ARMOR

The German Breakthrough at Sedan

ARMOR

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Features

Departments

Once More Unto the Breach

As U.S. Armor and Cavalry units conduct combat operations to root out terrorists and bring democracy and the rule of law to Iraq, they learn lessons for future wars. The principles of war are unchanged; however, the methods warfighters use to apply these principles continue to evolve. On the current battlefield, commanders are challenged to carry out search operations, reconnaissance and detection operations, patrols, checkpoint and traffic control point operations, gather intelligence, and conduct stability operations while simultaneously protecting soldiers and U.S. security interests.

These challenges were no different for B Troop, 1st Squadron, 2d Armored Cavalry Regiment as they deployed to Iraq, where they faced a dynamic battle space that called for new methods and principles to prepare and plan for mission success.

In this issue, Captain Dale Murray and Lieutenants Christopher Shepherd, Gregory Hickerson, Michael Gantert, David Tosh, and Morris Estep share a series of articles, which describe how they successfully took the fight to the anticoalition forces to capture or destroy the enemy, won the support of the local population, improved the quality of life for the Iraqi people through rebuilding projects, and prepared local law enforcement and government agencies for transferring authority to the Iraqi people.

In early May 1940, the German army launched their invasion into France, and in a little more than six weeks of fighting, the French surrendered. Captain Samuel Cook's article, "The German Breakthrough at Sedan," examines how the Germans developed a new organization and doctrine for mechanized warfare with an emphasis on mobility and leader initiative that allowed the Germans to exploit technology to their advantage and quickly defeat an army that was almost equal in size and equipment.

The fundamentals of reconnaissance and security have not changed. The critical tasks of conducting a zone or route reconnaissance or executing an observation post remain the same.

However, the debate on properly organizing the scout platoon continues. In his article, "Reconstructing the Cavalry Force," Major Christopher Connolly introduces us to a new platoon — the reconnaissance platoon. He further discusses the upcoming U.S. Army Field Manual 3-20.96, *Reconnaissance Squadron*, which incorporates the cavalry force's new organization. Major Connolly's article provides a well-organized review of what the cavalry scout can expect his future force to look like.

The armor branch is fortunate to have leaders who will make changes when needed. "The Future of Tank Gunnery," by Major Herbert Skinner and Sergeant First Class Michael Dunfee details the changes in Abrams gunnery that the Directorate of Training, Doctrine, and Combat Development, Gunnery Branch, has developed based on assistance and suggestions from master gunners and leaders across the armor community, as well as lessons learned over the past three years. More urban-based scenarios with added engagements for the tank loader and closer-in engagements will become a major part of our gunnery training program.

Technology is fundamentally altering the doctrines we study and practice. These fundamental changes are not occurring for technology's sake, but rather as a consequence of science fiction-like capabilities only dreamed of just 10 years ago. Major Jason Craft, in his article, "The Information Revolution in Military Affairs," highlights just one aspect of the science fiction-like capabilities facing senior leaders of today — the information revolution.

Operation Iraqi Freedom continues to engage our armor and cavalry forces in full-spectrum operations — occasionally referred to as an asymmetric opponent. Our soldiers have successfully adapted to this warfighting environment by taking the fight to the enemy with devastating firepower. It is truly remarkable how U.S. Armed Forces have overcome enormous obstacles in their endeavors to bring peace and stability to Iraq. Please keep writing articles and sending in your ideas and letters.

– DRM

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LETTERS

Rushing Transformation Can Only Result in Hasty and Ill-Conceived Changes

Dear *ARMOR,*

First, may I compliment Major General Tucker on his column, "Restructuring the Force," in the May-June 2004 issue of *ARMOR,* which concisely outlines the transformation concepts for the U.S. Army.

Secondly, I was perplexed and confused by the quote, which was attributed to the Chief of Staff, Army, at the beginning of Colonel Kevin Benson's article, "Thoughts on Restructuring Army Brigades," also in the May-June 2004 issue of *ARMOR.*

Can the Chief of Staff be serious in his statement to, "turn three brigades into five maneuver brigades, and if I provide the right equipment, could they be one and a half more lethal than before." I suspect that the objective of transforming the Army's organization is to reduce the strength of the Army as desired by the Secretary of Defense.

Are we engaged in a "numbers game," wherein we transform the present 32 brigades into 48 brigades, and at the same time, increase the headquarters of the new brigade (oops, I mean unit of action) with an augmentation of a recon troop, one Howitzer battery, a combat support battalion, a forward support battalion, and so on? You may then tend to believe that this unit of action is approaching the capabilities of a small division in combat support and combat service support. In effect, is the concept to organize small divisions?

Instead of basing this restructuring on organizational principles of war — "Combat power is a combination of the physical means available to a commander and the moral strength of his command. …The degree of combat power attained reflects the commander's imaginative planning and leadership and the organization, training, and discipline of his forces." (U.S. Army Field Manual 100-5 *Operations*) — we appear to be rushing transformation, without the time to properly study and evaluate proposals.

I believe the enormous pressures placed on our senior leaders to move swiftly on transformation based on directives from the Secretary of Defense, can only result in hasty and ill-conceived changes, which shall significantly damage the effectiveness of our forces, and cause a serious long-term decline in the morale of our soldiers.

Finally, Colonel Benson should consider taking U.S. Army transformation back to the "regimental organization" under the "triangular division" concept. Thankfully, it was armor senior generals who preserved the armored cavalry regiments when the misguided reorganization of the Army divisions (ROAD) restructuring was established some 50 years ago.

Indeed, we must never forget that military organizations are not mechanical "units of action" like packages of modular size to be sent hither and yon, but are vibrant human beings who are dedicated military professionals that require the élan of a military organization, such as the regiment, to sustain them in war and peace.

DUQUESNE A. WOLF
COL, U.S. Army, Retired

Restructuring Army Brigades — A Critical Discussion

Dear *ARMOR,*

In his article, "Thoughts on Restructuring Army Brigades," in the May-June issue of *ARMOR,* Colonel Kevin Benson has begun a critical discussion. The brigade of the future must be configured for operations over extended distances, and as an independent force that does not depend on division-provided resources. Based on my own experiences as a brigade commander and from two rotations at the National Training Center (NTC), there are several problems with his proposed organization.

First, the brigade should have three maneuver task forces — two task forces give the brigade commander limited options in influencing the action. When both task forces are committed, as they are during brigade operations at the NTC, there is little left for the brigade commander to use. The expanded, nonlinear battlefield of the future will require the brigade commander to have more flexibility, not less.

Second, the unmanned aerial vehicle (UAV) company and brigade reconnaissance troop should be combined with a second troop and made into a squadron. This will give the brigade commander a much better view of the battlefield and increase his flexibility. (For more discussion on cavalry organization, see Colonel B.G. Clarke, "The Stryker Company and the Multifunctional Cavalry Platoon," July-August 2004, *ARMOR.*)

Third, the fire support battalion needs more robustness. Mortars do not have sufficient range to support operations in depth. The UAV assets should all be in the cavalry squadron. Reminder — digital connectivity will allow the direct link between the shooter and the finder. Digital connectivity and UAV range will require longer range capability, not shorter. At least two batteries of howitzers and one multiple launch rocket system (MLRS) battery will give the brigade range, depth, flexibility, and responsiveness.

Finally, the forward support battalion must be sufficiently robust for independent operations.

I like the ingredients that he places in the combat support battalion. Colonel Benson is to be commended for starting this discussion.

BRUCE B. G. CLARKE
COL, U.S. Army

Thoughts on Restructuring Army Brigades — Bring It On!

Dear *ARMOR,*

Lieutenant Colonel Kojro, thank you for reading my article. Now help me motivate the rest of the armored forces' officer corps to realize our current situation, and to think and write about how we execute decisions already taken. This is like voting — if you don't vote, you have no right to complain about who is in office. Or, in this case, if you have not done the hard work of thinking about your combat experiences, reading current doctrine, reading current concept papers, and putting pen to paper or fingertip to keypad to *write about how to train these new concepts and how to execute operations with these formations,* then you have no right to complain about the outcome. Decisions are being made right before our eyes, yet we are blind to their impact. That is exactly what I was referring to in my article, "Thoughts on Restructuring Army Brigades," when I wrote about our forefathers being engaged in combat and writing about how to change the formations while in contact — we can do no less.

KEVIN BENSON
COL, U.S. Army

Training the Armor Crewman for the *Current* Battlefield

Dear *ARMOR,*

I read with interest Captain Geoff Wright's article, "Sharpening the Spear: Training the Armor Crewman for Future Battlefields," in the July-August 2004 issue of *ARMOR.* His observations on training, supported by his personal experiences were spot on. Training armor crewmen is what we do at the 1st Armor Training Brigade (ATB), so I'd like to address some of his points and suggestions.

Captain Wright is absolutely correct about every tanker being a rifleman. During training at the 1st ATB, every armor crewman qualifies on the M4 and is trained in reflexive fire techniques (using 25m ranges and shoot/don't shoot techniques). However, we lack sufficient night vision goggles (NVGs), M68 close-combat optics (CCOs), and helmet mounts to conduct the night marksmanship training that Captain Wright suggests. We have requested program of instruction (POI) changes to support such training and hope to have it resourced by fiscal year (FY) 06.

Following qualification on all ranges, tankers are confronted with enemy, friendly, and noncombatant targets, so these new soldiers are introduced to the application of rules of engagement (ROE). With regard to squad tactics, 1st ATB has significantly increased the dismounted tactical training our soldiers receive, including squad movement and the eight tactical drills directed by task force soldier. At Fort Knox you used to see platoon-sized formations of soldiers marching from place to place; now you see squads of tankers in full battle rattle, patrolling from barracks to training sites.

In terms of conditioning, I appreciate the feedback on physical training. Our drill sergeants work very hard to build strength and endurance in our new soldiers. That said, 1st ATB does not

yet have body armor for soldiers with which to routinely train. Again, we have requested body armor (or even the older flak vests) and hope to routinely train in body armor by FY05. The suggestion to introduce new soldiers to a personal conditioning program is a good one. We will take on this suggestion and try to make it a reality.

In terms of driver training, part of the driver's training course is a two-hour block of instruction in tank driver simulator urban scenarios. In these scenarios, they drive down city streets, weave around parked cars, and are faced with oncoming traffic. We are looking to add cars, trucks, and buildings to our advanced driving course.

A significant deficiency is the high-mobility, multipurpose wheeled vehicle (HMMWV) driving portion. It would take a week per soldier to train HMMWV driving, and we simply do not have a week in the POI. The POI is crammed full (initial entry training soldiers train six and one-half days a week), so we would have to add a week to 19K one-station unit training (OSUT).

We have added considerable improvised explosive device (IED) training for both mounted and dismounted forces, which includes identifying, avoiding, and reacting to IEDs, which applies another lesson from Operation Iraqi Freedom. We have also added basic instruction in tactical questioning, so that each tanker is introduced to being a sensor and learns how to question civilians or other people they encounter.

All in all, Captain Wright makes great suggestions. The 1st ATB welcomes such suggestions as we continue to improve individually training young tankers. We are keenly aware that many of our graduates are in combat 30 days after they depart training, and we make every effort to prepare them for the challenges they will face. Thanks for your service.

JAMES K. GREER
COL, U.S. Army

The Cavalry Scout —
Staying Focused on the Future

Dear *ARMOR*,

Staff Sergeant Brendan Kearns' article, "The Future of the Reconnaissance Professional," in the May-June 2004 issue of *ARMOR*, is very intriguing. I applaud his courage in writing such a blasphemous document. I concur that the 11B and the 19D have similar skill sets. I concur that the Armor Center and the Army need to put more emphasis on training and equipping the cavalry, such as providing a dedicated recon vehicle. However, to say we should be assimilated into the infantry community, is taking it too far.

Both the infantry and cavalry have many of the same skill sets. However, the difference is not so much about who conducts the skill sets, but how and to what level they are conduct-

ed. There is a fundamental difference in how and why missions are conducted. Infantry's role, and for that matter, armor's role is to close with and destroy the enemy. Although a scout can certainly perform this mission, his main role is to gain intelligence on the enemy. This mission requires "sneak'n and peek'n" with a brigade reconnaissance troop, or hammering with a divisional cavalry squadron. Either way, the mission is to gain information on the enemy for the main body. With the cavalry mindset, we still focus on the reconnaissance portion of the mission. How easy would it be for an infantryman to lose that focus and revert to his mindset of closing with and destroying the enemy?

The 19D soldier has always been flexible when it came to his job. A scout can be assigned to an M3A2, M3A2ODS, M3A3, a HMMWV family of trucks, the Stryker reconnaissance vehicle (RV), or on foot, which takes very adaptable soldiers to transition from vehicle to vehicle and do so successfully. Now factor in the required training that finds its origins in the military police, infantry, engineer, artillery, armor, and military intelligence branches, and the 19Ds have a very full plate. So now, try adding all this to an 11B's training schedule, which is already maxed out for infantry-specific training, and you will understand why there is a separate military occupational specialty (MOS) for cavalry scouts.

For years, cavalry scouts have been stepchildren, ignored by their parents, armor and infantry. The scout is a 19-series MOS, thus falling under Fort Knox, Kentucky, and every system the scout uses is controlled by the infantry, thus falling under Fort Benning, Georgia. Steps to make these two understand the scout's requirements for training have already taken place. The new Field Manual (FM) 3-20.8, *Scout Gunnery,* incorporates cavalry-specific combat requirements into gunnery for the M3, HMMWV, and Stryker RV platforms. The scout has been allocated more training ammunition than ever before, regardless of the platform, which makes commanders smile and say, "Now, we can train."

FM 3-20.98, *Reconnaissance Platoon* is a well-developed manual that provides the cavalry scout a doctrinal base from which to develop a course of action for a mission, regardless of the platform or his unit of assignment. Say what you wish, but the fundamentals of reconnaissance do not change. Scouts have the versatility to move from unit to unit, from one platform to another, and use FM 3-20.98 throughout to be successful. If a soldier wants to read three or more manuals to learn the same fundamentals, he must have a lot of spare time in the divisional tactical command post.

As we all know, the Army is undergoing its largest transformation in 50 years. The Department of the Army sees the value and necessity of the scout's abilities in the future force. If you look at the composition of both the heavy and light units of action, you will see a significant amount of cavalry scout organizations. There is an approximate growth of 20 percent

for the cavalry force. I hardly see this as "being put out to pasture."

I understand that each leader has a propensity to conduct missions that match his personality and views. If a soldier uses his vehicle to conduct a reconnaissance or rushes into a battle to destroy the enemy, he is following the "tanker" blood in his veins. If another soldier dismounts to conduct a reconnaissance or waits until he has overwhelming force to destroy an enemy, he is following the "grunt" blood he carries. The best thing about cavalry scouts is that they can and will do both. We are the "jack-of-all-trades" and will use every asset from both worlds to get the job done and come home safely.

CHRISTOPHER HARVEY
SSG, U.S. Army

### The TFM Casspir Mk III APC — a Better Answer to the HMMWV

Dear *ARMOR,*

From published accounts of military action in present day Iraq, the major threat to coalition forces is the roadside car bombs and mortars (all blast and low velocity fragmentation weapons), employed against convoys and patrols. The tactic is to remove security elements to make the lightly or unarmed element vulnerable. The high-mobility, multipurpose wheeled vehicle (HMMWV) in any configuration has not proved sufficient for present situations. There is a family of vehicles specifically designed to combat a rebellious environment and the types of weapons used in such an environment — the TFM Casspir Mk III armored personnel carrier produced in South Africa. These vehicles of simple design, using off-the-shelf automotive components, are specifically designed to enhance a soldier's survival against indirect explosion and are repairable from such damage. The Casspir would require modification to employ two, and possibly three, weapons stations in separate armored compartments for a maximum crew of four (driver and three gunners). The high position of the weapons stations would prove advantageous to look over the many low walls and houses that are common in the Middle East. The cargo carrier and fuel tank versions would be deployed unchanged. The TSM Casspir family of vehicles is readily available and would be a timely, cost-effective, and life-preserving solution for the situation at hand — an ugly duckling might be a cassowary for the purpose intended.

I am a long-term student of military history, particularly armored vehicles. As a submarine veteran of World War II in the Pacific, I knew nothing of the land war in Europe and Africa. After the war, I read extensively and became fascinated with the tank and its impact on land warfare — the fact established during World War I that no attack could succeed without it. Since then, I have tried to keep well informed on armored vehicle development and tactics.

JEROME E. RANDA

COMMANDER'S HATCH

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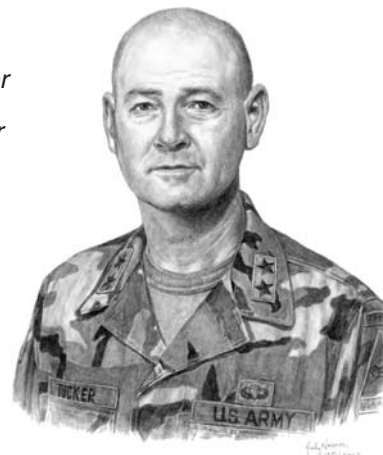
The Future Force and the Way Ahead

While combat operations in Iraq and Afghanistan continue, we are simultaneously transforming our Army. It is vital that we keep our Armor Troopers informed about future developments and how these developments effect how we will function in the future. This is not about developing individual systems that will replace what we now have; transformation is a strategy of developing a system of systems and new concepts that will fundamentally change the way we fight.

Future force development is about evolving our current fighting force into one that will be prepared to fight and win on future battlefields. As the U.S. Army Training and Doctrine Command's integrating proponent, the U.S. Army Armor Center continually looks ahead to the next fight to determine requirements and needed capabilities.

Future force development is not an option — we cannot remain idly content with the systems, organization, doctrine, and training that we now have to fight future fights. Our adversaries continue to adapt to counter our capabilities; therefore, we must continue to evolve our capabilities to remain ahead of those efforts. Rather than separately develop individual systems, we are working on a system-of-systems approach that will deliver a total force capability. For example, the system-of-systems approach includes enhanced capabilities to conduct battle command on the move, provides wideband communications at brigade combat team and below, integrates embedded training on our fighting platforms, and delivers relevant sensor capabilities that allow us to see the enemy first — just to name a few.

While we are developing new combat platforms, which are smaller and lighter than the current Abrams and Bradley fleet, they cannot be more vulnerable than the existing fleet. Those new systems must be more lethal, more survivable, and more capable.

Future force development has already yielded significant changes to the current force. A good example is the change from our current brigade structures to a modular Unit of Action organization, which started with the design we developed for the future combat system (FCS)-equipped Unit of Action. We do not have modular Unit of Action organizations and concepts just right yet, but we are working to get there.

Recent decisions are now charting a way ahead that will make fundamental changes to current forces. These decisions accelerate delivery of FCS capabilities to modular Units of Action in the near term, rather than waiting until fiscal year 2014, when the first FCS-equipped Unit of Action is fielded. Simply, we will incrementally field FCS capabilities to current Units of Action beginning in 2008, and then incrementally field additional capabilities to Units of Action up to and including the first full FCS-equipped Unit of Action. This represents significantly accelerated future force capabilities to the current force. These FCS capabilities will spiral from the FCS program into our Army formations, beginning in 2008.

The first set of capabilities that will be fielded to a Unit of Action in 2008 includes components of the enhanced tactical communications and battle command system, the joint tactical radio system, and other complementary systems. In 2010, the next fielded increment (to eight Units of Action) will add capabilities, such as sensor packages and armed unmanned aerial vehicles, which reduce force vulnerability. The 2012 increment fielding (20 Units of Action) will enhance our capability to shape and extend the battlespace. Finally, in 2014, we will field the full FCS battle command software and communications network to 31 Units of Action. Simultaneously, we will field the first FCS-equipped Unit of Action.

Our challenge is clear. We must transform our Army to take advantage of emerging technologies even as we fight the Global War on Terror. Further, we should not keep new technologies out of the hands of our current force as we create the future. During World War II, our forebears at Fort Knox met a similar challenge — creating the Armored Force in the middle of a global conflict. The Armor Center has always been in the forefront of developing theory, practice, and weapons of war. I pledge to you that we will remain on the cutting edge and continue to design and build a future force that remains the finest in the world.

Forge the Thunderbolt!

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

Task Force Modularity/
Force Stabilization

The Department of the Army recently announced the force structure and location decisions for the new brigade combat teams/brigade units of action (BCT/BUA) for fiscal years (FY) 2005 and 2006. The new BCT/BUAs will form at Fort Polk, Louisiana; Fort Benning, Georgia; Fort Riley, Kansas; Fort Bragg, North Carolina; Fort Bliss, Texas; Fort Richardson, Alaska; Schofield Barracks, Hawaii; and Fort Hood, Texas. The 3d Infantry Division, Fort Stewart, Georgia, moved to four combat brigades as the Army's modularity test bed in FY04.

The Army's modularity is based on brigade-sized elements and is designed to build a more responsive force capable of performing joint and expeditionary-type missions. Prior to the Army's transformation, units were designed to provide specific capabilities to a specific region of the world. BCT/BUA will have a standard design for heavy and light units of action (UAs), which will incorporate a broad spectrum of capabilities that are embedded in the unit.

As part of the Army's continuing transformation, the 2d Armored Cavalry Regiment (2ACR) is designated to become one of the Stryker brigade combat teams (SBCTs), which means 2ACR will be an infantry-centric unit. The realignment will move the Army from 33 current active brigades, under 10 division headquarters, to a force of 48 active brigades, which increases the Active Component by 24 percent. This builds a deeper rotation pool to sustain the Global War on Terrorism.

While Active Component units will increase, National Guard forces will decrease their number of combat brigades from 37 to 34. The Reserve Component will create a more relevant and capable force by reducing excess combat capabilities, which will allow the excess combat capabilities to be refocused or grow other types of capabilities. This also reduces the number of National Guard units from 56 percent to less than 45 percent of the Army's total combat force, which improves resourcing and training capabilities while building a full-spectrum force.

It is impossible to address modularity without addressing force stabilization and its impact on soldiers and units. Stabilization is designed to increase unit readiness and combat effectiveness while setting conditions to decrease personnel turbulence. Force stabilization is a system focused on home basing and unit stability. Soldier assignments will be synchronized with a unit's operational cycle. As a result, soldiers will remain at a duty location longer. This will stabilize the force by increasing unit cohesion through stability and provide soldiers and their families predictability.

The current manning strategy for force stabilization is based on the individual replacement method. The Human Resource Command (HRC) will eventually phase out individual replacement and provide unit force stability manning through either "life cycle" or "cyclic" management.

Life cycle management synchronizes the soldier's tour with the unit's operational cycle (ideally 36 months). For a deploying unit, this minimizes attrition, which normally occurs through permanent change of station, expiration term of service, and retirement. There are three phases to the life cycle: reset, train, and ready.

During the reset phase, soldiers will arrive or depart depending on where they are in the unit's life cycle. Ultimately, 25 to 33 percent of the life cycle unit rolls over for an additional 36 months. The training phase is roughly a four-month window for the unit to train individuals through collective tasks. The culminating or capstone event for the training phase will be a certification exercise conducted at a combat training center. The ready phase confirms the unit is available for an estimated 30-month employment.

Cyclic management sustains a unit through a periodic package of replacements to normalize training cycles. This primarily effects combat support, combat service support, and table of distribution and allowance-type assignments, as well as headquarters elements, and low-density and high-impact units. Cyclic will enhance continuity of operations and focus training during the unit's sustainment periods.

Realigning 2ACR as an SBCT impacts career management field (CMF) 19. The short-term impact looks bleak for armor and cavalry career managements fields; however, the long-term effects will be a very healthy CMF. Over the next three years, 19Ks will lose approximately 1,285 authorizations, 19Ds will increase by approximately 3,799 authorizations, and 19Zs will add an additional 169 authorizations. Depending on coding issues with reconnaissance, surveillance, and target acquisition (RSTA) Stryker UAs, there is a potential for an additional 1,960 19D and 70 19Z authorizations.

IRON DISCIPLINE!

From the Boresight Line:

Master Gunner Duties Before, During, and After Combat

by First Sergeant Jack Cooper

Ranges, land, ammunition, simulators, and tank crew gunnery skills tests are included in a master gunner's functional areas of expertise. But how these particular areas relate to combat zones and defining a master gunner's mission during combat operations and support and stability operations have become widely discussed issues, as well as the primary focus during the Master Gunner Forum at Armor Conference 2004.

Before Combat or Prior to Line of Departure

A master gunner's job description states, "responsible for planning and coordinating all gunnery training requirements; prepares and reviews all unit tasks associated with each training event; responsible for preparing and managing the unit training schedule; serves as the commander's advisor on all matters tank related; tracks the turret maintenance status of all assigned vehicles; develops and monitors the utilization of tank simulators; manages ammunition, land, and ranges at battalion level."

This is by no means a complete list of a master gunner's responsibilities, and they vary somewhat from unit to unit. However, the practical basis remains the same. The master gunner assists the commander in planning and executing gunnery related tasks, and advises the commander on M1A1/A2 gunnery training and vehicle mounted weapons system maintenance, as well as crew assignment. He assists platoon leaders and platoon sergeants in training all gunnery related tasks. The master gunner works closely with maintenance personnel on tracking turret maintenance problems so he can better advise the commander on the unit's turret maintenance status.

Once your unit receives deployment notification, the master gunner shifts into high gear. He has to plan ahead for screening with live ammunition, qualification ranges for all weapons systems, land for maneuver training, breaching requirements, boresighting, armament accuracy checks (AACs), and whatever else the chain of command may need.

The master gunner plays a critical role as advisor to the commander on his tactical plan by being the resident expert on vehicle identification and capabilities. He assists in developing engagement areas and sectors of fire. He assists the commander in determining the unit's battlesight based on mission, enemy, terrain, troops, time available, and civilians (METT-TC) for each ammunition and range combination. His input, if used properly, can influence the battle in a myriad of ways.

During Combat

Once the line of departure has been crossed, the master gunner's role changes. He quickly becomes deeply involved in the tactical scenario. Battle position selection and maneuver capabilities, in conjunction with enemy weapons system capabilities, are part of the master gunner's normal duties. During Operation Iraqi Freedom, master gunners became the go-to guy and made things happen.

