joes provides political and military planners with several keys to successful counterinsurgency operations. His recommendations of geographic isolation, overwhelming intelligence, and use of political programs are spot on and, if heeded, may help address the challenges in Baghdad today.

MIKE MONNARD
LTC, U.S. Army

TARDEC Researchers Develop Sensor-Enhanced Armor

by Dr. Thomas Meitzler

In February 2007, U.S. Army Tank Automotive Research, Development, and Engineering Center (TARDEC), Armor Nondestructive Testing and Evaluation (NDT/NDE) laboratory began exploratory NDT/NDE of ground vehicle armor plates. One of the NDT/NDE team's goals was to determine to what extent sensors could be used to indicate whether armor plates can withstand impacts in the field and continue to protect crews and vehicles.

The Armor NDT/NDE Laboratory, the Army Research Laboratory (ARL), Argonne National Laboratory, and industry partners are working collaboratively to understand and improve ultrasonic imaging technology that is being used to diagnose armor health at various stages in armor's life cycle.

The embedded armor crack detection technology uses ultrasonic data obtained by TARDEC researchers to indicate damage to armor plates. Researchers monitor the signal from damaged and undamaged plates using ultrasonic sensors. Researchers find the armor plate's natural resonant frequency — or sound — and compare the undamaged to damaged plates.

The NDT/NDE team works with TARDEC's manufacturing business group, which creates the different armor coupon recipes specified by ARL. After the NDT/NDE team determines a baseline vibration spectrum for undamaged plates, it damages the plates by shooting bullets at them and then captures

another ultrasonic reading. The plates undergo a second embedded ultrasonic evaluation to determine the extent of the damage, obtaining high-resolution pictures, which are captured with the in-house X-ray and ultrasound, and compared to vibration data. These pictures are compared to data provided by readings from sensors that are embedded in armor. Sensor enhanced armor (SEA) uses ultrasonic data measurement in addition to a charted computer display.

TARDEC's intelligent ground systems team is working with the NDT/NDE team to create a graphical user interface that allows vehicle commanders to know the status of armor plates as indicated by the embedded sensors. Piezoelectric lead zirconate titanate (PZT) transducers are used to distinguish modes of vibration in plates to indicate plate damage. The amplitudes from the vibration spectrum are compared among damaged and undamaged vehicle plates.

TARDEC began using bonded sensors for ultrasonic crack detection on body armor plates and extended the technique to various types of composite armors used on ground vehicles. In-house NDE techniques are used to calibrate sensors embedded in armor for crack detection and health monitoring. This information can then be provided to commanders, which will enable them to make better decisions on when armor panels should be replaced and which missions are possible given the armor's condition. TARDEC and ARL are working together to determine

how various cracks and defects effect ballistic armor performance.

An active NDE system can be used as a vehicle health-monitoring system to make the commander aware of vulnerabilities. The NDE can also be done at the depot level to assess armor integrity between missions to test armor defects or flaws, as well as internal damage that can lead to armor failure. Knowing the severity of defects helps commanders monitor the armor's life cycle.

Future work will concentrate on creating handheld devices, which will be available in the field, to detect cracks and defects in armor. TARDEC is working with local industry, academia, and other small companies to develop this technology.



Dr. Thomas J. Meitzler is a research engineer, Department of Survivability, U.S. Army Tank Automotive Research, Development, and Engineering Center (TARDEC). He has a B.S. and M.S. in physics from Eastern Michigan University and a Ph.D. in electrical engineering from Wayne State University in Detroit. He is co-winner of the 1995 U.S. Army Research and Development Achievement award and has several patents. His research interests include sensor and image fusion, ultrasonic and microwave nondestructive testing and imaging, and functional magnetic resonance imaging.

LETTERS from Page 2

The BRAC article, "Relocating Armor History, Honor, and Lineage" by Dan Nelson, *ARMOR*, March-April 2009, reminded me of an issue that surfaced months ago when someone came up with the absurd idea of moving the monuments adjacent to the Patton Museum. The whole proposal was void of planning, cost analysis, and certainly public relations. When recently questioned, the strategic planner could not provide a straight answer.

