ARMOR

January-February 2005

The Future Force: Agile and Versatile

ARMOR

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Once More Unto the Breach

When Operation Iraqi Freedom began in March 2003, tanks, cavalry, and reconnaissance forces were at the forefront. Nearly two years later, facing a new enemy and new challenges, armored and cavalry forces are still in Iraq demonstrating their power and ability. Armored and cavalry forces conduct missions, which include everything from combat operations to stability, security, and support operations. Historically, our armored forces have always been more than up to the challenges of warfighting and peacekeeping.

Ongoing efforts to leverage technology to maintain our tactical and strategic advantage is crucial, especially in light of how combat forces will continue to be used in this ongoing Global War on Terror. However, the war in Iraq demonstrates that the M1 Abrams tank and the Bradley Fighting Vehicle will continue to be foundations of our fighting force.

Over the past two years, the Abrams tank has proven itself to be essential in securing victory in an urban environment, most recently in Najaf and Fallujah. The importance of the Abrams tank in victory cannot be overstated. While there has been much discussion of dismounted tankers and infantry closing with and destroying the enemy, it was the mounted tankers, equipped with the best tank in the world, that provided the firepower, mobility, and shock against a well-armed and capable enemy.

In his article, "Transformation: A Commander's Perspective," Lieutenant Colonel (P) Jeffrey Sanderson lays out the challenges faced daily by those in the warfighting business of our Army, and proposes some possible solutions to these challenges. We have gone from an Army preparing for possible war to an Army at war, which necessitates the Army to change how we train leaders and staffs to be more effective.

The Army is moving rapidly to transition to a more deployable and tailored modular force centered on the brigade combat team. In his article "Joint Fires and Effects in the Heavy Brigade Combat Team," Major General David P. Valcourt, chief of field artillery, examines how field artillery will be a combat multiplier within the brigade combat team.

The war in Iraq, and specifically the close urban fighting in which our forces engage daily, have renewed the emphasis on mastering small arms weapons, marksmanship, and using advanced day and night optics. Captain Francis J.H. Park's article, "Advanced Infantry Optics and Their Future in Armor," addresses how armor and cavalry units can become proficient with these weapons and optics just as they would with the organic weapons and optics on their tanks and Bradleys.

In "Operation Iraqi Freedom Reflections: What Did or Did Not Happen," Nader Elhefnawy explores the "what ifs" of Saddam Hussein's actions or failures to act. Elhefnawy's analysis presents some interesting thoughts on how our adversaries might attempt to fight against us in future conflicts.

There is no question that the most vulnerable mission in Iraq is executing ground convoys. Essential to resupplying our troops, convoys have taken the brunt of terrorists' methods of initiating attacks with improved explosive devices. In their article, "The Headquarters Convoy Model," Captain Matthew Reiter, First Sergeant Joe B. Parson Jr., and First Lieutenant Tobias S. Apticar discuss the basics of preparing soldiers for ground assault convoys and instilling confidence in soldiers performing this all-important mission.

In his article, "Technology and Transformation: Implications on the Company Commander," Captain Rob Thornton addresses the challenges company commanders, especially captains commanding Stryker units, are confronted with, given the requirement for them to do more with less. Preparing captains for command is not an easy task, but we can reduce obstacles and technological burdens.

Preparing newly recruited soldiers for immediate combat after graduation was not the main mission of basic training and advanced individual training a few years ago. However, that is exactly what our soldiers are preparing for at the 1st Armored Training Brigade. In their article, "The 1st Armored Training Brigade Overhauls Initial Entry Training," Lieutenant Colonels Jerry Cashion and Jim Larsen explain how they have changed basic training from focusing on drill and ceremony to instilling combat skills that not only benefit units that soldiers will be assigned to following graduation, but also the drill sergeants who train them.

Rounding out this issue is "Tactical Logistics: Adapting for the Future," by Captain Christopher L'Heureux. He points out that our task force combat support units must adopt new doctrine, training, and equipment to succeed in the contemporary operating environment and offers suggestions on how to make this happen.

A new year brings new challenges and opportunities. Our Nation is grateful to the brave and courageous warriors who are defending this great country from those who seek to bring us harm. Please continue to write and support the armor force.

– DRM

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LETTERS

Great Perspectives on Transforming The U.S. Army and Its Leaders

Dear *ARMOR*,

As a community, we are indebted to Colonel B.G. Clarke for his letter "Restructuring Army Brigades — A Critical Discussion," and Captain Samuel Cook for his article, "The German Breakthrough at Sedan," in the September-October 2004 edition of *ARMOR*.

Colonel Clarke's letter clearly expresses the opinions of many junior officers and noncommissioned officers (NCOs) currently living the transformation of heavy brigades to modular units of action (UA). The decision to add a cavalry squadron to each UA is certainly to be applauded since such an organization provides the UA a robust means by which to conduct reconnaissance and security operations under all conditions. However, this organization is *not a substitute* for a maneuver unit, as the squadron's main mission is reconnaissance and security, not closing with and destroying the enemy. Thus, a third combined-arms battalion is necessary, as Colonel Clarke indicates, to provide requisite flexibility and combat power to dominate the increased battlespace that the new UA is required to control/influence (the whole point of transformation). Additionally, reorganizing the strike battalion, as proposed by Colonel Clarke, will provide UAs with the ability to effectively use indirect fires in force-on-force engagements, as well as additional 'boots on the ground' in nonlinear operations, where the role of indirect fire is more constrained.

Of even greater importance, for these UA and the future force at large, is training its future leaders. Captain Cook's analysis of the leadership techniques employed by tactical- and operational-level leaders in his article, "The German Breakthrough at Sedan," gives us a good basis for dialogue. His basic conclusion that junior leaders must be encouraged to think and act for themselves is dead on the mark.

As a growing number of combat-tested junior leaders will attest, close combat is chaos in which junior officers and NCOs are forced to make quick decisions with minimal guidance. Although the Army for years has given prominent lip service to fostering mission tactics, the truth is units are still training and operating using rigid directive-orders procedures fostered by years of cold war garrison duty. Empowering and training junior leaders to execute with minimal guidance and rewarding initiative are exceptions found in specific units, not the rule.

As the battlespace assigned to UAs and combined-arms battalions expands, junior leaders will increasingly be forced to make independent decisions based on the situation on the ground; then act and report their actions to higher headquarters, rather than wait for guidance. Leaders must have the independence, and more importantly, the training to exercise their orders as they see fit — and without permission — as long as it achieves the commander's intent; even if it contradicts orders issued hours ago by a higher authority located miles away. Limited guidance consisting simply of a clear, concise commander's intent, focusing on a finite endstate, is the only method that can produce success in the fluid environments in which we currently find ourselves engaged. The 'intellectual environment' fostered in the German army officer corps, in Captain Cook's article, must be replicated among the officers and NCOs of the future force.

As the Army's preeminent professional journal, *ARMOR* has always provided a forum for intellectual discussion; the challenge now is to expand this culture to include soldiers who translate ideas into action by training leaders *how* to think instead of *what* to think.

MARK K. SNAKENBERG
CPT, U.S. Army

Clarke Responds to Kojro

Dear *ARMOR*,

This is in response to Lieutenant Colonel Kojro's letter in the November-December *ARMOR* regarding my article, "The Stryker Company and the Multifunctional Cavalry Platoon." My article was in the form of a question and a statement: "The obvious question is why shouldn't one start with a combined-arms team at the platoon level and only 'scramble' when necessary, rather than continually re-task organize? This question will become even more relevant as the Army transitions to the world of Future Combat Systems (FCS)."

LTC Kojoro's question about using antitank guided missiles (ATGMs) in the multifunctional platoon is only relevant if you take the transitory element of the platoon out of the question. There is a need for a long-range overwatch capability within the platoon. Ideally, the platoon will have the capability of Strykers with guns to move and be overwatched by a system that is capable of tracking and engaging long-range moving armor threats. Currently, that is an ATGM-capable Stryker. In future FCS platoons, that capability may be provided with a gun system that includes a wireless guided antiarmor-capable projectile that can be fired from the 105mm gun. In the interim, the ATGM is the answer.

I hope that *ARMOR* readers will focus on the multifunctional aspect of the platoon and the implications for training future armor leaders, rather than focusing on a minor platform issue. To this end, I quote part of the conclusion of my article:

"Platoons with combined-arms capability built around the Stryker could provide the test-bed for tactics and techniques to be used by units equipped with the FCS. The first, and maybe most dramatic of these, would be to replace the mortar section with a Netfires section. The basic concept of Netfires is to develop a family of artillery missiles based on a vertical launcher design. The box launcher is fully autonomous, meaning it can operate without a support vehicle. Light enough to ride in the back of a HMMWV, Netfires can be deployed by ground or air assets throughout a theater and networked by radios to engage an enemy rapidly. The launch unit includes power generation and control systems, as well as a total of 15 missiles, each with a warhead similar in size and capability to a 155mm artillery shell, which would give the platoon the ability to reach out and engage targets with over-the-horizon fires and would thus further contribute to making every engagement an ambush, from the enemy's perspective. The accuracy promised for Netfires and its near 100-pound warhead make it capable of destroying virtually any target acquired — a perfect complement to the cavalry platoon of the future!

The Armor School Challenge

"The purists will argue that training lieutenants to command such complex platoons will be difficult. Conversely, if a lieutenant can command a true combined-arms team and synchronize its efforts, the Army will be better served and the future force inherently more flexible, responsive, agile, and effective. The Armor School challenge is to figure out how cavalry lieutenants were trained in the past and do it again!"

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

Restructuring the Cavalry Force: Has the Armor Center Missed Its Mark?

Dear *ARMOR*,

In his article, "Restructuring the Cavalry Force," in the September-October issue of *ARMOR*, Major Christopher Connolly provides a much appreciated clear and concise description of the new cavalry and scout organizations. Unfortunately, I am concerned that the Armor Center has really missed its mark. The new organizations are far too small and far too top heavy. These are *not* cavalry squadrons at all — they are merely groupings of scout platoons standardized under a permanent headquarters. It might look good on an organizational chart; it is, however, woefully inadequate.

First, cavalry is combined arms. Historically, and especially since World War II, whether by accident or design, scouts and cavalry are two echelons lower than their parent organizations: corps cavalry r*egiment*, divisional cavalry *squadron*, separate brigade cavalry *troop*, and battalion scout *platoon*. Except for the battalion scout platoon (discussed below), cavalry units are combined arms and have a doctrinal economy of force role. They accomplish this role by having disproportionately high mobility and combat power for performing specific missions, allowing higher commanders to focus on the main effort.

Second, battalion scout platoons by themselves are *not* cavalry per se.

Even if equipped with Bradleys, scouts are neither doctrinally nor structurally intended for economy-of-force operations, as they lack combined arms organization. Scout platoons are a recon and security element of a maneuver battalion (infantry, mechanized, tank, or cavalry). Once contact is imminent, the battalion scout

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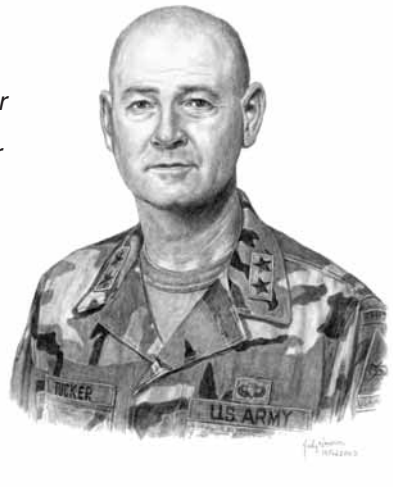
Major General Terry L. Tucker
Commanding General
U.S. Army Armor Center



Future Warfighting: The Combined-Armor Team

The idea that the future of tanks, cavalry, and reconnaissance is obsolete, no longer needed, and not designed for the current operating environment is hogwash!

By taking an objective look at our most recent full-spectrum fight from Kuwait City to Baghdad and beyond in 42 days, one realizes that 90 percent of all tactical engagements were fought mounted, and successful tactical and operational recon was not done with sensors and unmanned aerial vehicles, but with time-tested cavalry scouts and combined arms task forces. Is there anyone who believes the march to Baghdad would have been successful without armored and mechanized forces fighting as combined arms teams? History confirms, without question, that they were critical for that part of the full-spectrum fight.

Let's look at the immediate aftermath, the advent of stability operations and support operations — I don't remember tankers and scouts being replaced with other stability forces. Mounted warriors were the most adaptable force in Iraq. Abrams tanks and Bradleys were the force of choice after Baghdad and the international airport were seized. Can you imagine the results of an up-armored, high-mobility multipurpose wheeled vehicle (HMMWV)-equipped or dismounted "thunder run" into the heart of Baghdad? It was the armored force of the 3d Infantry Division (Mechanized), which included Abrams tanks, Bradley Fighting Vehicles, self-propelled artillery, and Apaches that held its ground.

Tanks were a critical component of the combined arms task force that conducted a strategic airlift from Central Europe to northern Iraq to secure airfields and vital oil fields, and establish a significant conventional presence in northern Iraq. It was perhaps the most successful strategic airlift of a combat force since Operation Just Cause in Panama.

Control of western Iraq required a lethal, survivable, and highly mobile force capability, and the 3d Armored Cavalry Regiment (ACR) was the operational command's choice. The ACR was uniquely designed to conduct economy-of-force operations, screen along the borders, fight, conduct offensive and defensive operations, provide in-depth information, secure the western one-third of Iraq, and do so with minimal combat power. Only a heavy mounted force could have been successful and performed so well. Our mounted force, combined with infantry, special operation forces, and combat support and service support units, working together resulted in successful operations with minimal casualties.

Currently, we are engaged in a counter-insurgency campaign, yet another part of full-spectrum warfare. Some argue that lightly armored Soldiers, provided with real time information about enemy movements and supported by precision air power, can replace heavy armor, especially against enemies who lack armor. However, recent battles in Najaf and Fallujah, which involved some of the heaviest urban combat we have seen since Vietnam, offer some radically different lessons. It was Abrams tanks and Bradley Fighting Vehicles that spearheaded our attack into Fallujah, while dismounted tankers, scouts, artillerymen, and infantryman followed and subsequently cleared buildings. It was the epitome of combined-arms operations.

Commanders and front-line Soldiers have said time and again that tanks and Bradleys significantly reduce friendly casualties, while decisively destroying enemy insurgents. The 2d Squadron, 7th Cavalry, mechanized infantry battalion commander said, "Thank God we had tanks." The director of the Rand Corporation's Center for Middle East Policy said, "It turns out that the tank we thought we were going to fight the Russians with is the best thing we've got to fight in an urban environment." And, a group of captured insurgents said they were terrified of the monstrous Abrams tanks that the Americans had brought to this battle; the tanks that shrug off rocket-propelled grenades as if they were plastic toys and whose muzzle blast sounds like the end of the world.

Our mounted force is agile and flexible enough to lead the major combat operations fight, mounted in Abrams tanks and Bradleys, then quickly transition to security and stability operations, and back again to fight the insurgency mounted and dismounted. What other Army or force could have done so?

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

DA Promotion Boards: How to be Competitive

The U.S. Army's Centralized Enlisted Promotion Selection System has been described universally as the fairest, most comprehensive selection system in the military. A number of foreign governments have used it as a model for their promotion systems. It has passed the test of time and every soldier in the zone of consideration receives equal consideration for promotion.

There are three promotion boards held annually: the sergeant first class (SFC) board, the sergeant major/command sergeant major (SGM/CSM) board, and the master sergeant (MSG) board. The mission of each of these boards is the same — to select the best qualified noncommissioned officers (NCOs) for promotion.

To accomplish this mission, the Chief of Staff, Army (CSA) appoints a general officer as board president, along with approximately 12 colonels, seven lieutenant colonels, and over 45 CSMs and SGMs, who are selected by Headquarters, Department of the Army (HQDA). These senior leaders are broken down by specialty into approximately 12 panels. Each panel is required to review soldiers' promotion files from specific career management fields. The board members do not know the number of soldiers they are selecting until they have reviewed (voted) the files of all soldiers in the zone of consideration.

Prior to looking at or reviewing any file, Enlisted Records and Evaluation Center (EREC) provides board members with a comprehensive orientation on the board process, evaluations reports, and detailed written guidance from the Army Deputy Chief of Staff, G1 and the various branch proponents. The proponents provide specific guidance on the unique qualifications soldiers should possess to be the most competitive for selection.

The most important document in the promotion file is the soldier's official military personnel file (OMPF), which is stored at EREC. Within the OMPF, board members look primarily at each evaluation report. They generally review all reports and place emphasis on the current grade or the past five years. The board also has access to the official photo, the promotion enlisted record brief (ERB), a synopsis of previous assignments, and whatever correspondence the soldier forwards to the board president.

Typically, when a voting member is given a soldier's record to review, they look first at the photo to make sure it is recent and in the serving grade. They want to have the soldier's appearance in their "mind's eye" as they read the narratives contained in the evaluation reports. A photograph speaks volumes. Having no photograph or one not in the current grade implies that a soldier simply does not care about his or her career. Next they review the ERB — this can be a daunting task if it does not compare with the OMPF.

Having seen the photo, reviewed the OMPF and the personnel data, the board members then vote based on standards set earlier. This is an important point: your record is voted against the standards set by the members of your panel. That way, the first record voted is graded against the same criteria as the last record voted, and all soldiers receive equal treatment.

Even though there are four to eight members on each panel, only three of them vote on each record. They vote the record independently and are not allowed to discuss the file with any other voting member of the board. Voting members with personal knowledge of misdeeds not reflected in the record are bound to report that knowledge to appropriate officials, but may not divulge personal information.

When voting is complete, then all soldiers are rank-ordered from the highest to the lowest score. Specifically selected objectives provided by HQDA for each military occupational specialty (MOS) determine who gets promoted and who does not. The board may only select the number of NCOs for promotion by MOS that the Army projects it will need over the next 12 months. The board applies these numbers to the order of merit list for each MOS. The highest scoring soldiers who fall within designated requirements are identified as the selects. EREC then prepares a series of rosters that are authenticated, and the list is forwarded to HQDA.

Preparing for a DA Centralized Enlisted Selection Board

Based on feedback we have received from board members over the years, the areas you should focus on are:

Career: Take the hard jobs and do them well. If you go to a table of distribution and allowance (TDA) job, get back with troops as soon as possible. The NCO evaluation report (NCOER) is the most important document in your file — it carries the greatest weight.

OMPF: Ensure your records are up to date and ready for review by the selection board. If it isn't right, you are to

blame. With the latest tool, OMPF Online, the task of getting a copy of your OMPF has been eliminated. Use your Army Knowledge Online (AKO) password; go to *https://www.hrc.army.mil;* click on "HRC Indianapolis;" and select the OMPF Online link. Compare it to your paper files; if it is incomplete, get the missing documents to EREC as soon as possible. EREC posts documents to the OMPF within 24 to 48 hours of receipt.

Official photograph: Since you cannot appear in person before a centralized board, an official photograph represents you. The regulation states you should have a photo taken every five years, or if your status changes. If you are serious about promotion, get a new photo.

Enlisted Record Brief (ERB): The ERB is the data information counterpart to the OMPF. You should review and authenticate your promotion ERB prior to every board. Look carefully at each item on the ERB to ensure the data is there and accurate. Once you are confident it is correct, validate it, and keep a copy for your records. When you are in the zone of consideration for promotion, you can view and validate your promotion ERB online at the EREC website.

Memorandum to the president of the board: Golden rule — only write a letter if your file is missing something of significance, such as a current assignment that cannot be documented in a NCOER or to explain a particular event in your career. DO NOT write a letter just to tell the board they should select you. Your record speaks for itself. A random memorandum seldom generates a positive outcome. If you have to write, remember to be brief, factual, and use memorandum format, as shown in Army Regulation 25-50.

For more information concerning boards and updating your records, visit the EREC web site. Your local S1 or military personnel division will also help with questions or problems concerning your records.

Start Preparing Early for Promotion

Preparing for promotion is an everyday event. The process is affected by how NCOs conduct themselves as soldiers; how well they do their jobs; how they approach problems and challenges; how they interact with superiors, peers, and subordinates; and how they seek self-improvement.

Soldiers should work on preparing for promotion two grades up; for example, a private first class (PFC) should be preparing for the sergeant (SGT) board. Continually work on areas such as military and civilian education, improving Army physical fitness test scores, and marksmanship scores. Always seek the tough jobs early in your career — waiting until the last minute is too late.

Soldiers need to work on education from the day they come in the Army, this is important no matter what their career plans are. Take Army correspondence courses and enroll in college courses when duties allow. Everything a soldier does to show enthusiasm to excel and improve their value and abilities counts for each promotion.

NCOs not selected for promotion should consult their CSM/SGM and request assistance in review of their records. The NCO should not just ask the CSM/SGM why he did not get promoted, but ask them to point out strengths and weaknesses in the file, as well as an opinion on how well NCOERs have been written.

When an NCO has a good file (and most do), the typical question is: "Why didn't I get promoted?" The typical answer is: "You have a good file and I think you should have been promoted, I don't understand why you didn't." No matter how good the NCO's OMPF is, there is always room for improvement. Think about what you have done in your career and strive to improve anything, whether it is education or a tough assignment, to make yourself more competitive. NCOs can also write their career branch at Human Resources Command (HRC) Alexandria, request an analysis of their records in comparison to peers who have been selected for promotion, and ask for suggestions to become more competitive.

DA Senior Enlisted Selection Board Myths and Facts

As with every process, myths are born and rumored to be fact, which causes soldiers to make mistakes based on bad information. Below is a list of some pretty common myths, along with facts that will clear up these mythical misconceptions:

Myth: It is recommended that you personally visit EREC to review your OMPF because board members are told who came to EREC to review their records and who did not.

Fact: This myth is false. Board members are not told who did or did not visit EREC.

Myth: There are quotas that each board must meet for various ethnic and gender categories.

Fact: This myth is false. The mission of each senior enlisted selection board is to select the best-qualified NCOs for promotion in each MOS — period. Once the best-qualified NCOs are identified, based on selected objectives provided by Department of the Army, board results are not changed. The board does *not* go back and move anyone up or down on the order-of-merit list.

Myth: Board members only review the past five NCOERs in each file.

Fact: This myth is false. Board members are provided the "Performance" portion of the OMPF that contains all evaluation reports, training data, commendatory data, and any disciplinary data that was directed for file in the "Performance" section of the OMPF. While the NCOERs over the past five years probably carry the most weight, board members see all reports.

Myth: Board members talk to each other about the records while they vote on them.

Fact: This myth is false. Board members set specific voting standards within each panel before voting begins using the whole-soldier concept. Once agreed on and approved by the board president, these standards are used to vote each file independently under the "blind voting concept." This means each panel member votes each file against the agreed-on standards and no discussion of records is allowed during this process.

Myth: The selection board will not consider you for promotion if you have a local flag (suspension of favorable personnel actions) in effect.

Fact: This myth is false. NCOs whose records are flagged are eligible for consideration by senior enlisted selection boards. NCOs who are selected for promotion will not be promoted until the flag is favorably lifted.

The Army's Enlisted Centralized Promotion/Selection process is fair and equitable; however, decisions made by the board are only as good as the information they are provided. It is your responsibility as an NCO to take care of your records, update your official photo, and be proactive in correcting record deficiencies. Most importantly, be a great soldier!

Iron Discipline and Standards!

Transformation: A Commander's Perspective

by Lieutenant Colonel (P) Jeffrey R. Sanderson

Over the past decade, senior leaders have done a great job transforming a cold war-based Army into a lethal and relevant organization. Both the public we serve and our elected officials hold the U.S. Army in the highest esteem. We have, by and large, begun the transformation process in all of our warfighting outfits. However, we need to equally transform the Title X and institutional armies. Transforming several key areas immediately and challenging traditional thought processes is vital to this intricate transformation process.