During the early stages of Operation Iraqi Freedom, the master gunner fulfilled various battle staff roles. Commanders relied on their master gunner's assessment of the unit's proficiency and maintenance status. As the war continued, the maintenance status became more critical and pronounced because of the effect it has on the units' ability to conduct missions.

Another issue during Iraqi Freedom was sustaining soldier skills when not in direct conflict. This is not as easy as it sounds when you do not have a training aids support center available. Master gunners had to develop training from whatever could be found — old vehicles, buildings, open patches of desert. Master gunners also had to learn a new set of skills, such as reflexive firing techniques, additional weapon systems (mortars, artillery, aviation, Bradley) and their sustainment requirements, composite surface danger zones, enemy small-arms capabilities, urban gunnery techniques, and subsurface clearing techniques.

After Combat Operations

When a war is over, a master gunner's job does not automatically change — it changes based on the fluid environment. Soldiers and master gunners currently serving in Iraq, while having some of the basic living requirements improved, would tell you their mission is just as difficult. The role of the master gunner has changed to more closely resemble that of his "before combat" role. The main difference now is he not only runs combat-type missions, but also runs a multitude of ranges simultaneously.

During peacetime, a master gunner's role is much different. He moves to a range, links up with the range crew, proofs the range, briefs the crews, ensures the tank crew examiners are properly trained, monitors training, mitigates vehicle maintenance issues, retrains crews when needed, ensures ammunition tracking and reallocation occurs, and advises the commander on any tank related issues, crew related issues, or range problems.

Transforming the Army to the modularity concept, as well as rebalancing the Army will impact the armor community, as well as the master gunner's role. The Master Gunner Branch will do its best to ensure the force has the most qualified master gunners. The role of the master gunner before, during, and after combat missions will change, and rest assured, so will the master gunner.

Put steel on target! We are your master gunners!

The German Breakthrough at Sedan

by Captain Samuel Cook

In May 1940, the world watched in astonishment as the German army conquered France in just more than six weeks. It is convenient to view the conquest of France as one of a long series of inevitable German conquests before the weight of the world's resources came to bear and turned the tide of the war. However, closely examining the first crucial days of this campaign reveals a very close run. Looking back on the battlefield above Sedan, General Heinz Guderian describes the exploits of his XIX Panzer Corps as "almost as a miracle."[1]

The mythical images of Blitzkrieg still permeate popular history, much as they did with contemporary observers in 1940. And that is just as Joseph Goebels intended it.

Laced with images of tanks rolling through France, Goebels' films created the popular image of a numerically and technologically superior German army cruising effortlessly through France. Such images aimed to deter powers, such as the United States, from joining the war against an unbeatable German army. He skillfully concealed the truth. The combined French and Anglo armies actually contained 4,200 tanks compared to Germany's 2,800. Moreover, French and British tanks contained both superior armor and firepower. The latest German tanks, however, had the advantage in terms of speed and communications ability.[2] Technology was not the reason the Germans won. Both sides had access to the technology of the day; the Germans were successful, however, because they developed a new organization for mechanized warfare, a maneuver warfare doctrine to exploit technology, and most importantly, they encouraged bold and decisive leadership.

Planning for the Invasion

The plan for the Battle of France developed over eight months of intensive wargaming and heated debate within the German general staff. The original plan called for a mechanized reprisal of the 1914 von Schlieffen plan, where the German army would envelop the French army from the north through Belgium. On 25 October 1939, a junior staff officer, General Eric von Manstein, proposed a plan in which the Germans fixed the majority of the French and British forces in the north, while the German main attack penetrated the French defenses through the severely restricted Ardennes Forest. After crossing the Meuse River, Manstein's plan called for a bold armored thrust to the English
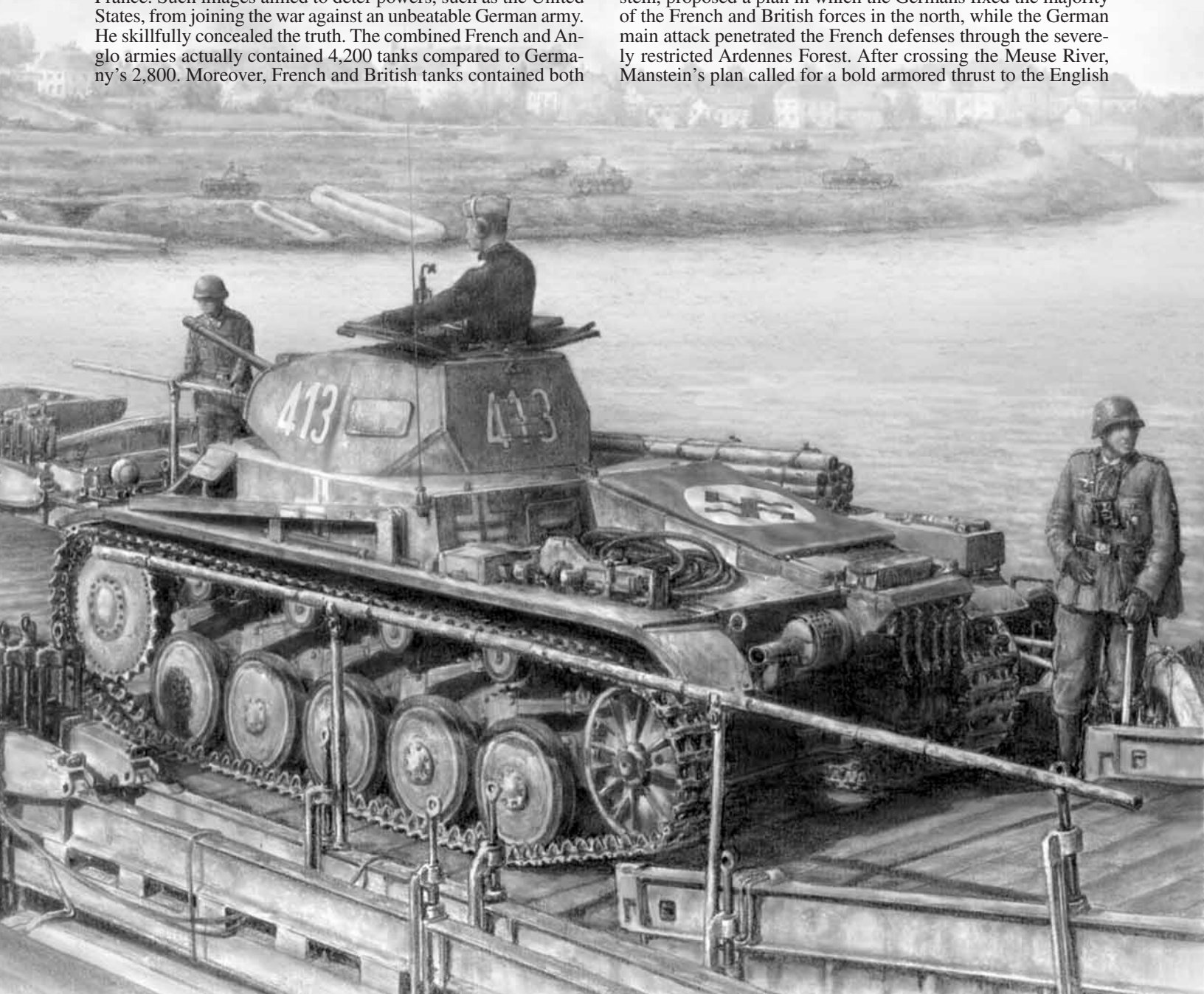
Channel to cut off and surround a majority of the French army and the entire British army in Northern France. The main effort was a Panzer group consisting of two Panzer corps and a motorized infantry corps.[3] The Panzer group's main effort, General Heinz Guderian's XIX Panzer Corps, consisted of the 1st, 2d, and 10th Panzer Divisions and the crack motorized infantry regiment, GrossDeutschland. Guderian's mission was to attack and penetrate the French defenses at the Meuse River near Sedan.

The German concept called for a rapid advance through Luxembourg with three armored divisions (the distance between the Northern and Southern Division was only 20km). Due to the restricted nature of the terrain, each division traveled on one or two routes. As the corps entered Belgium, each division planned to move a covering force in advance of its column to seize key objectives assigned for each day. Finally, the corps would transition to the attack to cross the Meuse River. Though the crossing was the decisive point of the operation, Guderian did not publish his plan for the crossing in the operation order. This was in keeping with German officer's thorough training in Moltke's dictum that no plan extends "with any certainty beyond the first encounter with the main body of the enemy."[4] Instead, he relied on a variety of courses of actions his staff had developed in exercises along the Moselle River in late March 1940. Guderian also disagreed with his commander, General Ewald von Kleist, on the crossing point over the Meuse. The final operations order published on 21 March ordered XIX Corps to cross 10 kilometers east of Sedan. Guderian preferred to cross the river on both sides of Sedan, and his operations order for the approach to Sedan simply ignored the directives from higher. This was in keeping with the deeply ingrained German officer tradition of using discretion in execution of their mission orders from higher. Nevertheless, Guderian's bold act of defiance, even for the German army, "was a startling act of independence."[5]

Between March and May, XIX Corps moved to an assembly area along the Moselle River in Germany to conduct special training focused on approach marches in restricted terrain and river crossings. Officers participated in intensive wargames and briefings to become familiar with their division's mission. Guderian also ensured extensive joint training with the Luftwaffe, as it was critical to his river-crossing plan. All the while, Guderian relentlessly pushed his junior officers to challenge orthodoxy and think of new ways to employ their forces in combined-arms formations.[6]

The Approach March

The attack order came with little warning at around noon on 9 May 1940. By 1700 hours, XIX Corps departed its assembly area on an approach march to the Belgian border. At exactly 0435 hours, 10 May, German engineers from three Panzer divisions began breaching obstacles across the frontier of Luxembourg.[7] A special detachment of 125 commandos seized five bridges on the southern flank of the corps to provide early warning of a French counterattack until motorized infantry could relieve them. The 3d Battalion, GrossDeutschland Regiment, air assaulted using tiny storch planes to envelop the first expected pocket of resistance in Belgium on the route of the 1st Panzer Division, the corp's main effort. Numerous small detachments of commandos air assaulted other critical passage points in the highly compartmentalized terrain to ensure access to all routes.[8]

"Nevertheless, Guderian's bold act of defiance, even for the German army, "was a startling act of independence."

Despite careful planning by the German general staff, Moltke's dictum about no plan surviving far beyond contact was in full effect on 10 May. Two Belgian infantry bicycle companies occupied a carefully strong-pointed position between two towns, Martelange and Bodange, right across the Belgian border. The air assault battalion had landed to envelop this position and prevent reinforcements. They were indeed successful in preventing reinforcements and cutting communications. Ironically, however, this prevented the Belgian 4th and 5th Infantry companies from receiving the order to withdraw. Instead, they blew the bridge, entered the town, and fought tenaciously from 1200 to 2015 hours on 10 May. An infantry battalion, commanded by Lieutenant Colonel Hermann Balck, a motorcycle company, and an armed reconnaissance troop from the advanced guard finally overcame the resistance, allowing the engineers to move forward and repair the bridge for the 1st Panzer Division's main body to cross.[9]

Meanwhile in the north, the 2d Panzer Division negotiated the most inhospitable terrain in the Ardennes, winding their way through deep wooded gorges along routes designed for north to south movement, rather than their westward direction of travel.[10] The 10th Panzer in the south, reinforced by the GrossDeutschland Regiment, had an extremely successful march in the south and outpaced the other two divisions handily. On the evening of 10 May, Guderian received an order from von Kleist's staff ordering him to turn the 10th Panzer division south to meet an advancing French cavalry division. Guderian recalls, "I asked for the cancellation of these orders; the detachment of one-third of my force to meet the hypothetical threat of enemy cavalry would endanger the success of the Meuse crossing and therefore of the whole operation."[11] Instead, Guderian ordered the 10th Panzer to shift northwest to avoid contact with the French cavalry to the south and continue pushing for Sedan. Guderian did not wait for a reply; instead, he made the change and had a discussion with von Kleist on the morning of 11 May regarding the change. "Thus Guderian bullheadedly ignored von Kleist's order and then had the audacity to debate its merits."[12]

Guderian's new route brought 10th Panzer through difficult terrain, and at times, moved on 1st Panzer Division's route. However, it was ahead of 1st Panzer at this point so Guderian quickly abandoned the plan to maintain the momentum of the

"Meanwhile in the north, the 2d Panzer Division negotiated the most inhospitable terrain in the Ardennes, winding their way through deep wooded gorges along routes designed for north to south movement, rather than their westward direction of travel."

attack. Still, Berlin pushed for stronger protection along the original southern route, and XIX Corps relented and ordered 10th Panzer to provide flank protection with at least one battalion along the southern route they had vacated.

This time, Guderian's division commander, General Ferdinand Schaal, disobeyed the order and later convinced Guderian of the folly in splitting his forces. To solve the problem, von Kleist finally rushed a motorized infantry division from a follow-on corps to protect the fast-expanding southern flank of the XIX Corps.[13] The German officers displayed a stubborn independence and insisted on executing their orders as they saw fit. Rather than punishing such behavior, the German officer corps rewarded the behavior as long as the officer was competent and could successfully justify his chosen course of action.

On the morning of 11 May, although 1st Panzer Division had failed to reach its objective of Neufchateau the previous night, Guderian maintained his objective for the second day — crossing the Semois River, which was the last major obstacle for the corps before the Meuse. Screening forces advanced on Neufchateau during the early morning of 11 May; meanwhile, the 2d Panzer Regiment advanced without artillery support due to the traffic jams through Bodange. The leading element of the division, the 2d Panzer Regiment reached Neufchateau around 0645 hours and bypassed the main resistance using southern routes around the city. The sight of German tanks in their rear area to the west of the city quickly broke the spirit of the French cavalry defenders and caused them to withdraw. However, the Panzer Regiment destroyed a motorized column and an artillery battery before the French could withdraw.

The 1st Panzer Regiment and one battalion from the 1st Infantry Regiment followed along with engineers to protect the southern flank as the tanks pushed forward to the Semois River.[14] Rather than wait for a coordinated attack, the Germans preferred initiative to synchronization to take advantage of a fleeting opportunity before the French could organize a coordinated defense of Neufchateau.

At 1400 hours, the 1st Panzer Regiment passed forward to continue the division's attack to the Semois River. Its objective was to establish a crossing point on the Semois River at Bouillon; 2d Panzer Regiment was ordered to cross the Semois 7 kilometers northwest of Bouillon at the town of Rochehaut. The 1st Panzer Regiment reached the outskirts of Bouillon at 1730 hours, but because they lacked infantry support, they were unable to hold the crossing sites and were forced to withdraw.

The 1st Panzer Division quickly created two battle groups to cross the Semois that night. Battle group Krueger, which was made up of two infantry battalions, two Panzer battalions, and engineers, fought through the streets of Bouillon to secure the southern crossing site over the Semois River. Battle group Keltsch in the northwest, consisting of only one infantry battalion and one Panzer battalion, seized a crossing site over the Semois at the town of Mouzaive at 2335 hours on 11 May — 5km northwest of the one assigned to him. Keltsch made the decision entirely on his own initiative after discovering the bridge was relatively undefended, even though it was clearly in 2d Panzer Division's zone. 1st Panzer Division immediately reported the seizure of the crossing point to XIX Corps and requested permission to use it to cross the division's northern elements. Since 2d Panzer was far behind, XIX Corps approved the violation of the boundary.[15]

Events quickly overtook the previously established timeline, and the 1st Panzer Division shifted forces north to the Mouzaive crossing site. The rapid seizure of a crossing outside of its zone proved critical for the 1st Panzer Division, as corps needed the Bouillon road network to pass the 10th Panzer Division across the Semois due to deviation from their original route.[16] Again, the Germans eschewed detailed synchronization for rapid decisionmaking at the lowest level to take advantage of the situation on the ground — all within the framework of the mission orders from higher. Corps staff quickly adapted to the changes on the ground and rapidly deconflicted changes to the plan affected by units on the ground. The result of the speed of the German ad-

vance was a rapid collapse of the French defensive effort on the Semois River. Meanwhile, the 2d Panzer Division raced to catch up to the 1st and 10th Panzer Divisions, which by 1300 hours on 12 May were in the woods 3km north of Sedan and the Meuse River.

The Battle of Sedan

On the afternoon of 12 May, Guderian boarded a small plane to travel back to von Kleist's headquarters. He learned the attack across the Meuse would commence at 1500 hours the following day. Guderian initially hesitated because 2d Panzer Division would probably not be in position to participate in the attack, but he quickly realized it was more important to maintain the momentum of the attack. Von Kleist again ordered Guderian to attack 10km east of Sedan, but Guderian refused and insisted that he was already in position to attack through Sedan. Von Kleist had no choice but to accept Guderian's recommendation. Guderian strenuously disagreed with von Kleist's decision to switch from a protracted air bombardment, which would suppress the enemy's artillery, to a short and concentrated attack, in an effort to deliver a knockout blow. Guderian believed such a short duration attack would be ineffective and leave his forces vulnerable to heavy artillery for the duration of the crossing. Von Kleist, however, refused to change his concept for air support.[17]

Guderian returned to his headquarters that afternoon and quickly published a two-page order that covered the following day's attack on the Meuse. The order was almost identical to an exercise order conducted the previous fall with only dates, times, and locations changed. The order's brevity owed much to the excellent training the unit had conducted prior to the invasion, which allowed them to greatly shorten orders due to a common understanding of how they fought together on this operation. The German military culture prized clear, concise orders with very limited guidance to subordinate units.[18] The rapid publication of the order for the following day's attack allowed XIX Corps' subordinate units enough time to begin preparations for the attack and conduct thorough reconnaissance, despite the compressed timeline.

"The German officers displayed a stubborn independence and insisted on executing their orders as they saw fit. Rather than punishing such behavior, the German officer corps rewarded the behavior as long as the officer was competent and could successfully justify his chosen course of action."

The air attack began with only a few bombers, which signaled to Guderian that the previously agreed-on scheme for air support was in place, rather than von Kleist's plan for a massive, concentrated bombardment. This occurred because von Kleist's order to the Luftwaffe arrived after the orders had been distributed to the air squadrons in support. Guderian began the attack as planned at 1500 hours. The French Xth Corps' log clearly credited the German aerial attacks, stating, "German aviation played a preponderant role, even a decisive [one]. Its incessant attacks were launched against the [principal] line of resistance…[and] on the rear areas… Its action was continuous and massive."[19] Guderian's assessment of the impact of air turned out entirely correct. The French infantry suffered marginally, but the effect on the French artillery proved devastating. Despite being poorly dug in, very few artillery tubes actually suffered damage at the hands of the German bombardment; the crews, however, ceased operating the guns almost entirely in search of cover from the constant, screaming attacks of the German dive bombers.[20] A short, massive bombardment would have been a shock, but it would probably have caused little damage and allowed the gun crews to resume firing on the crossing sites.

The 1st Panzer Division in the center was the main effort, and therefore received the GrossDeutschland Regiment, two assault engineer battalions, a heavy engineer battalion, and direct support from corps artillery and the heavy artillery battalions of 2d and 10th Panzer Divisions. To the west, 2d Panzer Division would attack to cross in two locations

"Rather than wait for a coordinated attack, the Germans preferred initiative to synchronization to take advantage of a fleeting opportunity before the French could organize a coordinated defense of Neufchateau."

around Donchery. To the southeast, 10th Panzer Division would attack into the southern suburbs of Sedan.[21]

The 1st Infantry Regiment crossed with two infantry battalions, reinforced with tanks and assault guns. The GrossDeutschland crossed at one point with two battalions following the crossing point. The 1st Infantry Regiment's crossing succeeded largely due to effective direct fire support from a company of Mark IV tanks and a battery of 75mm assault guns supporting the attack. The 43d Engineer Battalion ferried troops across the river, while the 37th Engineer Battalion began ferrying equipment across the river to support the attack. As the infantry regiment established the bridgehead, the 505th Engineer Battalion began work on a 16-ton bridge to allow tanks and heavy artillery to cross.

The crossing remained largely unopposed by indirect fire, but it received heavy machine gun fire from the far bank. The infantry hesitated initially on the far bank after losing two boats to grenades and machine gun fire, but the battalion commander quickly took personal control of the situation and pushed the lead elements forward to silence the guns.[22] Anxious to assess the situation, General Guderian crossed in one of the early waves of the attack. On reaching the far side of the Meuse, Lieutenant Colonel Balck admonished the general, "Joy riding in canoes on the Meuse is forbidden!"[23] Robert Doughty remarked "the personal courage and close proximity to the fighting of the German leaders proved to be one of the most important elements in the eventual German success."[24]

The 1st Infantry Regiment, under the energetic leadership of Balck, quickly attacked to clear French fortifications and trench lines to open the way for the GrossDeutschland Regiment to the east and the motorcycle battalion to the west, so they could cross the Meuse and secure the flanks of the bridgehead. The GrossDeutschland Regiment suffered heavy casualties initially as it tried to cross from the French bunkers; they eventually solved the problem by bringing up 88mm guns to silence the bunkers, which allowed two companies to cross. On the far side of the river, the GrossDeutschland Regiment advanced far slower than the 1st Infantry Regiment to its west. The 6th and 7th companies attacked to seize key bunkers that were hindering the advance; in the process, they moved west of the regimental boundary to accomplish their mission. Again, the Germans drew on their tradition of mission-oriented tactics to accomplish the task at hand instead of adhering to boundaries that did not fit the tactical situation at hand.[25]

The attack in the 10th Panzer Division sector did not begin nearly as well as the 1st Panzer Division's assault. The aerial bombardments against the French guns in this sector had little effect. Artillery fire destroyed a considerable portion of the boats that were to cross the 10th Panzer Division. For a while, the division considered withdrawing the attack. A young German staff sergeant and his squad, however, almost single-handedly breached the French river defenses, which salvaged the river crossing operation for the division.

Sergeant Rubarth and his engineer squad crossed near a destroyed railroad bridge and destroyed four bunkers along the Meuse River and then three more behind the river defenses. Another small infantry group under Lieutenant Hanbauer fought and cleared the entire French position on the heights of Wadelincourt. Subsequently, the 1st Battalion, 86th Infantry Regiment was able to cross and secure a bridgehead for the division.[26] The actions of Sergeant Rubarth and Lieutenant Hanbauer reflected the lengths to which the German army had gone to ingrain individual initiative down to the very lowest levels. Both men, instead of waiting for more forces, seized and maintained the initiative they had gained to achieve objectives that were far beyond the scope of the limited tasks they were assigned. The effects of their actions on the entire XIXth Corps operation cannot be overstated. The 10th Panzer Division's crossing secured a third crossing site over the Meuse out of the originally planned six.

The 2d Panzer Division failed to achieve its objective that day due to a late start on the attack and the large open terrain it had to cross on its approach to Donchery. French artillery poured more fire on the 2d Panzer than it had on the other two divisions. The 2d Infantry Brigade remarked the attack was "impossible" due to the strength of French direct and indirect fire from across the bank.[27] East of Donchery, the Germans launched eight assault boats across the Meuse River. Only one boat reached the far bank, and the soldiers quickly swam back to safety on the nearest bank. It was not until late in the night, when the 1st Panzer Division cleared the bunkers overlooking the river, that the 2d Panzer was finally able to establish a crossing site in their zone.

By nightfall, the Germans had one bridge to cross vehicles, and three bridgeheads through which they could safely ferry men and equipment across the river. Were it not for the remarkable small-unit actions and combined-arms integration at the lowest levels, the bridgehead at Sedan could easily have achieved only local success instead of a dramatic breakthrough. Nevertheless, the Germans had managed to create a large enough bridgehead between the 1st and 10th Panzer Divisions to repulse French counterattacks on 14 May.