Like the foundation's chairman and Mr. Nelson, I too have important marching orders. In 1971, the 6th Armored Division (AD) Association board of directors and Major General (Retired) Robert W. Grow delegated me to keep their history alive. Today, my concerns are still for those great mounted warriors from the "Super Sixth," which General Patton considered one of the most dependable armored divisions under his command. Sadly, there are less than a hundred alive today and all they have left is a proud historical tradition that started at Fort Knox. Their monuments were placed, as many others, to honor and remember their units and fallen comrades. At the last reunion in 2000, a few hundred 6th AD veterans and their families solemnly stood by their revered monuments. Taps was played; tears were shed. Some in wheel chairs, some with canes, and some supported by walkers, gingerly saluted their fallen comrades.

A few remaining 6th AD veterans, including the WWII G1, a Saint George Medallion holder and past president and treasurer of the 6th AD Veterans Association; and a past president and holder of the Gold Medallion Noble Patron of Armor are quite disturbed over the monument issue. They strongly feel that there is no concern for their honorable history, as evidenced by a recent proposal to move the monuments. Have we forgotten that the 6th AD veterans contributed thousands of dollars and many of their wartime records to the Patton Museum? What about the bricks that were donated to the Museum by the 6th AD vets and their families? Will they also be dismantled? One widow of a deceased 6th AD vet told me she would rather have her brick returned before it was dishonored by BRAC planners. Perhaps the appropriate place for the bricks would be the new Kentucky Veterans Cemetery Central, located just outside of Fort Knox, in the form of say a "Wall of Heroes" or "Veterans Memorial Walkway."

Today, their history is being tempered by social overhead capital coupled with intrusive military and civilian political bureaucratic intrigues. No longer can the 6th AD vets or any armor-cavalry veteran of WWII put up a defense for their history born at Fort Knox. They are old and rapidly moving on to a spot next to 'Fiddlers Green' where their mounted comrades are waiting. They will share their last canteens and

reminisce on how Fort Knox was *really* the maneuver center of excellence.

DR. GEORGE F. HOFMANN
Author of: *Through Mobility We Conquer:
The Mechanization of the U.S. Cavalry*

14th Cavalry Association Reunion

Active, Reserve, and retired troopers! The 14th Cavalry Association's 2009 Reunion will be held from 9 to 13 September 2009 in San Antonio, Texas, at the historic Menger Hotel. Program highlights and an online registration form is available at www.14cav.org. There is a reduced registration rate, \$60 per person, for those who register before 9 August. Hotel reservations are available online at www.mengerhotel.com and by telephone at 800-345-9285 or 210-223-4361. If you wish to register by mail or have any questions, please feel free to contact Max Whipps, P.O. Box 56281, Portland, OR, 97236, or e-mail at OPCEN@14CAV.ORG. We look forward to seeing you there!

Armor Battalion (FRG) Reunion

The 1st Battalion, 64th Armor and the 1st Battalion, 69th Armor (FRG) will host their reunion from 26 to 28 February 2010, in Las Vegas, Nevada! The point of contact for the reunion is Retired First Sergeant Brian Goodknight at e-mail goodknight@insightbb.com or telephone 502-413-1200.



Celebrate 60 Years of History at the Patton Museum

The Patton Museum celebrates 60 years of armor history and the legacy of General George S. Patton Jr. The museum's 60th Anniversary celebration will commence on the 30th of May 2009 and run through the 31st. Admission to the museum and the event is free. Battle reenactments highlight each day's activities, complemented with static vehicle and equipment displays from World War II to present day. Mark your calendars — you don't want to miss this entertaining and educational experience that the whole family will enjoy.

Saturday, 30 May 2009

1000 - 1800	Patton Museum and Keyes Park (open to the public)
1000 - 1730	Exhibitor's Row (open to the public)
1000 - 1730	Living History Camps (open to the public)
1230 - 1345	World War II Tactical Demonstration
1400 - 1430	Vehicle Drive-by Parade
1430 - 1530	Museum Rededication Ceremony

Sunday, 31 May 2009

1000 - 1800	Patton Museum and Keyes Park (open to the public)
1000 - 1500	Exhibitor's Row (open to the public)
1000 - 1500	Living History Camps (open to the public)
1130 - 1245	World War II Tactical Demonstration

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