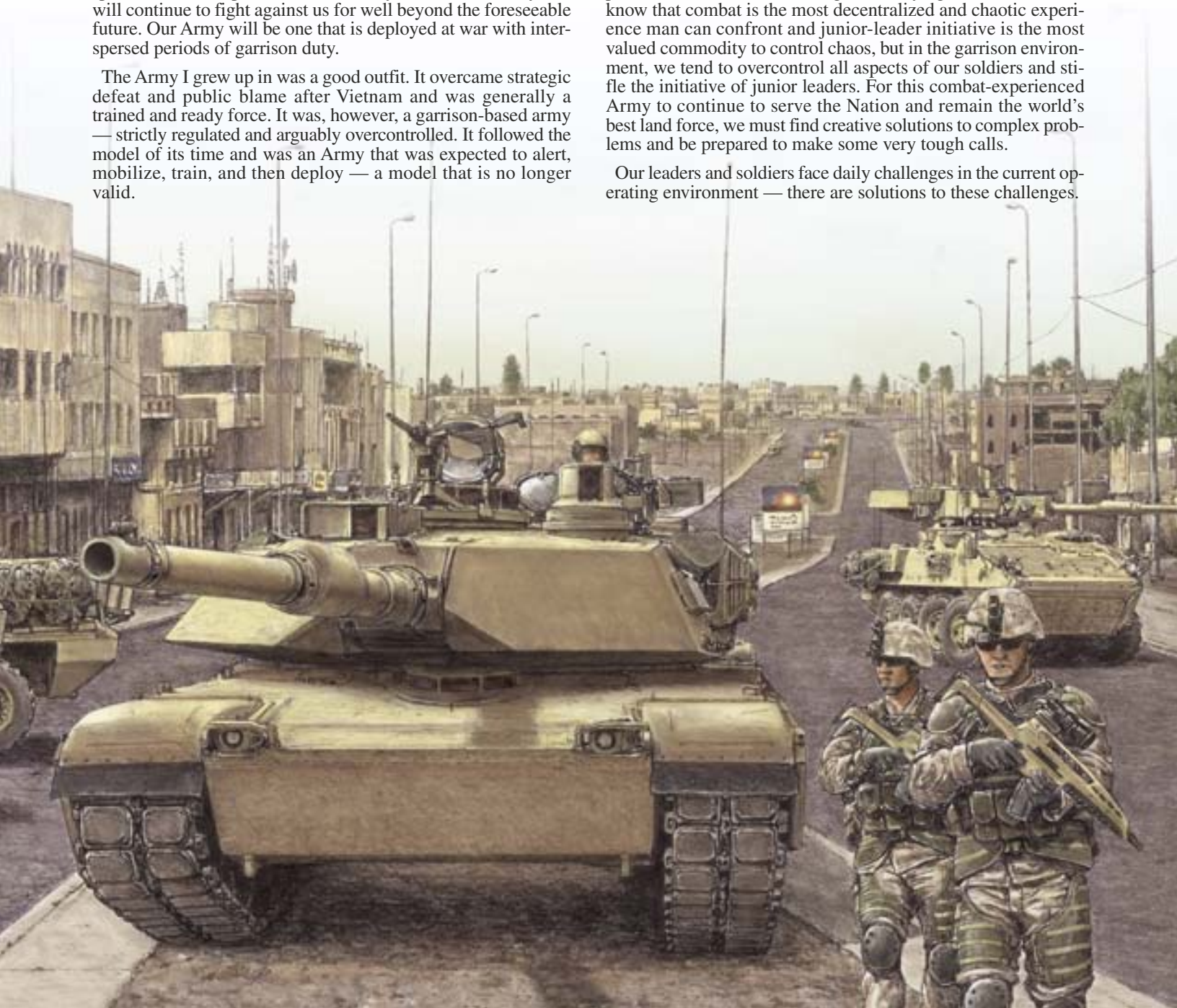
In the past, we have enjoyed long periods of garrison duty interspersed with brief periods of war. Today, we face an enemy that will continue to fight against us for well beyond the foreseeable future. Our Army will be one that is deployed at war with interspersed periods of garrison duty.

The Army I grew up in was a good outfit. It overcame strategic defeat and public blame after Vietnam and was generally a trained and ready force. It was, however, a garrison-based army — strictly regulated and arguably overcontrolled. It followed the model of its time and was an Army that was expected to alert, mobilize, train, and then deploy — a model that is no longer valid.

In the past, only 20 percent of our Army was expected to maintain immediate readiness standards and be prepared for instant deployment. We are now an organization that must follow the train-alert-deploy model if we are to remain relevant. The new model seems simple, but in reality, it is a significant change requiring several major culture changes within the Army.

Today, our units rotate back from a combat zone, rest, refit and begin training immediately for future deployments. In the near future, we will have a combat-experienced Army, a phenomenon we have not had since Vietnam. As an Army, we tend to be bipolar when it comes to training and readying our line units. We know that combat is the most decentralized and chaotic experience man can confront and junior-leader initiative is the most valued commodity to control chaos, but in the garrison environment, we tend to overcontrol all aspects of our soldiers and stifle the initiative of junior leaders. For this combat-experienced Army to continue to serve the Nation and remain the world's best land force, we must find creative solutions to complex problems and be prepared to make some very tough calls.

Our leaders and soldiers face daily challenges in the current operating environment — there are solutions to these challenges.



"We are taught at combat training center rotations that steel rules the battlefield, every leader must know and understand safety danger zones, and risk assessment conducted to platoon level must be completed before each and every mission. These are good standards, and when inculcated in home station training events, will mitigate safety risks. These standards exist to ensure commanders are primary trainers, not range control, or other housekeeping relics that constrain training."

This article is not intended to be negative in nature, but is intended to challenge us to be better tomorrow than we are today. The U.S. Army is challenged with multiple, simultaneous mission sets, yet each and every day our great soldiers continue to impress the world with their pride and professionalism.

Focus on Warfighting, Not Housekeeping

Housekeeping. While serving as a commander, I found my number one garrison enemy was "housekeeping." It was all things that were either self-imposed or were imposed by higher headquarters, which diverted my focus away from the primary purposes of training, materiel, and soldier readiness. Housekeeping also includes the mental and physical energy we place on sustaining the organization for the sake of sustaining the organization — a compilation of training distracters that keep us from focusing on preparing for war. However, while deployed to Kuwait for Operation Desert Spring (prior to Operation Iraqi Freedom), we did not face the "housekeeping phenomena" because the vast majority of tasks not directly related to war were ignored. Do not misread this statement, all units must execute some critical housekeeping tasks or they will fall apart and soldiers will suffer. Actions, such as ensuring soldiers are paid and executing the first sergeant's duty roster, must be completed to standard.

Internal regulations. Commanders are paid to command, not manage. In the current garrison environment, it has become increasingly more difficult for commanders to maintain a trained and ready force due to the myriad of daily housekeeping chores. The administrative and mandatory training burden on my company commanders was approximately three times the amount I faced while commanding a company in 1989.

We do have technology and enhancements and units do have systems that mitigate housekeeping's impact, but in the near future, we will face a generation of officers and senior noncommissioned (NCOs) who will return from combat and simply not tolerate the needless administrative burdens placed on them. They will argue that commanders must determine priorities, which is a legitimate point. When the Army changes the model from alert-train-deploy to train-alert-deploy, we must either be rid of housekeeping overload or forget about training standards. Mandatory training requirements company commanders are expected to accomplish, coupled with mandatory training guidance from higher headquarters, and added to overwhelming administrative requirements, are not functional and provide constant challenges. Each and every proponent (for everything) has weaseled its way into our 350-1 regulation series.

We know that leader presence and leader interaction with soldiers is an absolute necessity in building combat-ready units. When commanders personally train soldiers, we have increased performance, higher collective discipline, and drastically fewer incidents. We all want our company commanders to be out and about, and we want them as primary trainers on as many applicable subjects as practical, but this is tough to accomplish given the administrative burdens we place at their level.

In good units, we build systems that account for as much housekeeping as we can, but units rotating from combat zones soon come to the stark realization that we really did not need to be encumbered with these requirements in the first place. Nobody wants to depart from standards, such as equal opportunity, because we know these areas enhance our Army and society, but we must make some hard calls when it comes to the precious time available between rotations back to the combat zone. We must determine our collective priorities and provide some white space for company commanders to train based on their needs.

Staff training. One of my most daunting challenges in garrison was staff training — garrison staffs have enormous housekeeping responsibilities. I was bringing in my staff at 0400 hours to execute military decisionmaking process (MDMP) drills — training and preparing for war — to allow them time during the afternoon to manage housekeeping challenges. All commanders determine priorities and many argue that it is simply an issue of priorities. We can do much better than that for an Army at war. We must develop and fund a plan that better supports our line units under the train-alert-deploy methodology.

We routinely have a difficult time training our staffs. Staff training (at all levels) is paramount to success. The collective ability to receive input, analyze and collate data, plan combat operations, and disseminate plans and orders is complex business. It is very complex now, and we have yet to fully digitize the force. Digital staff training adds a whole new degree of difficulty — because our staffs are tied up with critical housekeeping duties, such as unit status reports and quarterly training briefs, and only train efficiently when they are not in garrison.

Solution: Integrate civilians into the Army formation. Many units have used internal funding to hire contractors who live and become a part of the unit. They manage the cumbersome ammunition accounts and schedule ranges, which allow staffs the time to train on increasingly complex mission essential task lists (METL) as opposed to becoming the land, ammo, and range headquarters. We need to go beyond this and hire employees, such as contractors or civil servants, to manage a whole host of housekeeping issues, which require countless staff hours and are recurring themes in our warfighting organizations. Our ammu-

nition management system is so broken that we routinely reward those who are proficient at the workarounds. It takes countless man hours to manage this cumbersome and complex system and it is even more complex when we ask for anything out of the ordinary to enhance training such as special effects small arms marking system (SESAMS).

There are a major roles for civilians in warfighting units, such as each battalion having civilians to manage land, ammunition, and ranges; a civilian who manages military personnel issues and finance accounts; a civilian who keeps critical unit movement books; and potentially a civilian who complies and maintains readiness and quarterly training brief data. Imagine a company commander contacting a civilian located at battalion headquarters to coordinate a live-fire range, complete with concurrent training aides, and discuss the exact location and time his unit will meet the ammunition truck. At this point, we will have realized our full training potential. Before old soldiers mount their counterattack against this, this does not include decision authority for these civilian-type employees, only coordinating authority. I am not convinced our training aids support centers have a viable role in this war; I am an advocate of placing dedicated civilians in line units to routinely manage housekeeping duties, which will allow staffs time to train. Decentralizing existing organizations to chains of command to which they are directly accountable provides a far better service to our warriors than what we have now.

Training Safely to a Higher Live-Fire Standard

Realistic live fire. Losing a soldier is painful. No training event exists that is worth losing a soldier over — not even acceptable training-loss rates. That said, it is time to challenge the Holy Grail of safety. We are engaged in a long war, one that we may very well pass to our children. Soldiers will execute in combat what we teach them to execute in training. We cannot afford to be risk-aversive. We cannot afford any "hokieness in training."

Solution: Immediately review peacetime standards. We must be increasingly challenged through a thorough study of our normal peacetime constraints. These constraints include not placing aiming stakes on trucks during convoy live-fire training because they will not be used in combat; training overhead fires for mounted units because they will be used during combat; not using range safeties to clear tanks and Bradley Fighting Vehicles as they exit the range because vehicle commanders are responsible for fire distribution and control, as well as weapons safety during combat; vehicle commanders or squad leaders determining safety danger zones and fully understanding weapons effects; understanding there are no course roads or range flags in combat; realizing there are civilians on the battlefield; and increasing weapons proficiency by decentralizing safety requirements.

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Discipline and safety are the same word — we must train discipline to be safe. We must also decentralize safety authority to those who will successfully execute tasks in combat. Most accidents occur due to a lack of discipline and a leader's failure to enforce standards. Again, if soldiers are expected to fight as they train, then we must drastically raise standards. Soldiers trained under limitations of safety constraints cannot afford to face combat because they are not trained to combat standards. At this point in war, we must take a long look at mandatory training safety regulations and determine what is relevant for an Army that now follows the train-alert-deploy methodology.

Another issue is mentality change — we need range support, not range control. Commanders must continue to be primary trainers of their outfits without constantly fighting the bureaucracy of organizations designed for cold war service. We simply do not have 20 hours in current unit lifecycles for company commanders to waste on the bureaucracy it takes to execute a nonstandard reflexive fire range. Combat is about fire distribution and control, the most critical of all combat lessons, which cannot be constrained to the point of extinction due to cold war regulatory requirements. Combat is live fire, and live fire is very, very dangerous. Initiatives, such as issuing rifles and blank ammunition to infantry soldiers on day one of basic training, will greatly enhance lethality, as well as overall safety.

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Developing Flexible and Adaptive Leaders

U.S. Special Forces soldiers are the most flexible and adaptive leaders in our Army. I have never served in their ranks but have worked with them in war — *they are trained*. The Army invests time and money in these soldiers to provide them with broad-based training and educational opportunities during strenuous and challenging processes. They do not have problems getting ammunition and keep housekeeping to a minimal acceptable level. They are decentralized in garrison and are therefore trained to operate decentralized in war. Special Forces units are the models for the rest of our Army in terms of building adap-

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tive and flexible leaders. It is an expensive proposition, but if we want the highest quality leader on the ground, we must be willing to pay the price.

Building captains for company command centric warfare. The U.S. Army is the best in the world because of its training base and institutionalization, but are we really training adaptive leaders? Based on experience with graduates of the captain's career courses (primarily the infantry and armor courses), we are doing good work in training combined arms fire and maneuver. However, in this new age, where nearly every company-grade leader in Iraq operates dismounted at some point, we must train a multitude of skills. We want junior leaders to thoroughly understand combined arms fire and maneuver, and we want them to have a thorough understanding of the second and third order political effects associated with stability operations and support operations.

As a military historian, I cannot predict the future, but like the weatherman, I can forecast prevailing winds and make informed judgments on future conditions. I am willing to bet that the vast majority of our future wars will be increasingly more company command and captain centric. If this is the case, then are we doing all we can to institutionally train at this level?

Our institutional schools (again, my experience is primarily with armor and infantry) are doing great work, but are limited by time in what they can achieve. It is counterintuitive that we continue to quibble over the precious resource of training time in professional schools while engaged in a war where knowledge is the most valued commodity. I would even argue that subjects, such as stability operations and support operations, which I was taught at the U.S. Army Command and General Staff College, are particularly relevant to our lieutenants and captains today. In stability operations, every soldier and every leader is an ambassador — at times, a very lethal ambassador, but nonetheless an ambassador.

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Current institutional training models are doing the best they can, but are not producing officers with sufficient skills in combined arms fire and maneuver operations, and stability and support operations. As the war continues, we will ask more and more of junior leaders, and the institutional army must make time to train a multitude of tasks.

Leader development programs in line units are the strongest I have seen during my career. However, even the best commanders struggle with making time to consistently execute leader-development programs against the reconstitution, refit, and prepare-to-go-again world in which we live. In the world of leader development, line units are doing the best they can, institutions are doing the best they can; however, this combined effort of best intentions may not be enough.

Solution: Training mental models and school length. Historically, we can make a strong case that our World War II senior leaders were the product of long and demanding courses. They worked tactical problem after tactical problem and built a series of mental models based on terrain board games. There were no absolute right or wrong solutions in these exercises, just varying degrees of success. I doubt they were challenged by post-conflict operations and am confident they did not work on a digital battlefield.

Doctrine is the basis for all we do in our Army — without it we waste valuable training time. Having said that, we have to get beyond doctrine and develop experiences in our institutions. In my view, the study of tactics is the study of mental models. Each tactical experience is forever mentally recorded. It makes little difference where or how the tactical learning experience occurred — on a terrain board, studied in military histories, executed in a high-speed simulation center, on the ground at home station, or during a combat training center rotation. The experience enters our brain and is locked into our memory banks. Given this, lieutenants would be expected to have only those mental models they experienced during basic courses and what they take away from their first units, while captains have considerably more and field grade officers even more mental models. Couple this process with the theory that the mind cannot immediately comprehend anything new, and that all experiences are matched against past experiences, and the conclusion would be that with each new tactical experience, our brain reacts like a computer. It immediately (consciously or subconsciously) defaults to the closest tactical experience we have had as a mental or cognitive starting point for developing and executing various courses of action to solve current tactical problems. The most efficient and effective way to develop agile and adaptive leaders is to provide them with more and more low-cost experiences. We tend to want to spend millions on simulations, but we get the same endstate from a creative terrain board exercise held in the battalion classroom.

We must lengthen courses and not only train future leaders, but also provide them with a brain full of mental models. Lieutenants, captains, and majors require a strong, solid foundation in basic employment doctrine and technical proficiency before proceeding to tactics training. The future is in low-cost tactical decision games. These games must require leaders to expend tremendous amounts of mental energy with multiple variables — very similar to the current operating environment in Iraq and Afghanistan. The game may start with a raid and end with ne-

gotiations with a tribal leader. Leaders and soldiers are leaving training bases and going directly to combat operations.

U.S. Army institutions are, by and large, providing leaders with the right skill sets in terms of doctrinal education and strong technical skills, but our institutions lack the critical resource of time to train tactical decision games on a consistent basis. High repetitions are the key component, as they store more and more memories and build mental models. We need leaders who leave institutions with a strong set of mental models, ranging from establishing direct fire dominance in a high-density urban environment to the myriad of tasks associated with stability operations such as cell-based intelligence preparation of the battlefield and negotiation skills.

Tactical leader development must be centered on providing future leaders with enough mental models to anticipate future events and the art of improvisation. Anticipation and improvisation are the cornerstones of success, but they require time and a tremendous effort to develop. Again, numerous repetitions yield the highest return.

The digital world adds an even greater importance to leader-development programs. In days gone by, executive officers would sit in the tactical operations center (TOC) and recommend decisions to the commander based on limited information on hand. Today we are inundated with information. Situational awareness is the technology used to determine the situation within 50 meters, more or less, of your battlefield position; however, transferring huge amounts of raw data into useful decisionmaking information and developing situational understanding remains difficult.

Transferring situational awareness to situational understanding requires lots and lots of experience. It requires combining individual and collective staff training, and we cannot expect to get it right on the first attempt. Most of all, digits require training time and lots of it — multiple repetitions count. Given the propagation of digital systems directly to our company commanders, we are now asking commanders to sift through the data (in a command vehicle or under a poncho) without the aide of a TOC. The real challenge is separating the critical data from the important data, and the important data from the fluff. This requires training, and just by way of subtle reminder, these warrior leaders are receiving these digits directly into their track or headset, and probably digesting all of this while on the move. We have long stated that technical proficiency and the ability to master command and control environments (turret) were absolute paramount skills for company commanders — we have since added a whole new degree of difficulty.

Judging by the successes of junior leaders in current combat operations, we are doing well; however, the future battlefield will become more complex and our enemies will continue to learn. Going back to the original premise that future wars will be increasingly company commander and captain centric, we must drastically lengthen our courses and train a multitude of skills. Under our current model, we wait until an officer attains the rank of major before investing in the yearlong command and general staff officer course. We are missing the mark — we must teach knowledge, skills, and attributes early in the career model.

Captain-level courses are the institutional army's center of gravity in this prolonged war, yet we continually want to reduce course lengths. We must take the time and expend resources to build future leaders. Future commanders must arrive at line units with experience in hardware and software digitization, and with a series of strong mental models enabling sound and timely decisions based on too much information. If we want Special Forces-type performance from future leaders, we must invest the training time and funding associated with gaining that level of performance.

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Transforming Institutions

How to build the multifaceted combined arms warrior of 2010 in an Army of branches. Leaders have finally made the decision to train as we fight. They have created modular brigades and combined arms battalions — the best decision the Army has made during my career. Now that we have a well-structured organization, it is time to build leaders explicitly for these organizations. Line units are living combined arms daily, but the Title X and institutional armies remain bogged down in separate branches, schools, and proponents — each declaring its own supremacy and fighting for market share and relevancy.

Some would argue that we have a strong winning tradition with current branch systems — why change? Basically, because warfare has changed — the future battlefield victor is a combined arms officer with the tactical ability to win wars decisively and enough savvy to win peace.

In the past, leaders have focused on winning either war or peace, and as both Iraq and Afghanistan have proven, they are not mutually exclusive, but require the utmost in agile, flexible, and adaptive leaders who are trained and equipped to execute both combined arms warfare and support and stability operations. In the past, it was possible to effect an on-the-fly task organization change in a 25km by 25km box, and be proud of our flexibility once the task was accomplished successfully. Today, units in Iraq are routinely responsible for over five times that distance. In the future, we will be even more distributed — marching divided and fighting united.

The theory of the empty battlefield is today's reality. The branches are stovepipes that came together at brigade level in the past, but come together today at the combined arms battalion level. The branches worked for the cold war; perhaps they are no longer relevant. With history as our teacher (combining lessons learned from current operations with lessons from the Normandy invasion during World War II), we go back yet again to combined arms at the lowest level as a proven winner. In the captain-centric future, combined arms at the company level (and potentially at the platoon level), provide leaders with the tools required to win decisively.

The absolute requirement to have the finest infantry fighting force in the world remains constant. However, getting infantry forces to a decisive point on the battlefield is the toughest mission (an absolute combined arms fight) any tactical commander faces. Most futurists agree that urban operations are the new norm and open desert battles are the past. Urban operations require combined arms at the lowest level and also require multiple training repetitions from stabilized forces. Although all urban operations are combined arms operations, urban operations conducted by an Abrams/Bradley-equipped infantry force is decidedly different from a Stryker-based or light infantry force. Urban operations are complex and require a trained force in which each leader and team member inherently knows the capabilities and limitations of supporting direct and indirect fires.

Warfare has changed. The future is combined arms at the lowest level, unified with flexible, agile, and adaptive leaders. This future concept is however inconsistent with current branch systems. We talk a good game and, on occasion, true combined arms leaders rise to positions where they make a significant difference, but their successors always seem to take us back to square one. We are raised and retire in our parochial world. We are forced by both failure and senior leader vision to accept the goodness of joint warfare, but the biggest enemy is within our ranks —branch parochialism. If we are going to transform, then raise the next generation of leaders as combined arms officers.

Solution: Collapse the branches. Basic officer leader courses are a good start; however, we must branch officers into two distinct categories: combat arms and combat support. Many current combat service support functions can be civilianized or contracted. By 2020, a brigade commander will hopefully have the ability to select Captain Jones to command an infantry company, a tank company, or even a field artillery battery. Captain Jones must be trained and ready to accept any of these challenges, which requires drastically lengthening our institutional cours-

es. Special Forces soldiers serve as ideal models — deliberately trained on multiple skill sets for long periods and sent to units.

An eight to ten month basic course followed by a yearlong career course would be a good starting point. By 2020, an officer would complete a significant and challenging basic course, complete a series of demanding positions, such as platoon leader, company executive officer, specialty platoon leader, and primary staff officer, then attend a challenging and significant career course prior to returning to a unit. During the first seven years, an officer would have completed roughly two years of professional schooling, combined with five years in line units. The current model of waiting until the 10- to 12-year mark to invest in our officers is not the solution to winning a long-term war.

The critical component of Army aviation somehow fits into this model, and with some mental energy, we can figure it out. Combat support officers must all be multifunctional logisticians, capable of executing complex fuel, ammunition, and repair parts operations, and METL focused on training logistics soldiers the complex task of safely and securely moving supplies across large distances under hostile fire. Both branches must produce future officers who are physically tough, adaptive under stress, and flexible whether mounted or dismounted. They must be trained in combined arms warfare, multifunctional logistics, and support and stability operations.

Solution: Specialize in a unit. The argument that a multitude of skill sets are required for future victories only complements the argument that leaders must obtain some degree of specialization to gain mastery over the complex business of combined arms warfare. Soldier technology will continue to increase; however, some constants must remain in our system.

We have the finest infantry force in the world, but as previously discussed, getting it to where it can prove decisive is the hallmark of great tacticians. In the past, the toughest job in the Army was a Bradley Fighting Vehicle-equipped infantry platoon leader. This young officer was responsible for a multitude of direct fire weapons systems. Today, the toughest job in our Army is a Stryker rifle company commander. This officer currently maneuvers nine rifle squads, three weapons squads, internal snipers, internal mortars, 14 combat carriers, and in the near future, will incorporate a mobile gun system platoon into the fight. It takes training time and multiple repetitions to get good at maneuvering this force.

When we changed the model to one of train-alert-deploy, we now expect these young officers to be proficient much sooner. We need all forms of infantry in our Army. All are unique, all require a commitment from both the officer and the institutional Army to master the advanced skill sets resident in each. Mastering resident skill sets takes time, and we no longer have time to broaden career paths or experiment by moving infantry officers from platform to platform all in the name of professional development. That model worked well for a garrison-based army; however, it will not work in the future. We have always provided infantry forces with strong leaders, but strong leaders alone may not be enough on the increasingly complex future battlefield. Combining the complexity of the urban fight with unique digital command and control systems increases the need to raise future leaders in the same organization.

The Army will soon have three distinct types of brigades, heavy, infantry, and Stryker. We need three distinct schools: one that trains primarily mounted soldiers; one that trains light infantry skills; and one that trains digital, mobile infantry such as in the Stryker brigades. Some might argue that Stryker is too small to warrant this, but Stryker will eventually mold into the magical future force.

Some may argue that we are creating three branches of combat arms officers, and that the parochialism will simply be narrowed down to three. I cannot fix the parochialism problem in our Army, I can only hope that maturity will eventually prevail, but the skills we require of future leaders are very organizationally specific. The best course of action would be to match officers with the types of brigades in which they will be serving. If an officer begins his career in Stryker organizations as a lieutenant, he should then command and serve as a field grade in Stryker organizations.

We are at war and must stop experimenting with leaders. If we continue on our broad-based assignments trail, we will eventually find our Army with superior organizations and suboptimal leaders. This is a very dangerous combination during peacetime, not to mention how poorly it would perform in combat. There is a limit on learning and performing, especially with the overwhelming amount of new technologies we are constantly introducing to leaders.