The XIX Corps had six infantry battalions and two Panzer Regiments across the Meuse by the following afternoon.[28] Guderian had managed to push his tanks across just in time to defeat a concerted French counterattack by an infantry regiment and a tank battalion on the fields between Bulson and Connage. The Germans destroyed 50 tanks in the ensuing battle, and forced the French to flee south while the Germans followed in relentless pursuit.[29]

Breakout and Exploitation

On the morning of 14 May, Guderian turned his attention to exploitation of his successful penetration of the French defenses along the Meuse. Guderian asked the 1st Panzer Division commander if he should detach a flank guard to the south, as the rest of his division pivoted and raced west with 2d Panzer Division. The reply came from the commander's aide, Major Wenck, "*Klotzen, nicht Kleckern*" — meaning attack concentrated, not dispersed. Guderian immediately decided to pivot the entire division along with the 2d Panzer Division in a bold dash to the west, forestalling any French effort to set up a subsequent defensive belt.[30] Guderian detached the 10th Panzer Division and the GrossDeutschland Regiment to the XIV Corps commander until the relief in place around the village of Stonne was complete, at which time these units would rejoin his corps in their push to the west.[31]

The Germans had wargamed, pivoting west, but the German bridgehead was not nearly as strong as anticipated since a majority of the 2d and 10th Panzer Division vehicles had not yet crossed the river. Despite the desire of Berlin to build up a bridgehead before continuing the attack, Guderian pushed the attack west by setting objectives 30km to the west for 15 May. Guderian's decision resulted in a furious argument with von Keist on the evening of 14 May about whether or not to continue the attack. Von Kleist finally relented, and allowed the attack to continue as Guderian had ordered. Had higher command
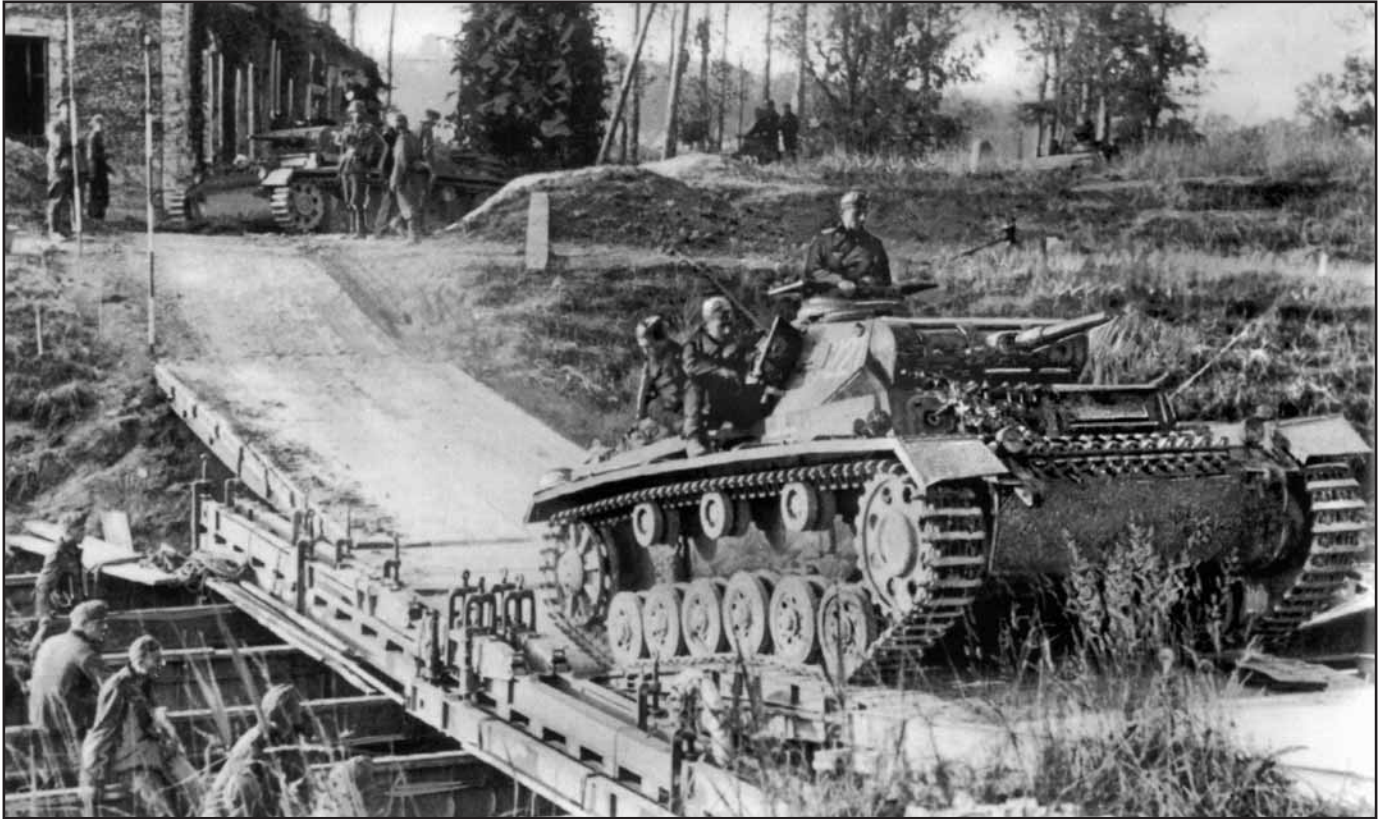
The Germans also displayed remarkable agility throughout the campaign by changing assigned routes and improvising crossing sites whenever possible. While crossing boundaries caused great traffic jams at points, especially for the 2d Panzer Division, improvising was key to maintaining the momentum of the attack. Much credit goes to the flexibility of the German staff in planning the operation and their ability to rapidly change once it began. The German Panzer Divisions proved to be remarkably versatile combined-arms formations.

known the truly precarious situation at the bridgehead, they most certainly would have vetoed the move.

Guderian's willingness to take this extraordinary risk ultimately contributed to the envelopment of the French Ninth Army and their ultimate surrender after they were cut off at the channel. Von Kleist, however, deserves a lot of credit for mediating between his impetuous corps commander and the far more conservative forces in the army high command.[32]

The Battle for France ended just over five weeks after Guderian's breakout to the west. XIX Corps went on to spearhead the drive to the channel and complete the encirclement of the majority of the French army and the entire British army. On 17 May, Guderian resigned his command after a heated dispute with von Kleist about an order to halt his drive. The order to halt had come from Hitler, who was so frightened by Guderian's success. The Twelfth Army Group commander refused Guderian's resignation, and he went on to serve with distinction through the rest of the campaign.

Tenets of Army Operations

It would be useful to compare the principles with which the German army operated to our own tenets of Army operations: depth, agility, versatility, initiative, and synchronization. From the air assaults to secure key crossing sites and the insistence of Guderian to push the attack and bypass resistance, the Germans used depth to achieve decisive penetration across the Meuse and beyond.

The Germans also displayed remarkable agility throughout the campaign by changing assigned routes and improvising crossing sites whenever possible. While crossing boundaries caused great traffic jams at points, especially for the 2d Panzer Division, improvising was key to maintaining the momentum of the attack. Much credit goes to the flexibility of the German staff in planning the operation and their ability to rapidly change once it began. The German Panzer Divisions proved to be remarkably versatile combined-arms formations.

The commander of the 1st Panzer Division quickly realized his error in not attaching infantry to the drive on Semois on the night of 11 May, so he created combined arms battle groups to force crossings the following morning. Integrating German mechanized infantry, tanks, motorized artillery, engineers, and Luftwaffe was the key to success at the Meuse River crossings at Sedan.

The key to German success, throughout the campaign, however, was the determined initiative displayed at all levels of command. The Germans possessed a stubborn independent spirit within their officer corps that encouraged bold decisions without waiting for permission, as long as they did not violate the commander's intent. Whether it was crossing boundaries, shifting routes of march, seizing bridgeheads outside of their zone, or continuing the attack far beyond their unit's objective, German leaders at all levels demonstrated truly remarkable initiative. It is hard to imagine the crossing at Sedan succeeding without bold leaders such as Sergeant Rubarth and General Guderian.

Synchronization, however, was not a German strong point. On numerous occasions, officers on the ground chose to push forward without marshalling their resources for a combined attack. Despite the ideal of having all arms come to bear on an attack, the Germans realized that synchronization on a fast moving battlefield would lead to intolerable delays that would surrender

the initiative in a fight. Whether it was the attack on Neufchateau without artillery or infantry support by the 1st Panzer Regiment, the seizure of the Mouzaive bridgehead or the attack on the Meuse without all forces massed, the Germans seemed to eschew this principle in favor of depth, initiative, versatility, and agility. Indeed, it seems that while a noble goal, synchronization runs contrary to the other four tenets of army operations in a fast paced, maneuver warfare environment.

Developing German Doctrine: 1917–1940

The Germans succeeded in mechanized warfare not because of technological superiority, but because of the way they organized, trained, and led their forces given the new technology. It was the French and British who developed tank technology during the First World War. They attempted to break the tactical stalemate with technological solutions. Meanwhile, the Germans attempted to create a breakthrough in trench warfare by developing new organizations and an offensive doctrine to break the impasse.

In January of 1918, the German high command published *The Attack in Position Warfare,* which became the German doctrine for offensive operations through the end of 1918. The new doctrine used existing capabilities and forces and reorganized them to achieve a deep penetration on a narrow front and follow up with exploitation forces that aimed not to destroy front-line units, but plunge deep into the rear and disrupt enemy support and communications units. In essence, the Germans moved from positional attrition-based warfare to maneuver warfare that sought "keeping the enemy off balance, pressing the attack continuously, and retaining the initiative"[33]

The new German organization and doctrine for attack focused heavily on reconnaissance pull operations — meaning forces in the lead wave would find weaknesses and guide assaulting forces through, rather than sending limited forces to verify suspected positions before an attack. The attack started with an infantry probe from a neighboring unit to identify main enemy positions for the assault wave. Storm units, consisting of one to five infantry companies, one or two machine gun companies, one flamethrower section, one infantry gun battery, and one trench mortar company, quickly poured through lanes identified by the first wave of infantry. The combined arms nature of the storm units allowed them to press the attack far more effectively than branch pure formations. Artillery support was essential to the attack, but it was a tightly focused barrage that lasted for a short period followed immediately by the initial assault wave, instead of the day-long bombardments that previously helped the enemy identify the main attack.[34] To prepare for the upcoming offensives in 1918, the German army embarked on an extensive training program to ensure that junior leaders received the training and initiative to lead new decentralized attacks.

The German offensive of March 1918 achieved remarkable tactical success and produced more movement on the front than at any time since the great offensive of 1914 before trench warfare developed. The attacks, however, failed to achieve operational breakthroughs large enough to break the French army. This was due to a lack of resources and mechanization to carry the attack forward through subsequent stages. The main problem the Germans encountered was outrunning the range of their heavy artillery.[35] As Germany reached strategic exhaustion in the summer of 1918, the assaults faltered and the allies went on the offensive buoyed by the arrival of fresh American troops. Ultimately, Germany did not have the resources to exploit their new offensive doctrine.

The interwar years brought a unique chance for the German army to completely redesign its army. Ironically, it was the harsh terms of the Treaty of Versailles that provided them this opportunity. Limited to 100,000 men and banned from owning any substantial equipment, the German army had no other choice but to take on a study of lessons learned and develop doctrine before they could field the equipment. The Germans conducted an extensive review of the First World War that identified mistakes made during the war and tactical solutions that would solve future problems. The new chief of the German army, Hans von Seeckt, developed an intellectual atmosphere in the army that encouraged debate and avoided the intellectual stagnation that plagues so many armies. Officers who disagreed with the new concepts on operational warfare were not only allowed, but encouraged to disagree openly and propose radical new alternatives. As the Germans found ways to move past restrictions imposed by the Treaty of Versailles, they then integrated technology into mobile warfare doctrine they had developed. Finally, the true secret to German success was relentless training they conducted to refine and develop their doctrine, right up to the invasion of France. They focused on developing bold, decisive leaders to execute this decentralized form of warfare.[36]

In contrast to the Germans, the French and British applied the new technology to old formations and failed to formulate a doctrine to match newly available technology. Ironically, reformers such as Liddel Hart and Charles De Gaulle, found little favor in the conservative British and French armies, but served as inspiration for the German mechanized theorists during the interwar years. The French forces that the Germans defeated in 1940 relied on a static, tightly scripted, methodical battle that remained largely unchanged from the First World War.

Lessons for Transforming into an Information-Age Army

The United States faces a remarkably similar situation that the Germans faced during the interwar years. Similar to Germany after the First World War, we have many lessons from recent conflicts in Iraq and Afghanistan. The information technology exists, but it is time now to find an organization and a doctrine that will exploit it to its maximum advantage. In *Transformation Under Fire*, Douglas Macgregor correctly points out that the United States has changed little since the end of the Second World War in terms of our organization and doctrine.[37] Despite the AirLand Battle doctrine adopted in the 1980s, many reformists argue that we have not adopted the decentralized, mission orders maneuver warfare doctrine that made Germany so successful during the Second World War. Simply putting new technology on old formations will not work.

Just as the French and British grafted mechanized forces into their existing structures, the United States faces the risk of imposing new technology on archaic organizations and doctrine with potentially crippling results. The biggest bottleneck on tomorrow's battlefield will be bandwidth — we can only create so much of it on the battlefield. Will the U.S. Army use this finite amount of bandwidth to reinforce existing centralized, hierarchical control systems; or will it use it to create organizations that enable junior commanders to pull information from higher and coordinate with adjacent units to make independent, timely decisions? The Germans also faced this problem with the advent of the radio and equipped all vehicles with FM communications to enable tactical decisionmaking at the lowest levels. Meanwhile, the French used new information technology to reinforce a rigid command and control system that cemented the dominance of higher headquarters over information, paralyzing local decisionmaking and initiative at the front lines of the bat-

"Ultimately, encouraging junior leaders to think will pay great dividends on the battlefield. The German maneuver warfare doctrine thrived on speed and controlled chaos, but it would have fallen apart with a timid, risk-averse officer corps. The Germans rewarded strong character, which translated into bold decisions at critical moments where it was simply not possible to delay for a decision or approval from higher."

tle. They did not use radios on every vehicle and therefore failed to empower junior leaders to make decisions.

More important than even organization and development of a maneuver warfare doctrine, however, is developing a culture in the officer corps that encourages thought and candid discussion at all levels. The Germans, while developing their doctrine, regularly distributed proposals to solicit feedback from all ranks. Sometimes very candid, blunt assessments came back from the lower ranks. On one occasion, an officer wrote a scathing critique of the new offensive doctrine developed before the spring offensive in 1918. General Ludendorff published the critique as an appendix to the new doctrine to stimulate discussion and further refinement from his field commanders. It is hard to find a similar example in the U.S. Army of encouraging such free thought and discussion.

Ultimately, encouraging junior leaders to think will pay great dividends on the battlefield. The German maneuver warfare doctrine thrived on speed and controlled chaos, but it would have fallen apart with a timid, risk-averse officer corps. The Germans rewarded strong character, which translated into bold decisions at critical moments where it was simply not possible to delay for a decision or approval from higher. Before embarking on a bold change in our Army's organization and doctrine, we must look carefully at refining our officer selection and education system that will produce leaders capable of executing such decisive maneuver on the battlefield of the future.

Notes

[1]Robert Doughty, *The Breaking Point: Sedan and the Fall of France, 1940,* Archon Books, Hamden, 1990, p. 1.

[2]Kenneth Macksey, *Guderian: Panzer General,* Greenhill Books, London, 1975, p. 100.

[3]Ibid., pp. 97-99.

[4]Doughty, p. 39.

[5]Ibid.

[6]Ibid., p. 41.

[7]Ibid., pp. 42-44.

[8]Ibid., p. 45.

[9]Ibid., pp. 48-54.

[10]Ibid., pp. 62-63.

[11]Heinz Guderian, *Panzer Leader,* Da Capo Press, New York, 1952, p. 99.

[12]Doughty, p. 59.

[13]Ibid., pp. 60-61.

[14]Ibid., pp. 65-66.

[15]Ibid., pp. 68-70.

[16]Ibid., pp. 71-72.

[17]Guderian, p. 101.

[18]Ibid., p. 102.

[19]Doughty, p. 136.

[20]Ibid.

[21]Guderian, pp. 102-104.

[22]Doughty, pp. 142-144.

[23]Guderian, p. 102.

[24]Doughty, p. 142.

[25]Ibid., pp. 144-150.

[26]Ibid., pp. 154-157.

[27]Ibid., pp. 153-154.

[28]Guderian, pp. 104-105.

[29]Doughty, pp. 211–213.

[30]Macksey, p. 108.

[31]Guderian, pp. 106–107.

[32]Doughty, pp. 220–224.

[33]Timothy Lupfer, *The Dynamics of Doctrine: The changes in German Tactical Doctrine During the First World War,* Combat Studies Institute, Fort Leavenworth, 1981, p. 41.

[34]Ibid., pp. 44-45.

[35]Ibid., pp. 45-50.

[36]James Corum, *The Roots of Blitzkrieg: Hans von Seeckt and German Military Reform,* University Press of Kansas, Lawrence, 1992, pp. xvi–xvii.

[37]Douglas A. Macgregor, *Transformation Under Fire: Revolutionizing How America Fights,* Praeger Publishers, 30 September 2003.

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Reconstructing the Cavalry Force

by Major Christopher Connolly

The chief of cavalry doctrine has the difficult challenge of keeping up with the ever-changing cavalry organization. Of course, change is nothing new to the cavalry community or the U.S. Army; yet, debating the proper organization of the scout platoon lives on.

During the past 20 years, scout platoons have been comprised of M113s, Sheridans, Bradleys, high-mobility, multipurpose wheeled vehicles (HMMWVs), dismounted scouts, human intelligence (HUMINT) soldiers, Stryker reconnaissance vehicles (RVs), and various combinations of the aforementioned vehicles and personnel. Sometimes, it was a 10-truck platoon, sometimes a six-Bradley platoon. Stryker RVs are organized in four-vehicle platoons. Although the fundamentals of reconnaissance and security rarely change, many organizational variations create an innumerable amount of tactics, techniques, and procedures that soldiers and leaders must consider.
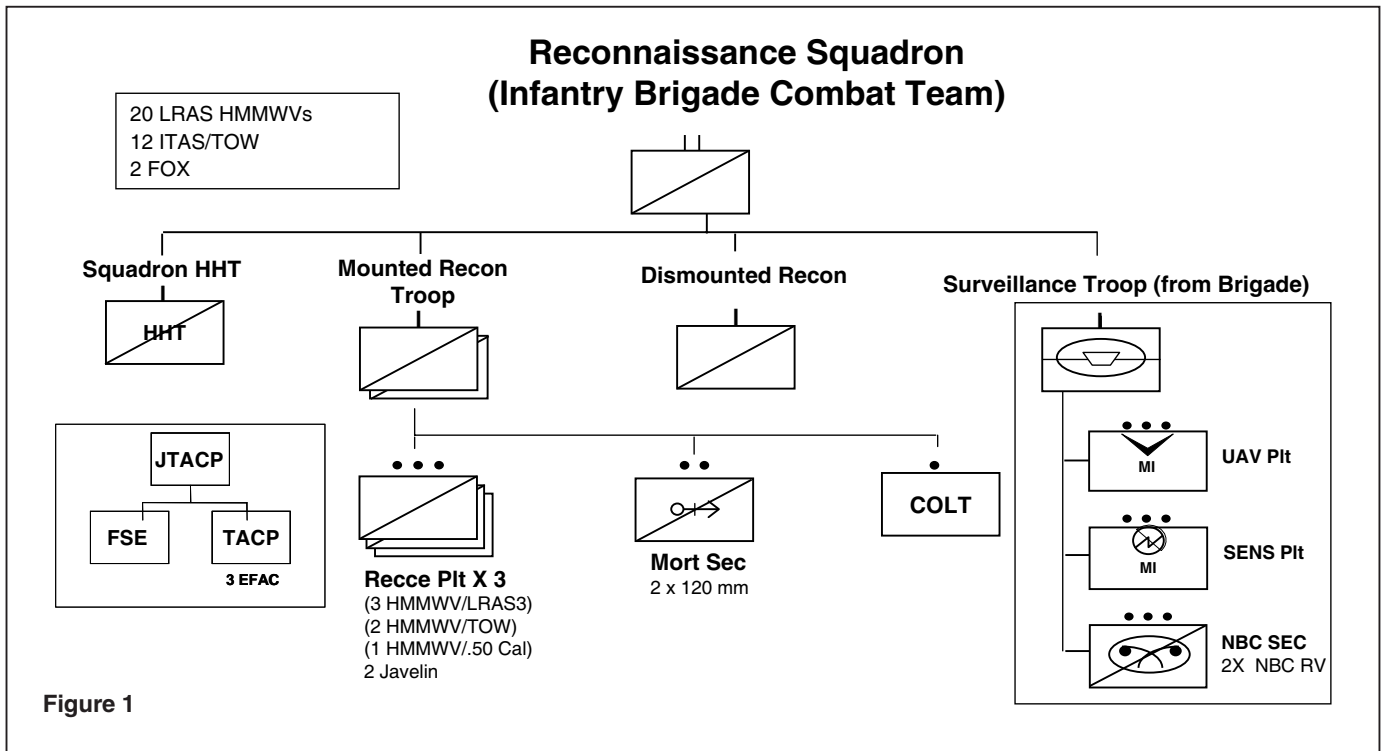
Based on extensive after-action reports (AARs), participant interviews, and other research, Operation Iraqi Freedom appears to have exposed the inadequacies of our reconnaissance platoons. In addition to written AARs and in-depth research of action reports from various U.S. Army and Marine Corps maneuver brigades, in October 2003 the U.S. Army Armor Center (USAARMC) conducted a series of lessons-learned seminars with 3d Infantry Division (3ID) covering the doctrine, organization, training, leader development, organization materiel, personnel, and facilities (DOTLOMPF) model. The 3ID brigades and task forces rarely led with their organic brigade reconnaissance troops (BRTs) and scout platoons; the tempo was simply too fast for HMMWVs and dismounted scouts who were more suited for a deliberate pace of reconnaissance. It became a foregone conclusion that the current reconnaissance organizations within the brigades demanded a change.

This article does not lay down definitive doctrine for the employment of these new squadrons, nor are these organizational configurations chipped in stone. As we know, answering information requirements is what we do, thereby minimizing battlefield uncertainty, even if we never achieve 100-percent certainty.

Those familiar with the Stryker organization should recognize its similarity to the new organization — three ground troops and a habitually attached surveillance troop, which in this case, is organic to the newly created brigade troops battalion (BTB). By pushing tactical unmanned aerial vehicles (TUAV), PROPH-ET, and ground surveillance radar/remotely monitored battlefield sensor systems to the squadron level, the squadron can extend the range and depth of its surveillance capability. The forward support company will not be organic, but its habitual attachment will provide the squadron a more robust combat service support organization than that of the Stryker brigade reconnaissance squadron, which only has a combat repair team (CRT). Currently, U.S. Army Field Manual (FM) 3-20.96, *Cavalry Squadron (RSTA)*, will suffice as a doctrinal reference for the short-term.[1] Fort Knox is publishing an updat-

Reconnaissance Squadron (Infantry Brigade Combat Team)

20 LRAS HMMWVs
12 ITAS/TOW
2 FOX

Squadron HHT

HHT

JTACP

FSE   TACP

3 EFAC

Mounted Recon Troop

Recce Plt X 3
(3 HMMWV/LRAS3)
(2 HMMWV/TOW)
(1 HMMWV/.50 Cal)
2 Javelin

Dismounted Recon

Mort Sec
2 x 120 mm

COLT

Surveillance Troop (from Brigade)

MI   UAV Plt

MI   SENS Plt

NBC SEC
2X NBC RV

Figure 1

ed version of FM 3-20.96 simply titled, *Reconnaissance Squadron*, which will incorporate these new organizations.[2]
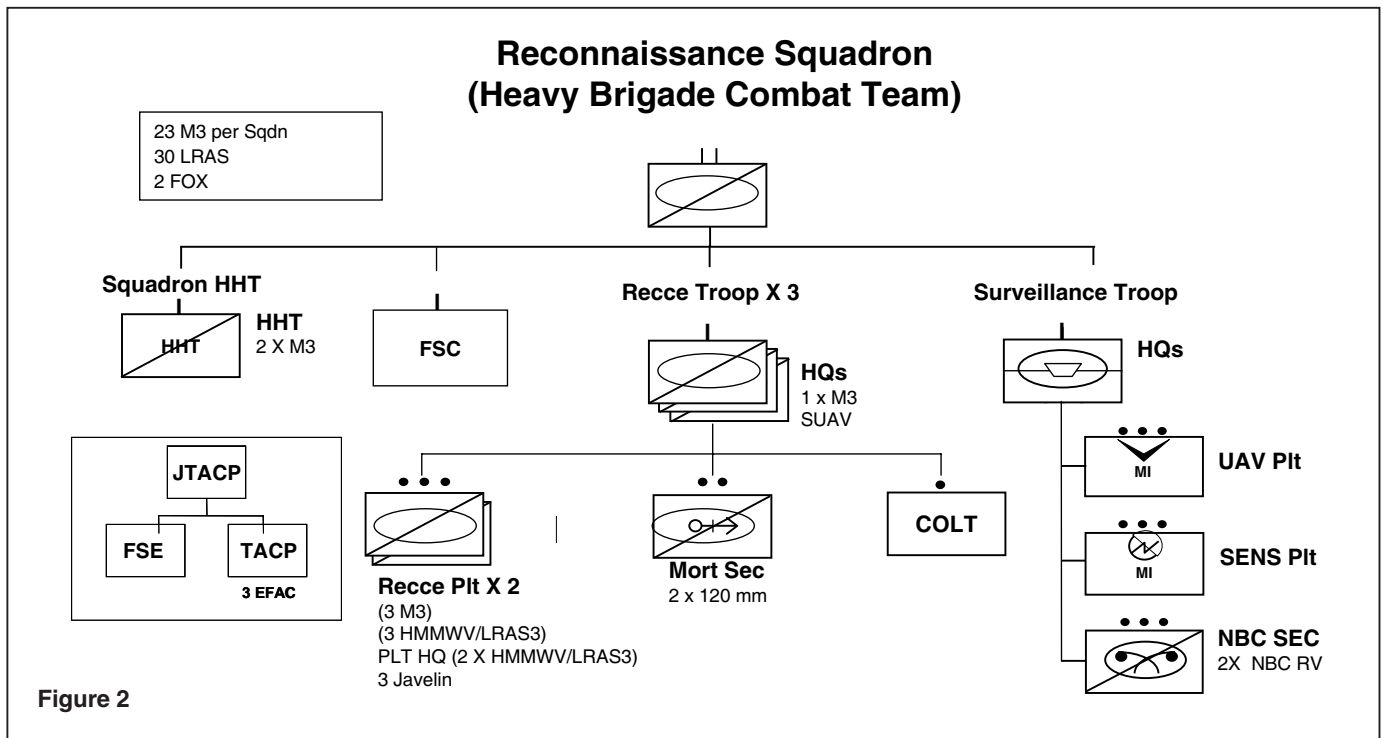
This new reconnaissance squadron looks similar, but there are only two HMMWV-mounted reconnaissance troops. The platoon configurations should be familiar: six-vehicle platoons and 18 men. The key difference is the presence of a dismounted

troop. As in any light organization, transporting these dismounted scouts is problematic. One solution may be that this troop receives HMMWVs in the future to give the squadron three mounted troops. Another is to mount these scouts, but fold them into the two mounted troops and create the 10-HMMWV platoon again, thereby increasing the dismounted capability of each platoon. Of particular note, this

squadron has a fairly decent antiarmor capability with 12 tube-launched, optically tracked wire guided missile (TOW) systems and more than 24 Javelin systems.