The concept of specialization among leaders causes emotions to rise. We are now asking a great deal from junior leaders and will ask even more in the future. We must provide future leaders with the opportunity to personally master systems. In theory, we must master a crew or squad before we can master a platoon, and must master a platoon before we can master a company. Personally mastering a vehicle or system and subsequently successfully employing that vehicle or system, during high-intensity combat operations, is the desired endstate. When we add in the complexities of the real world, such as high-density urban environments, digitization, and long-term stability operations, it appears we want junior leaders to master vehicles or systems, both for their survival and mission success. If we tie leader development to the brigades, then we build better brigades and better long-term officers by providing a sense of personal mastery to vehicles and systems. There is a great deal to be said for multifunctional leaders, who have had multiple and varying assignments, but we do not have time during this war to retrain inexperienced leaders.

We are doing a good job of training and educating junior leaders for the near term, but the near term is not good enough. Junior leaders are performing well in combat zones across the globe, and given this, we tend to resist change. The war on terrorism, by all accounts, will last a very long time, regardless of who occupies the White House. To better serve our soldiers and produce leaders who are trained and ready to carry out this war, we need to initiate change now. To win this war, we must be substance, not style. Building substance takes time and money, but more importantly, it requires a strong mental shift in how we execute missions. Future Army leaders will make tough calls and those calls will hurt feelings and cost jobs, but this is not about hurt feelings, it is about winning a war.

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Joint Fires and Effects in the Heavy Brigade Combat Team

by Major General David P. Valcourt

"Infantry, cavalry and artillery cannot dispense with each other. They ought to be quartered in such a manner as always to be able to support each other in case of surprise."

— Napoleon's Maxim of War #47

The U.S. Army is rapidly transitioning to a more deployable and tailored modular force. We are moving quickly to leverage the momentum created as we fight the Global War on Terrorism, as well as relieve the pressure on the all-volunteer Army and reduce the length of current deployments.

In the modular force, the centerpiece of Army combat power is the brigade combat team (BCT). The BCT is a highly capable organization that develops great synergy and combat effectiveness through daily interaction and unit training. This synergy and effectiveness is why the Army has always used this approach to organize maneuver brigades for combat.

Maneuver brigades have always had a cannon artillery battalion in direct support (DS). Maneuver brigade, battalion/squadron, and company/troop commanders have always had fire support officers (FSOs) and fire support elements (FSEs) in their operations centers and command posts. Modularity formalizes what we have always done and establishes new terms and responsibilities.

The field artillery branch has three priorities as the Army stands up modular units: supporting the Army's transition to 48 BCTs, which means growing organic fires battalions for the new BCTs and getting the right soldiers and equipment to those formations; converting FSEs to fires and effects cells (FECs), which requires the best fire supporters possible because FECs are the backbone of joint fires and effects from company level through unit of employment operational level headquarters (UEy); and building fires brigades — ideally, one for every unit of employment higher tactical headquarters (UEx).

Joint Fires and Effects BCT and Below

The fires battalion. The core of the BCT commander's joint fires and effects system is the organic fires battalion, as shown in Figure 1. The fires battalion provides immediately responsive, all-weather, all-terrain, close-supporting precision and suppressive fires for the BCT.

The fires battalion has two firing batteries and each battery has two, four-gun platoons. While massing all 16 Paladin howitzers is an option for some missions, Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF) experiences show we are more likely to see the battalion deployed in platoon-sized, four-gun formations, tracking patrols and laying on the highest priority targets. The four firing platoons provide this capability. If you receive a reinforcing cannon battalion from the fires brigade in the UEx, your capability is doubled.

The fires battalion commander wears two hats: he commands the 16-gun fires battalion and is the BCT commander's senior fires and effects advisor and trainer. He provides advice, training standardization, assessment, and oversight for the fires and effects team in the BCT. The fires battalion commander and his staff are great training resources for maneuver battalion and company commanders. They can provide the right senior leader field artillery oversight of fire supporters during maneuver and combined arms training.

Training the team *is not* about ownership. Training the team *is* about working to make the organization the best it can

"The fires battalion commander wears two hats: he commands the 16-gun fires battalion and is the BCT commander's senior fires and effects advisor and trainer. He provides advice, training standardization, assessment, and oversight for the fires and effects team in the BCT. The fires battalion commander and his staff are great training resources for maneuver battalion and company commanders. They can provide the right senior leader field artillery oversight of fire supporters during maneuver and combined arms training."

be. In the same way a football team has only one head coach, who is assisted by specialty coaches for the special teams or defensive backfield, the BCT commander has the fires battalion commander to provide employment advice and take responsibility for training the fires and effects team. He's not the head coach — outside of the fires battalion — but he does bring specialized tactical and training expertise to the team.

There is a target acquisition platoon in the headquarters battery of the fires battalion. The platoon gives the battalion its own organic survey, meteorology, and a robust target acquisition capability with one Q36 and one Q37 firefinder radar system. These two organic target acquisition radars give the BCT commander the flexibility to disperse ground forces across a wider area or operate in several different areas. The longer range Q37 also allows coverage at greater distances, such as forward in a BCT security area or along a main supply route (MSR).

In Iraq, enemy rockets and mortars are a grave concern and threat to U.S. soldiers. Just as the Army established an improvised explosive device task force to address tactics, techniques, and procedures, as well as material solutions for IEDs, it also established a counterstrike task force to address rocket and mortar threats. One important result is the quick deployment of the lightweight countermortar radar (LCMR) to Iraq. The LCMR is an off-the-shelf product developed for Special Operations Forces and currently has great value for all forces in Iraq. It is a lightweight, portable system that covers a high-value point asset with 360-degree detection of enemy mortars to a range of six kilometers. We are working to extend the LCMR's range to 10 kilometers and increase its accuracy to 25 meters, which will achieve lethality in total radar coverage and allow the enemy one chance to fire before we destroy him and his systems.

FEC in the BCT

Once the fires battalions are stood up, organizing FECs with the very best fire supporters is the next priority — for good reason. Fires, effects, and maneuver are inseparable, even more so now because FECs are organic to the BCT and battalion headquarters (see Figure 2). The effects coordinator (ECOORD), who is responsible for coordinating joint fires and effects, manages the FEC. The BCT ECOORD is a field artillery lieutenant colonel, but you will likely see a major in this position in the foreseeable future. At the maneuver battalion, the fires officer remains a captain — both of these officers are very capable of leading the joint fires and effects team.

In continuing the professional development of our fires and effects officers and noncommissioned officers, in September 2004, we began teaching a three-week joint fires and effects course (JFEC) at Fort Sill, Oklahoma. The JFEC brings in instructors from all services to train senior fires and effects leaders on the full range of joint fires and effects. Also, during second quarter of fiscal year (FY) 05, we will begin teaching the Tactical Information Operations Course, BCT and below, at Fort Sill. It is the sister course to the Information Operations Course, UEx and above, taught at Fort Leavenworth, Kansas.

Fires and Effects in Maneuver Battalions

The fire supporters, who serve at the maneuver battalions and companies, continue to be field artillery's backbone. They focus on our bread and butter mission — close supporting fires and effects for ma-

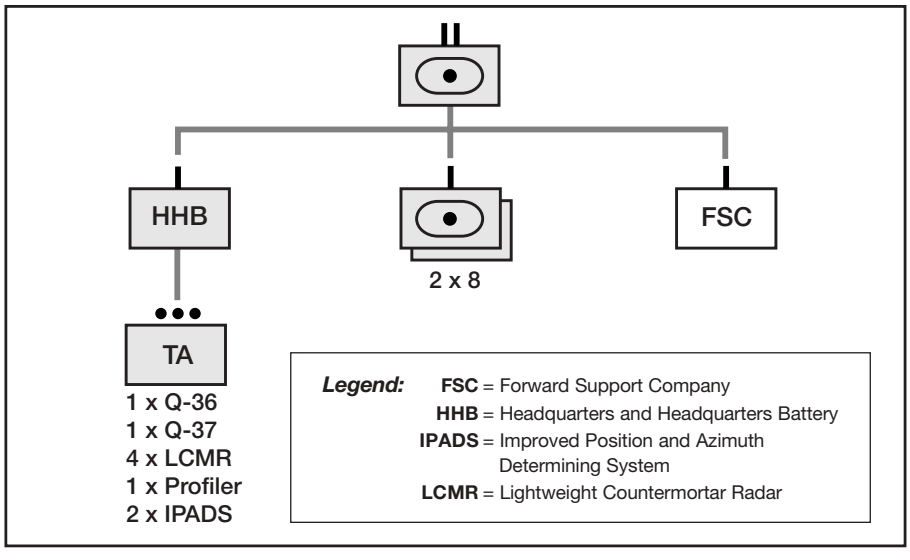

Figure 1. Fires Battalion for the Heavy Brigade Combat Team (BCT)

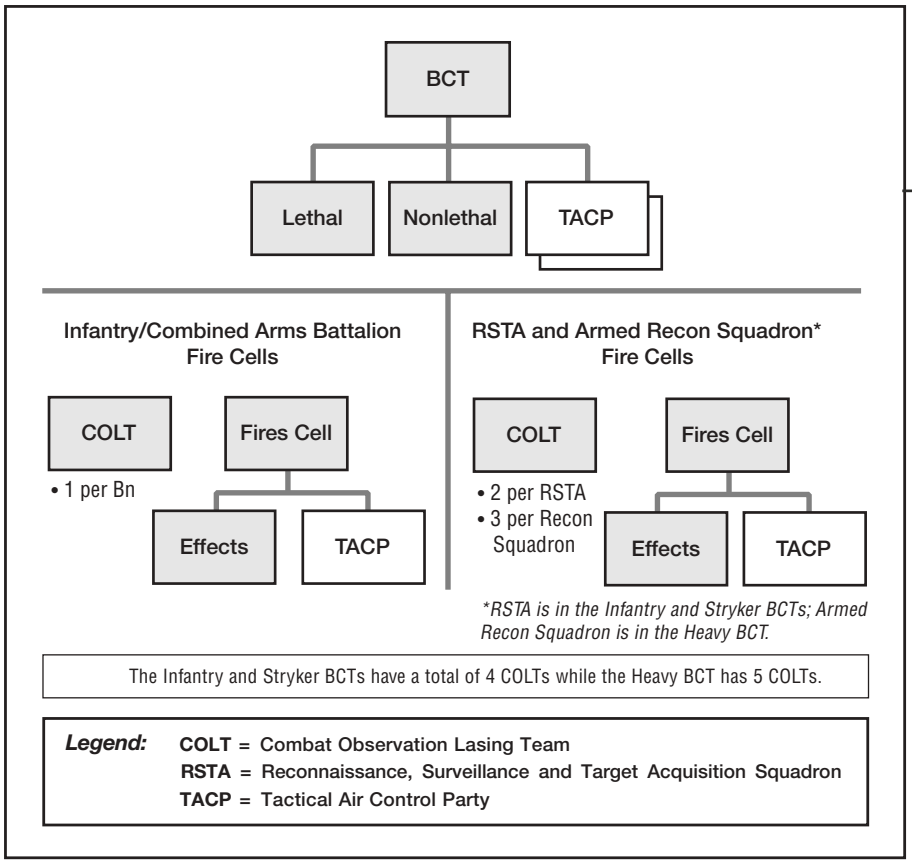

Figure 2. Infantry and Heavy BCT Fires and Effects Cell (FEC) and Fires Cells. The FEC includes information operations (IO), psychological operations (PSYOP), civil affairs (CA), and electronic warfare (EW) personnel.

neuver forces. The armor and rifle company Bradley fire support teams (BFISTs) are now organic to maneuver battalions. As you know, these fires experts are in your formations primarily to provide immediate access to fires and coordinate fires and effects for your unit.

I have had several discussions with the chiefs of both infantry and armor as to how they can get the most from these artillery soldiers. True, they are combat leaders, fully capable of executing combat arms missions. However, their primary mission is fires, not missions as additional maneuver lieutenants.

There have been discussions of where these fire supporters should be located in the company, maneuver battalion, and BCT. Where they "live" is not the real issue — it's not about ownership — the entire fire battalion/fires and effects organization belongs to the BCT commander. It is about training, certifying, and employing these teams. Whether fire support teams (FISTs) are consolidated at the headquarters and headquarters company of the BCT, or at the headquarters and headquarters squadron for the fires battalion, then moved to the companies for execution, your fire supporters will be most effective if you can execute consolidated training. The best fires and effects trainers in the BCT are the fires battalion commander and the ECOORD. The best fires and effects trainer at the BCT FEC is the effects NCO. These experts can help manage the training schedule to balance maneuver, fires support, and digital skills.

The capabilities of the company fire support team are already significant and will increase markedly in the near term. The M7 BFIST and the upgraded A3 variant are combat-proven systems and far superior to the M981 fire support team vehicle (FIST-V). A series of upcoming laser rangefinder and designation systems will soon be fielded to these teams, which will further reduce target location error (TLE) and increase observation range. The lightweight laser designator/rangefinder (LLDR) will give fire support teams a much needed, lightweight designation capability when they are dismounted. Platoon forward observers in rifle companies are being outfitted with the Mark VII or Viper handheld rangefinder. This is already a great improvement over the mini eye-safe laser infrared observation system (MELIOS) and will continually improve. The combat observation lasing teams (COLTs) have the Knight fire-support vehicle that will be outfitted with the fire-support sensor system, which is a laser designator module combined with the long-range advanced scout surveillance system (LRAS3).

Combat experience has shown that there are too few U.S. Air Force joint terminal attack controllers (JTACs) to meet the demands of terminal control of close air support (CAS). This capability is currently at maneuver battalion levels, and the Army realizes the modular force requires the capability down to the maneuver company level. Training, certifying, and sustaining the number of JTACs to meet this need will probably require the Army to certify soldiers in terminal control of CAS.

We intend to make heavy investments in the CAS area with our 13F30 and 13F40 fire support NCOs. The 3d Infantry Division recently sent almost two-dozen fire supporters to Nellis Air Force Base to train and certify for types 2 and 3 CAS. We will continue this training, and at the end of the day, we believe we can also train soldiers to control Type I CAS (control the aircraft all the way to the target). This requires extensive training and equipment solutions to meet joint force standards.

Concerning joint fires, we may have caused some confusion with the term "universal observer." The more appropriate term is "joint fires observer" (JFO), and we are in the process of correcting this term and its definition through joint channels. A JFO is a member of any service, normally sergeant or above, who is trained and certified to plan and execute effects from U.S. Army, U.S. Marine, and U.S. Navy fires, as well as coordinating types 2 and 3 CAS.

Because the fires battalion is now a two-firing battery organization, there is essentially an open battery from a command, control, and training perspective. It may be a good idea to assign the maneuver battalion's heavy mortar platoons to the fires battalion for training and certification — they would move out with the maneuver battalion for combined arms training and execution. The mortars always have been sacred — an organic fires capability for the maneuver battalion commander — and so they remain. Again, it is an issue of how best to train and certify individual and collective fires tasks de-

"The fires brigade will come to the fight with a mix of both rocket/missile and cannon battalions. As mentioned earlier, in most situations the cannon battalions are pushed down to thicken and reinforce the fight where the UEx commander has the most concern. The remaining rocket/missile battalions, which include the tracked multiple-launch rocket system (MLRS) with two "six packs" of rockets and the wheeled high-mobility artillery rocket system (HIMARS) with one "six pack" of rockets, are positioned to shape the UEx fight to set successful conditions for the BCTs."

manded of these tremendously capable combat arms soldiers.

Joint Fires and Effects for the UEx

The fires brigade will come to the fight with a mix of both rocket/missile and cannon battalions. As mentioned earlier, in most situations the cannon battalions are pushed down to thicken and reinforce the fight where the UEx commander has the most concern. The remaining rocket/missile battalions, which include the tracked multiple-launch rocket system (MLRS) with two "six packs" of rockets and the wheeled high-mobility artillery rocket system (HIMARS) with one "six pack" of rockets, are positioned to shape the UEx fight to set successful conditions for the BCTs.

These battalions also conduct counterstrike fires, which include both proactive counterfire (attacking the enemy's fires systems before they are employed), and the traditional reactive counterfire with firefinder radars and delivery systems.

We are continuing to develop a host of precision munitions that will be better suited for precision strikes in areas where collateral effects must be minimized. We are testing an MLRS rocket in which we have replaced the rocket's individual submunitions with a single explosive munition and have matched it with a guidance system. The result is a very responsive, extremely precise, all-weather, all-terrain attack capability for the maneuver commander. Its precision reduces the minimum safe distance at which you can fire the guided rocket in relation to friendly forces.

Joint Fires and Effects is What We Do

Making fires battalions organic to the brigade combat team will undoubtedly result in a highly cohesive and effective team. Our fires-and-effects leaders are good at joint fires and effects, and we continue to push the envelope by training them right and equipping them with the best. Fires brigade and battalion commanders and their staffs are great assets for maneuver commanders in the BCT. Take advantage of their experience and capabilities when you are training your team.

While looking ahead to modularity, I can't help but agree with Napoleon's Maxim of War #47. It is clear that the former artillery corporal had it right — infantry, armor, and artillery are a team.

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Advanced Infantry Optics and Their Future in Armor

by Captain Francis J.H. Park

The past few years have seen the proliferation of advanced infantry optics throughout the Army. These technologies, which were primarily limited to light infantry and special operations units, are now being fielded to units across the Army, to include armor and cavalry units. While some of the equipment associated with own-the-night (OTN) technologies have been in the force for some time, others have only recently been fielded. Consequently, much confusion exists since the usual doctrinal references for these systems are not typically found in many tank companies or cavalry troops. Many of us take owning the night for granted while on armored vehicles. However, most of the missions that armor and cavalry forces have conducted in the past decade are not high-intensity combat operations in the traditional paradigm. Indeed, the vast majority of operational deployments have been peace enforcement or peacekeeping missions, which underscore the need to examine all the tools available at our disposal, particularly those that pertain to the close fight.

A comprehensive review of advanced infantry marksmanship strategies and standards (AIMSS) is beyond the scope of this article, but fielding OTN most commonly seen in units includes the following equipment:

M68 close combat optic (CCO). The M68 sight is a reflex (nontelescopic) sight. It uses a red aiming reference (collimated dot) and is designed for the "two eyes open" method of sighting. The dot follows the horizontal and vertical movement of the gunner's eye while remaining fixed on the target. No centering is required. The M68 is designed for use on the M4 and M16 family of rifles.

Backup iron sight (BIS). The BIS is a fold-up/fold-down iron sight, equipped with a range selector and a windage adjustable rail-grabbing base. It is intended to remain on the M4/M16A4 modular weapons system (MWS) while the M68 reflex sight is used as the primary means of day fire control. Should the primary sight fail, it can be removed and the prezeroed BIS folded up and used to continue the mission. The BIS should remain on the MWS at all times, unless the carrying handle/sight is installed or obstructs the installation of something else. The BIS provides a backup capability effective out to extended ranges. The BIS is not usable, nor is it required on the M16A2.

M145 machine gun optic (MGO). The MGO is a fixed 3.4 power, 28mm optical sight that has been designated to engage targets accurately out to 1200m range. The reticle pattern has a built-in trajectory companion from a 300m to 1200m range and can be illuminated. The MGO is ballistically matched to 7.62mm and is normally used on the M240B machine gun, but can be mounted on the M249 squad automatic weapon in the light machine gun role.

Trijicon advanced combat optical gunsight (ACOG). The ACOG is designed to provide enhanced target identification and hit probability for the M4 MWS out to 500 meters. Although it is designed primarily for use during the day, it has a tritium-illuminated reticle for night and low-light use. The 4x32 scope is topped with a set of iron sights for close-range engagements. The scope features a unique combination of fiber optics and self-luminous tritium. Tritium illuminates the aiming point in total darkness, while the fiber optic light collector increases reticle brightness according to light levels. The ACOG is a lightweight, rugged, fast and accurate four-power optical scope. The body is machined from aluminum

forgings; both the material and finish are identical to that of the M4 MWS. The scope is internally adjustable to allow the shock to be carried by the scope body and not the adjustment mechanism. The ACOG is designed for the M4 and M16A4 rifles.

AN/PAQ-4C infrared aiming light. The aiming light projects an infrared laser beam which cannot be seen with the eye but can be seen with night vision goggles (NVGs). The aiming light mounts on various weapons with mounting brackets and adapters. The AN/PAQ-4C can be mounted on almost any weapon, but is most commonly found on rifles and light machine guns. It uses the AN/TVS-5 mounting bracket to attach to the M2 and the AN/PAS-13 thermal weapons sight mounting bracket to attach to the MK19.

AN/PEQ-2A target pointer/infrared aiming light (TPIAL). The TPIAL emits a highly collimated beam of infrared light for precision aiming, as well as a separate infrared illumination beam with adjustable focus. The beams can be operated individually or in concert, and can be zeroed to the weapon and each other. The TPIAL is used with night vision devices as either a handheld or weapon-mounted illuminator/pointer. The AN/PEQ-2A can be mounted on almost any weapon, but is most commonly found on medium and heavy machine guns. The AN/PAQ-4C and AN/PEQ-2A share many common parts.

AN/PEM-1 laser borelight system. The borelight is a class IIIa laser that emits a highly collimated beam of visible light for precise zeroing of an aiming light or weapon sight to the weapon. The borelight assembly includes mandrels that are attached inline to the visible laser component of the borelight. The assembly is inserted into the muzzle end of the weapon to accomplish weapon boresighting. The borelight is used in combination with the aiming light or weapon sight using naked eyes, powered optics, or night vision devices. The borelight comes with 5.56mm, 7.62mm, and .50-caliber mandrels. Those familiar with the 120mm tank muzzle boresight device will notice some striking similarities to the procedures used with the borelight. A 40mm mandrel for the MK19 grenade launcher is commercially available but is not a basic issue item for the borelight.

M4 and M5 rail adapter systems (RAS). The M4 RAS mounts to the M4 and M4A1 carbines, the M5 RAS to the M16A4 rifle. It provides a rail to the top, bottom, left, and right of the forward handguards of those weapons, converting them into the modular weapons system configuration. There are other modification work orders that mount rails to other weapons such as the M249 and M240B. While the official specification of the rail is under MIL-STD 1913 (hence the Marine Corps' nomenclature "1913 rail"), it is also known as the Picatinny (for Picatinny Arsenal, its developing agency), or weaver rail (for its shape).

What does all of this equipment mean for armor and cavalry in the future? As it turns out, the procedures and mechanics of these sights all recall various concepts from tank gunnery (and to a lesser extent, Bradley gunnery). Terms, such as parallax and cant, are old hat to most tank gunners; the principles to account for both are also factors for boresighting and zeroing small arms. However, the biggest challenge in the fielding of OTN is educating the force on its capabilities and procedures.

One particular area of note is the impact of OTN on light cavalry gunnery. The point calculation worksheets in cur-

Above and right, an M68 close combat optic mounted in conjunction with the AN/PEQ-2A aiming light on an M16A2. Note that the M68 mounting bracket cannot be mounted to the top carrying handle of the M4 or M16A4.

The M4 MWS above mounts the AN/PEQ-2A on the right side since the upper rail of the handguard is taken up by the grenade launcher's leaf sight. Note the BIS is flipped up.

At left, an M4 configured with the lead edge of the rail grabber in line with the reference line on the upper receiver. In addition, the BIS is mounted on the rearmost rail position on the upper receiver. The sight is pictured here flipped up for use.

Above, an M249 with both the M145 machine gun optic and the AN/PEQ-2A aiming light (hidden). The rib guard for the left rail on the front carrying handle is in place to prevent the shooter's hands from being burned. Also note the "gangster grip," which is mounted to the bottom rail, affording better weapons control in the close fight.

In the closeup at left, the AN/PEQ-2A is mounted on the right side to avoid being fouled in the weapon sling.

rent field manuals are threat-based; using aiming lights in conjunction with NVGs has a great positive impact on engagements. The use of OTN, however, highlights a gap between light cavalry (current conduct of fire does not address this additional capability) and infantry doctrine (which does not address mounted conduct of fire).

Training. The most immediate impact of OTN equipment is on training plans and requirements. Small arms night tables are markedly different for units using AIMSS and those that do not. In addition, conduct of preparatory marksmanship instruction (PMI) is absolutely critical for new personnel not familiar with new equipment and standards. OTN equipment requires a sizeable up-front investment in PMI or the unit will waste ammunition with reckless abandon. For example, troops should be comfortable wearing NVGs on their head or helmet to have both hands free to properly apply the steady-hold factors involved for night AIMSS fires.

Most armor and cavalry unit marksmanship programs do not address the shooting skills involved in short range (inside 50m) marksmanship (often called "reflexive fire"). Given that much recent combat has occurred at short range, omission of reflexive fire in a unit dismounted gunnery program is significant indeed.

The other activity inherent to building the confidence required to accurately fire this equipment is known-distance shooting, which gets short shrift outside the infantry. However, time spent on known distance ranges will give the individual shooter an understanding of where his shots fly, something ignored by most until now.

Leader development. The lack of widespread institutional knowledge on AIMSS in the armored force starts from the beginning. At Fort Benning, Georgia, basic trainees are provided instruction on the AN/PAQ-4C, M68, borelight, and use of NVGs during one-station unit training. Infantry lieutenants train on the AN/PAQ-4C, AN/PEQ-2A, M68, borelight, and using NVGs during officer basic course. The AIMSS committee teaches a Department of the Army-approved AIMSS course and is the proponent for that instruction, but this has been a recent development only in the past few years.

The lack of organized instruction in the schoolhouse has led to implementing courses at the unit level. The 82d Airborne Division, which has had advanced infantry optics (specifically the AN/PAQ-4 and M68) since the mid-1990s, developed a small arms master gunner course to teach the mechanics and procedures for OTN and to implement AIMSS at the small-unit level. During inprocessing, the 82d Airborne Division also teaches noncommissioned officers and officers the OTN, its associated AIMSS, and most importantly, divisional OTN mounting standard operating procedures. This is not unique to the 82d; other organizations, such as the 10th Mountain Division, have similar leader training programs. This in-house instruction and standardization should not be solely germane to the light infantry community.

Nonetheless, the first time an armor enlisted soldier or officer sees this equipment and standards is usually not at Fort Knox. This must change as more and more units are fielded OTN. From my own personal experience (troop command while fielding four different types of OTN in 12 months), and watching other units go through fielding these systems, this is an absolutely critical area to examine. If leaders do not understand the implications of AIMSS, particularly on ammunition allocations, coordination of equipment, and planning, units are doomed to failure.

Organization. Responsibility for AIMSS proponency at unit level could be piggybacked onto existing company/troop-level master gunners. Since the purview of the master gunner includes advanced gunnery methodology, turret weapons systems maintenance, and gunnery training management, existing master gunners could also assume responsibility for a dismounted gunnery program (which full implementation of AIMSS would imply) and are already easily capable of explaining the actual "why" behind the "what." At brigade level and above, this position should be filled with an AIMSS or equivalent course graduate, particularly in light of the training and, more importantly, unit standardization responsibilities that OTN equipment entails.

The importance of standardization cannot be overemphasized in unit OTN standard operating procedures! One difficulty many units face is where to mount the multitude of equipment that is (or eventually will be) fielded. While AIMSS doctrine states that OTN equipment can be mounted in any location on the 1913 rail, most units have learned (some the hard way) the lesson of having command-directed standardized mounting configurations for every weapons system. There is a reason why the 82d Airborne Division dictates divisional mounting standards for its OTN. They eliminate confusion, speed precombat inspections, and most importantly, have been proven in combat — twice.

"Any potential enemy, being aware of American combat operations in the past three years, will almost certainly seek to nullify our demonstrated strengths. Our ability to kill at long range is unparalleled. Our enemies, knowing this, will seek to engage us in the close fight. Thus, it is not an unrealistic expectation that the bulk of our direct fire contact will occur at ranges within 500 meters."

Materiel. Current Department of the Army pamphlets do not address ammo requirements for AIMSS and tank crewmen. While cavalry scouts in actual scouting positions (category I) are allotted the ammunition to fire AIMSS tables to standard, standards in training commission (STRAC) allots 98 rounds of 5.56mm per rifle per year for tankers. Zeroing and firing day iron sights, day optics, and night aiming light tables require a minimum of 178 rounds just for one density, which does not include reflexive or practice fires. The ammunition allocation tables for category II do not factor in night aiming lights.

Even infantry units have been known to use other units' STRAC allocations because current allocations do not permit all troops in a unit to fire night and day record fire to standard, let alone other critical competencies such as reflexive fire.

Personnel. Aside from earlier observations on organization and leader development, there are no issues with existing personnel force structure and AIMSS. Indeed, the nature of optics (zeroed to the weapon, not the individual shooter) means that almost anyone can pick up a properly zeroed weapon and accurately fire it without rezeroing.

Facilities. This is another often-overlooked issue with AIMSS, and one that is particularly problematic given the sizeable investment in weapons racks in most units. Although most OTN will retain zero after dismounting and remounting (in the same rail location as before), hard-earned lessons in weapons configuration have taught that after taking the trouble to zero the backup iron sight, optics, and aiming lights, those sights are best left on the weapon.

Any potential enemy, being aware of American combat operations in the past three years, will almost certainly seek to nullify our demonstrated strengths. Our ability to kill at long range is unparalleled. Our enemies, knowing this, will seek to engage us in the close fight. Thus, it is not an unrealistic expectation that the bulk of our direct fire contact will occur at ranges within 500 meters. There are armor units, both Active and National Guard, currently in possession of OTN. These units are often deployed without heavy armor, falling in on high mobility, multipurpose wheeled vehicles (HMMWVs) instead. Given the increasing likelihood that even a 19K tank crewman might find himself conducting dismounted patrolling, AIMSS is not just for the infantry any more. Our precious time and resources mandate that every soldier, from junior soldiers to senior leaders, understand what AIMSS is and what it entails. The equipment is out there — do not leave it sitting on the shelf out of ignorance!

Captain Francis J.H. Park is currently a strategic plans and analysis officer at the U.S. Army Special Operations Command. He received a B.A. from the Johns Hopkins University, and an M.A from St. Mary's University. His military education includes Basic Airborne Course, Armor Officer Basic Course, Scout Platoon Leader Course, Infantry Officer Advanced Course, Combined Arms and Services Staff School, and Jumpmaster Course. He has served in various command and staff positions, including assignment to 1st Battalion, 312th Regiment as a company and battalion trainer for the 1st Battalion, 252d Armor, North Carolina Army National Guard; commander, A Troop, 1st Squadron, 17th Cavalry, 82d Airborne Division, Fort Bragg, NC; assistant G3 plans officer, Headquarters, 82d Airborne Division, Fort Bragg; XO, A Troop, 1st Squadron, 7th Cavalry, 1st Cavalry Division, Fort Hood, TX; assistant S3, Headquarters, 1st Squadron, 7th Cavalry, 1st Cavalry Division, Fort Hood; scout platoon leader, B Troop, 1st Squadron, 7th Cavalry, 1st Cavalry Division, Fort Hood.

Operation Iraqi Freedom Reflections: What Did or Did Not Happen

by Nader Elhefnawy

It has been over a year since a U.S.-led invasion toppled Saddam Hussein's government. While the conventional phase of the conflict will be debated for years to come, it is striking how few have noted that Operation Iraqi Freedom did not resemble widespread expectations regarding the United States' next conventional conflict.

Despite a protracted build up, some logistics difficulties, and what was widely seen as an inadequate number of ground troops, U.S. forces achieved a swift and one-sided victory. Rightly, this was credited to an audacious strategy and the peerless combination of technology, training, and synchronization U.S. forces brought to bear.

Nevertheless, it must be remembered that Iraq did precisely what many analysts said a future U.S. opponent would not do, repeating the course of action it followed so unsuccessfully in 1991 in several important respects. Once again, it permitted U.S. forces to conduct a months-long build up in the region militarily unhindered. Again, Iraq allowed the U.S. to seize the initiative and begin the fighting on its schedule with all the forces it sought to assemble. Again, Iraq fought the war on America's terms, exposing its forces to the full brunt of the vastly superior mobility and firepower of U.S. forces. And, at the same time, Iraq did not take advantage of what is so often called "asymmetric warfare," which is basically poorer militaries taking advantage of commercially available dual-use technologies and relatively inexpensive high-tech weapons, while simultaneously capitalizing on the vulnerabilities of more sophisticated warfighting techniques.

In short, Iraq was a relatively "static" opponent in the sense in which Edward Luttwak used the term in his 1987 book *Strategy* — one incapable of dynamic responses to its military situation.[1] Part of this was certainly due to the sheer disparity between the power of U.S. and Iraqi forces, but there were other factors, such as the prolonged sanctions and arguably the nature of the regime. It cannot be assumed that all other opponents the U.S. will face will be as static; in fact, the contrary should be expected. This article, accordingly, is intended to draw attention to three dimensions of what did (or did not) happen during Operation Iraqi Freedom, specifically Iraq's failure to exploit asymmetric techniques; its decision not to strike U.S. forces during the build-up; and the failure of a major urban battle for Baghdad to materialize.

This is not to suggest that earlier concerns about medium-scale conventional warfare against rogue states are implausible — they are very plausible. The object is instead to consider how their inclusion could alter the character (though in all likelihood not the outcome) of the medium-scale conventional conflicts U.S. forces can expect to fight, with an eye to considering how future conflicts may play out.

Asymmetric Warfare

While the ability of the Iraqi military to acquire services and equipment from abroad was not totally eliminated, it was badly weakened by the sanctions.[2] It is also probable that Iraq's exceptionally poor civil-military relations — dominated by the regime's extreme mistrust of its troops — created a climate, which stifled not merely innovation, but ordinary job performance. Overcentralization, along with the regime's likely failure to grasp the real lessons of the 1991 war and subsequent conflicts in the Balkans, also contributed to such an outcome. Few other U.S. opponents will be so severely hampered in their quest to develop more robust forces by international isolation or their regime's internal character. Moreover, given the proliferation of private military businesses, other countries would

"Unmanned aircraft, which are much easier to come by than satellites, can be used as a substitute for satellites in reconnaissance and even communications roles. Pocket-sized versions, under development today by several militaries, could enhance capabilities at the small-unit level. Converted to carry warheads, larger drones can serve as crude cruise missiles. In the run-up to the 2003 conflict, it was in fact claimed that Iraq had attempted to use such a delivery platform for weapons of mass destruction, but they can certainly be used in conventional attacks."

not need to develop most technologies locally or even through a deal with larger countries, such as Russia or China, because they are available from the international marketplace.

Space. The Iraqi military could have leased space services, such as satellite imaging, providing them with timelier intelligence on the movements of U.S. forces. Additionally, given a sufficiently high resolution — which was commercially available at the time of the conflict — space reconnaissance could have aided them in targeting missiles. Iraq could also have purchased off-the-shelf receivers for satellite navigation systems. While the signal from the global positioning system (GPS) can be degraded, even 100-yard accuracy can be useful. Moreover, the United States is not the only GPS provider. Today, Russia's Global Navigation Satellite System (GLONASS) offers accuracy equal to military-grade GPS, and soon Europe's Galileo system will offer a comparable system.

Besides exploiting space in support of its own forces, a future opponent could attempt to attack U.S. space power. In 2003, Iraqis attempted to jam GPS signals guiding American bombs with Russian-made transmitters. While the attempt failed, other attempts at jamming and alternative strategies, such as attacks on satellites with laser weapons similar to the mid-infrared chemical laser, could prove successful. Such a scenario, however, is unlikely to materialize for at least a decade and perhaps much longer.

Unmanned aircraft. Unmanned aircraft, which are much easier to come by than satellites, can be used as a substitute for satellites in reconnaissance and even communications roles. Pocket-sized versions, under development today by several militaries, could enhance capabilities at the small-unit level. Converted to carry warheads, larger drones can serve as crude cruise missiles. In the run-up to the 2003 conflict, it was in fact claimed that Iraq had attempted to use such a delivery platform for weapons of mass destruction, but they can certainly be used in conventional attacks.

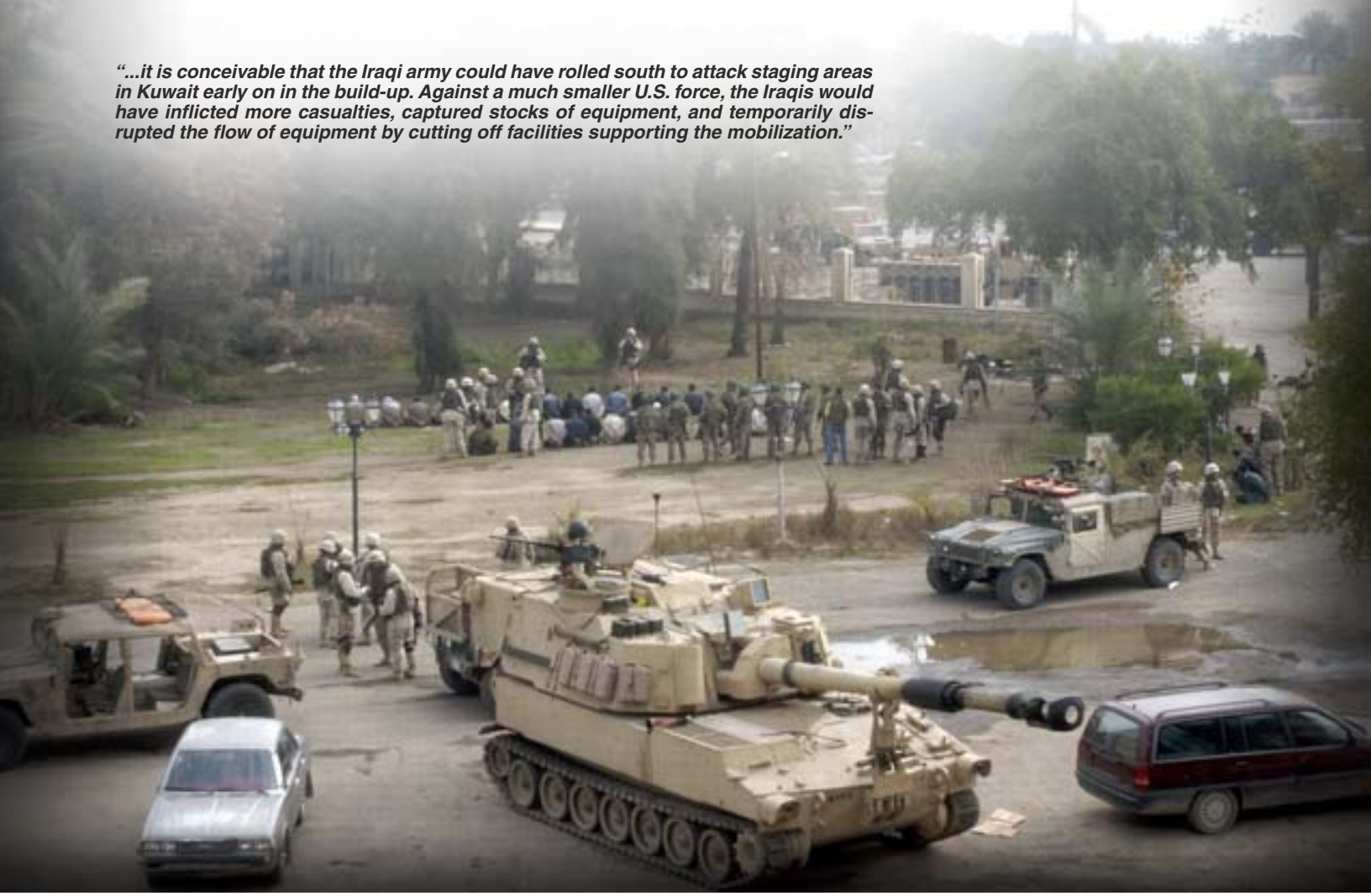
Ballistic missiles. Iraq's missile forces were so badly depleted by war, sanctions, and the inspection regime that not a single scud was fired, but several other states will likely have hundreds of missiles. Moreover, those missiles may be of considerably better quality than what U.S. forces have encountered so far. The North Korean Nodong and Iranian Shahab-series missiles, as well as Pakistani and Chinese missiles, can deliver more powerful warheads over longer ranges than crude scud derivatives such as the Iraqi al-Abbas and al-Hussein. For example, the Shahab-3 can deliver a 2,500-pound warhead over 800 miles, in contrast to the 700-pound payload the unstable al-Hussein delivered to half that distance. They may also do so more accurately, given the proliferation of spin-up technology, such as that demonstrated by North Korea, and new options such as satellite guidance. Cluster warheads can compensate for the relatively poor accuracy of missiles such as the scud, and a number of relatively simple devices can be used to enhance their ability to penetrate a missile-defense shield, such as balloon-type decoys.

Special operations units. Iraq has no special operations forces, in the sense that U.S. Navy SEALs or British Special Air Service are special forces. Iraq, nevertheless, pursued strategies for which such forces would have been ideal, with line units reportedly melting away to carry on the fight as guerrillas, and paramilitaries conducting a campaign in the rear of the charge north, most notably against supply convoys.

Arguably, Iraq could have developed such forces much more easily than quality armored forces, given their relatively low equipment requirements. While they would lack the expensive vehicles and fire support systems that help make U.S. Special Forces so potent, such as AC-130 Spectre gunships and converted Ohio-class submarines, they may enjoy global reach in the same manner as terrorists, traveling on civilian shipping and airliners. This would enable them to attack not only the rear of an invasion force or facilities in neighboring countries, but also the literal worldwide network of bases that the U.S. relies on for supporting a large-scale military effort abroad. North Korea in particular has developed this option: it has long been reported to have 100,000 special operations forces troops whose job would be to infiltrate South Korea and wreak havoc in the event of a conflict on the peninsula.

Communications. On 24 March 2003, the AH-64 Apaches of the 11th Aviation

A U.S. Army soldier guards an abandoned Iraqi L29 at the East Samarra airfield, Iraq. The L29 is under suspicion of being converted to an unmanned aerial vehicle (UAV), which could be used as a chemical delivery weapon.



"...it is conceivable that the Iraqi army could have rolled south to attack staging areas in Kuwait early on in the build-up. Against a much smaller U.S. force, the Iraqis would have inflicted more casualties, captured stocks of equipment, and temporarily disrupted the flow of equipment by cutting off facilities supporting the mobilization."

Brigade staged the first-ever "deep strike" on the Medina division near Karbala. In the course of the attack, the helicopters encountered devastating small-arms and rocket-propelled grenade fire, downing one of the Apaches and damaging numerous others.[3] One reason the Iraqi unit was able to so effectively concentrate its fire was a warning passed on by an Iraqi commander via cell phone.[4]

There are presently one-and-a-half billion cell phones in the world, one for every four people. Along with laptop and palm-held computers, these can give poor armies, such as Iraq's, a relatively cheap way of developing a more robust communications infrastructure, if exploited properly. Assuming the use of commercial space services and unmanned aircraft, this would enable them to distribute much better intelligence to units in the field, as with current or recent satellite images delivered to unit commanders by e-mail. The result may be a much tighter decision cycle, increasing the challenge of outmaneuvering the opponent for U.S. ground forces.

Computer Warfare. Last, but not least, is the prospect of computer warfare, the actual risk of which is not fully understood, leading some observers to claim it has been overhyped. While computer users are painfully aware of the vulnerability of their systems to viruses and surveillance, it can be pointed out that hijacking a military computer network is not nearly so simple as defacing a corporate website. It can also be pointed out that as the world's most advanced nation, the United States would likely have the edge in this area, since its opponents are likely to be less developed, leaving them with relatively fewer computer users and generally older equipment. Nevertheless, given the demonstrated ability of hackers to inflict billions of dollars in damages with a single virus, computer warfare by its nature may be exceptionally open to asymmetrical approaches.

An Iraqi Attack During the Build-up

Operation Desert Shield, during which allied forces took six months to assemble in the Saudi desert, evoked numerous assertions from observers in and out of uniform that the U.S. military had to arrive more swiftly and with more equipment in the event of future crises. This did not happen during Operation Iraqi Freedom. While the war clouds started gathering in the summer of 2002, coalition forces did not go into action until March 2003, during which time they accumulated the numerical strength that helped make them so effective when the fighting actually began.

The obvious, if rarely asked, question is why Iraq did not attack during this period, disrupting the build-up and starting the conflict on more advantageous terms, especially when this was so widely pointed out as a failure in Iraq's approach to the war in 1991? The conventional wisdom holds that Saddam Hussein was restrained by the belief that he could negotiate a solution, especially given the unpopularity of the action in the Arab world and Europe, as well as with Russia and China. Striking first would have damaged the Iraqi regime's prospects for such a solution. Nevertheless, it was clear to many observers at the time that Saddam grossly underestimated the political will of the United States, and in the future, a different opponent could come to quite a different conclusion and might well strike first.

The other issue requiring consideration is the means Iraq had at its disposal. The country's shrunken air force was effectively grounded (with many of its aircraft literally buried underground by the time fighting broke out). Its sea-denial capability, which might once have enabled it

to attack transports, was much diminished from what it displayed in the "tanker war" of the 1980s. Its slender remaining capacity to lay naval mines or fire truck based anti-ship missiles was neutralized early on in the conflict. Even where its missile capability was concerned, all it could manage was the launch of a handful of Silkworms and short-range ballistic missiles to little effect.

Nonetheless, it is conceivable that the Iraqi army could have rolled south to attack staging areas in Kuwait early on in the build-up. Against a much smaller U.S. force, the Iraqis would have inflicted more casualties, captured stocks of equipment, and temporarily disrupted the flow of equipment by cutting off facilities supporting the mobilization. While a U.S. counterattack would surely have been successful, the Iraqis would have made it more difficult, and possibly exacted a significant propaganda victory. Alternatively, Iraq could have turned to special forces-type operations to disrupt airfields, seaports, and the like.

Moreover, just as other opponents in the future may decide to strike preemptively against a U.S. build-up, they may also have more sophisticated capabilities in this area. These could include air, missile, and ground actions, as well as diesel submarines and sea-skimming, supersonic air- and sea-launched anti-ship missiles, such as the Moskit, against which missile defenses today would have little effect.

Urban Warfare

The Iraqi conflict certainly saw urban warfare, but nothing like what was feared in the run-up to the fight. While pessimists were widely derided afterward for anticipating that Baghdad would become a Stalingrad-like battleground, some of the derision may be unwarranted. Certainly, the Iraqi military did not have the resources to attempt a battle so large scale, protracted, or bloody as Stalingrad. Equally certain is that the combination of heavy armor with air power in innovative ways helped in taking the city quickly by letting U.S. units roll swiftly under fire with few losses, outmaneuvering the opposition.

The fact remains, however, that Saddam Hussein never strived for a large-scale battle inside the capital, but instead a forward defense of the southern cities. The result was that Baghdad, by far the country's largest urban center and potentially the toughest nut to crack, was stripped of the units that even an attempt to stage such a battle would have required.[5] Out in the open, U.S. air and land forces destroyed these units. Insofar as the forces remaining in the city are concerned, there was little preparation for such a fight in the way of barricades, antitank ditches, ambush positions, concealed heavy weapons, and the like.[6]

Consequently, even with the depleted resources of the Iraqi army as a whole, it is easy to imagine a battle for the capital, in which far more numerous defenders were waiting for coalition forces behind well-prepared defenses. This likely would not have changed the outcome of the war, and certainly not resulted in a Stalingrad-like bloodbath, but it would have made for a lengthier, costlier fight. The siege of Fallujah by Marine forces in April 2004, in which the fighting at times resembled the house-to-house combat of World War II, was a reminder that the spectre of urban warfare has not been so thoroughly tamed as some would have it.

While Operation Iraqi Freedom was a stunning success, it cannot be assumed that every contingency will play out the same way. A future adversary could throw the first blow, disrupting a regional military build-up, and then when on the defensive, retreat into the cities and put up a far stiffer fight than the one offered in response to the charge on Baghdad.

The limits of what such approaches allow, however, ought not to be ignored, least of all where armored warfare is concerned. Even with much improved command, control, communications, and intelligence, it is difficult to picture a head-on confrontation between forces of U.S. M1 tanks and third-world T-72s, ending much differently than it has in recent conflicts. Nevertheless, a more agile opponent able to sink a few supply ships or temporarily shut down a key port, as with more sophisticated ballistic and cruise missiles; wreak havoc in the rear with special forces or computer attacks; and offer denser resistance in a carefully fortified urban environment, may make "thunder runs" a riskier proposition in the future.[7]

Under these alternative circumstances, the audacity that paid off so handsomely in the conventional phase of Iraqi Freedom might not work as well, with combat dragging out and supply lines coming under serious threat. This makes it worthwhile to reflect on one of the war's better-recognized lessons: the vulnerability of high-tech, but lightly protected, systems and the continuing value of heavily armored forces. Robust tanks and infantry fighting vehicles, such as the Abrams and Bradley, enabled U.S. troops to keep moving rapidly while taking substantial fire. Such robustness, however, is required not only in individual pieces of equipment, but in numbers (as the less successful aftermath of the invasion demonstrates), as well as strategic deployability, and logistics arrangements. The ability to amass forces more quickly, and the depth to absorb losses and disruptions are essential in a fight against a dynamic opponent. Of course, this is easier to say than actually do, and in the real world, resources are finite.

Nevertheless, recent talk of cutting the U.S. Army from ten to eight divisions to free up money for more advanced systems, may be the opposite of the direction now called for. U.S. forces presently have a lead that any plausible opponent will find unbridgeable. While research and development are of course essential to preserving that lead, other priorities should now take precedence, such as building a force with sufficient slack to ensure a dearly purchased technological advantage is not squandered through penury in less glamorous logistics matters.

Notes

[1]Edward Luttwak, *Strategy: The Logic of War and Peace*, Harvard University Press, Cambridge, MA, 1987.

[2]Even during the conflict, it was widely reported that night-vision equipment and AT-14 Kornet missiles were being smuggled into the country.

[3]For a description of the attack, see Rick Atkinson, *In the Company of Soldiers: A Chronicle of Combat*, Henry Holt & Co., New York, 2004, pp. 147-155.