The New Reconnaissance Platoons

Since the Stryker RV platoon is currently discussed in FM 3-20.98, this article will not reintroduce it.[3] Instead, it unveils

Reconnaissance Squadron (Heavy Brigade Combat Team)

23 M3 per Sqdn
30 LRAS
2 FOX

Squadron HHT

HHT
2 X M3

FSC

JTACP

FSE   TACP

3 EFAC

Recce Troop X 3

HQs
1 x M3
SUAV

Recce Plt X 2
(3 M3)
(3 HMMWV/LRAS3)
PLT HQ (2 X HMMWV/LRAS3)
3 Javelin

Mort Sec
2 x 120 mm

COLT

Surveillance Troop

HQs

MI   UAV Plt

MI   SENS Plt

NBC SEC
2X NBC RV

Figure 2

RECCE PLATOON (HEAVY BCT)

AN/VRC-92F AN/PRC-119 EPUU-V1 FBCB2 2 DAGR LVRS-OS CHATS	AN/VRC-92F AN/PRC-119 DAGR FBCB2 LVRS-OS	AN/VRC-91F FBCB2	AN/VRC-91F FBCB2	AN/VRC-91F FBCB2

LT 19C00 (PLT LDR) C
SGT 19D2O (TEAM LDR) C
SGT 97B2O (CI AGENT) C
SP4 19D1O (SCOUT DVR) C

SFC 19D4O (PLT SGT) C
SGT 19D2O (TEAM LDR) C
SP4 19D1O (SCOUT DVR) C

SSG 19D3O (SEC LDR) P
SGT 19D2O (CFV GUNNER) P
SP4 19D1O (CFV DVR) P
SP4 97E1O (HUMINT COLL) C

SSG 19D3O (SEC LDR) P
SGT 19D2O (CFV GUNNER) P
SP4 19D1O (CFV DVR) P
PFC 19D1O (SCOUT) C
PFC 97E1O (HUMINT COLL) C

SSG 19D3O (SEC LDR) P
SGT 19D2O (CFV GUNNER) P
SP4 19D1O (CFV DVR) P
SP4 97E1O (HUMINT COLL) C
PFC 97E1O (HUMINT COLL) C

* DENOTES JAVELIN GUNNER

AN/VRC-91F EPUU-V1 FBCB2 LVR-OS DAGR	AN/VRC-91F EPUU-V1 FBCB2 DAGR	AN/VRC-91F EPUU-V1 FBCB2 DAGR

SGT 19D2O (SQD LDR) C
SP4 19D1O (SCOUT*) C
SP4 19D1O (SCOUT DVR) C

SGT 19D3O (SQD LDR) C
SP4 19D1O (SCOUT*) C
SP4 19D1O (SCOUT DVR) C

SGT 19D3O (SQD LDR) C
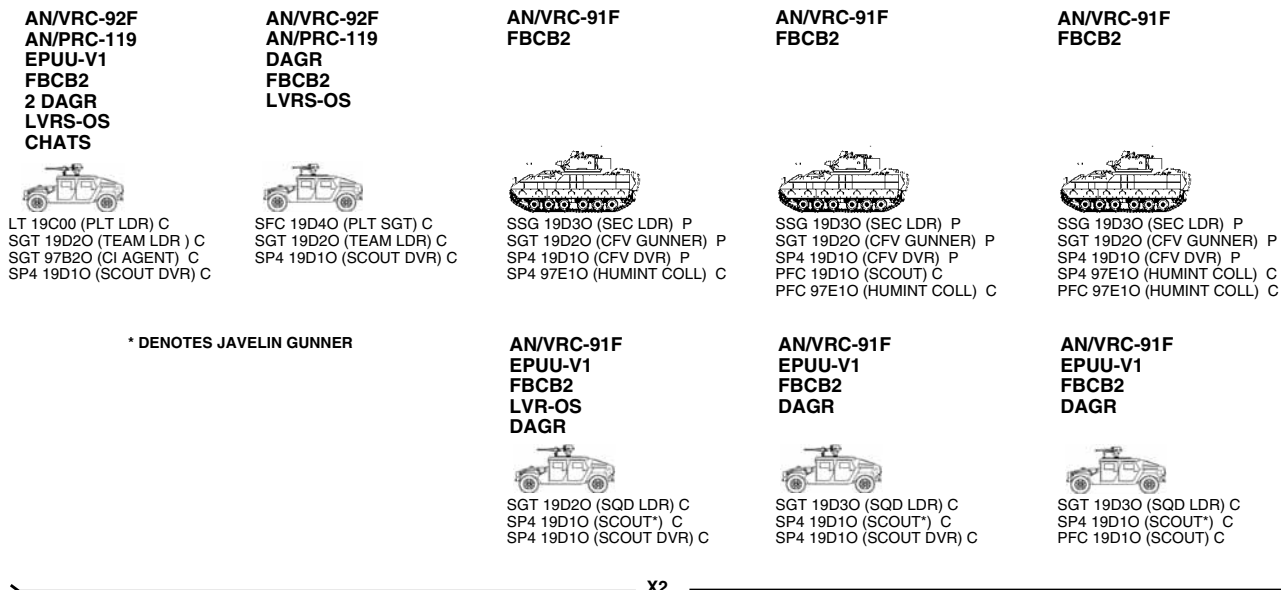SP4 19D1O (SCOUT*) C
PFC 19D1O (SCOUT) C

X2

Figure 3

the newest organizations in an effort to generate some discussion from the force.

Organization and equipment. As you can see, these platoons can place a minimum of eight to twelve soldiers on the ground while continuing to crew the M3s and HMMWVs. These platoons are heavy with 97E10 HUMINT collectors — some believe that this will better meet the requirements of the operational environment. Note the numbers and variations of weapons and communications systems. Having Force XXI battle command brigade and below (FBCB2) in every vehicle should make the command and control of this organization a bit easier than before. There is the addition of a PSC-5 Spitfire radio system for each platoon, but there is no mention, at this time, of a high frequency radio set at platoon level or, more adversely, secure squad-level radios. Also, individual weapons are M9 pistols for the M3 crewmembers and M4s for everyone else. As we know, everyone needs to carry an M4, and this issue is currently being addressed, as well as the lack of shotguns, and the potential need for a marksmen. However, we need your thoughts on this organization on issues such as what is missing or what is overkill.

Employment. These organizations will not be found among the pages of FM 17-98 or FM 3-20.98.[4] There is no need to panic. The new platoon manual will be out sometime next summer. In the meantime, these platoons have six and eight vehicles, respectively, and 18 to 30 men — we have something to work with here, even using FM 17-98 or FM 3-20.98.[5]

M3/HWMMV Platoon

Obviously, the platoon diagram conveniently breaks out into three sections, matching a long-range advanced scout surveillance system (LRAS3)-equipped armored HMMWV with an M3. The platoon headquarters ostensibly organizes with two of the three sections with perhaps the senior scout leading the remaining section. In an aggressive, enemy-focused reconnaissance, the platoon leader could choose to lead with his M3s overwatched by his LRAS3-equipped HMMWVs. Conversely, when conducting a deliberate, time-consuming area or zone reconnaissance, he might use a hunter-killer relationship by leading with his scout trucks and dismounts and having his M3s overwatch. There are a number of ways to task organize this element based on the mission, enemy, terrain, troops, time available, and civilians (METT-TC). There is even the opportunity for the troop commander to organize his command into four maneuver elements: two scout platoons of five HWMMVs and two sections of M3s in an antiarmor role.

Recce Platoon of the Light Squadron

This platoon is obviously the same organization as the platoons of the BRT. However, adding TOWs and Javelins gives the platoon leader a few more assets with which to work. This platoon could organize into two or three sections, where LRAS3-equipped scouts are overwatched by the TOWs and remaining gun truck. At the troop level, the commander can consolidate his TOW vehicles into one platoon and operate with two four-vehicle scout platoons, depending on METT-TC.

Both platoon organizations, when augmented with additional engineers, combat observation and lasing teams, infantry, or armor, can be rounded into very capable reconnaissance or security elements. Again, this article is not intended to prescript doctrinal techniques of employment; it is intended to familiarize the force with what will be available.

Training

Platoon sergeants should already know this stuff! LRAS3 has been around for a few years, so scouts should not be uncomfortable with it. Matching it with the capabilities and limitations of the Bradley may take some getting used to. However, by adding a team of 97E10s and one 97B20 (counterintelligence agent), there is an opportunity for some necessary cross training. Each scout must become familiar with rudimentary tactical questioning techniques, as well as the report format that 97-series soldiers use for HUMINT reporting. Perhaps more important is the need to train the HUMINT soldiers in the 19D skill set; more often than not, they will operate as scouts first and as HUMINT soldiers second.

Reconnaissance platoons will also have to continue to emphasize training with

infantry, armor, and other combat support elements — this has been said for years. Platoon trainers should put forth training techniques that best worked for their platoons as they prepared for war in a time- and resource-constrained reality that a garrison army must endure.

The shift in training focus should be toward operations that are less focused on fighting and more focused on reconnaissance and surveillance tasks. It may be tempting for a platoon to get their Bradleys and TOWs into a fight, but this initiates a decisive engagement, which means reconnaissance stops and the higher commander must extricate his reconnaissance force — something the new brigade combat teams, which have fewer maneuver forces, need to avoid.

After Thoughts

The cavalry community is experiencing instability. Division cavalry squadrons are on the chopping block. The future of the regiment is uncertain. The good news is that the Army has recognized the need for a cavalry organization organic to each brigade and has reorganized to meet that requirement. This does not mean that there is a "doctrine void" out there. The fundamentals of reconnaissance and security have not changed. The critical tasks of conducting a route reconnaissance or executing a short-duration observation post remain the same. The tools are not unfamiliar; they are merely combined in different ways.

Doctrinal manuals will be published by the summer of 2005 and will discuss the employment of these new platoons and troops. For these manuals to be good products, your thoughts on what works and doesn't work with these organizations are critical. We want your input. Call the USAARMC Cavalry Doctrine Desk at DSN 464-1188 (commercial 502-624-1188) or email at *raymond.polak@knox.army.mil.*

Notes

[1]U.S. Army Field Manual (FM) 3-20.96, *Cavalry Squadron (RSTA)*, U.S. Government Printing Office (GPO), Washington, D.C., 23 December 2002.

[2]FM 3-20.96, *Reconnaissance Squadron*, GPO, Washington, D.C., TBP.

[3]FM 3-20.98, *Reconnaissance Platoon*, GPO, Washington, D.C., 2 December 2002.

[4]FM 17-98, *Reconnaissance Platoon*, GPO, Washington, D.C., superseded by FM 3-20.98, *Reconnaissance Platoon*.

[5]FM 3-20.98, *Reconnaissance Platoon*.

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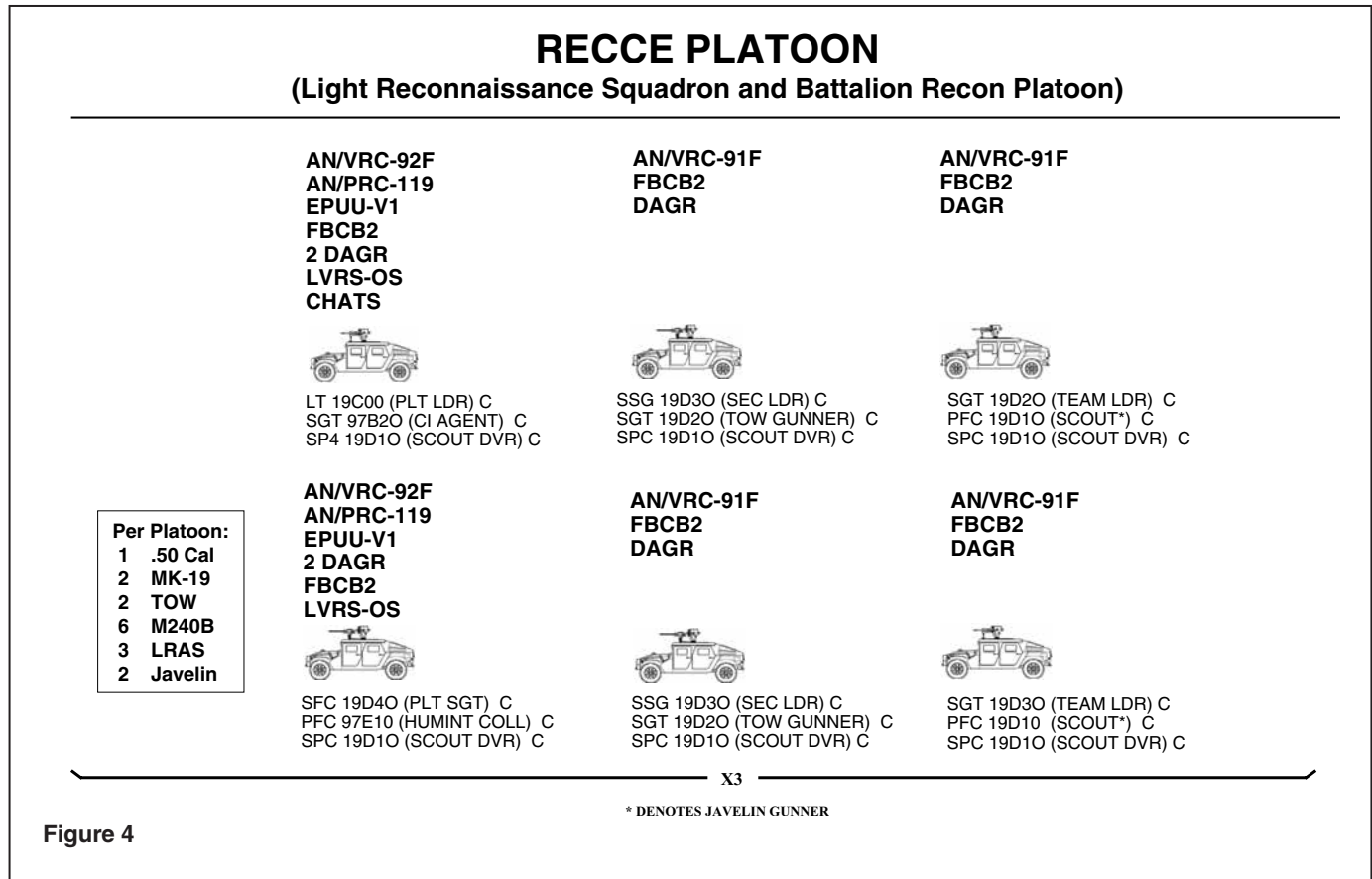
RECCE PLATOON
(Light Reconnaissance Squadron and Battalion Recon Platoon)

AN/VRC-92F	**AN/VRC-91F**	**AN/VRC-91F**
AN/PRC-119	**FBCB2**	**FBCB2**
EPUU-V1	**DAGR**	**DAGR**
FBCB2		
2 DAGR		
LVRS-OS		
CHATS		

LT 19C00 (PLT LDR) C
SGT 97B2O (CI AGENT) C
SP4 19D1O (SCOUT DVR) C

SSG 19D3O (SEC LDR) C
SGT 19D2O (TOW GUNNER) C
SPC 19D1O (SCOUT DVR) C

SGT 19D2O (TEAM LDR) C
PFC 19D1O (SCOUT*) C
SPC 19D1O (SCOUT DVR) C

Per Platoon:	
1	.50 Cal
2	MK-19
2	TOW
6	M240B
3	LRAS
2	Javelin

AN/VRC-92F	**AN/VRC-91F**	**AN/VRC-91F**
AN/PRC-119	**FBCB2**	**FBCB2**
EPUU-V1	**DAGR**	**DAGR**
2 DAGR		
FBCB2		
LVRS-OS		

SFC 19D4O (PLT SGT) C
PFC 97E10 (HUMINT COLL) C
SPC 19D1O (SCOUT DVR) C

SSG 19D3O (SEC LDR) C
SGT 19D2O (TOW GUNNER) C
SPC 19D1O (SCOUT DVR) C

SGT 19D3O (TEAM LDR) C
PFC 19D10 (SCOUT*) C
SPC 19D1O (SCOUT DVR) C

————— X3 —————

* DENOTES JAVELIN GUNNER

Figure 4

The Future of Tank Gunnery

by Major Herbert L. Skinner and Sergeant First Class Michael D. Dunfee

Sergeant First Class (SFC) Cooley and his tank platoon have been defending checkpoint (CP) 10 for more than four hours. His platoon was tasked with establishing a blocking position at the intersection of routes Jackson and Grant. Oriented north toward the small town of Limbo, he meticulously fights off the slow drift to complacency within his platoon. After all, a light infantry company is moving to interdict enemy forces along route Grant, north of Limbo, and the brigade unmanned aerial vehicle (UAV) platoon reported no contact when it flew over the town two hours ago.

"Blue, this is Demon 6; Killer company is in contact with paramilitary forces on the northern edge of Limbo, and scouts report three paramilitary technical trucks moving east along route Jackson to your position. Move a section north along Grant to reinforce Killer; keep the second section at CP 10 to destroy the technical trucks on Jackson. Killer company hop-set is…"

"Blue one, this is Blue four; I'm oriented on Limbo and prepared to move Bravo section north."

"Slow day. Air Force will probably get the tech trucks anyhow," thinks SFC Cooley.

"Roger, Blue Four; reinforce Killer at CP 11." With that, Bravo section moves north to the town of Limbo.

"Killer 6, this is Demon Blue Four, moving to CP 11; what is your SITREP, over."

"Roger, positioned east of CP 11, in contact with paramilitary infantry. Move to CP 11 and establish ABF oriented north."

"Roger, Killer 6." SFC Cooley and his Bravo section hastily move into the town of Limbo in staggered column. As they approach CP 11, Limbo seems empty; all of the blinds are closed in the one- and two-story structures. SFC Cooley sees movement out of the corner of his right eye — two tiger fatigued paramilitaries prepare to fire a recoilless rifle from the first floor of an adjacent building. He swings the M2 to the right, and orders, "Caliber fifty."

Private Scanson, the loader, scanning over the left flank of the tank simultaneously yells, "Troops, left flank, 240, on the way!"

Sergeant Smith, the gunner, announces, "Identify troops front! Friendly, friendly! Identify RPG, second story, 11 o'clock!"

PV1 Scanson announces, "Loader complete."

SFC Cooley states, "TC complete. Gunner, troops, fire!"

"On the way!" shouts the gunner.

"Killer 6, this is Demon Blue Four; engaged and destroyed seven dismounts and AT team vicinity CP 11. Identify your southern platoon, moving to establish ABF at CP 11."

"Demon Blue Four, this is Killer 6; contact BMPs north, out."

As Blue 3 moves to a position north of Limbo behind some rubble and signals Killer Company's southern platoon, SFC Cooley spots three BMP-3s through his commander's independent thermal viewer, rounding the side of a hill three kilometers to the north.

"Bravo, contact, PCs, north, cross fire! Gunner, MPAT, three PCs, right PC! Up! Fire!" "On the way!" "Target, left PC!" SFC Cooley scans the horizon; three burning hulks billow black smoke into the sky.

"Blue Four, this is Blue Three; engaged and destroyed two PCs north of CP 11."

SFC Cooley chuckles to himself, "I guess you can't expect to kill them all."

The Abrams gunnery strategy is a tried-and-true method of training and evaluating tank crews in their ability to acquire, engage, and destroy targets under multiple conditions. However, the strategy, its base rooted during the Cold War environment, fails to adequately prepare tank crews, sections, and platoons to fight in the complexities presented in the contemporary operational environment (COE). As the vignette above describes, tank crewmen like SFC Cooley need to be trained and evaluated in gunnery tasks derived from conditions prevalent in the COE. The change in current and foreseeable conditions under which tanks will be employed in combat necessitates a change in the Abrams gunnery strategy.

The Gunnery Branch of the Directorate of Training, Doctrine, and Combat Development (DTDCD) at the United States Army Armor Center is responsible for developing, validating, and publishing armor and cavalry gunnery doctrine. Gunnery Branch's subject matter experts and tank master gunners author U.S. Army Field Manual (FM) 3-20.12, *Tank Gunnery (Abrams)*; FM 17-12-7, *Tank Gunnery Training Devices and Usage Strategies;* and Student Text (ST) 3-20.12, *Tank Crew Evaluator Exportable Packet.*[1] All of these publications are being revised and will be published early Fiscal Year (FY) 05.

During the revision process for each of these publications, Gunnery Branch has incorporated lessons learned during Operation Iraqi Freedom (OIF), developed and tested Abrams urban tactics, techniques, and procedures during two urban combined arms live-fire exercises, and analyzed the likely threat capabilities and tactics faced within the COE. As a result of this analysis, Gunnery Branch is fundamentally changing the Abrams gunnery training and evaluation strategy. Those changes will be published in this year's revision of FM 3-20.12.

Some might wonder why we are changing the old gunnery strategy, which was good enough for OIF and should be good enough for any other contingency. The COE is not only the environment in which we fight today, but it is also the potential environment in which we may fight in the foreseeable future. As we all know, threat forces are not likely to face U.S. forces in open terrain where our long-range precision fires dominate, and U.S. armor and cavalry units are unlikely to face Soviet-style echelons of forces attacking across high-speed avenues of approach or open, rolling terrain. Threat

forces are more likely to be positioned in close, restricted, and urban terrain to negate U.S. long-range precision fires; increase the effects of cheap short-range antiarmor systems; and limit the mobility, agility, and speed of armor forces.

Operation Iraqi Freedom did, however, revalidate the baseline fundamentals of the Abrams gunnery training methodology. Our crawl-walk-run gunnery table-based system is tried and true. In the adaptation and revision of our current strategy, Gunnery Branch is ensuring that we are careful not to "throw the baby out with the bath water," or change the strategy just for the sake of change. The essentials of our current system are sound and will be maintained within the new COE-compliant Abrams gunnery strategy.

The proposed COE-compliant Abrams gunnery strategy, which will be included in the new FM 3-20.12, changes the current strategy in eight key aspects. Six of the changes are focused on converting existing engagements within the current tables to reflect conditions existing in the COE. The remaining changes are designed to increase section gunnery proficiency and increase the unit master gunner's ability to design advanced table scenarios to fit their commander's assessment and overall training goals.

Loader's M240

The first change to the Abrams gunnery tables and training strategy is introducing the loader's M240 engagements into Tank Tables (TT) V through XII. Feedback from tank units fighting in OIF has revealed that the lack of loader's machine gun training and qualification is a glaring deficiency in the current gunnery training strategy. The machine gun familiarization training given to tank loaders during TT V in the current strategy failed to prepare loaders for conditions they would face in Iraq. In fact, since TT V is not a prerequisite for executing TT VIII, many units fail to require loader's machine gun training and instead conduct a combined TT V and TT VI. Many view the loader's machine gun as spare parts for the coax M240 and do not envision its use during tank qualification.

The proposed COE-compliant Abrams gunnery strategy requires a tank loader to engage and hit targets with his M240 machine gun. The loader will improve in proficiency as the difficulty of the requirement increases for TT V through TT VIII. To elevate the importance of the loader's machine gun skills, the proposed strategy requires the loader to hit his targets

within the prescribed time for the tank crew to achieve a "distinguished" TT VIII qualification. The COE-compliant TT VIII gunnery requires the loader to engage and hit targets during the A1 and A4 engagements at a range of 100 to 300 meters.

Degraded-Mode Gunnery

The second change that Gunnery Branch made to the existing Abrams gunnery strategy is to increase the difficulty of the TT VIII gunner's auxiliary sight (GAS) engagement. Observations gained from crews fighting in OIF illustrate that failure of the gunner's primary sight (GPS) caused a number of tanks to fight for lengthy periods in degraded mode. These GPS failures were due to battle damage and a high tempo of operations that restricted maintenance and repairs.

In the current strategy, tank crews are required to engage and hit a moving armored personnel carrier (APC) with high-explosive antitank ammunition (HEAT) in TT VII, and a moving tank with sabot in TT VIII, while using the GAS. The proposed COE-compliant strategy requires tank crews to engage and hit a moving tank through the GAS using sabot during TT VII. It also requires tank crews to complete the more complex tasks of engaging a moving APC and stationary troops through the GAS during TT VIII. The COE contains a higher proportion of threats requiring coax and HEAT ammunition than the old tank-heavy Cold War environment. For that reason, the proposed strategy includes the more difficult tasks of using the GAS and the GAS stadia reticle to acquire, estimate range, and engage targets using HEAT and coax ammunition. This change, while reflecting the COE, also requires increased proficiency from tank crews.

Simultaneous Tank Commander, Gunner, and Loader Engagements

The third change to the Abrams gunnery strategy is including near-simultaneous target presentations for the tank commander (TC), gunner, and loader within a single engagement. The current Cold War-based strategy fails to require the tank crew to use and manage the full complement of the tank's weapons systems simultaneously. As OIF demonstrated, the COE requires tank crews to be agile and adept at exploiting the full capabilities of the Abrams tank.

Threat forces will continue to present tank crews with multiple forms of contact, from multiple directions, simultane-

ously, in an attempt to overwhelm the crew's ability to react. In the new COE-compliant gunnery tables, the tank crew is required to engage and hit targets with all of its weapons systems within 78 seconds. The new TT VII and VIII each contain two engagements, requiring TCs, loaders, and gunners to engage and hit targets concurrently. This increase in complexity results in improved crew coordination and lethality, while more adequately preparing the crew to defeat the myriad of targets presented within the COE.

Canister Engagement

The XM1028 120mm canister is currently undergoing testing at Aberdeen Proving Grounds, Maryland. Although originally procured for use against North Korean infantry wave tactics, recent situations in OIF demonstrate its utility in other locations within the COE. The operational requirements document (ORD) for the XM1028 requires the production of 16,000 rounds for the Korean theater and another 16,000 rounds for other contingencies. Because of this, Gunnery

Branch has included a canister familiarization engagement in the new TT VII. Adding canister ammunition to the strategy has tentatively been approved. However, we believe canister live-fire engagements are also appropriate for TT VIII and the advanced tables, although budgetary constraints will be a hurdle. Nonetheless, even a familiarization engagement in TT VII will prevent tank crews from having their first experience with the ammunition during or just prior to combat.

Realistic Targetry

The COE presents tank crews with a variety of conditions. The nonlinear, noncontiguous aspects of the modern battlefield, coupled with conduct of operations in populated areas, have increased the complexity of combat. In the COE, friendly forces and civilians are increasingly intermixed on the battlefield. Target discrimination is a skill that the old Cold War gunnery methodology does not adequately address. The new COE-compliant gunnery strategy requires random

presentation of friendly and civilian targets throughout TT VII and TT VIII during four separate engagements. Of the four friendly and civilian target presentations, one must be at night, two must depict friendly forces, two must depict civilians, and one must depict a friendly vehicle using the unit's combat identification standard operating procedure (SOP), such as a VS17 or combat identification panels. Tank crews that engage friendly or civilian target arrays will receive zero points for the entire engagement. This additional requirement will better prepare our tank crews to discriminate among targets and increase realism within the tables.

The Cold War-based gunnery TT VII and TT VIII present tank crews with only three types of vehicle targets: tanks, APCs, and personnel carriers (BRDM). In the COE reflected in Somalia and Iraq, the threat is using low-cost civilian trucks equipped with antiaircraft artillery or heavy machine guns mounted in the truck bed. These vehicles have been designated as technical trucks (tech trucks). The

new gunnery tables include presentations of technical truck targets. These targets will be engaged by the commander's weapons station (CWS) .50-caliber and coax machine guns during the day, and main gun HEAT at night. Introducing tech-truck targets not only increases realism, but also more adequately trains tank crews to use the appropriate weapons system against the appropriate target.

The increase in infantry-type targets versus tank targets within the COE also caused a change to troop-target presentations within the tables. Previously, troop targets were only presented as rocket-propelled grenade (RPG) teams and stationary squads. In the proposed tables, engagement techniques for engaging moving infantry from a moving tank, which are different than engaging stationary troops, will be incorporated. In the COE-compliant gunnery strategy, tank crews are required to exhibit this skill.

Urban Engagements

Current and projected threat forces will continue to be positioned within urban areas to decrease U.S. armor and cavalry advantages in long-range precision engagements. Enemy forces in the COE will also be positioned within urban areas to maintain contact with logistics supplies (from a friendly populace), use civilians on the battlefield as shields, and manipulate U.S. rules of engagement to their advantage. Armor and cavalry forces fighting in OIF have reinforced the relevance of using mechanized forces in urban environments. The current Cold War-based gunnery strategy does not train and evaluate tank crews in their ability to acquire and engage targets in an urban environment. The new Abrams gunnery tables include urban engagements in TT IV, TT V, TT VII, and TT VIII. The urban engagements will be fired against three-dimensional facades that appear as buildings from the perspective of the firing crew. No floors or internal walls will exist within the facades. Troop targets will be presented in various floors and rooftops to replicate urban conditions and train and evaluate crews in urban target question and engagement.

Adding urban facades on our current ranges will also increase realism in a different respect. Our current ranges are too pristine and do no reflect reality; they mirror the rolling plains of Europe or the flat sand of Southwest Asia. Current ranges do not depict the debris and obstacle-ridden battlefields on which tank crews and cavalrymen are fighting today or will

likely fight in the near future. Adding the facades will cause tank crewmen to anticipate when the obstacles will obscure their view and interrupt their gun-target line. The skills developed by forcing tank crews to identify and hit targets on a semi-dirty battlefield will make them more lethal in the COE.

Current ranges do not support urban engagements; however, making this capability a requirement will induce the Army Training Support Command (ATSC) to find and procure a materiel solution that fits the needs of the armor and cavalry forces. Meanwhile, alternate engagements are included for each urban engagement. Units are also encouraged to use local range maintenance funds to create conditions required in gunnery tables.

COE-Compliant TT X Through TT XII, Advanced Gunnery

Observations from OIF have shown an increase in using tank sections as individual maneuver elements. Tank sections are frequently attached to light infantry companies, task organized with M2 Bradley sections, or positioned as a section at checkpoints and blocking positions. This trend will likely continue in the COE. Because of this, section gunnery is being re-emphasized in the new gunnery strategy. Full-caliber live-fire TT X, "Section Gunnery," will be a prerequisite qualification to executing TT XII, "Platoon Gunnery." This requirement will increase the tank section's proficiency in direct fire control, distribution, and maneuver.

The conduct of TT X through TT XII will also change to reflect the COE. Master gunners and unit commanders will have increased latitude in designing their unit's advanced table scenarios. The aim of the COE-compliant advanced table strategy is to completely divest from the Soviet echelon or banded target presentation. The new strategy requires target presentations that align with the COE. The scenario does not need to adhere strictly to offensive and defensive engagements. Commanders can include a variety of tasks such as convoy escort. Target presentations must include friendly and civilian target presentations, as well as tech trucks and RPG teams in building facades. Master gunners and commanders are required to emplace targetry that induces tank crewmen to use the loader's M240. They are also encouraged to add battlefield clutter and debris to increase realism. The end result of implementing the COE-compliant advanced gunnery tables will be more lethal tank

crews and platoons prepared to fight in the conditions prevalent in the COE.

Abrams Urban Gunnery

The current FM 3-20.12 fails to adequately address the tactics, techniques, and procedures (TTP) for proper urban target acquisition and engagement methods for the Abrams tank.[2] Many urban TTPs have been collected from OIF observations and two combined-arms urban gunnery demonstrations conducted at Fort Knox, Kentucky. Because of this, Chapter 16, "Tank Tactical Tables," FM 3-20.12 will be replaced with a chapter totally dedicated to Abrams urban gunnery. The current Chapter 16 is redundant with the Army Training and Evaluation Program (ARTEP) 17-237-10-MTP, *Tank Platoon Mission Training Plan,* and is therefore unnecessary.[3]

Combined Arms Live-Fire Exercises

In the Cold War-based strategy Combined Arms Live-Fire Exercises (CALFEX) were designed to train company teams and battalions in direct-fire control, distribution, and maneuver under live-fire conditions. CALFEXs were focused solely on offensive and defensive operations. Although company team and task force CALFEXs are still encouraged, in the new strategy, commanders are not limited in the unit size and mission type they can choose to execute. For example, mixed platoons containing Bradleys, tanks, and engineers have proven to be a suitable task organization for operating in restricted or complex terrain. Commanders can now use allocated ammunition to conduct platoon-sized combined arms live-fire exercises.

What We Are Not Changing

Gunnery Branch is not changing the underlying foundations to the demonstratively successful Abrams gunnery strategy. We are being careful to not create OIF-specific gunnery. The new Abrams gunnery strategy encompasses all of the relevant tasks that will make tank crews successful and lethal in the entire COE. The new gunnery strategy preserves long-range gunnery proficiency in tank crews by maintaining long-range engagements in TT VII and TT VIII. While some tech truck and infantry targets are presented within 500 meters, tank targets mainly remain in a band between 1,400 to 2,400 meters.

The methodology used in establishing engagement standards in the revised gunnery tables remains threat-based. The con-

version of hit times to points continues to be calculated using estimated world-wide average capabilities of threat weapons systems for specific task and conditions, such as moving tanks, target range, and nuclear, biological, and chemical conditions. For performance above the standard (70-points), points are calculated based on expected or demonstrated performance for the U.S. tank weapons system. Even in COE, it is still imperative to hit before being hit.

Digital communications will continue to be emphasized during gunnery. We recognize that a crew's ability to properly use digital communications equipment is a highly perishable skill. Abrams tank crews equipped with Force XXI Battle Command Brigade and Below (FBCB2) or Blue Force Tracker will continue to be required to receive digital prompts and send digital situational reports throughout TT VII, TT VIII, and the advanced tables.

The fundamental crawl-walk-run tank table methodology is not changing. Crews will still be required to demonstrate proficiency as they proceed from the basic to the advanced tables. Crew certification in the Tank Crew Gunnery Skills Test (TCGST), TT IV, and TT VIII remain prerequisites for crews to proceed to follow-on tables. Virtual and remedial training remain embedded within the new gunnery strategy.

Validating the New Gunnery Strategy

Gunnery Branch is required to validate any changes to the gunnery strategy by observing units conducting gunnery under the new methodology. During the new strategy validation, participating units will use their current Standards and Training Commission (STRAC) allocation to complete the gunnery density. After validation, which will be completed in September 2004, all units equipped with Abrams tanks can qualify under the new strategy.

During preparation for implementing the new Abrams gunnery strategy, Gunnery Branch presented a change to the Abrams STRAC ammunition allocation to the STRAC Council of Colonels in March 2004. This changes the HEAT to sabot ratio, increases .50-caliber and 7.62-mm ammunition, and redistributes the ammunition across the tables to meet the requirements in the new tables. This change was approved, however, that ammunition allocation cannot be drawn by units until FY07.

The current STRAC ammunition allocation, which is in effect through FY06, will support the new gunnery strategy with some adaptation. Harvesting ammunition remains important, and master gunners and commanders must manage ammunition to ensure enough rounds are available to complete the gunnery density.
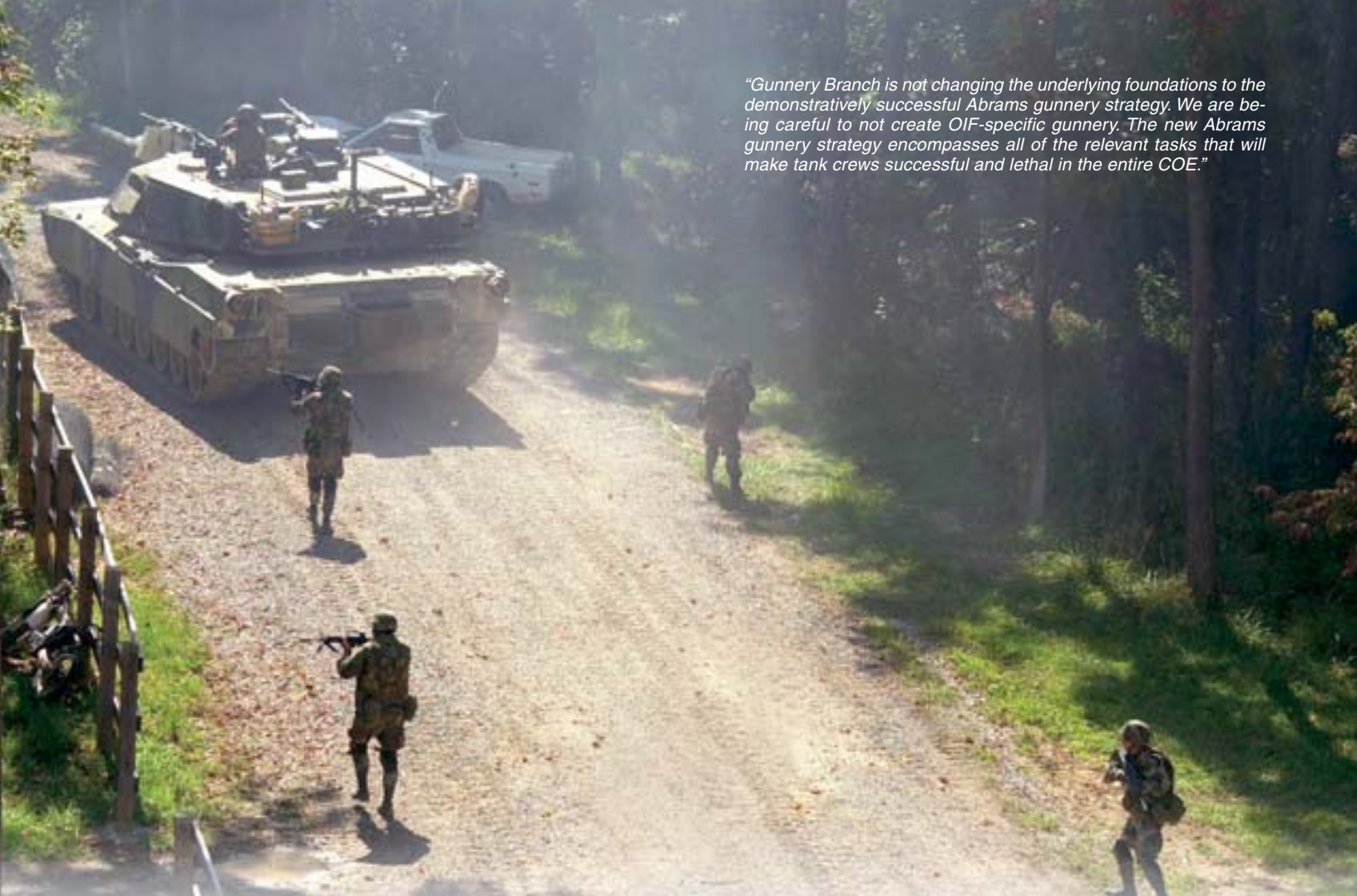
Units firing on ranges that do not support the urban engagements will fire the prescribed alternate engagements. Once the FY04 FM 3-20.12 is published, all tank units will be required to qualify under the new COE-compliant gunnery standards.

Impacts of New Standards

Similar to the late 1990s, when engagement time standards increased in difficulty and multiple targets were added to the tank tables, average crew scores will decrease with the implementation of this new gunnery strategy. The crew's ability to anticipate the next engagement will decrease, and it will take some time for the armor community to become familiar

"Observations from OIF have shown an increase in using tank sections as individual maneuver elements. Tank sections are frequently attached to light infantry companies, task organized with M2 Bradley sections, or positioned as a section at checkpoints and blocking positions. This trend will likely continue in the COE."

with the new standards. In the end, the new standards will produce tank crews, sections, and platoons more capable of fighting and winning in the COE than contemporary crews.

The new gunnery standards must be validated by Gunnery Branch master gunners, as representatives of the Chief of Armor, who observe and evaluate a unit's conduct of a gunnery density under the new strategy. This will be completed no later than September 2004. An armor and cavalry council of colonels must then review the strategy and validation results and make a recommendation to the Chief of Armor prior to its implementation. This step will be completed no later than October 2004. Following this step, the Chief of Armor must approve or disapprove the new COE-compliant gunnery strategy, which should be completed no later than November 2004.

Finally, Gunnery Branch will publish the revised FM 3-20.12, after which the new gunnery standards will be in effect. Gunnery Branch anticipates publication as early as December 2004 with full implementation of the new standard no later than January 2005.

The old Cold War-based Abrams gunnery strategy has stood the test of time, but its time has passed. The new COE-compliant Abrams gunnery strategy will present our crews with a variety of engagements under conditions most prevalent in the COE. We must change to ensure tankers like SFC Cooley and his crew are prepared to fight and win, despite the complex scenarios they are likely to face now and in the future.

The Gunnery Branch has developed this new strategy after consulting with many tank master gunners and leaders across the armor community. However, we are still open to suggestions and assistance from any tanker or cavalryman who wants to make a contribution toward improving the Abrams gunnery strategy. Gunnery Branch points of contact are *Herbert.Skinner@us.army.mil* or (502) 624-7323, or *Michael.Dunfee@knox.army.mil* or (502) 624-5765.

Notes

[1]U.S. Army Field Manual (FM) 3-20.12, *Tank Gunnery (Abrams)*, U.S. Government Printing Office (GPO), Washington, D.C., 5 May 1998; FM 17-12-7, *Tank Gunnery Training Devices and Usage Strategies*, GPO, Washington, D.C., 1 May 2000; and Student Text (ST) 3-20.12, *Tank Crew Evaluator Exportable Packet (TCEEP)*, Headquarters, U.S. Army Armor Center, Fort Knox, KY, 11 March 2002.

[2]FM 3-20.12, *Tank Gunnery (Abrams)*.

[3]Army Training and Evaluation Program (ARTEP) 17-237-10-MTP, *Tank Platoon Mission Training Plan*, Headquarters, Department of the Army, GPO, Washington, D.C., 23 December 2002.

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Company-Level Cordon and Sea

by Captain Dale Murray

As U.S. Armor and Cavalry units conduct combat operations to root out terrorists and bring democracy and the rule of law to Iraq, they learn lessons for future wars. The principles of war are unchanged; however, the methods warfighters use to apply these principles continue to evolve. On the current battlefield, commanders are challenged to carryout search operations, reconnaissance and detection operations, patrols, checkpoint and traffic control point operations, gather intelligence, and conduct stability operations while simultaneously protecting soldiers and U.S. security interests.

These challenges were no different for B Troop, 1st Squadron, 2d Armored Cavalry Regiment when they deployed to Baghdad, Iraq. Here, they faced a dynamic battlespace that called for new methods and principles to prepare and plan for mission success.

Captain Dale Murray, commander, B Troop, set out to prepare his soldiers and key leaders for a different kind of war. As an officer professional development project, he instructed his key lieutenants to codify techniques for follow-on units. This project soon revealed effective methods used by B Troop to successfully conduct patrols and raids in an effort to disrupt terrorist raids operating in the 2d Armored Cavalry Regiment's area of operations in Baghdad.

In the following articles, Captain Dale Murray and Lieutenants Christopher Shepherd, Gregory Hickerson, Michael Gantert, David Tosh, and Morris Estep share how they successfully took the fight to the anticoalition forces to capture or destroy the enemy, won the support of the local population, improved the quality of life for the Iraqi people through rebuilding projects, and prepared local law enforcement and government agencies for transferring authority to the Iraqi people.

rch Operations in Iraq

Company-level armor and cavalry units in Iraq continue to face a dynamic battlespace that is predominantly populated by friendly people and an occasional terrorist, criminal, or anticoalition person (commonly known as a subversive element) or two. The Iraqi populace provides coalition forces with invaluable intelligence on where they think these subversive elements are hiding because they usually want them out of their neighborhoods. That said, there are two types of companies or troops in Iraq — those who have done a cordon and search and those who are going to do a cordon and search to find and capture or eliminate possible subversive elements.

The cordon and search operation is a pretty simple mission in concept but may be a little more difficult when applied to the terrain where the would-be subversive element(s) may be hiding. Having led my troop through a few of these missions, practice makes perfect, and each and every cordon and search is differ-

ent. The fundamental elements of the cordon and search remain the same though — outer cordon, inner cordon, and assault.

The Cordon and Search Concept

While the practical application of this concept depends on the nature of the objective area, a commander will typically divide his company or troop into an outer cordon force, an inner cordon force, and an assault force.

The outer cordon force will usually set along the major avenues of approach into and out of your objective. They will initially focus on the objective to identify and stop personnel and vehicles that are departing the objective area, but will shift their focus away from the objective once the inner cordon is set to block vehicles and personnel from entering the objective area, preventing anyone from interfering with the search.

The inner cordon force will move to isolate the objective once the outer cordon force is set. The force will be positioned on the three sides of the objective that the assault force will not use for entry, where they will find defilade positions in case the assault force is required to fire at the objective. The inner cordon force must block all personnel or vehicles attempting to move away from the objective to prevent anyone from escaping the objective.

The assault force, typically made up of four elements, will move into the objective area last. The first element is a four-man security/support team that secures the entry point and prepares to provide suppressive fire for the entry team should they come under fire. The second element is a four-man entry team that will move through the entire objective and clear it of all personnel. The third element is a three- to four-man search team that will search the objective for contraband, illegal weapons, or bomb-making material. The fourth element is a three- to four-man detention/collection team that secures all detainees and all contraband found.

Once the search is complete and all detainees and contraband are secure for movement, the assault force withdraws from the objective. The inner cordon force will withdraw immediately after the assault force withdraws, leaving the outer cordon force to withdraw last.

Planning

Typically, an Iraqi citizen will provide information on terrorist forces to either a patrol or someone at a base camp. The S2 normally interviews the informant and determines the story's cred-

ibility. Once someone has clarified the information (translation from Arabic to English is often a time-consuming process), the S2 will brief the squadron or battalion commander on the possible subversive element, and the commander will direct the S3 to order a cordon and search of the new target, if the information seems credible (credible intelligence from an informant is a matter of great debate, but for the purposes of this article, we will assume the information is credible).

Immediately on receipt of the mission, the company-level commander conducts a reconnaissance of the target house to be searched. Ideally, the S3 can provide the unit with an eight- or ten-digit grid to the target house, and the S2 can provide either maps or satellite imagery. If possible, avoid sending a patrol to the area of the target house since the patrol may unnerve the target and cause him to flee prior to the search. However, the only information that an informant can usually provide is an address, which means a patrol must conduct a reconnaissance to determine where the target is located. The patrol may not alert the target, if patrols frequent the area, but the patrol does not need to loiter in the area any longer than necessary.

Once a commander knows the location of the target house and the terrain that his unit will encounter, he can begin planning the cordon and search. Typically, the homes in and around Baghdad are stand-alone compounds or connected compounds. Almost every home will have a walled-in courtyard, which must be taken into consideration during planning. Normally, we encountered stand-alone compounds in the more rural areas of Baghdad away from built-up areas. The built-up areas in Baghdad typically consist of connected compounds, where two families share a courtyard wall. The actual buildings may or

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may not connect, but if they do, the rooftops may serve as a possible egress route for the subversive element.

For a stand-alone compound, the outer cordon force should set first. Our outer cordon force was typically mounted on M1025s, so the high-mobility, multipurpose, wheeled vehicle (HMMWV) could be used to block the road, and one or two dismounts could speak with the locals.

One platoon leader should be in charge of the outer cordon force to facilitate the command and control between various outer cordon elements. The outer cordon force will initially have a dual mission in blocking personnel and vehicles from entering and departing the objective area. Once the inner cordon force is set, the outer cordon force will focus primarily on blocking anyone attempting to enter the objective area.

We typically moved the inner cordon force to the objective dismounted. The inner cordon force should follow one direction of attack and have clearly defined sectors of observation and fire. The inner cordon positions must set where they will be in defilade of the other inner cordon positions and the assault force in the event of a direct fire engagement. Once set, the inner cordon blocks anyone from departing the objective to prevent an escape from the assault force. While not a steady rule, we normally placed the inner cordon force under the control of a platoon leader or platoon sergeant, while the remainder of their platoon secured the vehicles of the inner cordon force and the assault force.

One platoon typically makes up the assault force, which again normally consists of four teams and moves to the objective dismounted. The security/support team will set adjacent to the entry point first, prepare to provide suppressive fire to the entry team, and secure the entry point once the rest of the platoon has passed into the compound. The entry team will follow closely behind the security/support team and move into the courtyard and building using the four-man stack technique, clearing each room one-by-one.[1]

The entry team will normally evacuate detainees directly to the detention/collection team. As the rooms are cleared, the search team moves behind the entry team and searches for contraband or any incriminating evidence. As the search team finds contraband, evidence, or illegal weapons, they will evacuate each item to the detention/collection team, which should locate somewhere near the entry point. If the compound has more than one dwelling, the search team should be prepared to act as an alternate entry team. Likewise, once the building is clear, the entry team should be prepared to act as a search team.

Despite the intimidating nature of the terrain, a connected compound is somewhat easier to cordon and search. The fundamentals are still the same, but we modified the task organization a bit to simplify the operation. We typically combined the outer and inner cordon forces, using dismounts from the outer cordon vehicles to move into the inner cordon positions. The assault

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force conducts actions in a similar fashion to the stand-alone compound.

Units want to ensure that they have adequately addressed service support issues in their plan. They must ensure that the troop or company can easily provide casualty evacuation. To ease this process, we typically placed our first sergeant and medics in a location near where the assault force parked their vehicles and to where platoons evacuated any casualties. The unit must also plan for detainee and contraband/evidence evacuation, as well.

As a final element, the commander should designate what he wants his platoon leaders to report. We usually reported outer cordon force set, inner cordon force set, entry into the target, cleared buildings, search complete, and any contraband and/or detainees found. The company XO received these reports and sent them on to our squadron tactical operations center (TOC).

Preparing

Rehearsals are the key to successful cordon and search operations, and while units will develop their own requirements for what to rehearse, here are a few suggestions:

• The outer cordon force should review the rules of engagement (ROE), rehearse the set up of their blocking position, and rehearse actions on contact with certain events, such as persons or vehicles attempting to pass the blocking position, a crowd protesting the cordon and search, and rock throwers.

• The inner cordon force should review the ROE and specifically focus on their actions should they identify someone attempting to leave the cordon. The inner cordon force also needs to rehearse their movement to the objective and talk through the sectors that they will observe. Additionally, the inner and outer cordon forces need to rehearse their direct fire plan to reduce the risk of fratricide.

• The assault force will usually have the most to rehearse, so commanders will want to make sure that they identify the assault force as early as possible. The entry team(s) will need to rehearse

multiple-room clearing procedures along with ROE scenarios on what to do if they encounter people inside a room and what criteria differentiates a hostile person from a bystander. The entry team will also need to rehearse entry into the compound and rooms that may be locked or blocked.

• The security/support team will need to rehearse their plan for providing the entry team with suppressive fire, as well as actions on contact with persons approaching the entry point. Additionally, the entry team(s) and the security/support team must rehearse their direct fire plan in the event that their entry into the compound or dwelling is opposed.

• The search team will need to conduct all rehearsals that the entry team conducts, since they will serve as your alternate entry team. The search team should also rehearse what to do with various types of contraband or illegal weapons and how to handle these items in a manner that will preserve this evidence for any military tribunal.

• Finally, the detention/collection team should rehearse searching detainees and actions to take if one of the detainees does not want to cooperate or attempts to flee the area. The assault force platoon should conduct a full rehearsal using buildings on the base camp as models for the objective.

At the troop-level, we usually conducted either terrain model or map rehearsals to ensure that all elements of the cordon and search were synchronized for the operation. Some of the actions we reviewed at rehearsals were actions with a crowd at a blocking position, persons attempting to enter cordon areas or entry points, personnel in the target home, discovering contraband, and most importantly, the direct fire plan. Reporting is a crucial aspect of this operation, so we had our platoon leaders reporting in the rehearsal just like they would during operations. Commanders must ensure that casualty and detainee evacuation procedures are reviewed during this rehearsal.

Precombat checks and inspections do not vary greatly from your normal patrol preparation, but here are a few additional items we usually took along:

• Bolt cutters — needed to enter rooms with padlocked doors or to open wardrobes that the owner has miraculously lost the key to unlock.

• Battering ram — needed to open gates or doors that may be locked from the inside.

• Hand-held metal detectors — needed to rapidly search detainees for weapons or other contraband.

• Mine detectors — needed to search the grounds around the buildings, since contraband is sometimes buried.

• Shovels — needed to dig up any items the mine detector finds.