[4]Walter J. Boyne, *Operation Iraqi Freedom*, Forge, New York, 2003, p. 275.

[5]Wesley Clark, *Winning Modern Wars*, Public Affairs Books, New York, 2003, p. 61.

[6]Ibid., p. 81.

[7]It is also worth remembering that the Iraqi military of 2003 was not what it had been in 1991, either as a fighting force or as a standard by which to judge other conventional threats. Two-fifths its former size, its training, and readiness were diminished by lengthy sanctions, which also prevented a belated modernization. Other forces may be better equipped and trained to begin with.

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The Headquarters Convoy Model

by Captain Matthew J. Reiter, First Sergeant Joe B. Parson Jr., and First Lieutenant Tobias S. Apticar

All vehicle commanders are present, they take out pen and paper and prepare to copy. Critical parts and ammunition are required at the outlying operations base. The logistics requirements are assembled and will be transported. This mission will require two light medium tactical vehicles (LMTVs) and three high mobility, multipurpose wheeled vehicles (HMMWVs). All trucks will carry crew served weapons systems, and the HMMWVs will be used for command and control. Headquarters and Headquarters Troop will conduct a ground assault convoy tomorrow to Tal Afar to resupply forward elements.

Each ground assault convoy (GAC) in Iraq is a mission and should be treated as such. This article outlines how to prepare soldiers and leaders for such operations. Convoy commanders and noncommissioned officers in charge (NCOICs) must be proficient at the intricacies of these operations, to include preparing and briefing the convoy, ensuring operations orders are mission focused, and preparing a clear and concise mission statement accompanied with understandable task and purpose statements. Individual training and team building will all come into play during convoy operations — each soldier will count on the other. While not necessarily born a combat arms soldier, these headquarters soldiers must become experts at convoy operations to accomplish the mission.

Individual Proficiency

Physical training is the foundation of a soldier's military service. Every soldier starts his day with physical training. To be prepared for the rigors of battle and increase survivability, every soldier must improve their physical readiness. Cardio-respiratory endurance is by far the most important area. Individuals can improve muscular strength and endurance through normal daily activities, but soldiers seldom improve cardio-respiratory endurance on their own. The sweltering heat of Iraq is unforgiving and pushes soldiers to physical limits — top physical conditioning helps combat extreme weather conditions and allows soldiers to be mission focused.

Personal Weapons

Apart from the skills of the soldier's military occupational skill (MOS), every soldier must be a warrior.[1] A warrior is capable of using available resources to accomplish the mission. One of the greatest tools available is the soldier's assigned weapon, be it a rifle or a machine gun. It is imperative that individual weapons become an extension of the soldier. This is achieved through proficiency, discipline, and confidence with individual weapons systems. These skills are learned in initial entry training, but are perishable and must be retrained, reinforced, and built on to prepare soldiers for combat.

Basic rifle marksmanship is comprised of several training phases, to include preliminary marksmanship instruction, grouping/zeroing, and qualification.[2] Using individual weapons and training aids not only qualifies soldiers on specific weapons, but also instills confidence and forms a basis for advanced training. Once the basics are learned, the soldier can move on to the fundamentals of marksmanship, which include steady position, aiming, breathing control, and trigger squeeze. Using devices, such as the weaponeer and engagement skills trainer, reinforces these fundamentals.

The next step is beginning the qualification process by conducting grouping and zeroing procedures. Qualified trainers and instructors are essential elements in successfully qualifying a unit. The ability to provide assistance and guidance immediately and professionally will have a direct effect on a soldier's overall attitude, which determines how that soldier will approach further training. Weapons training is not just about qualifying particular weapons — it is also about ensuring soldiers are proficient in this warrior task, which builds confidence.

Once these basics have been accomplished, it is time to move to advanced marksmanship training. Much of this training may be executed simultaneously. Advanced marksmanship training builds on the disciplines necessary to fight in combat. Train-

ing includes alternate positions; close-quarters marksmanship instruction; quick-fire methods; moving engagements; mounted fire; night fire; nuclear, biological, and chemical (NBC) fire; discrimination fire; and use of devices such as the M68 reflexive sight. At this point, various subject matter experts will be necessary to assist with training to maintain the focus that only a subject matter expert can provide.

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Close-quarters marksmanship training produces the greatest dividends when advancing to other individual and collective training such as military operations in urban terrain (MOUT) training, convoy training, individual and squad movement techniques, and battle drills. There are four primary-area methods involved, which include slow-aimed fire, rapid-aimed fire, aimed quick kill and instinctive fire.[3] Slow-aimed fire and rapid-aimed fire are addressed throughout the qualification process.

Aimed quick kill and instinctive-fire techniques share many of the same characteristics; however, instinctive fire is much quicker due to the eminent threat and is therefore an intensely trained response. Aimed quick kill relies on training fundamentals in a different way, much like the steady position. During early phases of weapons training, soldiers are taught supported and unsupported prone positions and may be introduced to other positions such as the kneeling position.

During close-quarters training, soldiers will be introduced to the isosceles/fighters stance. Aiming the weapon focuses on aligning the front sight post with the carrying handle rather than the rear sight post; this makes it quicker to move to the firing position to engage. Soldiers must learn to carry weapons at the low ready regardless of location. They must learn and reinforce the act of moving to the ready position to engage. This training phase can actually be aided if the unit has devices, such as the M68 reflex sight and other close-quarters optics, available. Ranges that provide the ability to react to targets, such as a "shoot house," help culminate this training.

Close-quarters marksmanship transitions into several areas, to include close-quarters battle or MOUT training, individual and squad movement techniques, and drills. Once individual soldiers are successfully trained, you can build qualified fire teams and sections. Drills necessary to fight and win during convoy operations will be directly effected by a soldier's ability to react while dismounted as an individual or as a team member.

As individual weapons skills are being developed, crew served weapons skills should be developed analogously. It is vital that everyone in the unit become proficient in using assigned crew served weapons. Advanced weapons training for crew served weapons is quite similar to that of individual weapons training. Crew served weapons training should focus on night fire, target discrimination, quick reaction/suppressive fire, moving engagements, different firing platforms, and crew drills. While this level of training may be limited due to available assets, the goal should minimally include familiarization with firing the weapons. Remember that these weapons are crew served weapons; many times units fail to have the assistant/alternate gunner complete the same training.[4]

Tying It Together

Once the individual, squad, and crew weapons skills and drills have been trained and standard operating procedures have been established, it is time for collective training. Collective training should focus on the unit's mission and battle drills for convoys. It is extremely important that each soldier executes these drills, and that the drills are adjusted based on tactics, techniques, and procedures that the unit develops over time. Convoy operations rely on each soldier in the convoy to be trained and ready to execute the mission. A tough and challenging physical fitness training program, coupled with soldiers who are proficient and confident with their weapons systems, will produce lethal warriors ready to accomplish the mission.

The goal of individual training is to build highly effective and combat ready units. The convoy live fire exercise should closely resemble actual battlefield conditions. Many different resources will have to be pooled to build realistic training scenarios, such as the proper use of OH-58 helicopters, medical evacuation (MEDEVAC) helicopters, and field artillery. These combat multipliers may be available on the battlefield and should be integrated into training. Ground maneuver commanders need to understand the abilities and limitations of these friendly forces.

Simulating the enemy's posture is also an important part of training. On the current battlefield, AK-47s and RPKs are abundant. Leaders should integrate the use of these weapons into training. These weapons can be fired down range to simulate contact on a convoy. Target discrimination can be used with a simple strobe light attached to targets to simulate muzzle flash and teach soldiers to return accurate fire. The use of improvised explosive devices (IEDs) is an easy task to simulate as well. Tying M12 detonation cord in a uli knot, packing the M14 blasting cap in flour and attaching it to a M81 igniter, will produce a small but effective explosion in the vicinity of the convoy.[5] This realistic training is imperative to simulating enemy tactics and will build soldier confidence in the face of a real IED and gun fire.

Leaders should hone their troop leading procedure (TLP) skills, which may change during convoy operations. Reporting procedures and formats should be trained with a great deal of focus on reports vital to the mission, such as the nine-line MEDEVAC request, contact reports, and unexploded ordnance reports. Rules of engagement (ROE) training should always parallel the oper-

ating environment and its changing climate. The unit's standard operating procedures (SOP) should also be adjusted to address weapons control status and weapons readiness posture as they relate to ROE.

The use and training of combat lifesavers is very important. Each unit should strive to have every soldier combat lifesaver trained and qualified. These skills are perishable and need to be retrained quarterly. Leaders should adapt training requirements to their specific areas of operation.

All training requires a great deal of leader involvement. Get creative and use improvised devices during training, which greatly enhance training and will further guarantee success. Successful training is measured in individual and unit proficiency, discipline, self-confidence, and confidence in fellow soldiers.

Planning the Convoy

Once soldiers are trained and ready to conduct ground assault convoys, leaders need to refine their planning techniques. Modified TLPs have proven effective in preparing for convoys. The basics include: analyzing the mission; issuing a warning order; mapping reconnaissance; S2 briefing; risk assessment, issuing modified order (convoy briefing); and conducting rehearsals.

We start with receiving the mission and determining whether it is a logistics package (LOGPAC), maintenance/recovery, or personnel movement mission. Quite often, several missions will be accomplished during one convoy operation. For example, key personnel may have to be moved to a specific location during a supplies and parts mission. Based on mission requirements, the number of soldiers must be determined, as well as the number of vehicles and crew served weapons. Refer to the unit SOP, but it is recommended that the convoy be at least four vehicles, with two of the four having crew served weapons. If assets are available, use crew served weapons on all vehicles. In 150-plus-vehicle convoys, maintaining an aggressive posture has prevented convoys from being attacked, while other units have been attacked daily. It's not a bad idea to have a mix of HMMWVs, LMTVs, field ambulances, or recovery vehicles.

Making a tentative plan and gathering recourses is easily accomplished by selecting vehicles and personnel to man the convoy. The convoy commander will begin to write the mission operations order and compile the manifest and risk assessment. A copy of these documents should be furnished to the operations centers so they can track the convoy. Regardless of the mission, soldiers are not just "catching a ride" on the convoy — they will have weapons postured toward potential threats, scanning their sectors the entire time.

The enemy will almost always attack the convoy that seems less prepared, less aggressive, and has the least amount of weapons systems. The convoy commander must determine the specific threat and adjust the posture of the convoy appropriately. This is why it is important for convoys to look aggressive at all times, regardless of the mission.

When the mission preparation phase has been accomplished, a warning order should be issued to the soldiers who will crew the vehicles. Based on the mission, the convoy must have the correct make-up of vehicles. For instance, a maintenance mission would require a wrecker or at least a HMMWV manned with mechanics, tools, and a tow bar. For a LOGPAC mission, a LMTV or cargo vehicle large enough to carry parts and equipment is required.

Continue to Develop the Plan

Obtain a detailed S2 brief on any significant events within sector over the past 24 to 48 hours. The S2 can also provide the convoy commander with current enemy information in the area of operation and may provide insight that would help with route

"Quite often, several missions will be accomplished during one convoy operation. For example, key personnel may have to be moved to a specific location during a supplies and parts mission. Based on mission requirements, the number of soldiers must be determined, as well as the number of vehicles and crew served weapons."

planning. Using reconnaissance helicopters and unmanned aerial vehicles can also provide detailed route information.

Once the crews, vehicles, and weapons systems are identified, it is the convoy commander's responsibility to put together a manifest and order of march. The convoy commander must account for available weapons systems and types of vehicles in the convoy. The manifest should include order of march by vehicle bumper number, vehicle type, crewmember names, onboard weapons systems, combat lifesavers in each vehicle, and available communications, to include the BFT.

Once the manifest is complete, it is time to complete the risk assessment. Take into account hazards, such as fratricide, injury from fragments/ricochets, negligent discharges, fatigue, traffic, route familiarity, enemy contact, weather, fire, IEDs, vehicle-borne IEDs (VBIED), and NBC IEDs. A thorough risk assessment is necessary and vital to protecting personnel and equipment — complete a risk assessment for every mission.

Issuing the Order

The convoy commander is responsible for issuing the convoy brief, which includes the mission, route orientation, times, checkpoints, road conditions, danger areas, and enemy activity. Ensure all vehicle commanders are present, as well as applicable gunners and passengers. Vehicle commanders are responsible to brief their crews and disseminate all information. This is especially true if it is a new mission or a different route.

The execution portion covers order of march, start points, march interval, march speed/catch-up speed, air support, actions on contact/emergency actions, and timelines for vehicle line-up and pre-combat checklists (PCC)/pre-combat inspections (PCI). While the service support portion includes classes I, III, and V, as well as maintenance, medical, and NBC.

The final portion, command and signal, covers locations of the officer in charge/NCOIC, primary and alternate means of communication, required frequencies, final commo checks, start point times, and safety concerns that the convoy commander may have, such as ensuring all crewmembers have eye protection and a hydration system. Vehicle commanders should ensure that meals ready to eat (MREs) and plenty of water are on the truck. Vehicle commanders should also have a folder, which contains a manifest, route maps, VBIED list, PCI/PCC checklist, chemical IED report format, and a nine-line MEDEVAC format posted in each vehicle. Once the vehicle commander reaches this point, he is left to brief and inspect his soldiers. During this time, he is responsible for packing and conducting maintenance. All the information presented in the convoy brief will be considered vital information that must be memorized by each person in the convoy. The next day is reserved for rehearsals and inspections.

Battle Drills and Rehearsals

Battle drills should complement your unit's vehicle and personnel structure. We did not have any combat arms soldiers to conduct our convoys, except for the first sergeant, executive officer, and commander. The drivers and gunners were signalers, cooks, mechanics, or supply clerks. These soldiers embody the warrior ethos and have trained hard to become tactical convoy experts. They always stand ready to engage and destroy the enemy. While lacking squads of dismounted soldiers to close with and destroy the enemy, our appearance always exuded an offensive posture, which is a proven deterrent to enemy aggression.

React to crowd/traffic obstruction. This battle drill occurs most often in built-up urban terrain and could involve civilian crowds, a vehicle accident, or a herd of animals impeding the route. The lead vehicle determines if the obstacle is the enemy's effort to shape an attack, or if it is a simple random occurrence. If no enemy is detected or suspected, convoy vehicles will close their interval and continue to move, pushing through using any means necessary. Quite often, convoys will have to use sidewalks and curbs, or even encounter oncoming traffic. Avoid stopping at red lights, but check for oncoming traffic before moving through the intersection cautiously. The trail vehicle is responsible to report that all convoy elements have passed through the obstruction and are continuing the mission.

React to small arms/IED without casualties. Shoot, move, and communicate.

At the onset of small arms fire or an IED explosion, all weapons in sector will return aimed fire. Within several seconds, vehicle commanders should report contact to the convoy commander and continue to develop the situation. Drivers should increase

speed to exit the kill sack. Commanders/NCOICs should consolidate reports and send a situation report to higher headquarters.

React to small arms/IED with casualties. This battle drill is similar to the previous one, except this time there are casualties. If the vehicles can move after contact, they should leave the kill sack. Gunners should return fire to suppress the enemy. In the event a vehicle is damaged and unable to move, the vehicles to the front and rear of the damaged vehicle should move away from the immobilized vehicle. This isolates the damaged vehicle in the enemy kill sack. The convoy commander now coordinates fires to suppress the enemy before sending recovery and medical assets to begin recovery. Once the convoy commander deems the situation stable, medical and maintenance assets should be sent forward. If applicable, the vehicle should be recovered and, at a minimum, all sensitive items should be removed from the vehicle. Depending on the severity of the casualties, combat lifesavers should assess the situation so the commander can decide whether a ground evacuation or air MEDEVAC should be used.

Unexploded IED identified. A crewmember identifies a suspicious looking object on the roadside, which could include a dead animal with wires, several large canisters, artillery ammunition, or an out-of-place vehicle. Once identified, the convoy should stop and move away from the identified IED. This action may split your convoy. Gunners should initiate a common hand/arm signal to alert the rest of the convoy. An easily identifiable marker should be thrown near the IED to mark it. Establish security in the local area and call explosive ordnance disposal (EOD) or higher headquarters. Stop all traffic and wait for EOD support to arrive and reduce the IED. Do not approach the IED or attempt to disarm it — most IEDs are command detonated, so keep a safe distance. Thoroughly inspect the area where your vehicles have stopped because the enemy may use false IEDs to stop vehicle movement and detonate other IEDs. This tactic is highly effective, so it is imperative that vehicle commanders quickly move far away from the suspected IED and establish local security.

Vehicle breakdown/maintenance stop. This is a very common and should be handled as quickly as possible. As soon as a maintenance problem is realized, the convoy commander directs the convoy to pull over and assume a 360-degree security in a herringbone formation. The convoy's maintenance contact team should immediately move to the disabled vehicle and assess the situation. If it is an easy fix, such as a flat tire or loose hose, it should be repaired as quickly as possible and the convoy should continue. If a larger problem occurs, such as a broken axle or engine seizure, a tow bar should be attached immediately. Skilled mechanics are essential to this battle drill. Based on mission, enemy, terrain, troops, time, civilians (METT-TC), convoy commanders should assess how much time is allotted to this type of stop. The convoy commander may choose to stay in one spot for as long as 20 minutes, if in an unpopulated rural area. Conversely, if the break down occurs in a highly urban and volatile area, the best course of action may be to immediately hook up a tow bar.

NBC considerations. While not a prominent threat, it is advisable to have protective masks on each convoy. Chemical weapons are inexpensive and easy to make with common household items. Should an IED be laced with a chemical agent, the convoy will be prepared. Also carry M-22 chemical alarms and improved chemical agent monitors to help assess the situation. Protective masks should be placed in an accessible location near each soldier.

Pre-combat Checks and Inspections

Depending on the number of vehicles and personnel in the convoy, leaders should plan for several hours of preparation time prior to beginning the convoy. Vehicles and equipment should be loaded and fueled with a complete preventive maintenance checks and services (PMCS). Vehicle commanders are responsible to brief and check their vehicles and personnel. Several critical inspection items include knowledge of the mission; weapons functionality and ammunition; proper uniforms; combat lifesaver bag; radios; dispatch/PMCS; drivers licenses; night-vision goggles; load plans; strip maps; nine-line MEDEVAC posted in each vehicle; convoy manifest; knowledge of battle drills; and NBC masks/J-lists.

Most convoys are identified several days in advance, which gives vehicle commanders time to correct deficiencies prior to the convoy line up. This ensures all personnel are ready for the final inspection conducted by the convoy commander and NCOIC. Pre-combat checks require the most time and are completed by vehicle commanders. It is essential for commanders to allow vehicle crews maximum amounts of time to prepare, load, and brief individual crews. This long preparation phase works very well.

The PCI is the final check before entering hostile conditions. The convoy commander and NCOIC tackle this task together. The command team visually inspects all vehicles and questions each member of the convoy. For instance, the convoy commander's questions focus on the mission, use of battle drills, and weapons orientation. The NCOIC should be checking for safety, proper weapons loading/clearing procedures, and MEDEVAC procedures. The convoy commander can adjust sectors of fire and reiterate proper scanning techniques.

This inspection should take several minutes per vehicle and allow for necessary corrections. If any deficiencies are noted, they need to be corrected immediately. The mission focus of each and every soldier should be on the current mission. Leader involvement at various phases needs to stress the importance of the mission. Every soldier is a gunner and another pair of eyes scanning an assigned sector.

Special Skills

Medical and maintenance personnel and equipment are valuable assets during the convoy. These combat multipliers need special consideration in their disbursement and utilization. Many problems can be avoided by conducting a thorough mission analysis prior to movement. During a medical or maintenance stop, a few minutes saved can be the difference between life and death. Evaluating the problem and properly executing battle drills are critical in these situations. Strong subject matter experts should be paired (rank should not be the only factor for pairing) with assistants who can facilitate the situation. Subject matter expert pairing, by name, should be carefully considered during the planning phase.

A medical or maintenance emergency can turn from bad to worse by incorrectly evaluating the situation. The intricacies of a MEDEVAC request can mean the difference between life and death. Consideration for security, combat lifesaver usage, and subsequently handling killed in

"The convoy commander would mostly likely do a map reconnaissance of the route. Our unit has the luxury of the blue force tracker (BFT) with which to conduct an in-depth map recon. The BFT allows the user to switch between a standard military map view and an overhead satellite view. Some units are not equipped with the BFT and must rely on standard map recon. Most of our convoys travel along the same route with varied start point times. Accompanied with a detail map, reconnaissance should be the current information on the enemy situation."

"The convoy commander is responsible for issuing the convoy brief, which includes the mission, route orientation, times, checkpoints, road conditions, danger areas, and enemy activity. Ensure all vehicle commanders are present, as well as applicable gunners and passengers. Vehicle commanders are responsible to brief their crews and disseminate all information. This is especially true if it is a new mission or a different route."

actions (KIAs) are paramount during this highly stressful time. Units should conduct nine-line MEDEVAC training with helicopter support. Encourage participation from all convoy elements. This should first be trained at section level and progress to an entire convoy element.

A security truck should be assigned to the field ambulance or casualty evacuation vehicle when moving through the stopped convoy's herringbone formation. Do not speed through the center of the convoy. The convoy commander or NCOIC should help facilitate extra litter bearers and the security for the landing zone/pickup zone (LZ/PZ). Helicopters are going to land on the flattest surface possible, which will most likely be the road. A hasty IED sweep should be conducted in and around the LZ/PZ and flank security should be established as necessary. Ensure the LZ/PZ is far enough from the kill sack as not to endanger the helicopter. Extract the casualty from the truck and begin to evaluate on a flat surface. The combat lifesaver or medic on the scene will have to transport the casualties to a safe location away from the kill sack to establish a safe area to conduct medical evaluation and aid.

These techniques are proven effective; however, they will continue to evolve. The ability to adapt and continue to improve convoy operations will help keep soldiers and equipment safe and able to carry on your mission. Constant evaluation and refinement of the enemy's situation is critical to overall mission success. The enemy is always evolving and adapting and we must as well.

Notes

[1]Soldier's Creed.

[2]U.S. Army Field Manual (FM) FM 3.22-9, *Rifle Marksmanship*, U.S. Government Printing Office (GPO), Washington, D.C., 22 January 2004.

[3]Ibid.

[4]FM 3-22.68, *Crew Served Machine Guns*, (GPO), Washington, D.C., 31 January 2003.

[5]FM 5-34, *Engineer Field Data*, (GPO), Washington, D.C., 30 August 1999, Change 2, 1 October 2002.

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Technology and Transformation: Implications on the Company Commander

by Captain Robert Thornton

The heart of transformation is combined arms at the company level, which makes the company the first echelon of maneuver with the organic capabilities to effectively employ all the elements of combat power with a command structure that allows it to see first, understand first, and act decisively. As transformation evolves, one may question, "At what point do the benefits of technology plateau as it applies to the company commander?" While technology will continue to grow and expand, physical and mental abilities of the company-level command structure must keep pace. While enablers that aid the commander will continue to be developed, internalized experience that becomes tacit knowledge comes with time.

The Search for Technology

The purpose of technology in its consumer applications is more freedom for users of a particular technology. This easily translates using the example of communications technology: a cell phone gives the user freedom from the landline; a microwave prepares food faster and saves time.

Technology's commercial and military endstates have a twist. We develop technologies to help us do more with less. More freedom for the user allows us to focus resources, such as time, money, manpower, and effort, elsewhere. Every business, bureaucracy, agency, or institution competes to get more from less. The search to increase the amount of product or output while incurring less effort or risk has been a theme of our military's development since its conception.

The *Fly-by-Wire* Concept and Digital Battle Command

Compensating for physical and mental limitations through enablers can be seen in the development of combat aircraft. Much like advanced flight control systems used to compensate for human physical and mental limitations to control advanced combat aircraft, digital command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) is meant to aid in overcoming analog limitations. These enablers allow us to extend the boundaries of our limitations.

The fly-by-wire concept allows combat aircraft to perform incredible maneuvers and outperform the enemy. Original fly-by-wire designs in high-performance aircraft killed a lot of line pilots because they would "haul on the stick" and unintentionally put the aircraft into a maneuver that exceeds human capacity. In other words, the engineers designing the system put a lot of thought into ensuring the aircraft could not exceed structural limitations, but no one thought about human limitations. We may be seeing something

similar with digital systems, where we pack data and span of control on a commander to the point of incompetence.

Force XXI battle command brigade and below (FBCB2) is a command and control (C2) enabler. FBCB2 is part of the Stryker brigade combat team (SBCT) C4ISR structure designed to provide a common operating picture (COP) that maintains situational awareness (SA) and improves situational understanding (SU). Friendly SA occurs through the platform's global positioning system (GPS), transmitting its location through the digital enhanced positioning location and reporting system (EPLRS) radio and thereby updating the COP. Enemy SA occurs through soldier interaction, such as reporting enemy contact, which must be input into the FBCB2 or another connected part of the digital C4ISR, such as all-source analysis systems (ASAS), to populate the COP. Enemy reports spread instantaneously to systems that are actively on the net.