• Zip cuffs — everyone will need these, but ensure that the entry, search, and detention/collection teams have priority on these.

• Ladder — needed to check the roof of some homes or as an alternate method of bypassing a locked courtyard gate.

• Hand grenades — patrols may normally carry these, but if they do not, make sure that the entry and the security/support teams have them.

• Miscellaneous cash — someone on the assault force should sign for some money from the unit field ordering officer (FOO) to compensate the people in the house for any damages, should the informant prove to be incorrect.

Execution

As the unit approaches the objective, the inner cordon and assault forces must make sure that they have allowed enough time for the outer cordon force to set before actually arriving at the target house. The locals know the sound of a HMMWV, and any subversive element, who may be home, will likely try to flee on hearing the unit approach. While the impact may not be immediate, vehicles and foot traffic (aside from curious onlookers) around the objective will decline quickly once the outer cordon is set, facilitating the movement of other elements to the objective.

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"Once the inner cordon is set, the assault force will approach the house to begin the critical part of the operation. We knocked on the courtyard gate and gave the occupants anywhere from two to five minutes to gather all the people in the home and bring them into the courtyard. As the people file out of the home, the entry team prepares to move into the house and the security/support team maintains overwatch in the event that someone decides to resist."

"The entry team will normally evacuate detainees directly to the detention/collection team. As the rooms are cleared, the search team moves behind the entry team and searches for contraband or any incriminating evidence. As the search team finds contraband, evidence, or illegal weapons, they will evacuate each item to the detention/collection team, which should locate somewhere near the entry point. If the compound has more than one dwelling, the search team should be prepared to act as an alternate entry team."

Our troop found that the best method to maneuver the inner cordon and the assault force to the objective was dismounted. To do this, we used as many cargo HMMWVs as we could find to minimize the number of vehicles we had to secure (maneuvering a 5-ton truck in downtown Baghdad is not practical, but if operating in a more rural area, this may be the way to go). We occasionally used our headquarters section to secure these vehicles while the inner cordon and assault forces conducted actions on the objective, and we usually designated this same location as our casualty collection point (CCP).

Once the inner cordon is set, the assault force will approach the house to begin the critical part of the operation. We knocked on the courtyard gate and gave the occupants anywhere from two to five minutes to gather all the people in the home and bring them into the courtyard. As the people file out of the home, the entry team prepares to move into the house and the security/support team maintains overwatch in the event that someone decides to resist. While this may seem like an unnecessary delay, it is imperative to ensure minimal impact in this area in case the informant gave bad information, and removing the people from inside the home eased the actions of our entry team since they could then be relatively sure that no hostiles were inside. Again, this three to five minutes is critical to the success of the operation, so we made sure that the security/support team was in a good position to provide suppressive fire.

As the entry team moves into the building, they should communicate with each other to verify that their sector of the room is clear (this is a little more challenging at night with night-vision sights), and inform the search team when they can move into the next room. The search team should bring everything they find to the detention/collection team, which is also guarding the people in the courtyard. Initially, they will look in obvious spots for contraband, such as under beds and inside cabinets, using metal detectors to check various places. If they begin to find contraband or other incriminating evidence, the search team will want to increase the intensity of their search. Remember to view the occupants as innocent until proven guilty, being careful not to unnecessarily alienate them in the event the informant was wrong.

As the entry team completes its task, they should act as an alternate search team to expedite the operation, since the unit wants to minimize the time that the inner and outer cordon forces must block the locals. Once the search is completed, report the findings and get guidance on what higher headquarters wants to do with any detainees or contraband, and then evacuate the detainees and contraband accordingly.

We normally withdrew from the objective in reverse order by moving the assault force away first, then the inner cordon force, and finally the outer cordon force. Once we returned to base camp, we handed any contraband or detainees over to the S2 and debriefed our soldiers, especially those on the assault force.

While some readers may think that this type of operation is for infantrymen, rest assured that you and your soldiers are the only infantrymen in your area of responsibility. As you begin to conduct cordon and search operations, you and your soldiers will become more and more comfortable with the operation and eventually develop your own battle drills. This is definitely an operation that a tank company can do. Typically, these operations were conducted by two platoons, each manned with 15 to 18 soldiers.

Hopefully, this article will provide a basis for others to use when planning cordon and search operations. As you analyze the terrain and forces available for the mission, remember that every operation is different, and there is no "cookie-cutter" approach. However, the principles outlined in this article generally do apply to most situations and will hopefully help you in future operations.

Note

[1]Center for Army Lessons Learned, "Small Unit Leaders Guide to Urban Operations," *CALL Newsletter 03-4,* Fort Leavenworth, KS, May 2003.

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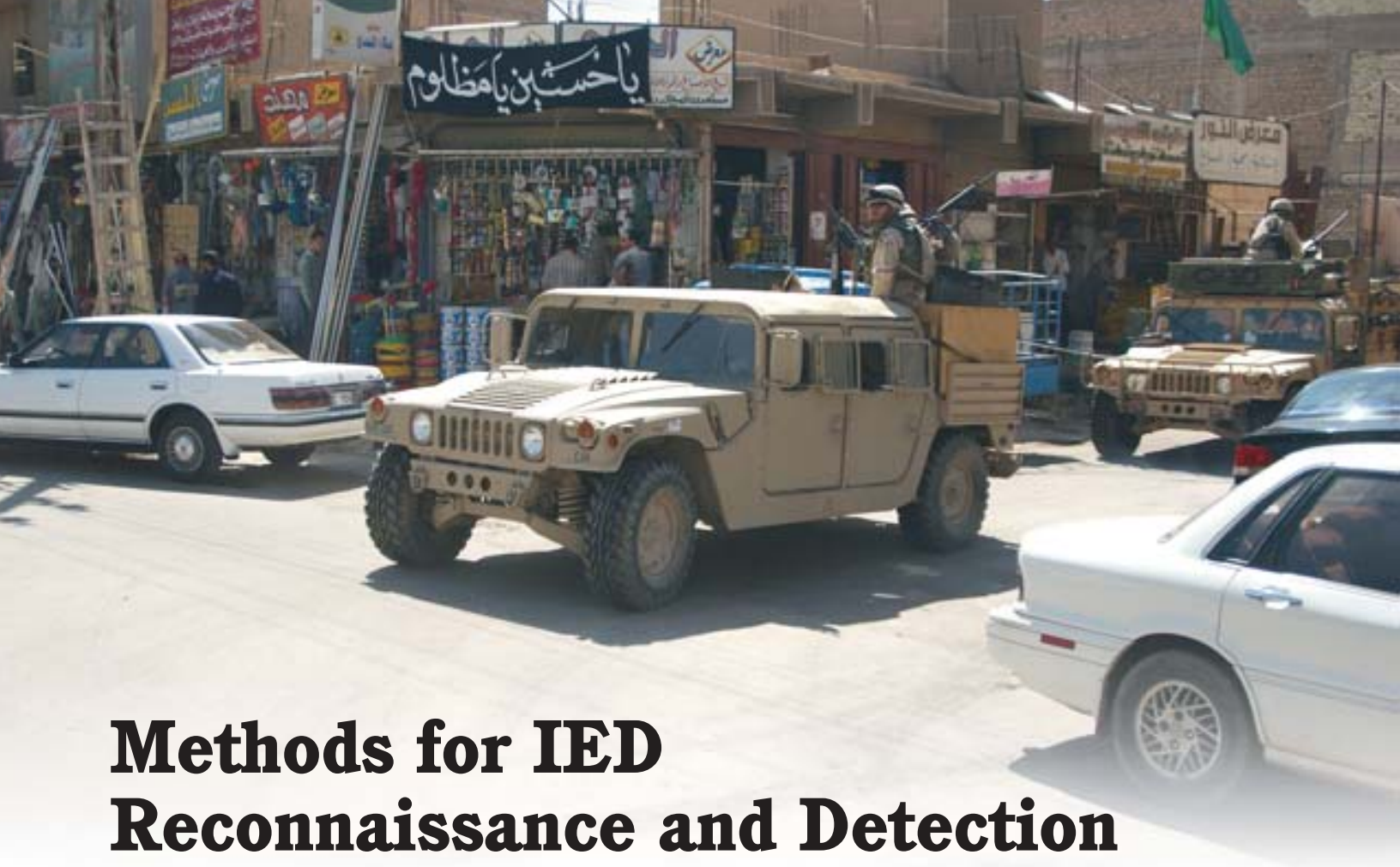
Methods for IED Reconnaissance and Detection

by First Lieutenant Christopher J. Shepherd

Improvised explosive devices (IEDs) are one of the most dangerous risks facing coalition forces in Baghdad, Iraq. As of January 2004, IEDs were responsible for the deaths of over 100 American soldiers, wounding countless more, and causing millions of dollars in damages to vehicles and equipment. This article identifies some of the ever-changing enemy tactics, techniques, and procedures (TTPs), and thus the adaptable methods that must be used to successfully combat this threat. While the tactics addressed in this article apply to patrols specifically tasked to conduct IED reconnaissance missions, every patrol moving along major routes in zone is a potential target, and thus an IED reconnaissance and detection patrol.

Before discussing the elements of IED reconnaissance and detection, the nature of the threat must first be established. An IED is a near-ambush on a convoy with the purpose of disrupting or harassing operations in theater. At times, the blast is accompanied by small-arms fire, but generally the enemy attempts to flee the scene as soon as possible. After conducting their own reconnaissance on U.S. forces for several months, the enemy has learned that we will respond with overwhelming force to an attack, and he has little chance of inflicting further damage after the initial shock has past.

The enemy usually operates with no more than a two- to three-man team to conduct the ambush, sometimes employing an observation post (OP) in the guise of someone working on a broken vehicle. This operative then either alerts the triggerman or triggers the device himself when a convoy approaches. The triggerman positions himself in a residence or some other type of urban cover and awaits the prearranged signal from the OP.

Over the nine months in which the enemy has employed IEDs as a regular form of attack, his methods have changed to counter U.S. adaptation to the threat. Initially, IEDs were buried or disguised as trash and street signs. Later, they were hidden in dead animals along the roadside, and then hidden in trees, on light poles, or under overpasses. Most recently, as we have continued to adapt to counter the threat, the enemy has reverted to burying the explosives once again. This time, however, he is using multiple IEDs, complicating an already difficult task for U.S. forces. One other TTP the enemy has demonstrated is to conduct a hasty ambush by simply dropping an IED on the side of the road just before a convoy passes and then triggering the device.

IED reconnaissance and detection is a deliberate route reconnaissance to facilitate freedom of movement for follow-on forces along main routes in the zone. While conducting the reconnaissance with an offensive, aggressive posture, it is primarily a security operation to counter an ambush, and therefore leaders must adhere to the three-to-one ratio. Currently, as the enemy uses no more than two to three men at the ambush site, two vehicles with eight U.S. personnel are sufficient on these reconnaissance patrols during the day. During limited visibility, however, using four vehicles with a minimum of 16 personnel increases the chance of detecting an IED.

There are four methods for IED detection: observing the OP or triggerman; identifying the explosives or where they are hidden; gathering intelligence from the local population; and actually being attacked. The first method is the most difficult, as it is easy for the enemy to blend in with the local population, and there are an abundance of broken cars along the side of the road as potential OP sites. However, there are a few key indicators a soldier can look for. For example, if a man working on a broken vehicle appears to be paying undue interest to a passing convoy or is holding some sort of communication device, such as a radio or cell phone, the convoy should stop and search the man and the vehicle as well as ques-

tion him. The triggerman will be carrying some method for remote detonation, and if he is careless, he may display such a device as the convoy approaches. The patrol leader must ensure that 360-degree security is maintained at all times. As always, there is no such thing as being too cautious while attempting to combat the IED threat.

The second method of detection requires very observant scouts combined with a slow march rate to facilitate the visual acquisition of a sign that an IED is present. The staggered column formation has been the most successful movement to cover both sides of the route. Trash, boxes, and dead animals along the side of the road must all be scrutinized for any sign of wires or antennae for remote detonation. Since an urban environment is three-dimensional, signs, lampposts, poles, and overpasses must also be carefully observed for wires or antennas. To combat those who are burying the devices, soldiers must look closely for loose dirt that appears recently dug up, or wires coming out of the ground. These signs are not easily discernable and it takes practice to observe them while moving down the road.

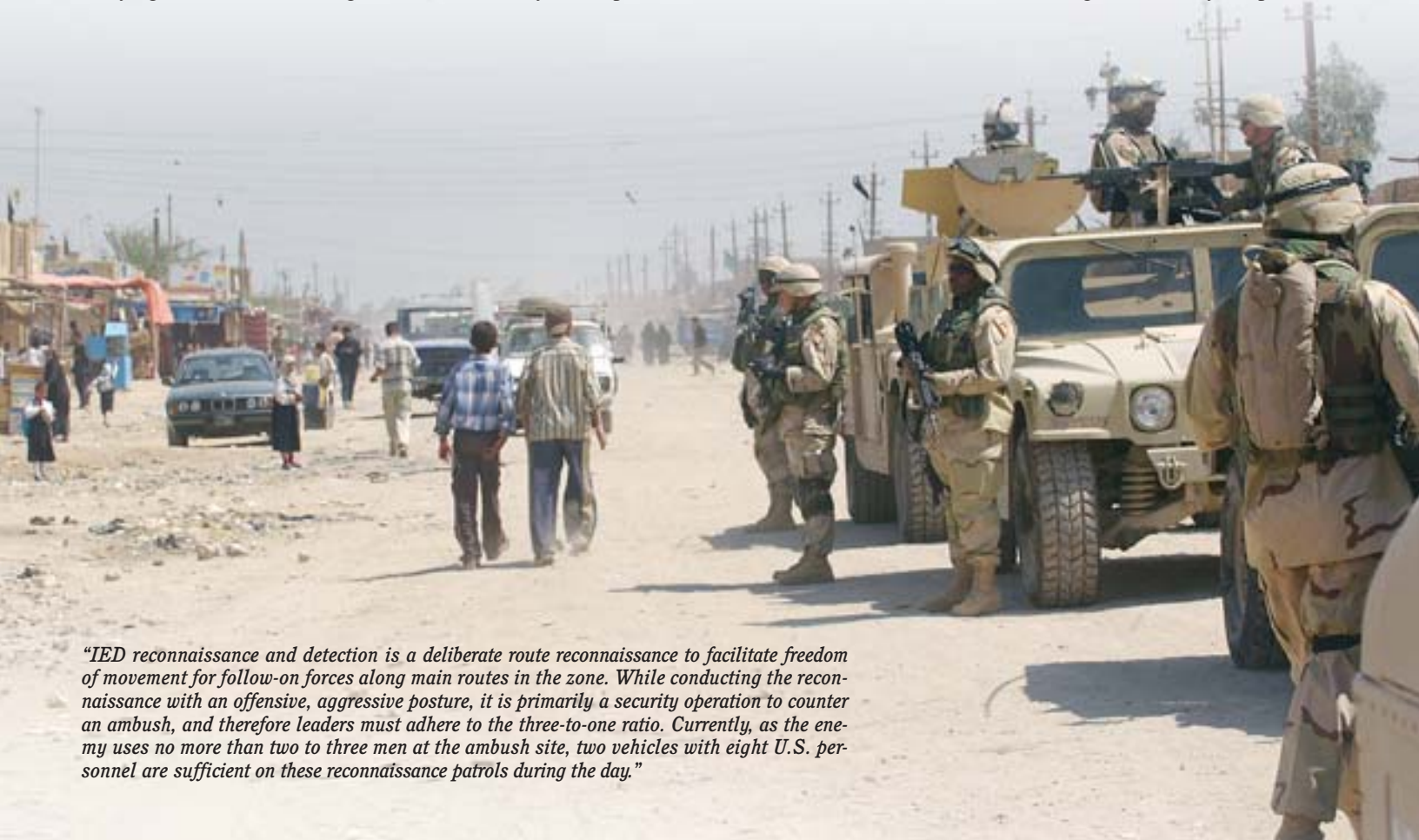Dismounting scouts to conduct reconnaissance with the vehicles in traveling overwatch is the best method for identifying IEDs before entering the kill zone, though it is not always practical. Leaders must make the decision based on time available, the current mission, and the most recent intelligence available. In addition, leaders should conduct rehearsals in which they test their soldiers' abilities to spot key signs of a possible IED.

Gathering human intelligence (HUMINT) is the third method of IED reconnaissance. This can be conducted in conjunction with, or separate from, the reconnaissance and detection patrol. As conditions in Iraq continue to improve, and U.S. forces have greater success against the remaining terrorists, the local population is becoming increasingly more helpful in providing key intelligence against the enemy. The nature of IED attacks provides reasonable assurance that the local population knows what the enemy is doing and how he is doing it. However, Iraqi people have lived in unimaginable fear for so long that they are still unsure as to their safety if they provide information to U.S. forces. HUMINT will continue to improve as time passes and democracy takes hold.

The final method, while undesirable, is still a method of detecting an IED. When an IED attack is actually initiated on a patrol, soldiers must be ready to react instantaneously, despite being disoriented by the explosion. Leaders must ensure their soldiers practice and use proven standing operating procedures (SOPs) if contact is made with an IED attack. All of the vehicles push through the kill zone as quickly as possible, advancing approximately 300 meters. The gunners and dismounts are all scanning for any possible sign of the triggerman or a threat. The patrol leader assesses any casualties and then calls in a situation report. After waiting at least a minute, while scanning for a threat, the rear vehicle then falls back 300 meters opposite the blast site and the patrol cordons off all avenues of approach and begins searching the area. The wait time is to ensure there are no secondary devices that will explode as the vehicles pass back through the area. However, if the patrol waits too long to cordon off the site, there is a greater chance the triggerman will escape, and important evidence related to the device, which could provide more information on enemy TTPs, may be lost. If a patrol is actually attacked by an IED, there is a chance to destroy the enemy who emplaced the device, and thus the purpose of creating freedom of movement for follow-on forces is accomplished.

In addition to these proven methods, several other options are available to combat IED threats. Unmanned aerial vehicles (UAVs) assigned to cavalry troops, as

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well as scouts in helicopters, can provide successful aerial reconnaissance. Aerial surveillance can move quicker and provide advanced warning to reconnaissance elements on the ground. Scout elements on the ground can then move forward to confirm or deny information provided by air elements. Another tactic is to place an OP in cooperative residences near named areas of interest (NAIs). While this has been unsuccessful to this point, the tactic still has potential. If left in place for several days, these OPs could have some success in observing the enemy attempting to emplace an IED.

Using civilian vehicles that match those commonly found on the roads instead of high mobility, multipurpose wheeled vehicles (HMMWVs), which signal their approach with a distinctive sound, could allow for detection of the enemy. These unconventional methods may improve the military's ability to destroy the enemy before he has a chance to trigger an IED. Finally, as training for the Iraqi Civil Defense Corps (ICDC) continues, these forces can be used in the future for intelligence gathering, as they will blend with the local populace.

The dangers presented by the increasing IED threat must be dealt with swiftly and unequivocally. IEDs represent a significant barrier to the safety of both U.S. forces in Iraq as well as Iraqi civilians who are hit by the blasts. Conventional methods of reconnaissance and detection, such as observing OPs or triggermen, identifying IED sites, or successful HUMINT, as well as unconventional methods, such as aerial reconnaissance using scouts or UAVs, OPs in residences, civilian vehicles, and ICDC surveillance will all have increasing effectiveness when synchronized. Leaders must continue to analyze shifting enemy TTPs to continue to adapt to the changing battlefield environment.

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Reconnaissance Patrols in Baghdad

by First Lieutenant Gregory S. Hickerson

U.S. forces conduct reconnaissance patrols in Baghdad to identify subversive or enemy elements and determine how the local population will react toward the coalition. As a patrol leader, you will simultaneously conduct these two types of missions each time you lead a patrol. These missions are extremely important because they provide a clear picture, which commanders need to effectively plan and conduct future operations.

You must consider multiple aspects when identifying criminal activity. Identifying criminal activity includes having a good rapport with the locals in your area of responsibility (AOR), a good analysis of the latest intelligence on your AOR, properly conducted troop leading procedures (TLP), and a bit of luck. Focusing too much on any one of these aspects will leave you conducting a patrol with no specific task and purpose, versus a reconnaissance patrol with a definite task and purpose.

Establishing a good rapport is by far the most important ingredient to successful missions day after day. Dignity and re-spect must be enforced throughout your unit at the lowest level. During initial contact with the locals in your AOR, it is very important to make a good impression. Leaders who have a good understanding of the culture and are open to these differences will ensure that the locals view soldiers as problem solvers, not as outsiders interfering with local disputes, especially in Muslim countries where working with the community involves interaction with both males and females, and knowing what is and is not taboo. Establishing trust and confidence snowballs in the tight-knit communities you will encounter in Iraq. Learning the local language and using it at every opportunity shows you are truly concerned. All leaders rely on interpreters to assist them in communicating, but you can gain a lot of goodwill by trying to make one-on-one contact and place a personal touch on what may seem to be a stressful time for both you and the local community.

As a leader, you should know your AOR better than anyone else, have contacts and informants throughout, and be easily rec-ognized by the locals. If you are properly established in the area, you will be regarded as a sheriff; if not, you will be considered just another outsider. Most of the intelligence about the AOR is gathered and reported by your unit, but knowledge and analysis are two different things. Analysis of the latest intelligence will help you adjust your day-to-day missions.

During day-to-day missions, it is an easy trap to cut corners and forget TLPs, which in turn, cuts into your effectiveness as a leader and also detracts from unit effectiveness. To counter this trap, create and use tools that force the use of TLPs. For example, use patrol order templates at the lowest level, ensure subordinate leaders back brief the patrol plan, and that timelines include a patrol brief so all soldiers understand the mission. Commanders and platoon leaders should assign missions two to three days prior, giving subordinate leaders proper time to plan and rehearse.

Identifying the sentiment of the local population is something every commander needs to know and what every scout should

"Rehearse dismounted drills that include forming a porous perimeter, which allows you to bring the leader into the center, but avoids crowds and distractions. This drill must send the message that coalition soldiers are approachable. In reality, security teams, bound continuously to points of domination, are continuing to provide security for the internal human intelligence (HUMINT) team, keeping unwanted distractions out of the perimeter, while providing security for the entire dismounted area. The HUMINT team must establish a signal with the security team to designate individuals selected for intelligence gathering."

provide. Sentiment of the local population dictates size and strength of patrols, unit posture during operations, and types of missions. Collecting this data is done everyday by each member of the scout patrol. It is as simple as waving at the locals and observing their reactions, and as tough as engaging a local in a heated discussion on topics that truly affect his living conditions such as electricity, water, garbage, and sewage. Listening to the problems with attention and concern makes a difference. As you patrol the streets, it is very easy to be distracted and overwhelmed by the crowds. Focus on individuals and engage in one-on-one conversation.

Rehearse dismounted drills that include forming a porous perimeter, which allows you to bring the leader into the center, but avoids crowds and distractions. This drill must send the message that coalition soldiers are approachable. In reality, security teams, bound continuously to points of domination, are continuing to provide security for the internal human intelligence (HUMINT) team, keeping unwanted dis-

tractions out of the perimeter, while providing security for the entire dismounted area. The HUMINT team must establish a signal with the security team to designate individuals selected for intelligence gathering. By doing this, your security elements can focus on internal and external security and your HUMINT element can focus on effective questioning and conduct information gathering. Always use two-man teams on both the security team and HUMINT team, which provide additional safety and security of individual soldiers.

Planning your patrol should follow the eight TLP steps: receive the mission; issue the warning order; make a tentative plan; start movement; reconnoiter; complete the plan; issue the order; and supervise. Your plan should include the most recent intelligence and significant acts. As the enemy evolves and changes his tactics, you must adapt as well. Keep it simple, and focus time and energy on rehearsals and battle drills. Develop an effective plan that allows the most time and space available to complete the mission. Include flexibility in your patrols, which in turn allows subordinate leaders the most versatility while conducting TLPs. You should always plan maneuver that includes primary and alternate routes and vary these routes from patrol to patrol. Never develop a pattern of entrance or exit from built-up areas. Use all available avenues of approach and routes within your AOR.

You should conduct patrol briefs prior to each patrol that include all aspects of a traditional five-paragraph operation order (OPORD). The patrol brief can omit some parts of the OPORD, based on mission and timeline. At a minimum, it should include task organization, scheme of ma-

"Mounted formations are extremely important to patrol leaders for security, command and control, and projection of combat power. Two basic mounted-patrol formations in the urban environment are the column and staggered column. Based on the mission, platoons leaders should use the column formation in built-up areas with narrow streets and multiple story structures and in heavy traffic on major thoroughfares. Traffic and enemy situation will dictate distance between vehicles. Gunners should divide the perimeter for weapons orientation and should scan rooftops and likely sniper areas."

neuver, task and purpose for each element, and coordinating instructions. Ensure you include safety-related information such as speed, rollover drills, and actions on contact. Patrols are an everyday event so each leader should develop a system to standardize planning and rehearsals that will make planning almost routine.

Mounted formations are extremely important to patrol leaders for security, command and control, and projection of combat power. Two basic mounted-patrol formations in the urban environment are the column and staggered column. Based on the mission, platoons leaders should use the column formation in built-up areas with narrow streets and multiple story structures and in heavy traffic on major thoroughfares. Traffic and enemy situation will dictate distance between vehicles. Gunners should divide the perimeter for weapons orientation and should scan rooftops and likely sniper areas. Drivers should focus on maneuver, so if you are limited to four-soldier trucks, one dismount should sit behind the driver and scan the left side, truck commanders focus on the right side. These two passengers should sit with chest and head facing out providing maximum protection toward the enemy. Removing all vehicle doors clears obstructions of visibility and allows soldiers to fire personal weapons while mounted.

During your patrols, conduct dismounted operations regularly to gather intelligence. Platoons should establish standing operating procedures (SOP) and rehearse these operations constantly. Dismount team organization should consist of two-man teams, including the security elements, HUMINT collection team with interpreter, and the team leader. It is very important to separate duties so that each member is focused on the mission. You should use either the box formation or the diamond formation. Movement techniques between mounted and dismounted elements vary based on terrain and mission, but should be limited to traveling overwatch and bounding overwatch. You should use bounding overwatch in heavily populated areas or heavy traffic. The overwatch vehicle should include driver, gunner, and team leader.

Tactical questioning is a skill that leaders should practice and rehearse. The better leaders perform this skill, the more accurate gathered HUMINT will be and gathering time will be reduced. Again, remember leaders should have established a good rapport in the AOR and have already established multiple contacts and informants.

Focused questions should be conducted using brief, simple, clear questions that get direct answers, which will allow leaders to continue with follow-up direct questions. Avoid including negative words in the question. Other types of questions that you should avoid are leading, vague, or compound questions. Leading questions are questions that will only return a "yes" or "no." Vague questions, such as "what's going on" or "what's the problem," will return unrelated answers and lead the conversation to where the contact has control of the conversation. Compound questions will confuse the contact or allow the contact to give incomplete responses. Again, compound questions allow the contact to take control of the conversation. Remember, you have to control the conversation at all times.

Sections and platoons conduct reconnaissance patrols in Baghdad daily. Understanding these two types of missions will increase your unit's effectiveness. Identifying subversive or enemy elements involves establishing a good rapport, analysis of the most recent intelligence, and properly conducted TLPs. Determining the sentiment of the local people includes watching reactions of the people, sound tactical questioning of the locals, and intelligence gathering.

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Checkpoint and Traffic Control Point Operations

by First Lieutenant Michael Gantert

In April 2003, the 2d Armored Cavalry Regiment (ACR) deployed in support of Operation Iraqi Freedom. We arrived in Baghdad in the middle of May and immediately began conducting a wide range of operations. Despite major combat operations ceasing in Baghdad in late April, my unit, B Troop, 1st Squadron, 2d ACR, was tasked to execute a mixture of combat, stability, and support operations in and around the city, and we often executed checkpoints and traffic control points (TCP) throughout the deployment.

Checkpoint Operations

During the first six months of our deployment, checkpoint operations proved to be key in our unit's area of responsibility (AOR). Checkpoints allowed us to maintain a visible presence in our AOR, while also deterring enemy forces and criminal activity. We primarily executed two main types of checkpoints. The first was a stationary or deliberate checkpoint. Stationary checkpoints were often done during the day when we could be visible to a high volume of traffic and search several vehicles. The second type of checkpoint we performed was a "rolling" or "flash" checkpoint. Rolling checkpoints were done mostly at night during the hours after curfew.

Stationary checkpoints involved more planning and required more assets to successfully accomplish the mission. A common task for a checkpoint operation was to identify enemy forces and criminal activity. Our purpose was often to deny enemy forces and criminals the ability to operate throughout our AOR. Vehicle and personnel requirements varied based on the terrain, volume of traffic along the route, and if we decided to stop traffic in both directions.

Conducting successful checkpoint operations requires proper equipment. Our unit used the following items for stationary checkpoints:

- Two checkpoint signs (English and Arabic) warning people to stop and take all commands from coalition forces.
- Cones or warning triangles.
- Female searcher or metal-detecting wands.
- Interpreter.
- Spotlight or Maglight (for night operations).
- Concertina wire.
- Integrated communications (ICOM) or Motorola radios for communication between all checkpoint elements.

While conducting checkpoint operations, it is important to respect local customs and courtesies. It is a major insult for American men to touch Arabic women. A female searcher is good to have; however, if one is not available a metal-detecting wand will suffice. Because of this custom, criminals attempt to hide weapons beneath the garments of females. Females must be searched!

Often, we used a profiling system to determine which vehicles to search. This system was based on intelligence received prior to executing the checkpoint. The S2 provided a be-on-the-lookout (BOLO) list to commanders. The BOLO list was compiled from intelligence throughout Baghdad, highlighting vehicles of special interest. The list gave a brief description of the car (make, model, color, license plate number, and sometimes occupants). These specific vehicles were often believed to be involved in suspicious activity.

Two soldiers, positioned at the first vehicle (blocking vehicle), identified vehicles to be searched and directed them to the stop line. At the stop line, two soldiers would hold identified vehicles until search teams were ready for them at the search area. Once a vehicle hit the search area, search teams would instruct occupants to open all doors and compartments and stand to the side. It was critical to separate personnel from the vehicle. You do not want people interfering while a search of the vehicle is underway. The Arabic word for "sit" or "kneel" is "*Ajles*" and is good to know. Often, we separated the occupants from their vehicle, searched them, and instructed them to *Ajles* until the ve-

hicle was completely searched. You must maintain personnel security at all times.

Once the people were consolidated, a two-man team began searching the vehicle with a noncommissioned officer to supervise the operation in the entire search area. The second vehicle at the checkpoint served as the command and control vehicle as well as the rear and flank security. It is important to remember that all soldiers moving within the checkpoint do so in teams of two for security. The concertina wire is set up for any possible detainees at the site. My soldiers took all confiscated weapons to the command and control vehicle. We kept an accurate count of all weapons and ammunition and reported the information to the higher command. This is just one set up that proved successful.

The key to checkpoints is the element of surprise. The enemy and criminals love to travel at night, which makes the checkpoint procedure very effective.

Traffic Control Points

During our combat, stability, and support operations in Baghdad, establishing traffic control points along major routes was another common mission our unit executed. A likely task for this mission is to control traffic flow on major routes with the purpose of facilitating freedom of movement for friendly forces and interests. Often, we blocked traffic to allow large convoys to move freely throughout our AOR. We would also establish a TCP as part of an outer cordon during a raid. The requirement for trucks and personnel was dictated by the amount of traffic and the terrain. Often, two trucks and full crews effectively executed this mission. The trucks with crew served weapons oriented toward the flow of traffic served as the blocking position. The soldiers provided rear and flank security. An interpreter should be used to talk to the locals, explaining to them the reason for the delay.

We occasionally used concertina wire to deter anyone from attempting to pass the TCP on foot. In the event a large crowd forms, it is important to have the interpreter readily available. A bullhorn is a good tool for the interpreter to use. Also, setting up a detainee holding area is a good idea. If the crowd gets unruly, detain one or two of them (preferably the instigators). Once the crowd sees you mean business and that they will be arrested for being unruly, they usually settle down quickly. After the mission was complete, we allowed the detainees to go about their business with a stern explanation to never interfere with coalition forces again.

The 2d ACR conducted full-spectrum operations during the year we spent in Baghdad. Checkpoints and traffic control points were just a few of the many missions we executed. These techniques are a couple of the many ways to accomplish checkpoint and TCP operations. Personnel and vehicle requirements will vary based on mission, enemy, time available, terrain, troops available, and civilian consider-ations. Through trial and error and many hot summer days, we found these methods to be the most effective to accomplish our mission.

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"Often, we blocked traffic to allow large convoys to move freely throughout our AOR. We would also establish a TCP as part of an outer cordon during a raid. The requirement for trucks and personnel was dictated by the amount of traffic and the terrain. Often, two trucks and full crews effectively executed this mission. The trucks with crew served weapons oriented toward the flow of traffic served as the blocking position. The soldiers provided rear and flank security."

Engaging the Population and Local Leaders

by First Lieutenant David A. Tosh

One of the most important aspects of a soldier's role in Iraq is interacting with its local people and leaders. Freedom and democracy are relatively new concepts to most people here, and we are literally on the front line, dealing with the population daily. We are therefore in a key and unique position to enhance the sentiment of the local population toward coalition forces. There are several issues that must be taken into consideration as U.S. Forces continue their mission in Iraq.

First and foremost, leaders must understand how important religion is to the local populace. It affects all facets of daily life for most citizens, and even appears to supersede government authority. For instance, if a family member is murdered, religious or tribal "law" seems to be far more important to the families and the community than does government law. Local authorities acknowledge this and are often content to let tribal leaders dispense judgment — depending on the circumstances. It is also not completely uncommon for families to murder female family members for acts of promiscuity.

The majority of the Shia population in east Baghdad, which is by far the largest group, is very traditional and maintains strict adherence to religious practices. The people do not like non-Muslims interfering with mosques or religious customs. Patrols should be aware of the importance of respecting the local mosques, such as not parking in front of them. Nothing will get the population angrier than soldiers interfering with a mosque without consent of the sheik or religious leaders.

Tribal issues are a factor in other matters as well. Soldiers should understand that even though the local people are grateful for our services, they are extremely hesitant to go against other Muslims. No matter what crime or misdeed someone has committed, you are still the outsider. Also, be aware that Iraqi police and guards from various ministries are not likely to use deadly force in the performance of their duties. To do so usually requires a payment to the victim's (offender's) family. While this practice contradicts their duty at times, they rarely employ deadly force in the line of duty.

Another aspect to consider is how females are viewed in this society. Soldiers must understand the local customs concerning women. What we may consider as being polite or a gentleman, such as a wave or a smile, may have dire consequences for the woman, inflicted by her husband or father. In the United States, it is considered rude to whistle at a woman, but here, it is downright forbidden. Soldiers must remember to avoid unnecessary eye contact or unnecessary social contact with Muslim females. While a Muslim woman may smile or wave in return, she will most likely be assaulted later for doing so.

Interaction with families is especially important to remember during cordon, search, and raid operations. To enter a house is very upsetting for families, and soldiers should put forth every effort possible not to humiliate the occupants. Therefore, soldiers must walk a fine line between the effectiveness of the mission and respecting people and their homes.

The words "promise" and "demand" can have different meanings in this culture. These are words, which often come up in meetings or interviews with Iraqi citizens. The local population certainly uses them differently. When a local person hands you a list of demands or verbally indicates such, these demands are really perceived to be requests, and when responding to such "requests," it is considered impolite to say "no." The local people expect you to meet their requests — even if they believe you will not or cannot. It is important to let the requestor know that you will try, even if it is impossible to accommodate the request. A word of caution — unless you specifically inform the person that it is not a promise, they likely assume it is. You must therefore make certain they understand that it is not a promise and you will try to help them.

Without going into socioeconomic issues, soldiers must understand a critical

"The words "promise" and "demand" can have different meanings in this culture. These are words, which often come up in meetings or interviews with Iraqi citizens. The local population certainly uses them differently. When a local person hands you a list of demands or verbally indicates such, these demands are really perceived to be requests, and when responding to such "requests," it is considered impolite to say "no." The local people expect you to meet their requests — even if they believe you will not or cannot."

truth about Iraq — the ruthless nature of the prior regime, combined with rampant poverty and low wages, has created a vast amount of corruption in Iraq. It affects all levels of society. It is a by-product of people trying to survive without enough for an extended period, or trying to pacify a greedy and harsh dictator. Whatever the case, people will try to use whatever influence, such as a badge, identification card, or other means, to get what they want. Whether it is more than their allowed ration at the gas station or an attempt to cut into a long line, people will try anything to cheat the system. It seems to be very prevalent, and individuals and groups absolutely will attempt to gain favor from soldiers and authorities by using bribery or even threats. Soldiers have often been blindsided by a

storeowner offering them tea, or by a person displaying a badge from a certain ministry. Therefore, always be wary of an offer for something for free — if you accept, you will be expected to meet his impending "demands." However, not every offer made is for devious intentions. Soldiers have been offered gifts, food, and tea, on many occasions. Most of the time, it is by a grateful resident or an advisory council member. If the offer is made in good will, it is impolite to refuse, which brings up another important point — to be ill or not to be ill.

If you are a leader serving more than six months in Baghdad, you will eat local food sooner or later. Local people will offer water, tea, and food, and in some situations, you will really have

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"In any given neighborhood, thousands of children run wild in the streets when they hear or see our vehicles. They are happy, but seem to have great difficulty controlling their behavior. They crowd trucks, taunt soldiers, throw rocks, and run in between and in front of convoys. The little people crave attention and will get it one way or another."

no other choice but to accept. Be very cautious — cleanliness, freshness, and disease are all pretty valid concerns. Nearly every soldier has been very sick at least once while deployed in Iraq. The best thing to do is to use good judgment in deciding when to accept or decline an offer. If you have established a working relationship with the person, try to arrange a sit-down meal, and they will usually ask you what you would like to have served. This way, at least you will have some say in what is served, and they will hopefully take more precautions in preparing and serving the meal. Other strategies include taking Cipro after the meal, and eating very slowly and very little. Also, always go on patrols and missions with your own cup or small thermos. This way, you can avoid drinking after countless others when offered water or tea.

Dealing with crowds is one of the most stressful things we as soldiers deal with in Iraq. It is very difficult and causes short tempers — especially with children. In any given neighborhood, thousands of children run wild in the streets when they hear or see our vehicles. They are happy, but seem to have great difficulty controlling their behavior. They crowd trucks, taunt soldiers, throw rocks, and run in between and in front of convoys. The children crave attention and will get it one way or another. Here are some useful tactics in dealing with local children: do not distribute food, candy, water, or anything else to pacify them — it will do the opposite; plead with the elders and parents to encourage the children not to run in front of trucks or throw rocks; pick out an older child and hire him to keep the children away from the trucks — he will usually do this for free, just to feel important; try not to stay in any one place too long, as the swarm of children multiplies quickly; when departing an area, beware of flying rocks (consult your unit's rules of engagement for further information on rockthrowers); keep an eye on your soldiers to ensure they are not about to have an emotional meltdown — the children tend to induce this; do not make idle threats; and remain a calm, controlled professional.

These are only a few recommendations, but should prove to be helpful. One must experience eastern Baghdad before they can fully understand its environment. The majority of the residents here tend to be extremely friendly and the need to maintain their goodwill is paramount — the success or failure of this mission lies with our ability to establish and maintain a good relationship with the Iraqi people and their leaders.

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"Whatever the case, people will try to use whatever influence, such as a badge, identification card, or other means, to get what they want. Whether it is more than their allowed ration at the gas station, or an attempt to cut into a long line, people will try anything to cheat the system. It seems to be very prevalent, and individuals and groups absolutely will attempt to gain favor from soldiers and authorities by using bribery or even threats."

Integrating Local Security Forces During Combat and Stability Operations

by First Lieutenant Morris K. Estep

Using local security forces or indigenous paramilitary personnel during stability operations is one of the cornerstones of U.S. foreign policy in supporting a newly formed local government.[1] Indeed, such indigenous forces are integrated in all aspects of U.S. stability operations to provide credibility and legitimacy for a new government, train a force capable of dealing with internal and foreign threats, and influence the local populace's perception as the new government attempts to solve the problems of its people.[2]

Stability operations in foreign countries provides for local security forces to be integrated and used in the majority of U.S. military operations.[3] Such stability operations require a long-term commitment by the United States in cooperation with local leaders to identify, train, and integrate local forces into securing key fixed sites and conducting security operations on an asymmetric battlefield.[4]

The United States characterizes stability operations as promoting and protecting U.S. national interests by influencing the political and threat aspects of the operational environment.[5] Ground com-

manders are granted broad and flexible discretion, pursuant to rules of engagement (ROE) to execute the missions required in their area of responsibility (AOR).[6] With these broad discretionary options, commanders tailor their actions according to the types of stability operations needed.

During Operation Iraqi Freedom, our unit, the 2d Armored Cavalry Regiment (Light) occupied eastern Baghdad. The initial priority for each of our troops in their assigned AORs focused on an initial reconnaissance that identified fixed sites such as power plants, sewage treatment plants, telephone exchange facilities, and fuel stations. This reconnaissance included our own forward operating base (FOB) as a site for integrating and using local security forces.

Thereafter, each platoon was assigned the task of identifying existing security personnel in determining the number of personnel required for each fixed site. Once this data was compiled, it was time to recruit the local security force. Our platoon was responsible for recruiting a security force to counter the threat posed

by local former regime elements that continued to disrupt public services by means of guerrilla attacks. Recruiting local security personnel led to creating two distinct local security forces: the Facility Protection Security Force (FPSF), which established a local force capable of freeing our platoon from the tedious task of guarding fixed sites, such as the power plant; and the Iraqi Civil Defense Corps (ICDC), a paramilitary force that was trained to act in conjunction with coalition forces during military operations, such as checkpoint operations, in our sector.

By recruiting FPSF and ICDC members from the local population, the Iraqis got the impression that they too were capable of taking control of the situation and could solve their own problems without the coalition directing their lives. Our initial recruitment and training focused on the FPSF guards. FPSF guards primarily secured key public utility facilities within our AOR. In dealing with the local Iraqi populace, we began to develop a picture of their lives, which centered on the issues of available water, electricity, propane, and benzene/diesel. These issues concerned black-marketing of potable wa-

ter to the poorer neighborhoods, as well as inflated propone prices, which was used as cooking fuel.

Although Iraq had been producing large amounts of oil products, the former regime did not have the infrastructure in place to convert raw oil into usable products. The oil from Iraq was usually processed by a neighboring country and then returned by truck convoy to the Ministry of Oil, which then distributed the benzene and diesel to the regime-controlled benzene/diesel stations. With the collapse of the former regime, any unforeseen strikes in other neighboring countries that processed this oil resulted in black-marketers inflating prices to the point of crisis. These issues may seem petty; however, as citizens of a country with vast resources and technology, we take these issues for granted, which are, at times, a matter of life or death to the majority of the Iraqis. Moreover, we found that such issues were central to stabilizing the sectors and winning the hearts and minds of the population as well as bolstering the credibility of the new Iraqi government.

Initial encounters within our AOR revealed that subversive elements might target public utility structures to create chaos within the population. In fact, the lack of electricity resulted in U.S. patrols encountering confrontations at the power plant, where Iraqis would gather and shout protests about lack of electricity, which typically was available for only three to four hours per day. On several occasions, protests by the Iraqis led to physical confrontations with our patrols.

Our civil affairs team prepared flyers that advertised FPSF recruitment and training at the local police academy. Our squadron was responsible for salary requirements, training, and initial supervision of all guards in training. With the ultimate goal of handing over control of fixed sites to the FPSF guards, our platoon was responsible for selecting FPSF supervisors and shift leaders, providing on-the-job training, and ultimately supporting their decisions.

Once we received our force of FPSF guards, usually 30 to 40 trained guards, our platoon developed a 90-day plan to augment our patrols at the power plant. During the first 30 days, FPSF guards were used to guard the perimeter with a scout section monitoring the FPSF for two weeks. Additionally, our scout section rotated on a weekly schedule, and trained the FPSF guards during the rotations on using ROE, weapons handling,

and small-squad tactics. This allowed the FPSF guards to become familiar with the security routine and layout of the power plant as well as gain experience in appropriate behavior under the ROE. In other words, the FPSF guards were mentored by our soldiers as to what was acceptable under the ROE in dealing with the Iraqi public.

Thereafter, FPSF guards were teamed with other FPSF guards around the perimeter, but remained under the observation of our soldiers; this continued for an additional 30 days. Our soldiers, in conjunction with the FPSF supervisor or shift leader, resolved any inappropriate escalation of force. Thus, the public viewed the FPSF guards, the representatives of the new Iraqi government, as taking the lead in solving Iraqi problems and simultaneously becoming self-reliant for resolving conflict with the Iraqi public.

Finally, the power plant security was handed over to the control of the FPSF guards. While on patrol, we continued to conduct random checks of these locations as well as provide equipment and salaries for the guards. When we observed inappropriate conduct under ROE, we addressed the bad conduct to the FPSF supervisor and discussed ROE. In doing so, we ensured that FPSF leaders retained

control of their guards and effectively dealt with the problems encountered by Iraqis. Our patrols continued to pay the salaries of the FPSF guards as well as conducted spot checks to ensure that FPSF guards were providing a relevant deterrent against attacks on these sites. Within three months of recruiting and training the FPSF guards, our platoon handed over complete control of the power plant to the new Iraqi government, which included hiring, training, firing, equipping, and paying all guards under the auspices of the Ministry of the Interior. Although our patrols did observe a handful of Iraqis complaining to the guards about the lack of continuous 24-hour electricity to their homes or businesses, all of these confrontations were resolved amicably with no damage or attacks to the power plant.

Perimeter security for one of our FOBs was another area in which FPSF guards proved invaluable. We used FPSF guards at each entrance gate to search vehicles and people before entering the FOB as the first line of defense against any vehicle-borne improvised explosive device (IED). Moreover, we used the FPSF guards to assist in preserving the cultural sensitivities of the Muslim populace in Iraq. As an example, our platoon was aware of the difficulties involved in searching the Shia populace, especially the females dressed in the traditional black *hujard*. Each time a female was stopped at the entrance gate to the FOB, our platoon was not permitted to physically interact with her, but had to resort to a magnetic search wand to check for any metallic objects on her person. This presented problems, such as the possibility of smuggling explosives under the female's *hujard*. To solve this problem, we used female FPSF guards to conduct these searches.

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Using FPSF guards at the FOB was of great benefit in the event of an immediate threat of a vehicle-borne IED or squad-sized breach team attacking — the attackers would have to first deal with other Iraqis, not U.S. soldiers, which deterred subversive elements, since such subversives would have to be prepared to first kill Iraqis, not solely U.S. soldiers. For example, our platoon would man our FOB security perimeter in conjunction with the FPSF guards. Each tower would be occupied by two of our soldiers, equipped with individual weapons as well as crew-served weapons, either an M240B or M249. A squad of our soldiers, with a platoon of FPSF guards, occupied the outer perimeter, which included the entrance gates. Immediately to the front of each entrance gate, six FPSF guards were posted, followed by four U.S. soldiers, which consisted of at least two noncommissioned officers (NCOs). The FPSF guards used ROE and entrance criteria for the day to determine whether or not Iraqis could enter the FOB. Again, the Iraqi populace saw other Iraqis making efforts to protect our FOB, which reinforced the idea that we were not an occupying force, but were working together with the new Iraqi government as guests in their country.

Another issue relative to our mission in Baghdad centered around the idea of using Iraqis to augment U.S. troops while on patrol and reconnaissance missions. ICDC forces were recruited, trained, and paid by our squadron for the purpose of an interim paramilitary force to stand up the new Iraqi army. The ICDC were trained at a formal boot camp for six days where they received training on drill and ceremonies, marksmanship, basic soldier skills, squad-level infantry tactics, and ROE.

Once the ICDC platoon graduated from formal boot camp, a squad was assigned to each troop. Our platoon took charge of our ICDC squad and continued five more weeks of training with one of our NCOs.

This training included weapons qualifications with the AK47, dismounted cordon and search operations, dismounted squad tactics, physical fitness and endurance runs, and ROE. This additional training was needed to refine the ICDC squad into a cohesive unit, capable of following orders from their squad leader and their NCO chain of command before the squad began operations outside the FOB. Once the ICDC squad had completed the additional training with our platoon, we used the ICDC in all aspects of our operations. For instance, our FOB's dead space was cleared by the ICDC as a routine to our perimeter defense.

Of more importance to the credibility and legitimacy of the new Iraqi government, the ICDC soldiers, as representatives of the Iraqis, were in the population deterring any potential pockets of resistance and working in cooperation with U.S. soldiers. We used the ICDC in all operations within our sectors. This was

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For example, an informant provided our S2 with information relative to a home that the informant had burglarized. The informant stated that he had seen pictures of the homeowner, dressed in the old regime's army uniform, and wearing the Fedayeen Saddam patch and insignia. The informant further stated that he had seen approximately 24 grenades, numerous AK47s, and a light blue Peugeot car stored in a secret room within the home. We had information that the former regime had given high-ranking Fedayeen officers and loyalists gifts, which included blue Peugeots. In the final analysis of the information, which included taking the informant in disguise on a reconnaissance of the home, the informant's accounts seemed valid and a raid of the home was authorized.

A portion of an ICDC platoon was used for the inner cordon of the neighborhood block, with the remainder of an ICDC squad to lead the initial assault in conjunction with our platoon. The ICDC platoon leader and platoon sergeant, along with our platoon leaders, were briefed on the troop operations order. Our platoon incorporated the ICDC platoon in all re-

hearsals, including our review of the ROE and medical evacuation procedures.

On arriving at the objective, ICDC leaders placed their troops in the inner cordon as planned. Simultaneously, the ICDC search team assembled behind our clearing team. On entering the home, the ICDC squad was invaluable in communicating the situation to the home occupants as well as in detaining and searching the occupants. The weapons found, as well as materials used in the construction of IEDs, were collected by the ICDC squad, identified, and tagged as evidence. Three Iraqis were detained as suspected subversive elements and IED producers and were transported to our FOB by the ICDC. Overall, the ICDC proved to be an essential asset in interacting with the Iraqis as well as increasing the number of patrols outside of our FOB for the purpose of ensuring a stable and secure environment within our AOR.

The FPSF guards and ICDC platoons proved to be invaluable additions to our defenses relative to the Iraqi fixed-site infrastructure, FOBs, and military operations within sector. Using local security forces contributed greatly to successfully stabilizing the emerging Iraqi government by preventing potential confronta-

tions between coalition forces and the Iraqi populace relative to water, electrical power, and oil products. Moreover, local security forces, under the auspices of coalition forces, interacted with the local population at all levels during coalition patrols in eastern Baghdad, which increased information gathered during reconnaissance missions.

Notes

[1] U.S. Army Field Manual, *Operations*, U.S. Government Printing Office, Washington, D.C., chapter 9, section 9-1, 14 June 2001.

[2] Ibid., sections 9-1 to 9-14.

[3] Ibid., section 9-15.

[4] Ibid., sections 9-14 to 9-15.

[5] Ibid., sections 9-4 to 9-5.

[6] Ibid.

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The Information Revolution in Military Affairs

by Major Jason T. Craft

Military affairs have undergone radical and incredibly overwhelming changes in doctrine, philosophies, and interpretations of what it takes to master the art of war. These changes are not only radical in nature but have increased in frequency and speed of implementation. Some of these changes have been merely shifts in how we think of military operations but some have been true revolutions in military affairs (RMA) and, as such, have fundamentally changed how warfare affects the world.