Combined with the various information-collection platforms within the brigade combat team (BCT), the COP provides raw information to conceptualize the battlefield based on facts and assumptions. Despite some limitations, such as limited bandwidth, the FBCB2 is an enabler. It does the work of many quickly and efficiently, and has the potential for expansion in terms of digital transmission of orders and visual products (currently limited to basic graphics) to extend the reach of the immediate commander. Much like e-mail, important and time-sensitive information can be sent over long distances to subordinates for decentralized execution. This allows us to see first, understand first, and act decisively in larger battlespaces because we do not have to be everywhere at once, just at the decisive points.

The possible dangers in enablers, such as FBCB2, include becoming inundated with too much information (SA filters must be set); higher headquarters' assessment of the situation may not concur with the company commander's assessment; friendly SA currently does not extend to the dismounted soldier; and enemy SA must be input manually. These possibilities can lead to incomplete facts and assumptions. Overall, FBCB2 is an example of how technology allows us to do more with less.

The Interim Force as an Example: *Look Mom, No Staff!*

The SBCT company commander's responsibility is on par with that of a battalion task force commander of yesterday. As an SBCT rifle company commander, the battlespace is typically 25 square kilometers. The idea is that with the C4ISR package, the commander can tap into higher headquarters' suite of collection and analysis assets that will allow him to see first, understand first, and act decisively. Another way of looking at this would be that he does not have to "own" every inch of real estate in his battlespace all of the time, but must use his increased mobility, firepower, and C2 to apply overwhelming combat power at the decisive point in both time and space — not only does he have to be there, he has to know when to be there.

Since this example is relative to every echelon of command in the SBCT, the higher headquarters is leveraging its staff to assist the lower echelon in making the right decisions. The large amounts of collection assets and staff digital C4ISR alleviates some of the burden, but not all. The amount of tasks is also exponential as the higher echelon contends with their own increased battlespace and the tasks within that battlespace. The company commander encounters a gap between higher headquarters meeting his staff needs and balancing current and future operations. The company commander compensates by using his C4ISR package and his headquarters elements — fire support officer, XO, and first sergeant — in a function that sits somewhere between the traditional duties and responsibilities of company-level leaders and those of a battalion staff.

Intuitive subordinates, who are entrusted to meet the commander's intent as outlined on mission-type orders, are a necessity. Platoon leaders and squad leaders must have the ability to take the digital fragmentary order (FRAGO) and the rudimentary set of digital graphics accompanying the FRAGO, and execute the commander's intent realizing the possibility of having to clarify their understanding via FM or digital messaging. The bat-

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tlespace is often too large and the operating tempo (OPTEMPO) of information-based warfare is too fast to arrange a face to face every time. This requires a great deal of trust in subordinates who have comparatively little experience given the scope of their responsibilities in their increased battlespace.

Establishing trust and intuitiveness takes time and repetition. Trust is earned by observance; intuitiveness comes through familiarity. When bandwidth increases and video linkage between tactical echelons is the rule, recognizing understanding (or misunderstanding) will be complete, and the commander's comfort zone will increase when he can "read" his subordinates. Until then, the immediacy of the task often requires a leap of faith. Sooner or later, the commander must apply his attention elsewhere in his battlespace and trust his subordinates to execute his intent.

Company-level battle drills are another requirement. Simple schemes of maneuver that allow for greater latitude of subordinates fill the gap between short-fused FRAGOs, with little time for troop leading procedures (TLPs), and increased SA/SU gained through enhanced C4ISR. TLPs are an ongoing process in anticipation of the next mission. All available time is pushed to the lowest levels to ensure good pre-combat checks (PCCs), pre-combat inspections (PCIs), and rehearsals of squad- and platoon-level battle drills that support the company scheme of maneuver.

During the fight, the company headquarters often "tag teams" in and out of the "now" execution. The company commander must visualize the fight in the action-reaction-counteraction model, and continually extend this model until the enemy is defeated. The XO switches from reporting to the battalion tactical operations center (TOC) and updating the COP with enemy reports to supervising a company shaping effort. The company first sergeant is executing logistics functions, but may also be reporting on a company shaping effort. The company fire support officer is processing fire missions and assigning fire support assets, deconflicting maneuver with fires, updating the commander, and reporting to the battalion fire support element (FSE).

The company headquarters executes and C2s current operations and plans future operations similar to a battalion tactical analysis center (TAC) and a battalion TOC during the 20th century. Digital technology does not fully compensate for lack of a dedicated staff. For a limited duration, and with the aid of the C4ISR package, the company headquarters can reach back and tap into a limited degree of the battalion's complete staff. The bottom line is: battle command at the company level has been changed by technology to do more with less.

Secondary and Tertiary Effects
Which Glass Ball Is Most Important?

Struggling to maintain proficiency on the basics while learning, incorporating, and leveraging new technologies requires not only good planning skills to deconflict events, but sound judgment to realize which events are more important. Traditionally, the tools company commanders have available to assist them in making decisions include the mission essential task list (METL), the higher headquarters quarterly training guidance (QTG), and an assessment of the company's status, usually packaged in the quarterly training brief QTB. The commander's quarterly goals are listed in the QTB. Battalion and company weekly training meetings should allow him to react to changes from higher headquarters and adjust his own priority plans accordingly. These tools allow the company commander to fight the fight and not the plan.

With more technology comes more requirements. There are no more "entry level" soldier positions in the sense where we have a soldier arrive who is assigned as a rifleman, then works his way up to more challenging positions. In the SBCT rifle squad, the rifleman has one of two critical additional skill identifiers (ASI). He is either the Javelin missile gunner or the squad-designated marksman. Both skill sets are trained and maintained at the unit, usually through a battalion quarterly certification or course. Since almost everyone has an ASI or a technical skill, such as FBCB2 certification, which requires proficiency-style training, decisions about when to plug in collective training can be difficult. Add the normal taskings, last-minute taskings, maintenance associated with a technology-rich unit, and other required training, such as consideration of others and sexual harassment, and you are left with making judgment calls based on guidance from the battalion commander.

Establishing and following a training path that will lead your unit through individual, crew, squad, and platoon tasks, ultimately resulting in a lethal combined-arms company, requires judgment that can only come from maturity and experience. Often priorities must be rearranged to meet the objective. Candidness in assessing and reporting is critical. Tempering subordinates in your leadership role, so that you maintain course, requires emotional strength and determination. Vision is not enough; foresight to see and correct potential friction is a must. Current and future commanders must consistently be great leaders.

The Pedagogy of a Commander:
Back to Sparta

Of the Hellenistic city-states, Sparta is often cited for military prowess. Their entire society appeared to have military cul-

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ture embedded. Its no small wonder that such a society would produce very good soldiers and leaders. If you view the company commander strictly as a leader, then he begins to informally hone his skills for command on the schoolyard playground. However, the U.S. Army cannot begin molding commanders until they enter an Army institution such as the United States Military Academy, the Reserve Officer Training Corps, or basic training. At that point, every experience shapes him as a commander. Officers are groomed for positions of greater authority (the Army trains leaders two levels up) from the moment they arrive at their first duty station.

If technological endstate (for military purposes) equals doing more with less, which means leaders have increased responsibilities, then how do we shape their education so they are prepared to carry out increased responsibilities? Targeting the company commander, because he is the center of gravity in the new force structure, makes sense. The rifle companies within the SBCT are designed for full-spectrum operations, they are organically a combined-arms unit, and they are self-deployable for up to 48 hours from a forward operating base. Given their C4ISR package and conductivity with higher headquarters, they are capable of carrying out tough out-of-sector missions with little notice. The SBCT rifle companies are not an exception to the rule; they are the future. Transformation and technology will continue to further the Army's ability to do more with less, and the company commander is arguably the center of gravity.

The company commander shapes many other leaders through training plans, counseling, administrative responsibilities, and mentoring. Company commanders have contact with soldiers everyday, they are the first officer within the command structure with the potential to have a long term, personal awareness of their soldiers. Platoon leaders are too junior and their time in a position too brief, the battalion commander has at least four times as many soldiers to get to know and is more subject to external requirements. Not only does the company commander shape his team leaders, squad leaders, and platoon leaders in the moment, but he shapes them for increased future responsibilities as well.

Looking at it holistically, we have the greatest potential to grow the commanders we need from the moment they report to basic course. Everything we teach and infuse them with should be with the goal in mind that we are preparing them for company command. Problemsolving using a "what" theme, instead of a "how" theme should run the course of their education. Granted, technical knowledge must be taught to form a basis that allows for good decisions to be reached, but the way we teach that knowledge requires time management. Time with seniors must focus on guiding, mentoring, building, and shaping leader experiences with the goal of making a commander always present.

"In the SBCT rifle squad, the rifleman has one of two critical additional skill identifiers (ASI). He is either the Javelin missile gunner or the squad-designated marksman. Both skill sets are trained and maintained at the unit, usually through a battalion quarterly certification or course. Since almost everyone has an ASI or a technical skill, such as FBCB2 certification, which requires proficiency-style training, decisions about when to plug in collective training can be difficult."

Moving Forward versus Standing Still

We must continue to acquire the best technology available for our military. To compromise on technology would allow potential enemies to challenge our primacy. We never want to come up short in technology as we did prior to World Wars I and II. What we should do is apply the "see first, understand first, and act decisively" model to the problem of outpacing physical and mental constraints and limitations. We must foresee problems associated with new technologies, as they apply to the command structure; understand the nature of the problems, such as too much information, too little information, and troops to tasks as it applies to battle command; and acting to correct problems by applying basics to determine possible solutions, such as more or better enablers or less requirements.

An example of creating better enablers is using the tactical unmanned aerial vehicle (TUAV) to benefit the company commander. Currently, in an SBCT, the remote viewing terminals (RVT) can be pushed down to a battalion TOC. The TUAV operator is with the equipment, while the battalion staff provides C2 for the operation using FM and digital communications to direct the TUAV through its operator. The video feed from the TUAV has a north-seeking arrow and provides a grid, which is analyzed by the battalion staff. Significant information and intelligence is then passed by FM and digital messaging to the company commander and XO. The actual footage cannot be passed over the digital C4ISR because of limitations. Even if it could, the amount of raw information (most superfluous since the TUAV operator and ground commander have so many layers of C2 between them) would be overwhelming to an already maxed-out commander, XO, and FSO.

What would enhance the ground commander's C2 is refined near-real time footage from the TUAV. The analogy would be the Sunday football coverage provided by former coaches and players — footage that was received in the TOC and edited "John Madden" style with a stylus that had multicolor graphic capabilities. Real-time feed would come into the RVT and be recorded onto a networked hard drive. That footage then becomes available for editing by the battalion staff. Rooftops, and other graphic-control measures that correspond with current operation overlays, as well as enemy and adjacent unit information, can be applied. Intelligence generated by this refined information could accompany the product via FM or digital messaging.

This would reduce the clutter for the ground commander and allow true reach back to the battalion staff.

Unfortunately, digital imagery as big as UAV feed with graphics currently cannot be pushed via FBCB2, but probably will be in the near future, if a comparison in the speed of information transmission in the internet industry is any type of indicator. When it does arrive, we need to be prepared to provide company commanders with information of immediate value, not information that requires work while conducting operations.

Raw UAV feed that would be of use to the company commander would be from a UAV or unmanned ground vehicle (UGV) that he could control and target. This type of raw information, coupled with an RVT located in the company commander's vehicle and an analyst working directly for the commander, needs little analysis to turn information into intelligence as it is targeted by the company commander and could be used to verify reports, provide reconnaissance on an area where he has accepted risk, or to cover an named area of interest (NAI). Systems, such as Dragon Eye, could meet this need.

In the initial concept for the SBCT, a few concerns were voiced regarding the level of professional development and maturity of a captain; in other words, would a captain be able to train, maintain, and employ something as big and complex as an SBCT rifle company? The counter argument became that since the SBCT is only an interim step in transformation, eventually all company commanders would have to be majors or second-time commanders. The reality is captains would have to be promoted to majors sooner, or reduce the number of branch-qualified captains in Active and Reserve Components, combat training centers, and other assignments, which would only increase the number of inexperienced majors, plus cause ripple effects along the captain and lieutenant ranks as more vacancies appear.

We need to target the company commander because he is the most critical leader. Because of his responsibilities and capabilities for developing a training strategy, he affects multiple levels of leaders below him. Because the focus for employing combined arms has been organically embedded in the company, he now takes on the responsibilities of what once belonged to the battalion.

In addressing physical and mental constraints and limitations of company commanders, we will equip them with the tools to do more with less. The key terrain is identifying where limits of the company commander can no longer be supplemented by available technology, and then addressing the shortfalls through professional development. How do we best transfer and share the critical experiences a company commander requires? As a profession, we have risen to the challenge; the current Stryker company commanders are doing very well training and employing the very robust organizations within the SBCT to their full potential, and many of the same technologies are being used in Operation Iraqi Freedom and Operation Enduring Freedom.

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Tactical Logistics: Adapting for the Future

by Captain Christopher D. L'Heureux

A logistics package (LOGPAC) rumbles through a small town along the main supply route (MSR) of a third world country. As dusk touches down, the support platoon leader becomes anxious. Working out the difference between forecasted requirements and actual needs with the support operations officer put him 45 minutes behind schedule.

The radio crackles, "Road Dog One, this is Road Dog Two-One-Red. I've got something suspicious up ahead, break. It looks like there's some wire across the road to the right of a three-story building."

The platoon leader quickly glances at his map; the only three-story building in town had already been identified as checkpoint Z35. "Roger Two-One-Red. All Road Dogs this is One, execute breach drill .05 southeast checkpoint Z35, I'm going higher."

As the convoy slows, a sudden explosion interrupts the stillness and is quickly followed by a series of pops.

"One this is Two-One-Red, contact RPG [rocket propelled grenade] and rifle fire from Z35!"

"Road Dogs this is One, execute near ambush. Four, set perimeter at rally point Romeo and turn them around. White, move up to suppress Z35 so Red can break contact. Grunt, have your dismounts move to my position, over."

The commands are quickly followed by a series of "rogers."

Two HEMTTs [heavy expanded-mobility tactical truck], armed with an MK19 and an M2, move forward and begin lobbing 40mm grenades and .50-caliber fire at the target building. As vehicles begin to move toward the rally point, the dismount squad links up with the lieutenant and gets a quick FRAGO [fragmentary order] to clear Z35. As the dismount squad approaches the south side of the building, they throw a violet smoke grenade and the direct fire shifts to the north.

"One, this is Two-One-Red, I've got two wounded and I'm moving to Romeo."

"Grunt, this is White, I can see you against the south wall. I see four enemy soldiers in third-story windows with small arms. The RPG gunner is on the roof, over."

"Roger, I'm going in now."

As the dismounted squad clears the building, there is constant radio chatter between them and the support-by-fire trucks. The platoon leader is in constant radio contact with both his men and the battalion TOC [tactical operations center]. The platoon sergeant is consolidating and reorganizing at the rally point.

"Two-One-Red, this is Four, Romeo is 600 meters to your south on MSR Redsox, LZ [landing zone] is set, and Dust Off is in route, over."

U.S. Army soldiers are likely to encounter an ambush in any number of places throughout the current operating environment. Combat service support (CSS) elements can only sustain forces if they can protect themselves from the enemy. They must be organized, equipped, and trained to fight. Battalion task force-level CSS doctrine has changed little to contest the threat poised by the contemporary operational environment (COE), even with the addition of the forward support company (FSC).

Task force CSS doctrine must adapt to reflect current tactics, techniques, and procedures, and CSS elements must be organized, equipped, and trained as we fight current battles and prepare to fight future conflicts. This requires changing doctrine,

reorganizing CSS assets on the battlefield, procuring and fielding additional equipment, and a new focus on combat logistics training. To accomplish their mission without external support in a COE, CSS elements at the task force level must be reorganized, equipped, and trained to fight first and complete critical logistics missions.

The Threat

Threat doctrine in the COE is based on flexibility, adaptability, and initiative. While able to fight regional enemies conventionally, enemies realize they cannot defeat U.S. forces head to head. Against a technologically advanced foe, the threat "…will forgo massed formations, patterned echelonment, and linear operations that would present easy targets."[1] U.S. Army Field Manual 3-0, *Operations*, further explains that, "Adversaries [of the United States] will continue to seek every opportunity for advantage over U.S. and multinational forces. When countered, they will adapt to the changing conditions and pursue all available options to avoid destruction or defeat. This environment and the wide array of threats present significant challenges."[2]

Using complex terrain, the threat will adapt to more nonlinear, synchronized operations against perceived U.S. vulnerabilities. One of these vulnerabilities is the dependence of "U.S. forces …on an extraordinarily complex and comprehensive logistics system. A large percentage of U.S. forces are tied up in logistics, since U.S. military personnel require far more supplies and creature comforts than other armies do."[3]

Logistics elements are a high-priority target for the threat. They are lightly defended and often manned by soldiers who are unpracticed and uncomfortable with close combat. Often organized on an ad hoc basis, the destruction of logistics elements enables the defeat of maneuver units by robbing them of fuel, ammunition, spare parts, and other critical supplies. Attacks on lines of communication (LOCs) create chaos and uncertainty, which draws combat power away from decisive operations. Finally, the threat exploits our national intolerance for casualties by engaging CSS elements, which are easier to destroy than combat units.

The primary threat to logistics assets is paramilitary and special purpose forces that operate throughout the depth of the battlefield. Even if operations against a threat begin in a linear and contiguous environment, once the enemy's conventional forces are destroyed, U.S. forces transition to stability operations and support operations and the operational environment becomes nonlinear and noncontiguous. The Balkans, Afghanistan, and Iraq, where U.S. forces are limited in what they can control, are perfect examples. Secure zones or forward operating bases (FOB) surrounded by unsecured areas full of noncombatants and enemy activity characterize the area of operations. The LOCs that link secured areas become kill zones for paramilitary and special purpose forces looking for lucrative targets.

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Changing How We Fight

The U.S. Army is changing to fight our current and next war. Stryker brigade combat teams task organize combined arms and push more battlefield operating systems to lower levels. Units of action are being organized using the same principles. Future battle command brigade and below (FBCB2) and blue force tracker are making situational awareness easier for commanders and staff.

In Kosovo, company, platoon, and section outposts were located throughout the U.S. sector, some more than 50 km from even a battalion-sized FOB.[4] The 3d Infantry Division (3ID) used battalion task forces to accomplish what divisions did during World War II.[5] During operations in Iraq, task forces have been ordered to establish blocking positions several miles away from the main body. As the capability of our force increases, the U.S. Army will operate over greater distances with smaller units. This causes a need for greater capability in logistics assets at the task force level.

The basis for change relies on doctrine. The current CSS doctrine at brigade and below is based on either the Army of Excellence (AOE)/Limited Conversion Division (LCD) XXI model or the Force XXI Division model. The AOE/LCD XXI has three basic CSS elements: company trains, combat trains, and field trains. Company trains provide immediate and responsive CSS to the company commander, usually in the form of medical and maintenance support. Combat trains provide the battalion task force with immediate and responsive CSS, short distances from the forward line of troops (FLOT), and in the form of a battalion aid station, unit maintenance collection point (UMCP), and emergency classes of supply. Field trains are usually located in the brigade support area (BSA), longer distances from the FLOT, and provide routine logistics to the task force in the form of LOGPACs.

The Force XXI division adds an FSC in place of the field trains and establishes a task force support area (TFSA) located mid-range from the FLOT. The TFSA centralizes CSS under a logistics commander who reports to both the maneu-

ver task force and forward support battalion (FSB). This enables the ability to rapidly cross-level logistics around the brigade combat team (BCT) based on support priorities. The trains, in both models, can consolidate or echelon, based on mission, enemy, troops, time, terrain, and civilian (METT-TC) considerations. Adding a TFSA allows for direct throughput from corps, but most supply is still processed through the BSA in the Force XXI model.[6] In either case, logistics movement is linear, from supply sources to users, but is evolving from a supply-based system to a distribution-based system.

Distribution-based logistics are efficient, but a maneuver task force cannot depend on just-in-time logistics. The problem with a distribution-based system at the task force level is if a breakdown occurs, the task force in contact pays for the problem. The task force must have assets to support supply-based logistics. It took an average of three to six months, after crossing the border between Kuwait and Iraq, before units received more supplies. For example, one task force crossed the border with a 20-foot military van (MILVAN) packed with class III package products (III [P]) and did not receive additional class III (P) until mid-June.[7] A forward support unit, in support of a 1st Armored Division unit, entered Baghdad with over 15 MILVANs of spare parts brought from its warehouses in Germany. Another task force brought a MILVAN full of M1 track, which became essential after a few months of driving tanks in an urban environment and intense heat.[8] These parts became critical when an overwhelmed supply system failed to deliver. The answer is to provide a robust supply package with prerequisite transportation at the task force level and use distribution-based logistics at the FSB and higher echelons of support.

"Logistics elements are a high-priority target for the threat. They are lightly defended and often manned by soldiers who are unpracticed and uncomfortable with close combat. Often organized on an ad hoc basis, the destruction of logistics elements enables the defeat of maneuver units by robbing them of fuel, ammunition, spare parts, and other critical supplies."

Security

In the COE, enemy activity in the areas occupied by CSS nodes and LOCs increase, but doctrine only casually examines security considerations. Doctrine assigns the task force S4, headquarters and headquarters company (HHC) commander, and FSC commander responsibility for train security, and advocates a perimeter defense. It also requires steps be taken to ensure LOC, and CSS asset security, "Because the security of CSS elements is critical of the company team and the task force missions, the company team and task force combat trains and the task force field trains must all develop plans for continuous security operations. The trains, however, may lack the personnel and combat power to conduct a major security effort."[9]

A tactical combat force (TCF) is not adequately resourced at the task force level. Task force commanders have limited combat power to begin with and are loath to commit it to enabling operations.[10] In an attack toward Baghdad, an armored task force cut from its trains more than once during their attack, leaving the trains to defend themselves.[11] Doctrine asserts that trains use passive security measures for protection to counter the lack of personnel and combat power, but a passive defense requires concealment from enemy observers. In current and next war, keeping those elements a secret is virtually impossible.

Reorganizing

Logistics are accomplished using convoys. Although doctrine breaks a convoy into an advance guard, close-in protective group, and rear guard, the organization within these groups is based on available assets. Task force logistics operations should be organized with redundancy. Armored ambulances and recovery vehicles will normally move from the company areas to the task force aid station or UMCP alone, but in the current operational environment, the first rule is no vehicle moves alone. The second rule requires crew served weapons on every mission. These orders mitigate risk but are impossible to apply during sustained combat with the current organization. All logistics convoys should organize vehicles with crew served weapons into sections capable of mutual support. Special teams should be organized for breaching, casualty evacuation, maintenance and recovery, and enemy prisoner of war collection, as required. The internal organization of task force CSS units must be focused on maximizing combat power, not logistics efficiency. Treat any logistics convoy as a combat patrol.

At the company team level, the maintenance team becomes organic to the supported company. This allows unity of command, tailoring prescribed load lists (PLL), developing unit cohesion, and rehearsing standard operating procedures (SOP). An additional company medical team would provide immediate medical care while medical evacuation (MEDEVAC) is in route and facilitate casualty collection point operations. While this does not preclude attaching an ambulance to line companies, it does provide the medical platoon with the flexibility to surge MEDEVAC ambulances without stripping a company of medical coverage. During operations in the Balkans and Operation Iraqi Freedom (OIF), additional medical assets are pushed down from higher levels of support to support decentralized operations.[12] Making a medical team organic to line companies also benefits unity of command, develops unit cohesion, and aids in rehearsing SOPs.

Besides the normally associated elements, task force combat trains should also include the majority of the support platoon, the decontamination team, and additional wheeled recovery assets.[13] Task force combat trains were enormous as-

"Currently, the HHC commander is the only company commander in the task force with a planner. The S4 provides the task force logistics plan, which the HHC executes, but the S4 should direct the task force logistics elements on the battlefield because he is the planner. The HHC commander prepares support for the task force from the BSA and the HHC executive officer (XO) moves forward to control the combat trains organization."

sets during 3ID's attack into Baghdad, compared to what training and doctrine dictate.[14] The 2d Battalion, 69th Armor's combat trains consisted of over 80 vehicles during their drive toward Baghdad.[15] Once maneuver combat operations were over, units garrisoned FOBs and consolidated their CSS assets at the task force level. U.S. forces in the Balkans are similarly organized with consolidated trains in the task force area, leaving no one in the BSA.

The support platoon operates from combat trains to give responsive class I, III, and V support to the task force. As supplies are used, convoys are built and sent back to the BSA to resupply. As required, the FSB, in coordination with the field trains command post (FTCP), pushes packages of all classes of supply to the combat trains, thus limiting the need to go back to the BSA to resupply. The heavy-wheeled section, part of the light-wheeled section, and decontamination team become part of the UMCP. This reorganization provides maintenance support for wheeled vehicles forward of the BSA, namely the scouts and combat trains elements. The decontamination team in the UMCP affords the task force responsive operational decontamination support and the ability to use the equipment to wash vehicles in preparation for maintenance. The benefits of maintaining robust combat trains give responsive and immediate resupply to the task force, downsize the BSA footprint, and create a clear logistics chain of command. Permanently organizing in this fashion will increase cohesion and decrease inoperability.