History has proven that the sad truth of the fluid and more rapidly changing philosophies and tools of war is that they are usually only noticed after the fact, typically catching military (and political) leaders martially flat-footed. The true nature of RMA becomes readily apparent to militaries, which fall victim to the evolutionary principles of survival of the fittest and serve to demonstrate how those unaware of changing times are destined to be represented in textbooks as historical failures. Furthermore, for inexplicable reasons, both military and political leaders seemingly ignore the winds of change until they are consumed by the firestorm that usually accompanies revolutions of any nature. This "head-in-the-sand" philosophy only further serves to make RMA more sudden and far-reaching in impact.

We serve in our military today at a watershed event in the history of modern warfare. Technology is fundamentally altering the doctrines we study and practice and, for the first time, the changes are not occurring for technology's sake but rather as a consequence of science fiction-like capabilities only dreamed of just 10 years ago. That, in and of itself, could be argued as an RMA; that the 21st century in contrast to the 20th century serves as an example where technology is driven by change instead of the other way around. This article highlights only one small aspect of the science fiction-like capabilities facing senior leaders of today — the information revolution.

Revolutions in military affairs are defined as, "Major discontinuities in military affairs. They are brought about by changes in military relevant technologies, concepts of the operation, methods of organization, and/or resources available, and are often associated with broader political, social, economic, and scientific revolutions."[1] RMAs can also be defined to include the characteristics of strategic/operational offensive operations, changes in international affairs, the abruptness of change (from practically instantaneous to more than a 2- to 3-decade period, which is quite rapid given military history), and typically render obsolete subordinate existing means for conducting war.

The information revolution occurring in the world today has greatly impacted the U.S. Department of Defense (DoD) in truly breathtaking and eye-opening ways, and in truth, takes its impetus from another RMA — the telegraph. The telegraph revolutionized strategic command and control of military forces by facilitating speed of mobilization, large-scale movement of armies, and, most importantly, provided strategic leaders and statesmen a greater understanding of the military situation. Almost immediately, the floodgates were opened, and the demands of strategic leadership to be routinely apprised of military successes and failures have steadily increased as each new information capability is discovered. Largely though, the strategic impact of the capabilities of the telegraph (even with the advent of the telephone) changed little until the computer revolution, but despite the fact the world's first computers were built for military applications (ENIAC was built to compute field artillery ballistic firing tables), strategic information operations had changed little since the telegraph. Only when the personal computer

evolved from the computer revolution did the emerging demands of information dominance have a tool that could maximize information acquisition and denial, information strikes, information-based protection, and information-based movement.

At this point, it is critical to understand that with regards to the information revolution the underlying change is not a result of the computer revolution or the advent of the internet or any other esoteric technological advances, but rather a change in Army thinking that "emphasizes the importance of information, and especially of information dominance over an opponent."[2]

Therein lies the revolution, information and gathering it fundamentally changes how wars are fought. No longer is it simply enough to have more tanks with thicker armor than the enemy or more planes that carry more bombs than the enemy, but now military forces must have information dominance, complete battlefield awareness, and the ability to see and know the enemy's intentions well in advance of his ability to see us and learn ours.

But how do we know the worldwide information revolution is also a true RMA? First and foremost, information operations represent a major discontinuity in military affairs. General John M. Keane, Vice Chief of Staff, U.S. Army said, "We believe we can move away from the paradigm upon which the M1 tank is built. Which is, survive first-round hit and continue to overmatch an adversary. To, avoid being hit... because we're going to fight at a time and place of our choosing, our situational awareness is going to be considerably better."[3]

This paradigm shift from surviving direct fire and overmatching your opponent to avoiding being hit altogether through situational awareness is fundamentally and radically different to prior military theory. Much in the same vein as the introduction of the machine gun during the Crimean War (1854-56), the Civil War (1861-65), and its first true widespread use in World War I served to destabilize military theory in favor of the defense over the offense, the information RMA serves to destabilize our 20th-century reliance on mass formations to achieve tactical and strategic victory by instead forcing us to rely on situational awareness to achieve mass in fires and effects.

The second criterion of identifying RMA is: they are brought about by changes in military-relevant technologies, which is the most recognizable aspect of the in-

formation revolution as RMA. Information-gathering systems have proliferated worldwide and have unheard-of accessibility. As changes in Army doctrine call for the ability of soldiers and weapons systems to avoid detection or direct fire, technologies, such as the internet, email, video-teleconferences, total asset and in-transit visibility, and other such commercially developed business solutions, become immediately applicable to military applications. Satellites that ordinarily track cargo on trucks, ships, or other cargo transports can now capture every aspect of the battlefield and distribute that information to anyone requiring it virtually instantaneously. This total asset battlefield visibility, if you will, can be distributed on secure internets, via email, or many other data distribution methods. Once again, technological innovation highlights the trend away from mass formations massing fires to dispersed formations massing fires and effects.

Introducing the submarine in World War II as an RMA is similar to the information RMA. With the submarine, the long-standing naval strategy of close blockades of enemy ports had to be abandoned. Even more important, the "hierarchy of power" in naval warfare, which had been established with the advent of the capital ship more than three centuries earlier, had been severely undermined.[4] In as much as the submarine practically negated the naval juggernaut based on capitol and

dreadnought-type battleships, information technology is bringing the heavy, ponderous, steel juggernaut of armored formations to a grinding halt.

The technologies that have been introduced into combat zones, as leaders demand more and more situational awareness and control of assets, have forced an evolutionary change in how battles are fought. Quantity is not enough; complete control of the battlefield requires complete control of the information on the battlefield. Though how we control, distribute, and mass the effects of combat systems has evolved since the telegraph, the revolution in information operations is a reflection of the speed by which information systems are introduced to the military, the speed by which these systems capabilities are capitalized on, and how they continue to influence the changing doctrine on how to fight wars.

Lastly, we can perceive we are in the middle of an RMA by comparing the broader political, social, and economic impacts of information technologies in today's society with similar impacts within the military. Ten years ago, company commanders did not need email to command or control their organizations, nor did their battalion commanders need email to command and control their company commanders; however, email is a standard information-gathering system used by most military leaders. Battle-

"…information and gathering it fundamentally changes how wars are fought. No longer is it simply enough to have more tanks with thicker armor than the enemy or more planes that carry more bombs than the enemy, but now military forces must have information dominance, complete battlefield awareness, and the ability to see and know the enemy's intentions well in advance of his ability to see us and learn ours."

"Information-gathering systems have proliferated worldwide and have unheard-of accessibility. As changes in Army doctrine call for the ability of soldiers and weapons systems to avoid detection or direct fire, technologies, such as the internet, email, video-teleconferences, total asset and in-transit visibility, and other such commercially developed business solutions, become immediately applicable to military applications."

hardened generals and even the most cynical senior noncommissioned officers practically expire if the email server is down for more than a few hours. The fact that government supplies, repair parts, and almost anything else military organizations might need, can be found, priced, and purchased via the internet, is truly astounding. The days of a battalion support operations officer spending hours on the telephone trying to scrounge much needed wheeled-vehicle parts are fast disappearing now that any conceivable part can be found online and delivered next day by express mail services. Truly, every aspect of how we did business within DoD has changed as a result of information technologies, or is approaching change.

Not one of us can escape the presence and impact of information systems in the hallowed halls of military establishments, so why be concerned with one more RMA or transformation of military affairs? Our predecessors survived similar events and clearly we will as well. Just as RMA of the nuclear revolution fundamentally changed the world and how we interact with allies and adversaries, so will the information RMA.

Our changing doctrine reflects our dependence on recently emerging capabilities, and, as such, presents hidden vulnerabilities of which our adversaries can take advantage. For every advantage of information gathering as a combat tool, information weapons exist that could effectively destroy our military. Computer viruses that attack our dependence on off-the-shelf products, computer hackers that

target our resources through the computerized systems that control their distribution, and information terrorism are but a few examples of how our adversaries will take advantage of our dependence on these systems. Civil and military leaders must be fully cognizant of how dependent we are on information systems and what can be done to mitigate the impact of a systems failure. Failure to grasp, move with, and take advantage of this revolution, without fully exploring or understanding where these trends lead, may

assure America's place in the history books as the latest victim of the changing face of warfare.

Notes

[1]Center for Strategic and Budgetary Assessments, 2000, *http://www.csbaonline.org/2Strategic_Studies/1Revolution_in_Military_Affairs/Revolution_Military_Affairs.htm,* accessed 3/10/03.

[2]Paul Bracken and Raoul Henri Alcala, *Whither the RMA: Two Perspectives on Tomorrow's Army*, U.S. Army War College, Carlisle Barracks, PA, 1994, p. 4

[3]33d IFPA-Fletcher Conference, 2002, online at *http://www.ifpafletcherconference.com/marines2002/keane.htm,* accessed 3/10/03.

[4]Center for Strategic and Budgetary Assessments.

MAJ Jason T. Craft is serving as an assistant program manager for personnel airdrop systems, PEO Soldier, Fort Belvoir, VA. He received a B.A. from Longwood University and an M.S. from Florida Institute of Technology. His military education includes the Infantry Officer Basic Course, Quartermaster Advanced School, Rigger School, Jumpmaster School, and U.S. Army Command and General Staff College. He has served in various command and staff positions, to include program manager, Defense Message Service, Headquarters, U.S. Army Europe, Germany; commander, 612th Parachute Rigger Company, Fort Bragg, NC; S3 Air, 530th Battalion, Fort Bragg; and platoon leader, 1st Battalion, 6th Infantry Regiment, 3d Infantry Division, Vilseck, Germany.

"Computer viruses that attack our dependence on off-the-shelf products, computer hackers that target our resources through the computerized systems that control their distribution, and information terrorism are but a few examples of how our adversaries will take advantage of our dependence on these systems. Civil and military leaders must be fully cognizant of how dependent we are on information systems and what can be done to mitigate the impact of a systems failure."

REVIEWS

Victory in Vietnam: The Official History of the People's Army of Vietnam, 1954–1975 by The Military History Institute of Vietnam, translated by Merle L. Pribbenow, University Press of Kansas, 2002, 512 pp., $49.95

The historiography of the Vietnam War has a new and significant addition. *Victory in Vietnam* is the story of the war from the communist perspective. The Military History Institute of Vietnam, Vietnam's equivalent to Center of Military History, has produced a two-volume history of Vietnam's wars against the French and Americans. This, the second volume, begins in 1954 when the defeated French left Vietnam divided into the noncommunist south and communist north.

Merle L. Pribbenow, a 27-year Central Intelligence Agency officer with Vietnam experience, painstakingly translated this history. He stumbled onto the project almost by accident. He was given a copy of the book in Vietnamese and began translating parts of it for articles at the request of friends. Eventually, he realized that he had translated the entire document and this project was born. William J. Duiker, author of *Ho Chi Minh: A Life*, penned an insightful foreword. The University Press of Kansas has published this book as an addition to its *Modern War Studies* series, a leading collection of military history.

The importance of this book is that it provides the viewpoint of our enemy during our longest and probably most controversial war. Students of warfare will recognize the doctrinal primer on how to defeat a stronger power. Readers will learn that the insurgent movement in South Vietnam was not an internal civil war. Far from being a naturally occurring opposition movement, as many have claimed, the Viet Cong was created and controlled by the communists of the North. This book fully documents that North Vietnamese doctrine included the insurgency as an integral element of their planning. Included are the plans behind such major operations as the Tet Offensive and the Easter Offensive. Additionally, there are admissions that North Vietnam had no intention of adhering to the Paris Peace Accords, detailing how the final offensive was a northern operation.

Victory in Vietnam is not for the casual reader; only serious students need to attempt reading it. It is not military history in the standard sense, as it lacks any semblance of objectivity. It is a study conducted by a communist regime for internal consumption. As such, it is stocked with all the bias that comes with a work of this nature. The entire book is a tedious lecture on the virtue of communism with claims of moral superiority to the puppet governments of an imperialistic United States. The results notwithstanding, such preaching is laughable and irritating. Gullible readers may still believe in the purity of the communist motives, but most will be more discriminating.

Rather than a significant source of military history, this book's value is in its roots from within the closed system that is any communist regime. The very fact that the communists have published their account, flawed as it may be, is significant. It gives students a source of explanations for longstanding questions. The veracity of the answers can only be determined through a critical examination of many sources of information along with a strict standard equally applied to all.

JAMES H. CLIFFORD
CSM, U.S. Army

Matthew B. Ridgway: Soldier, Statesman, Scholar, Citizen by George C. Mitchell, Stackpole Books, Mechanicsburg, PA, 2002, 240 pp., $15.95

Ridgway is another biography that will entertain and enlighten those who read this tale of a man who spent over 40 years serving his country. A masterful leader, often remembered for his inspiring turnaround of the Army during the Korean War, Ridgway also served as a supreme allied commander in two areas of the world and chief of staff during the late 1940s and early 1950s.

Rather than follow the traditional biographical format, Mitchell instead divides his book into four parts that he describes as, "depicting a complex part that came together to make up this extraordinary man whose story should be told." Using Ridgway's personal papers, along with a multitude of other primary and secondary sources, Mitchell succeeds in his quest to tell the story of a man whose determination and resolution made him one of America's greatest heroes.

The son of a career Army officer, Ridgway grew up not wanting to be a soldier. But he decided to go to West Point to please his father. Joining the class of 1912, Ridgway embarked on a career that would take him around the world, from South America to Europe, and to Southeast Asia. Ridgway was an outstanding soldier who showed incredible leadership on the battlefield during two major wars. While other books have touched on this aspect of Ridgway, most notably Clay Blair's *The Forgotten War: America in Korea 1950-1953* and *Ridgway's Paratroopers*, Mitchell's experience as a diplomat and international consultant enables him to write about Ridgway's ability to shape and create coalitions in the post-World War II world.

The most interesting part of the book is Mitchell's engrossing account of Ridgway following Douglas MacArthur and Dwight Eisenhower in two consecutive assignments. Taking over as supreme commander, Far East, from MacArthur showed the true mettle of Ridgway. Not concerned with being as flashy as his predecessor, Ridgway immersed himself in learning about the Japanese culture and working with them in rebuilding the island nation. He was very successful and was chosen to replace Eisenhower in Europe following Eisenhower's run for president. Ridgway's fight in the early fifties to keep the Army a viable entity amid budget and personnel cuts is another great passage in the book.

Meticulously researched and footnoted, *Ridgway* is an outstanding book that is concise and can be read in one or two sittings. Mitchell's book should be mandatory reading for any officer, and I highly recommend this book to any soldier, particularly now since the nation finds itself once again trying to work within the coalition framework that Ridgway helped to establish over 50 years ago.

T.J. JOHNSON
CPT, U.S. Army

Modern U.S. Tanks and AFVs by Michael Green and Greg Stewart, MBI Publishing Company, St. Paul, MN, 2003, 95 pp., $14.95

Part of the "Enthusiast Color Series," *Modern U.S. Tanks and AFVs* is a copiously illustrated primer on various armored vehicles, both wheeled and tracked, in use by the Army and Marine Corps. At 95 pages with more than 80 color photographs, it is written for the high school library market and so, while it may not be an authoritative resource for the armor professional, it is an excellent basic primer on armored vehicles for the military modeling buff, military machinery enthusiasts, and family members.

The book is divided into four simple chapters: "Tanks," "Armored Infantry Vehicles," "Wheeled Armored Firepower," and "Indirect Armored Firepower Support." The tank chapter includes succinct descriptions, accompanied by color photos, of the M1, IPM1, M1A1, M1A1HA, M1A1D, M1A2, and M1A2SEP. The chapter on armored infantry vehicles covers the M113, the M113A3, the Bradley from prototype to A3 stage (including the Linebacker air defense artillery variant), the Stryker, and concludes with the U.S. Marine Corps (USMC) landing vehicles from LVTP7 to AAVP7A1. The chapter on wheeled armored firepower takes the reader through the high mobility, multipurpose wheeled vehicle (HMMWV) family (including some less well-known variants, such as the evolution of the armored M1114 and the USAF armored version M1116), and on to the M1117 armored security vehicle, the family of USMC light armored vehicles (LAV), and the Stryker combat variants, including the mobile gun system and the antitank guided missile version. The final chapter, "Armored Indirect Fire Support," covers the M109A6 Paladin, the M270 multiple-launch rocket system (including the Army tactical missile system variant) and concludes with mortar carriers from the M1064A3 to the USMC LAV-M and the new Stryker mortar carrier.

The book is simple, enjoyable, and well laid out. The information is sufficiently detailed to satisfy both an educated amateur, and serve to fill in the gaps in the knowledge of military personnel as well. Buy it for your kids, your parents, or just to browse through the excellent photography.

MICHAEL EVANS
CPT, U.S. Army

With the German Guns: Four Years on the Western Front by Herbert Sulzbach, Pen and Sword Military Classics, United Kingdom, 2003, 256 pp., $11.99

The 28 June 1914 assassination of Austro-Hungarian Archduke Francis Ferdinand by Serbian Nationalists in Sarajevo, Bosnia-Herzegovina, set off a series of cataclysmic events, whose aftershocks continue to rumble across the ages. Ferdinand's death ignited a firestorm in Europe and placed in motion war plans that were more lethal and efficient than previous European campaigns and conflicts. Combined with the emerging technologies and developments of the day, the mobilizing European armies were now able to wage war on an unprecedented scale along broad fronts, on land, at sea, and in the air. With these new developments, the German military could truly be characterized as morphing into a seemingly unstoppable war machine, but this machine was eventually ground to a halt and reversed based on a number of internal and external causes that have historically dogged the Germans. These factors eventually resulted in the abdication of Kaiser Wilhelm, to be followed by the installment of an unstable civilian government, leaving the German Imperial Army in the lurch and in retreat. *With The German Guns: Four Years on the Western Front* is a vivid, well-written, first-hand account from one soldier's perspective of these events.

The author, Herbert Sulzbach, was the son of a wealthy Jewish family from Frankfurt-am-Main who diligently committed his thoughts and experiences to paper during his four years of military service as a volunteer artilleryman with the German army during World War I. Considering that Sulzbach wrote these diaries for his family back home to read, the book follows a conversational tone that assists the reader in visualizing the events of which the author writes.

On 2 September 1914, Herbert Sulzbach was a 20-year-old war volunteer with four weeks of training, who entrained with the 63d Artillery Regiment from Frankfurt to join a victorious German field army that, at the time, was only about 40 kilometers from Paris. He returned four years later, a seasoned war veteran with service on both the Western and, to a lesser extent, Eastern Fronts, having been promoted to second lieutenant and awarded the Iron Cross, second and first class, along with the Frontline Cross of Merit.

During the course of his service, Sulzbach not only discusses his activities in the German army, but also commits many entries concerning his interests in the technical innovations of the day. One such interesting example is his understanding of the importance of sea power to the success of the German war effort. His entries concerning the employment of merchant u-boats to obtain critical war material are particularly fascinating, as this is a relatively obscure aspect of the war. This sort of innovation is one example of the many types of developments that Sulzbach records; others include emerging developments in anti-tank warfare, artillery and artillery firing tables, chemical warfare, communications, and the employment of zeppelins and other aircraft, which when combined with accounts of his daily life and activities, make for extremely interesting reading. In the end though, he finds himself recording the activities of a retreating army, which in spite of political turmoil at home and some internal dissension within the ranks, demobilized almost as efficiently as it had mobilized. His entries continue right up until his arrival home following his discharge on 4 December 1918.

Ironically, Sulzbach's book was first published in Germany in 1935 under the title of *Two Living Walls* and was highly acclaimed, without any allusion to Sulzbach's Jewish ancestry. Sulzbach eventually left Germany due to a published letter, which he had previously written, that criticized the Nazi Party. Fleeing to Britain, Sulzbach pursued business interests until the outbreak of World War II. With the outbreak of war, he eventually enlisted in the British army and was later commissioned, attaining the rank of captain. He contributed to the war effort by using his knowledge of the German mindset and culture to assist in the de-nazification of captured German military personnel held in British prisoner of war camps.

Rarely is there available a first-hand account on the level that is provided by Sulzbach's diaries. I highly recommend this book to those *ARMOR* readers who are interested in studying World War I, as it is a compelling first-hand account that provides the reader with a window in time to the life and events surrounding a German soldier at this point in history.

DONNIE R. YATES
MAJ, U.S. Army

Draftee Division: The 88th Infantry Division in World War II by John Sloan Brown, Presidio Press, Novato, CA, 1998, 224 pp., $15.95

In these interesting times, the issue of how we mobilize, train, and deploy a large group of men so quickly is being addressed. U.S. Army Field Manual (FM) 100-17, *Mobilization, Deployment, Redeployment, and Demobilization*, the "train the force" series of FMs, and a slew of combined arms training strategies cover technical aspects of mobilization and training, but without really addressing how we fill existing units or form new ones. This book illustrates one solution to that problem. The author, currently the director of the Army's Center for Military History, describes the activation, training, and deployment of the 88th Blue Devil Division from its inconspicuous origins at Camp Gruber, Oklahoma, to its bloody drive up the Italian "boot," and carries through to the war's conclusion in the Alps. Throughout its fighting, the division acquitted itself admirably, earning the respect of friend and foe alike. Men who were typically average Americans, draftees, called to defend the nation in time of war, manned the division. How did a division that, by most indicators, average in every way, produce above average results?

The author begins with a discussion of mobilization experiences in the nation's prior wars and resulting mobilization theories. During the war, the Army filled existing regular Army and National Guard divisions with draftees (the Uptonian model), and as the nation moved toward full mobilization, created new divisions around cadres of relatively more experienced officers and noncommissioned officers (the "egalitarian" model). Although the discussion seems rather esoteric, it provides a theoretical basis for the two-track manning approach taken by the Army during World War II. This approach remains essentially the same today, and can be observed in the distinctions between the regular Army, tiered readiness in the National Guard, and cadre/institutional training divisions in the Army Reserve.

According to the author, there were six factors key to the success of the division in combat: personnel stability (only by chance were the quality cadre and fresh draftees that comprised the 88th spared personnel turbulence by having to provide replacements to other division to make up for their combat losses overseas); logistics (the division had most of what it needed both for its train-up at home as well as fighting in Italy); the Army training program (centrally planned and locally executed, this intuitive training plan resulted in implementing Armywide standards of performance prior to deployment); overseas training (shortly after arriving in the Mediterranean area and claiming its equipment, the division enjoyed a two-week exercise, which helped it brush up on skills that stagnated during its transit to Europe); the division's first combat assignment was to a relatively quiet sector (where the division tested and revised its standard operating procedures to deal with a real enemy); and periodic rest and retraining (the division rotated its battalions and regiments off the line as often as feasible, during which time the unit absorbed replacements and retrained its soldiers and officers on both the basics of warfare, as well as in lessons learned in combat).

Most informative is the final chapter, where the author contrasts techniques and happenstances that made the 88th successful to less effective techniques employed in Korea and Vietnam.

I highly recommend this book to anyone who plans collective training at any level. I hope the smart people at places like Fort Monroe and Fort Leavenworth heed the wisdom in *Draftee Division*.

ANDREW D. GOLDIN
CPT, U.S. Army

ARMOR's Writing Guide

Since 1888, *ARMOR* has provided a forum for the open exchange of ideas on mounted warfighting. The publication focuses on concepts, doctrine, and warfighting at the tactical and operational levels of war and supports the education, training, doctrine development, and integration missions of the Armor and Cavalry Forces, and the U.S. Army Armor School at Fort Knox, Kentucky.

ARMOR is printed bimonthly by the Chief of Armor and is devoted to the mounted soldier and the history of mounted warfare. *ARMOR* is distributed to thousands of readers and is widely quoted and reprinted in other publications throughout the world. It is a readily available reference at most military and civilian university libraries and research agencies.

Subjects

ARMOR's goal is to stimulate thought and professional growth and development in areas important to the Armor and Cavalry forces. *ARMOR* covers a variety of subjects related to mounted warfighting, to include the tactical, operational, and strategic levels of war; organization and doctrine; logistics; weapons and equipment; foreign military forces; leadership and management; and military history.

Historical articles should draw parallels or illustrate lessons that will be useful today and tomorrow. Articles intended to coincide with an event or anniversary should be submitted at least six months before the publication issue. *ARMOR* makes no acceptance decisions until the completed manuscript has been reviewed. The journal seeks articles that will make our readers think, generate discussion, and foster the exchange of ideas.

Style

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Authors are responsible for their manuscript's accuracy and source documentation. Enclose all quoted materials in quotation marks and use endnote citations in the following format:

1. Robert A. Doughty, et al., *Warfare in the Western World: Volume* II, D.C. Heath and Company, Lexington, MA, 1996, p. 913.

2. Ibid., pp. 969-70.

3. CPT Michael R. Evans, "Thinking Outside the Maneuver Box," *ARMOR*, September-October 2002, p. 17.

Enclose a brief, personal biography, including your significant positions or assignments and civilian and military education to establish your knowledge and credibility as a subject-matter expert.

If you have original photographs, artwork, or graphics that will enhance the quality and content of your article, please send them with your manuscript. If you do not have artwork but know where it can be obtained, please advise us.

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Summing Up

If you are interested in a particular subject, chances are other mounted warriors are as well. Pick a subject, research it thoroughly and think your ideas through. Write naturally and with enthusiasm; do not adopt a writing style foreign to your own way of thinking and speaking. To improve your writing, read good literature. Be your own best critic. Revise and rewrite, but retain wit, animation, and personal touches. Good writing is hard work, but it gets noticed, and the feeling of accomplishment is as great as in any field.

*"For none but shades of (armored) cavalrymen
dismount at Fiddler's Green"*

Major General George Smith Patton
1923 – 2004

A 1946 West Point graduate, Patton came from a long line of Georges, including his great-grandfather, a Confederate soldier; his grandfather, a lawyer; and his father, who led U.S. troops in Africa and Europe during World War II.

He was a company commander during the Korean War and was a colonel during three tours of Vietnam, where he commanded the 11th Armored Cavalry Regiment, called the ``Blackhorse'' regiment. Patton received great recog-

nition for the zeal his forces demonstrated in battle. Patton also commanded the Second Armored Division, taking command at Fort Hood in 1975.

He retired from the Army as a two-star general in 1980, having twice received the Distinguished Service Cross, the Distinguished Service Medal and the Purple Heart.

He was a great tanker and cavalryman — a legacy.

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