The recommended changes to CSS organization make the TFSA unnecessary. A second node between the BSA and combat trains is another perimeter to defend. During 4th Infantry Division's (4ID) planning process to attack Iraq through Turkey during OIF, Task Force 1st Battalion, 66th Armor did not plan for a TFSA. It was another logistics node that could not be protected.[16] Until digital information systems are fully fielded, an FTCP is still required in the BSA. The FTCP conducts critical coordination with the FSB. Once division and corps CSS elements are able to push supplies and personnel to the task force level, and information systems provide visibility of the task force logistics situation, the FTCP becomes surplus. Combat trains can absorb additional supplies by adding a logistics release point (LRP) in the train area. This also increases the security of the CSS elements by keeping the combat trains as close to the task force main body as possible.[17]

In this new model, field trains become solely a logistics command post, responsible for coordinating supplies and conducting personnel actions. The personnel action center, supply sergeants, and HHC headquarters platoon make up the field trains. Currently, these elements order supplies and process personnel actions, until future digital information systems make doing this forward possible. Furthermore, placing all task force field trains close to the BSA facilitates close coordination. Specifically, as the BCT plan or task organization changes, HHC commanders can ensure continuous support.

Currently, the HHC commander is the only company commander in the task force with a planner. The S4 provides the task force logistics plan, which the HHC executes, but the S4 should direct the task force logistics elements on the battlefield because he is the planner. The HHC commander prepares support for the task force from the BSA and the HHC executive officer (XO) moves forward to control the combat trains organization. The FSC commander is extraneous and his presence further complicates unity of command and strains the timely support of missions that support logistics demands. A liaison officer (LNO) from the FSB, however, is an important addition to the S4 section during combat. The LNO is the subject-matter expert on FSB operations. More importantly, the LNO knows whom to talk to get support.

As digital systems and distribution-based logistics make field trains obsolete, the HHC commander relocates to the combat trains to act as a third "field grade" officer. The ability of the S4 to direct and command the combat trains with the HHC XO assisting, allows the HHC commander the opportunity to respond to unforeseen situations on the battlefield. It is important that task force logistics keep combat arms leaders. Combat leaders give logistics elements a focus on combat operations and provide CSS soldiers with an understanding of how a maneuver task force operates.

Attachments based on threat levels are another important addition to the organization of task force CSS elements. Escort elements are attached directly to the logistics commander, as he is responsible for employing the escort elements. The convoy commander uses his judgment to divide escorts with his internal capability to maximize the effectiveness of his force. For example, a scout truck with an MK19 may be paired with a HEMTT, equipped with an M2 to build a support-by-fire team.

Finally, habitual attachments are the key to successful operations at any level. Too often, logistics convoys are thrown to-

gether at the last minute without even a combat order or a precombat inspection.

Equipment

Currently, CSS elements have only their basic equipment needs met. First, communications equipment must be developed and updated. FBCB2 has the capability to send logistics reports so CSS planners and executors have real-time visibility of a combat unit's logistics status. This needs further exploitation to truly be user friendly and effective. The next step is to update the unit level logistics system-ground (ULLS-G) and ULLS-S4, so units can order parts and supplies over extended ranges. The ULLS system currently uses frail floppy disks or limited FM range to send data.[18] The standard installation/division personnel system (SIDPERS) and electronic military personnel office (eMILPO) must also communicate over long distances. Unless logisticians can operate systems over extended ranges, resupply will not be effective on the future battlefield.

An immediate fix is to equip key CSS elements with appropriate communications systems. The S4 command post track should have systems that are redundant to the task force tactical operations center (TOC). The combat trains command post (CTCP) has most of these systems, such as the tactical fax, but they are outdated or inoperable.[19] The CTCP should have the capability to monitor four nets instead of three, have satellite communications, and FBCB2. This added flexibility enables the CTCP to better monitor CSS operations and the overall battle. Additional radios are required for the support platoon to operate over extended distances and cope with the contingencies of the COE. Each support squad should be equipped with one dual net and two single net radio systems so they can conduct decentralized operations. Squad radios that can integrate with single channel ground-air radio systems (SINGARS) or all-source imagery processing (ASIP) systems are also essential to enabling CSS elements to survive combat actions.

To survive in the COE, CSS elements must be properly armed. All CSS leader vehicles should be equipped with crew served weapons on ring mounts. Either an M2 or a combination MK19/M240B would suffice for the support platoon leader, support platoon sergeant, S1, S4, HHC commander, HHC XO, battalion commander, battalion XO, command sergeant major, operations sergeant major, mortar platoon leader, mortar platoon sergeant, medical platoon leader, and medical platoon sergeant. These key leaders can defeat threat forces in the COE during logistics convoy operations.

Supply trucks, maintenance vehicles, and at least one-half of the support platoon's HEMTTs should have ring mounts and crew served weapons. Equip CSS soldiers with personal weapons, such as the M4, the new M8 system, or an MP5, that can be effectively fired from the cab of a vehicle. Pistols would be an appropriate stopgap, as they are with tank crews, if they have sufficient stopping power. These weapons will provide critical combat power to CSS elements and added flexibility while conducting full-spectrum operations.

Logistics elements need additional transportation assets organic to the task force. The S1 and support platoon sergeant are key leaders who are not issued high-mobility, multipurpose wheeled vehicles (HMMWVs) through the modified tables of organization and equipment (MTOE). A five-ton truck is not large enough to carry authorized equipment, duffle bags, and a tank company's supplies. The HEMTT is the answer. Maintenance teams should also replace their five-ton trucks with HEMTTs. These trucks add increased mobility and enlarge the available space for PLL and supplies, making a company more self-sufficient. Soft-skinned vehicles can be lined with Kevlar blankets and tarps instead of canvas. Add-on armor kits made of lightweight materials can be made available. CSS elements need to be equipped to fight on the battlefield, as task force-level logistics are now specific targets.

Training

Training is the most important way to prepare our CSS elements for combat — six 88M truck drivers can learn room-clearing procedures, given the appropriate time and resources. "CSS soldiers

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"All CSS leader vehicles should be equipped with crew served weapons on ring mounts. Either an M2 or a combination MK19/M240B would suffice for the support platoon leader, support platoon sergeant, S1, S4, HHC commander, HHC XO, battalion commander, battalion XO, command sergeant major, operations sergeant major, mortar platoon leader, mortar platoon sergeant, medical platoon leader, and medical platoon sergeant. These key leaders can defeat threat forces in the COE during logistics convoy operations."

need to train more on tactical missions with their weapons. The enemy learned not to attack armored vehicles, choosing instead to wait for soft skinned support vehicles, so every soldier ended up in the fight."[20]

Overall, logistics training in the U.S. Army is lacking. The full logistics system is never tested or strained in a training environment. During brigade rotations at combat training centers (CTC), the division's main support battalion provides limited support to the FSB. During most rotations, maneuver task forces turn off their class II and IV from the supply support activity. During a division's recent Combat Maneuver Training Center (CMTC) rotation, maneuver units were unable to get adequate class III (P) through the supply system and were forced to find it outside the maneuver area. The reason for this was the unit's poor forecasting and the supply system's inability to respond quickly to requirements. Even if units use historical data to project class III (P) needs for a CTC rotation, projections are irrelevant in a combat situation, especially if using equipment drawn from Army pre-positioned stocks.

Because training time is short, CSS soldiers train CSS-related skills, leaving little time, if any at all, to train actual combat skills. As a LOGPAC convoy entered the BSA at a CMTC rotation, the BSA came under attack. The LOGPAC convoy was forced to stay outside the perimeter during the action. Leaders familiar with combat would not leave soldiers on the outside of a perimeter during this situation; however, some CSS soldiers lack a clear understanding of combat because of the focus on CSS tasks. It is important to train soldiers in combat skills first.

Individual training must focus on common tasks and weapons. Common task training (CTT) needs to be continuously rehearsed and sergeant's time, with little resource overhead, can easily accomplish this. These skills are basic combat skills, needed to survive at the point of contact. CSS soldiers also need to focus on marksmanship and fire individual weapons more often. Additional qualification requirements are not the solution; however, moving target and known-distance ranges are the solution. All CSS soldiers should qualify with crew served weapons and fire anti-armor weapons such as the AT4. The terminal objective of these qualifications is to enable soldiers to react to contact, confident in their ability to kill the enemy.

Image is another important individual task to train. The way a soldier sees the enemy is important, as we have seen during OIF. Soldiers who look "squared away" and present a soldierly image are less likely to be attacked. Chinstraps undone, equipment that does not fit properly, or even the misalignment of a camouflage band on a Kevlar can be a signal that a soldier or unit is weak. Continuous training and established standards prevent this.

Training crews and squads is the next important step. As combat operations become more decentralized, so do CSS operations. Crews and squads carry out CSS at the task force level. Crew drills incorporating crew served weapons can be done in the motor pool. One method is to place targets in the pit of a maintenance bay. Vehicles line up, oriented on the pit, while soldiers pop up targets to which vehicles react.

Situational training exercise (STX) lanes are the next step in training CSS forces. Each lane should be combat focused and involve combat with an opposing force before, during, and after completing the CSS mission. While the importance of STX lanes should be on mission accomplishment, CSS elements should also be forced to consider how to react to an enemy. For example, a tank battalion conducting gunnery can easily support a

mounted live fire for individual vehicles or combined action. Individual CSS vehicle crews can make runs similar to a Tank Table VIII to qualify crews. The run should integrate targets for both the crew served weapon and individual weapons. A combined medical and maintenance CSS live fire is also necessary. For example, during gunnery a disabled tank lies in the center of the range. The first sergeant and maintenance M113s occupy positions to the left and right of the disabled vehicle. While the two M113s provide suppressive fire, an armored ambulance begins MEDEVAC from the point of injury. Once MEDEVAC is complete, an M88 tows the disabled tank to the rear.[21] For guidelines on how to conduct a convoy live fire, see "Convoy Live Fire: Training the Support Platoon to Defend Itself in Ambushes."[22] These scenarios can be tailored to increase or decrease the level of difficulty by adding or subtracting additional targets and changing conditions. Battle-focused training is essential to prepare CSS elements for combat.

Larger element CSS training should focus on command post operations, movement, and perimeter defense. A logistics command post exercise (CPX) is difficult to replicate without computer simulations or units in the field to generate requests for support, but it is essential to prepare the CTCP or FTCP for combat.[23] Logistics command post personnel often have little experience in tracking combat and CSS operations. S1 and S4 personnel can be farsighted and focus only on their functional areas. In training, they must learn to be interchangeable and multifaceted logisticians, capable of running a TOC and understanding maneuver task force operations.

The combat and field trains must also maneuver during training. For example, during maneuver, 1st Battalion, 64th Armor, placed trains in four columns about 30 meters apart with crew served weapon-equipped vehicles placed on the flanks. When the trains stopped, they parked motor-pool style.[24] Leaders made a conscious decision to use a technique that disregarded some doctrinal tenants in favor of others — these decisions should be explored and tested in training, not on the battlefield.

Finally, a 360-degree perimeter defense live fire training would be extremely beneficial to task force CSS troops, although most current range facilities cannot accommodate such training. An attack against combat trains, field trains, or TFSA is almost guaranteed in the next conflict, so it is critical to practice a perimeter defense in training. One result of repeated training is a practiced and verified unit SOP. Although each unit's logistics SOP will differ based on many variables, each should include routine and immediate resupply, medical and maintenance operations, trains security, movement techniques, and convoy operations.

The actions of the support platoon in the initial narrative demonstrate the level of competence that can be obtained by a unit that is properly equipped and organized, at a high state of training, and has an established SOP. Even highly trained combat soldiers can face significant challenges. In combat, "logistics convoys are more vulnerable to attack than ground maneuver forces, and they, along with all other seemingly routine operations, should be planned and executed as a combat operation."[25] The importance of better preparing CSS elements based on a more potent threat is essential to successful combat operations. CSS troops must be lethal at the point of contact. The way we organize, equip, and train CSS elements is the simplest way to improve their ability to fight and win. If task force CSS elements are capable of defeating the threat and completing their logistics mission, they give combat forces the ability to conduct decisive operations. As the U.S. Army Chief of Staff stated, "…we've got them performing ground functions — infantry functions, MP functions. Everybody's got to be able to do that … everybody's a rifleman first."[26]

Notes

[1]U.S. Army Field Manual (FM) 7-100, *Opposing Force Doctrinal Framework and Strategy*, U.S. Government Printing Office (GPO), Washington D.C., 29 August 2001, p. 3-18.

[2]FM 3-0, *Operations*, GPO, Washington D.C., 14 June 2001, p. 1-9.

[3]FM 7-100, *Opposing Force Doctrinal Framework and Strategy*, p. 1-11. The threat views the United States with an overall advantage in warfighting capability, but saddled with the vulnerabilities of coalition warfare and force projection, an unwillingness to accept heavy losses, a sensitivity to public opinion and lack of national commitment, a preference for standoff combat and a lack of optimization for close, dismounted combat, a dependence on high technology, robust logistics, and information dominance, a reliance on contractor support, predictable operations, a lack of cultural awareness, and a tendency to downsize after the initial conflict has ended.

[4]During Kosovo Peacekeeping Forces (KFOR) rotation 2B, outposts were common. It has since been reported that U.S. forces have consolidated to a few major installations.

[5]Personal interview with CPT Robert E. Underwood, S1, Task Force (TF) 2d Battalion, 69th Armor (2-69 AR), March 2004.

[6]FM 3-90.2, *The Tank and Mechanized Infantry Battalion Task Force*, GPO, Washington D.C., 1 May 2003, pp. 10-13 to 10-26.

[7]Personal interview with CPT Edward J. Ballanco, S4, TF 4th Battalion, 64th Armor (4-64 AR), June 2003.

[8]Author served as S4, TF 1st Battalion, 35th Armor (1-35 AR), during OIF until August 2003.

[9]FM 3-90.1, *The Tank and Mechanized Infantry Company Team*, GPO, Washington D.C., 9 December 2003, p. 10-7.

[10]Personal interview with CPT Robert E. Underwood, S1, TF 2-69 AR, March 2004. The author and CPT Underwood experienced the same apprehension from their battalion commanders.

[11]Ibid.

[12]Author served as a tank platoon leader during KFOR rotation 2B and had an M997 ambulance from the FSB attached to his platoon while occupying a platoon outpost. The FSB often pushed wheeled ambulances and treatment teams to the maneuver task forces during training and operational deployments. During KFOR and OIF, additional medical assets were used predominately for units operating apart from established medical facilities when response time was too long and to secondly to support civilians and nation building.

[13]Doctrine states the combat trains consist of the CTCP, battalion aid station, an emergency class III and V squad from the support platoon, and the UMCP.

[14]Personal interview with CPT Robert E. Underwood and CPT William F. Coryell, HHC XO, TF 1-64 AR, March 2004.

[15]Personal interview with CPT Robert E. Underwood, 10 March 2004.

[16]Personal interview with CPT Michael J. Rust, S1, TF 1st Battalion, 66th Armor, 15 March 2004.

[17]The combat trains can effectively replaced the TFSA.

[18]There are three ways that the author currently is aware of to send information in ULLS, with includes FM blast, KC wireless, and disk drop. Although flash keys were tried, the ULLS system would not accept them. ULLS-G switched to a laptop system but ULLS-S4 still uses a large desktop computer system. Floppy disks and drives are extremely vulnerable to desert/extreme heat conditions.

[19]One example is the tactical fax. The system can only talk to other tactical fax systems. It cannot communicate with the more modern Blackjack Fax, which is used at the brigade level.

[20]CPT Jason A. Miseli, HHC CDR, TF 2-69 AR, Interview with companycommand.com, 2003.

[21]The author witnessed this during a live fire gunnery at Grafenwoehr Training Area in 2000.

[22]CPT J. M. Pierre, "Convoy Live Fire: Training the Support Platoon to Defend Itself in Ambushes." *ARMOR*, November-December 2000, p. 21, available online at *http://www.knox.army.mil//ArmorMag/nd00/6convoy00.pdf.*

[23]Logistics CPXs are worthless unless tied to maneuver. The 2d BCT, 1st Armored Division FSB led a logistics CPX, which was not tied to any type of maneuver operation. The only benefit was the set up of the actual command post and test of communications equipment.

[24]Personal interview with CPT William F. Coryell, HHC XO, TF 1-64 AR, 6 March 2004.

[25]CPT Dean J. Dominique, "Tactical Convoy Outline." The quote is from a memorandum from the Quick Reaction Force (QRF) Headquarters in Mogadishu, Somalia, 19 October 1993.

[26]Sean D. Naylor, "Chief of Staff To Soldiers: You're a Rifleman First," *Army Times*, 20 October 2003.

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The 1st Armored Training Brigade Overhauls Initial Entry Training

by Lieutenant Colonel Jim Larsen and Lieutenant Colonel Jerry Cashion

Over the past year, initial entry training (IET), specifically basic combat training (BCT), has undergone the most significant change since World War II. The new curriculum focuses on producing soldiers who can immediately contribute to their unit following advanced individual training (AIT).

Developing Individual Skills

Gone are the days of sterile phase testing — soldiers standing in line at parade rest at field tables covered with camouflage net, score cards neatly tucked under the camouflage bands of their helmets, waiting to be tested on individual tasks. The hours of perfecting drill and ceremony and sitting in large lecture-style classes have been slashed.

In place of sterile phase testing comes judgment-based training in the form of end-of-phase situational training exercises (STX), where soldiers perform critical individual tasks under replicated combat conditions. Squad tactical movement, urban operations, and convoy operations have replaced many of the hours formerly devoted to marching. Small group, performance-oriented training, taught by a new breed of warrior-focused drill sergeants, characterize most of the instruction once taught by committee, or at the very least, in a classroom with a platform instructor addressing 220 students. Combat-focused courses are constructed so that teamwork events, such as litter carrying, water and ammunition resupply, and fighting position construction, replace the noncombat-related teamwork development course.

The first step was to change the training methodology and preserve this methodology through the application of an updated mission essential task list (METL) for BCT. The second step was to incorporate individual skills developed and mastered during the first weeks of BCT into a new training strategy called "warrior challenge," which empowers drill sergeants and BCT soldiers to focus on combat-oriented, squad-level tactics.

At the core of this transformation is the new Basic Combat Training Methodology, which is shown in Figure 1. As indicated in the upper "individual" band, soldiers are trained in key individual tasks that are relevant to the force's current needs. Instead of sterile testing at the end of each training phase, soldiers' performance is validated during the execution of critical collective tasks in the form of STXs. Every effort is made to ensure these STXs are as realistic as possible, to include media, civilians, urban areas, improvised explosive devises (IED), and a healthy dose of ambiguity, information overload and/or deprivation, uncertainty, and unpredictability. These training standards are ultimately measured by mission accomplishment within the commander's intent, rather than performance measures accomplished in specific order.

During the final five-day field training exercise (FTX), soldiers conduct an intensive squad external evaluation (EXEVAL), which challenges soldiers and drill sergeants in executing warrior tasks and drills. By the end of nine weeks, soldiers have been exposed to many of the same situations they will face in combat. They will make tough decisions, just as they will in combat, and for many, combat is just around the corner. The STXs and the final EXEVAL add focus to BCT and require drill sergeants to develop training strategies to prepare them for these events; battle-focused training improves soldiers and leaders.

The current goal is to preserve this methodology and consolidate gains made over the past year, making BCT more realistic, relevant, and rigorous. Recent headway was made when the U.S. Army Training and Doctrine Command (TRADOC) approved changes to the Infantry School's BCT program of instruction. However, resources are only part of the effort — ensuring BCT battalion and company METL are battle-focused is another critical component.

"Conduct BCT" has been the usual METL task briefed by nearly every BCT battalion and company commander far too long. This task might work at the battalion level, but it is not adequate to focus company commanders and their cadre. U.S. Army Field Manual 7-0, *Training the Force*, states, "Battle focus is equally applicable in TDA organizations," and "mission essential tasks should include critical training tasks."[1] The critical training tasks in the new BCT are the foundation for the STXs, which include establishing a checkpoint, occupying an assembly area, conducting tactical movement (mounted and dismounted), and conducting tactical movement in an urban area. Moreover, accomplishing these collective tasks enable soldiers to execute many of Task Force Soldier's recommended 40 core warrior tasks and nine core warrior drills.[2]

All U.S. Army BCT organizations must accomplish identical functions to get the most from the new BCT POI. To accomplish this, every BCT organization must have a standardized METL for common tasks. At the battalion-level, the METL can be organized into three essential tasks, which include conducting BCT, exercising command and control, and maintaining certification and readiness. Each of the battalion's METL tasks has supporting battle tasks that logically feed into the company's METL. For example, the battalion METL task of conduct BCT has supporting battle tasks of establishing a checkpoint, conducting tactical movement (mounted and dismounted), and conducting tactical movement in a built-up area. The company's METL would then include tasks such as establishing a checkpoint, conducting tactical movement (dismounted), conduct tactical movement (mounted), and conducting tactical movement in a built-up area. The company battle tasks then logically become critical collective and/or individual tasks on which drill sergeants can focus their efforts. For instance, the company battle task of establishing a checkpoint would have supporting battle tasks that include tasks such as handling enemy prisoners of war/detainees, determining location on ground, reacting to media, and performing first aid. The majority of these battle tasks, critical collective tasks, and critical individual tasks are, in fact, core warrior tasks and drills.

It is important to note how the assessment of this METL differs from a modified table of organization and equipment unit. The assessment of this METL is largely cadre-focused, as opposed to being focused on the METL task proficiency of squads, platoons, companies, and battalions. Focusing on the soldier in training and his ability to accomplish these tasks would be too perishable and the unit would be not be trained at the beginning of every cycle. True BCT unit proficiency is measured by cadre proficiency to accomplish *and teach* tasks. Therefore, focusing primarily on the cadre and measuring success based on cadre proficiency is key to assessing this METL. Cadre proficiency is measured in performance of these collective tasks during the squad EXEVAL and provides a real assessment of training rather than statistics used in the past. Using this approach, commanders at all levels can assure cadre training during cycle breaks is battle focused and targets key areas to improve training for upcoming cycles.

Squad-Level Tactics

Once soldiers complete training at the individual level, we train the standardized METL at the squad level for the remaining weeks of BCT. The warrior challenge is a set of externally evaluated STX lanes designed to challenge drill sergeants and soldiers in conducting squad-level tactical missions while demonstrating the application of individual skills learned during BCT. Each BCT squad competes against an established standard while conducting tactical missions. The program's success relies on drill sergeants, acting as squad leaders, whose performance is evaluated while conducting missions. Each squad earns points based on their performance and competes for the warrior challenge streamer. Additionally, the top scoring drill sergeant squad leader earns the warrior ethos award and trophy. Currently, the warrior challenge missions include movement to contact, convoy resupply, and rescuing an ambushed convoy. These missions and associated tasks are derived from the current operations in Iraq and Afghanistan and supported by the 40 core warrior tasks and nine warrior drills as defined by Task Force Soldier.[3]

For movement to contact missions, the squad is given a scenario where small insurgent elements are attempting to destroy local infrastructure such as water sources and roads/bridges. Specifically, the squad's mission is to secure a key water source to allow nongovernment organizations (NGOs) to repair damage caused by insurgent forces. They are further tasked to destroy any insurgent forces they encounter during this mission. Under the leadership of the drill sergeant squad leader, the squad plans and conducts rehearsals for the mission in a semi-secure assembly area.

As the squad begins movement to their objective, they encounter a sniper, indirect fire, and an ambush. In each case, the squad is evaluated on its performance of the appropriate battle drill, reporting procedures, and its ability to continue the mission. While the lane is well structured, there is a great deal of "free-play"

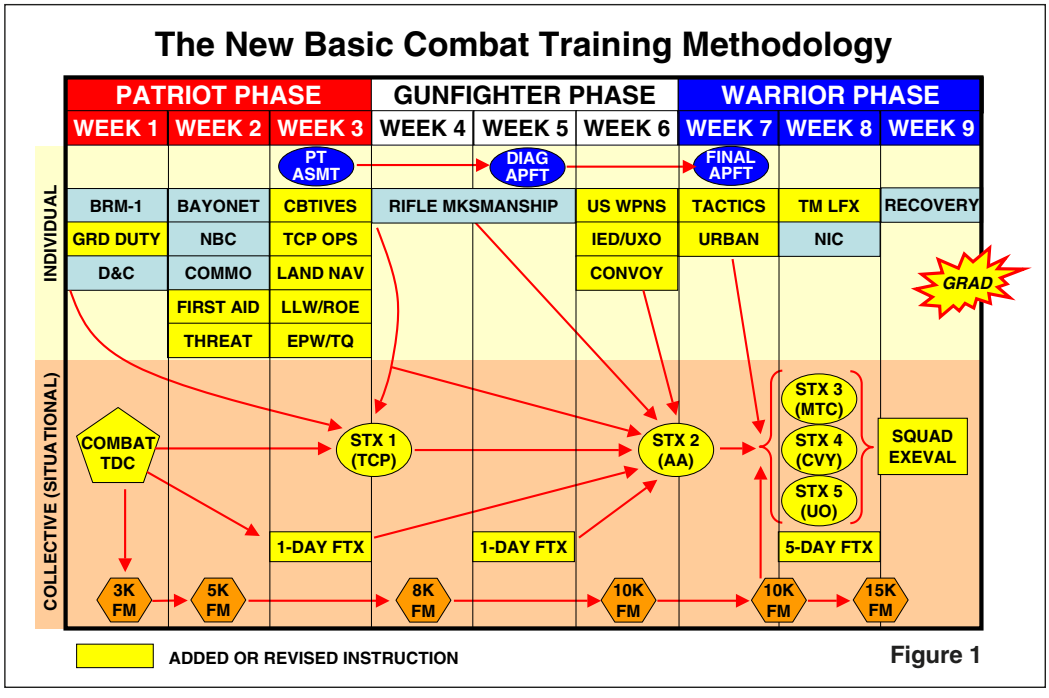

Figure 1

between friendly and enemy forces. The enemy is issued a mission to conduct a baited ambush under the supervision of a drill sergeant. In many cases, the friendly unit detects the ambush and seizes the initiative from the enemy — likewise, the enemy may totally overwhelm the friendly unit. In either case, the observer controller (OC) observes the contact and assesses casualties accordingly. During the course of the mission, the squad has multiple opportunities to treat and evacuate both friendly and enemy casualties based on the adjudication of contact. Once the objective is secured and casualties are treated and evacuated, the squad receives a change of mission and conducts an after-action review (AAR) led by the OC. Once the AAR is completed, the OC issues the squad leader the next mission.

The next mission requires the squad to conduct vehicle movement to resupply a unit not in contact. Insurgents continue to operate in the area, conducting small ambushes to interdict movement along key road networks. Just as in the previous mission, the squad conducts planning and rehearsals in an assembly area. During the conduct of the mission, the squad encounters a far ambush and a blocked ambush. In each case, the squad is evaluated on their performance of the appropriate battle drill and reporting procedures. Free-play applies in this lane as well and the OC assesses casualties to further develop the squad in both first aid tasks and casualty evacuation. Again, the OC leads the squad through an AAR, and then issues a fragmentary order (FRAGO) for the final mission.

The third and final mission requires the squad to rescue an ambushed convoy. Insurgents continue to interdict vehicle movement with IEDs and small ambushes. A two-vehicle convoy is ambushed returning from a mission. The squad must secure the vehicles and treat and evacuate casualties. While the squad conducts this portion of the mission, they receive fire from a couple of insurgents who break contact and draw them into a nearby building. The squad enters and clears multiple rooms within the building attempting to identify and kill or capture the insurgents. As the squad clears the rooms in the building, they are presented multiple targets that include, small children, women, and hostile men and women. In each case, soldiers are evaluated on room clearing and shoot/don't shoot responses. Once the building is cleared, the squad completes its original mission, establishes a helicopter pickup zone and calls for a medical evacuation. Once again, the squad is evaluated on its performance of tasks and drills required to successfully complete the mission.

Understanding the Warrior Challenge

Indeed, noncombat arms drill sergeants leading squads through infantry-type training tasks could be challenging. However, there are no longer just infantry-type tasks. The contemporary operating environment presents challenges like these throughout the entire area of operation. The results in Operation Enduring Freedom and Operation Iraqi Freedom have highlighted the requirement for all soldiers and leaders to master these skills, regardless of military occupational specialty (MOS). The Army most recently codified the "warrior first" intent in the warrior tasks and drills, which are the foundation for the missions within the warrior challenge.

Our drill sergeants are perfectly capable of leading squads through these tasks. They were great noncommissioned officers before arriving at BCT and can perform leader tasks required to lead squads through these missions. Drill sergeants will practice, rehearse, and refine leader and tactical skills to give them the necessary confidence they need to train and lead soldiers. This area has been addressed and we developed a two-pronged approach: leader training and peer training.

We assembled drill sergeants, company commanders, and first sergeants and executed leader training on each aspect of the warrior challenge. Some of these training events were conducted with ad hoc squads made up of leaders actually executing missions. Some of this training was conducted as noncommissioned officer professional development programs, which focused on specific tactics, techniques, and procedures (TTP) such as room clearing procedures. In each case, leaders were trained on the performance of the missions and provided TTP to prepare soldiers to execute supporting tasks.

"In place of sterile phase testing comes judgment-based training in the form of end-of-phase situational training exercises (STX), where soldiers perform critical individual tasks under replicated combat conditions. Squad tactical movement, urban operations, and convoy operations have replaced many of the hours formerly devoted to marching. Small group, performance-oriented training, taught by a new breed of warrior-focused drill sergeants, characterize most of the instruction once taught by committee, or at the very least, in a classroom with a platform instructor addressing 220 students."

Peer training occurred at the company level. One or two subject-matter experts, within the company, would continue the leader training process in preparation for upcoming cycles. Each time a company conducted the warrior challenge, drill sergeants shared TTP and developed strategies to be prepared and prepare soldiers for the next warrior challenge. This basically developed into an "upward spiral," whereby the training, as well as leader and soldier performance, improved with each execution of the warrior challenge.

Preparing soldiers to perform these tasks in the short eight-weeks provided requires absolute focus. The focus of BCT was previously on sterile phase testing. Now, the focus is on performing well during warrior challenge. To perform well during warrior challenge, soldiers have to understand both *how* and *when* to perform a task. During instruction, the "how" for a task occurs pretty much the way as always — task, con-

"During the final five-day field training exercise (FTX), soldiers conduct an intensive squad external evaluation (EXEVAL), which challenges soldiers and drill sergeants in executing warrior tasks and drills. By the end of nine weeks, soldiers have been exposed to many of the same situations they will face in combat. They will make tough decisions, just as they will in combat, and for many, combat is just around the corner."

dition, and standard. The trick of capturing "when" to perform a task occurs during a more focused drill sergeant's time. Because of the added focus of warrior challenge, drill sergeants use every opportunity to train soldiers in performing fire team and squad drills while reinforcing tasks traditionally taught during BCT. Every opportunity during the day is used to train/reinforce some task, whether it is tactical movement to or from training, or a battle drill during the physical training cool-down period. Each time drill sergeants execute warrior challenge they develop a more comprehensive strategy to train soldiers for the next one, improving training yet again.

STX training may tax resources, such as time, personnel, and equipment, and every installation varies slightly on available resources. However, with careful planning and command emphasis, STXs can be executed with resources internal to the battalion. Each BCT company has enough transportation assets to support the convoy resupply lane. We use an existing building and static vehicles to support the rescue an ambushed convoy lane. Temporary rooms can be made of pickets and target cloth as an alternate and almost any vehicle can be substituted for the objective on the lane. There is enough pyrotechnics and blank ammunition in the current FTX to support all three lanes.

To ensure we have enough drill sergeants to allow one per squad, we execute with eight squads per day. Some drill sergeants lead a squad through both days, but lead no more than two squads during the training course. With only eight squads executing per day, the remaining eight squads, with drill sergeant supervision, are available for opposing force (OPFOR) support. Time and OCs go hand-in-hand as the biggest challenge. To gain the most efficient use of time, we use two OCs on each lane. One OC is moving with a squad, while the other OC is simultaneously observing planning and rehearsals in the assembly area with another squad. Using this method, it takes approximately 12 hours to execute eight squads per day.

A typical FTX timeline is: day 1, deploy to field and prepare; day 2 and 3, conduct warrior challenge (8 squads per day); day 4, continue warrior challenge as necessary and conduct retraining; and day 5, redeploy. It is important to note day 4 remains available for backup in the event of bad weather or other distracters that postpone or delay training on day 2 or 3. It is also used for retraining squads that fail to meet standards. To place the proper emphasis and aid in assessment, the OCs are made up of the battalion commander, the command sergeant major, and company commanders. We currently use four company commanders across the battalion to run each warrior challenge. Each company commander gets an opportunity to evaluate 32 squads per quarter, as well as an opportunity to observe training and standard operation procedures of sister companies. The value added is self-evident, and as in many areas throughout the program, contributes to improved training throughout the battalion.

Let there be no doubt, this is an evaluation. Drill sergeants and soldiers are being evaluated on individual, collective, and leader tasks throughout training. In the assembly areas, soldiers are evaluated on individual weapons proficiency with the M16A2 and the M249 squad automatic weapon, proper use of the claymore and AT-4, map reading, and maintaining individual weapons and equipment. During the time in the assembly area, the drill sergeant and squad are graded on occupation and local security, planning, FRAGOs, and rehearsals. During the execution of each mission, the squad is evaluated on the performance of numerous tasks and drills.

In many cases, these tasks and drills are redundant across all three missions, and the squad improves through the execution and AAR of each lane. All evaluations are based on task-condition-standard and performance measures from the most current doctrine rolled into training and evaluation outlines (T&EOs). The squad is scored based on how well they perform these tasks as outlined in the T&EOs; platoon and company streamers are awarded for those who meet or exceed established standards. The highest scoring drill sergeant is also recognized with the warrior ethos award presented by the battalion commander at graduation. While these are the positive awards that come from the evaluation, the true assessment is in the training and the trainers. Commanders at company and battalion, along with the battalion command sergeant major, evaluate every drill sergeant and a cross section of every platoon in each company. Key leaders gain an extremely accurate assessment for the level of training proficiency of soldiers and drill sergeants. This is a much more effective tool for developing training than the traditional statistics used in years past. Based on assessments over the past year, we have refined leader training and can identify drill

"For movement to contact missions, the squad is given a scenario where small insurgent elements are attempting to destroy local infrastructure such as water sources and roads/bridges. Specifically, the squad's mission is to secure a key water source to allow nongovernment organizations (NGOs) to repair damage caused by insurgent forces. They are further tasked to destroy any insurgent forces they encounter during this mission. Under the leadership of the drill sergeant squad leader, the squad plans and conducts rehearsals for the mission in a semi-secure assembly area."

sergeants requiring additional training in programs such as the combat leader's course at Fort Benning, Georgia.

The upward spiral effect on improving training throughout BCT seems endless. This is attributed primarily to continued professional growth of the drill sergeants. As highlighted earlier, our drill sergeants continue to assess their own abilities and develop self-improvement strategies to better train soldiers in upcoming cycles. Noncombat arms drill sergeants had the steepest learning curve, but they have improved the most. Three of the past five top-performing drill sergeants had combat support and combat service support backgrounds.

All company commanders in the battalion have served as OCs for at least 32 squad STXs in the past 60 days. The positive impact this has on their professional development, as well as training within their organizations, is incredible. The most important result is the impact this training has on individual soldiers. Soldiers now receive realistic, relevant training that prepares them for combat. Each cycle, this training gets better, based on the continued improvement of leaders at all levels, and soldiers leave basic training confident and proficient in the application of warrior tasks and drills.

The original intent of warrior challenge was to enhance the development of noncombat arms drill sergeants; however, the end product proved to be much greater. The program provides a vehicle whereby soldiers are trained and leaders at all levels are developed. It provides focus for training and challenges drill sergeants to continue to develop professionally while on the trail. Because of these results, the warrior challenge was added to the new BCT POI and has become the catalyst for change in the BCT culture, fostering the best conditions to train soldiers and leaders for an Army at war.

Notes

[1]U.S. Army Field Manual 7-0, *Training the Force*, U.S. Government Printing Office, Washington, D.C., 22 October 2002.

[2]Task Force Soldier is one of Chief of Staff, Army's initiatives to support Army Transformation. The program conducts a holistic review and analysis of individual soldier training, equipment, and readiness needs, institutional through small units, to support deploying soldiers fighting the Global War on Terrorism and prepare soldiers for the future force, review online at *http://www.infantry.army.mil/taskforcesoldier/content/mission.htm.*

[3]Ibid.

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LETTERS continued from Page 3

platoon moves aside while battalion maneuver companies launch enemy attacks.

Third, there is no longer such a thing as a "cavalry" platoon. Early during World War II, "mechanized" cavalry was primarily "motorized" with jeeps and only light scout cars and halftracks. Experience demonstrated the need for increased combat power, which came in the form of M8 light armored cars, M5 light tanks, and M8 assault guns. Tanks and tank destroyers were sometimes attached as needed. Throughout the cold war, cavalry continued to expand its combat capability and eventually incorporated main battle tanks and infantry/cavalry fighting vehicles outright. As cavalry platoons became too unwieldy, they were finally replaced by smaller paired tank and scout platoons. The troop organization became flatter by having smaller platoons, but more of them, which greatly increased combat power.

Today's heavy armored cavalry regiment (ACR) and its squadrons retain this flat organizational structure. A regimental cavalry troop has two tank platoons, two scout platoons, and a heavy mortar section. Each squadron has three troops, one tank company, and a howitzer battery. While well capable of covering huge expanses during security and recon missions, troops, squadrons, and regiments can also mass into a tremendously overwhelming combat capability. This independent combined-arms capability is what economy of force is all about.

The heavy division's cavalry squadron has been changed back and forth in the past two decades but, in my opinion, a copy of the ACR squadron is still the best organization. Likewise, the heavy separate brigade's cavalry troop should be identical to that of the ACR.

All of the above is doctrinally and organizationally straightforward. The problems started with the recently created divisional brigade recon troop, which still remains anomalous. Doctrinally, the division commander assigns brigade objectives and uses his divisional cavalry as needed. He expects the brigade commanders to maneuver their respective battalions against assigned objectives. Battalion commanders use their scout platoons for security and recon, as mentioned above. But the U.S. Army recently determined that divisional brigade commanders also need an echelon of recon capability. Unwilling to resource a full cavalry troop, they instead created the utterly inadequate brigade recon troop, made up of two light scout platoons and a company headquarters. Without combined arms capability, it cannot operate independently. With only two platoons, it cannot support each of the three or four maneuver battalions. While brigade commanders certainly applaud this added unit, the brigade recon troop really has little utility in its intended role and as presently organized, is a waste of resources.

It gets worse. In developing the new recon squadron for the "vaunted" brigade combat team (BCT), work should have started with the existing separate brigade cavalry troop or squadron as a baseline. A single troop is doctrinally adequate to support a brigade, while a full squadron would have been almost a paradigm shift for cavalry force structure. Instead, the U.S. Army Training and Doctrine Command/Armor Center has apparently chosen to evolve the divisional brigade recon troop with all of its above-mentioned unresolved weaknesses and problems. A simply bad idea has expanded and become a terribly bad idea.

There is a simple fix with alternatives:

BEST — add a full concurrent cavalry squadron to each BCT. A full squadron dramatically increases the BCT's combat power and will readily allow for true economy of force combined arms maneuvers, independent of the BCT main effort.

BETTER — if manpower limits dictate; just add one separate cavalry troop per BCT. One cavalry troop per BCT is doctrinally adequate.

GOOD — if neither of the above is acceptable, then disband the squadron structure and the scout troops. Assign scout platoons directly to subordinate battalions where battalion commanders will put them to good use. Return surveillance troops to the brigade where they will be most useful. The BCT commander can then focus on support needs of subordinate battalions without the added distraction of one more maneuver squadron that needs augmentation.

Don't just take my word on this, read the old U.S. Army Field Manual (FM) 17-95, *Cavalry Operations*. It defines what cavalry combined arms operations are all about.

CHESTER A. KOJRO
LTC, U.S. Army, Retired

Corrections

In its November-December 2004 issue, *ARMOR* printed the Army National Guard Unit List on page 46. While compiling the lists, a few units were inadvertently overlooked. We apologize for the oversight and wish to add the following units:

2d Squadron, 104th Cavalry (RSTA), serves as the recon, surveillance, and target acquisition squadron for 56th Brigade, 28th Infantry Division, and is the Guard's only Stryker Brigade Combat Team. Serving as commander is LTC Walter Lord and serving as command sergeant major is CSM Robert Heller.

The squadron's units include Headquarters and Headquarters Troop, 2601 River Road, Reading, PA 19605, telephone (610) 929-8130, fax (601) 378-4515; Troop A (Recon), 515 E. Samuels Ave., Hazleton, PA 18201; Troop B (Recon), 1200 Balata Street, Easton, PA 18042; Troop C (Recon), 1010 Lincoln Way West, Chambersburg, PA 17201; Troop D (Surveillance), 2048 Eden Road, York, PA 17042; Troop K, 125 Goodridge Lane, Washington, PA 15301-0020; and Troop I, 271 Washington Street, East Stroudsburg, PA 18301-0343.

Also, in the process of merging documents, 2d Infantry Division's location was published as Wuerzburg, Germany. The real 2d Infantry Division is located at Camp Red Cloud, Korea! Who missed that?!

HATCH from Page 4

The exact future of the cavalry force, as currently known, is a little less clear and is being debated by theorists. Many believe that suddenly we no longer need a formation, such as the 3d Squadron, 7th Cavalry that led V Corps' attack into Iraq, and that ground reconnaissance forces at the division or unit of employment level are not value added or resource feasible. Others disagree, and I welcome the debate. In the meantime, we are moving from uniquely trained and organized ground reconnaissance units, which provide recon and security functions for a division commander, to one made up almost exclusively of sensors, unmanned aerial vehicles, and helicopters.

The most recent draft operational and organization concept for modular forces states that reconnaissance, surveillance, and target acquisition (RSTA) units have no offensive or defensive functions. We are on the verge of moving to a division (UEx)-level RSTA formation, which lacks organic ground recon and surveillance, all-weather and day-night capability, has limited target acquisition capability, and no offensive or defensive utility.

Our warfighting experiences over the past few years; our current modeling, simulations, and experimentation; and our operational warfighting commanders suggest we need ground reconnaissance at all tactical levels. In light of those who argue for a lighter, more strategically mobile organization, there are many who believe we need a mix of light and heavy air-ground, combined-arms, reconnaissance and security formations, built around soldiers specially equipped and trained to obtain vital information about the terrain and enemy that unmanned sensors, satellites, or aviation units cannot provide because of their inherent limitations or uncontrollable climate effects.

Rest assured, the Armor Center is working these issues, but I want to hear what you think. Are we needed for future warfighting or are we the horse-mounted cavalrymen of days past with little faith in technology and reluctant to change? Sound off.

Forge the Thunderbolt!

REVIEWS

The Regulars: The American Army 1898 – 1941 by Edward M. Coffman, Harvard University Press, April 2004, 519 pp., $35.00 (hardcover)

In his long-awaited second volume, Edward M. Coffman extends his history of the U.S. Army from the Spanish American War to the beginning of World War II. A member of the Hall of Distinguished Alumni, University of Kentucky, Coffman brings his intimate view of history to this period with the craftsman's sense of detail. His perspective as a former infantry officer during the Korean War is clearly evident in the fabric of this history, woven with the threads of countless engaging stories from its participants. Coffman is not content with merely the view of soldiers and officers; he draws in their parents, spouses, and children. He layers his subject from so many angles and perspectives that he truly creates three-dimensional history.

The extraordinary research that it has taken to write *The Regulars* helps account for the 16 years since his first volume, *The Old Army: A Portrait of the American Army in Peacetime, 1784-1898*, was published. Including both books, he has spent more than 30 years engaged in authoring this marvelous account of the Army. Coffman personally conducted more than 75 of the interviews, in addition to the work of several other interviewers. His questionnaires of 138 enlisted soldiers from the era are remarkable for how many of them achieved substantial rank later in their own careers. Forty-seven wives provided interviews, many of who had been children of soldiers and officers during the period. The extensive contribution of children from the period, many of whom later served in the Army during World War II, added enormously to the layering technique that Coffman has advanced with his writing. Every reader who has served in the Army will know or recognize the offspring of many of the contributors, thus helping to weave the reader into the unique fabric of this marvelous history.

All of the themes of this period of the Army's history are well known: the overseas commitments following the Spanish-American War, the challenge of mobilizing for World War I, the clash between 19th-century leaders and visionaries who saw the coming needs for a global force shaped by modern industrial and managerial systems, and finally the struggle to develop leaders to guide our massive citizen-soldier Army during World War II.

While powerful bureaucracies are a way of life in the Army, everyone who has served in the Pentagon, or struggled against it, will enjoy the sections that describe the clashes between the chief of staff, the military secretary, and the bureau chiefs who controlled the Army's logistics. Throw in a dash of politics over closing obsolete frontier forts that were expensive and irrelevant, and suddenly 1904 seems remarkably like 2004. Graciously, Coffman ignores the opportunity to skewer today's players.

Armor and cavalry soldiers will be excited with the extensive coverage that early leaders of armor receive from Coffman. The incredible struggle between the cavalry, infantry, and emerging armor force is well documented. Adna Chaffee's cavalry friends "never failed to accuse him … of betraying them." We are reminded of the strong congressional opposition that resulted in the National Defense Act of 1920 that limited tanks to the infantry. Thus was the deceptive term "combat car" coined when Daniel Van Voorhis moved the mechanized force to Fort Knox in the early 1930s. As late as 1938, the chief of cavalry, John K. Kerr, advocated that cavalry forces be increased from 6 percent of the Army to 12 percent, stating that he had "an abiding faith in the glorious role that cavalry will play in any future war."

Common touchstones in *The Regulars* are the familiar names of Pershing, Patton, Eisenhower, Gavin, Devers, Groves, and Marshall. But the grace of Coffman's account comes from unfamiliar people who play such a personal and intimate role in this history, giving it a lens through which our understanding of the period is made clear.

A delightful example of this influence comes from an officer's daughter, Army wife, and soldier's mother, Mauree Pickering Mahin. We first see her as a seven year old, excited by the movement of soldiers heading toward service in Cuba in 1898. She watches her father's departure by ship from a rowboat that is nearly swamped in the ship's wake. The following year, she and her family join her father, Captain Abner Pickering, in Cuba. As exciting as that was for a small child, by 1901, she is on her way to the Philippines, the first of three tours as a young woman. While at Lake Lanao, it was not unusual for Mauree to watch a firefight in the distance or share the danger of Moro attacks with the soldiers on duty. Later, a romance in Wyoming at Fort Russell develops, is interrupted by the war with Mexico, and ends in marriage to Lieutenant Frank C. Mahin in 1913. By 1942, Frank is a major general in command of a division, but loses his life in an airplane crash. Despite that tragedy, Mauree endures the war with two sons-in-law in combat, and her son, Frank Jr., a 1944 graduate of West Point, fighting with the 66th Infantry Division in Europe.

Of all the many facets of this book, there is none more timely than Coffman's extensive coverage of the Army's 15-year campaign in the Philippines. An unintended consequence of his research is the timeliness with which this portion of his history applies to the U.S. Army engaged in Iraq today. Carlo d'Este recently described the "Three Day Rule of history: if it's over three days old, no one knows anything about it." Unfortunately, the Army's campaign in the Philippines is replete with analogies that apply to our struggle in Iraq today; yet, the only comparison that is heard in the media is with Vietnam. From the politics, to the foes, to the vast distances, to the sacrifice, to the stress on the Army and its families, Coffman could well have been writing about Iraq. From politicians, to senior leaders, to families and press, this section alone makes this a dynamic history essential to understanding the present.

How refreshing it is to find familiar contemporary challenges in this history that range from bureaucracy to deployments, equipment to families, political infighting to education and training, and debates about the future to base-closings — little has changed. Having devoted 30 years of research to a history of the Army that is now more than 63 years distant, Coffman, the astute historian he is, has ably given this generation an opportunity to learn from our past. Now, if only this important volume will be read and applied before we repeat too many of the costly mistakes of a century ago.

MG RICHARD D. CHEGAR
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President/CEO, Patton Museum Foundation

Field Artillery and Firepower by Major General J.B.A. Bailey, Naval Institute Press, Annapolis, MD. Published in cooperation with the Association of the United States Army, 2003, 680 pp., $49.95.

Major General Jonathan Bailey is director of doctrine and force development for the British army. His latest work can only be described as a masterpiece of how gunnery, artillery, and systems that deliver ordnance on time and on target have impacted the shape of the battlefield. In one volume, you have history, application, and the evolution of the science of artillery, which is a must for anyone interested in battlefield tactics. Bailey covers the gamut from cannon to unmanned aerial vehicles (UAVs) mounted with Hellfire missiles to the application of naval gunfire support.

The book opens with a chapter of basic concepts, beginning the exploration of artillery and firepower. Readers will gain a quick understanding of guns versus rockets, concept of calibers, target acquisition, towed versus self-propelled guns, and munitions types. An entire chapter is devoted to counterbattery fire, the art of locating where firepower is emanating, and directing ordnance on that location. Chapter nine contains an excellent schematic on Soviet interlaced air defense systems, which contain nine different anti-air systems that range in altitude from 30,000 meters to 5,000 meters. The author cites examples of application from NATO tactics against the Warsaw Pact to the 1973 Yom Kippur War.

I particularly enjoyed the section of the book "Operations Since 1945." It details the use of the Palestinian-developed homemade Qassam-2 rockets as psychological weapons of terror. The Iran-Iraq war saw the evolution of artillery used by Saddam's forces as a means to counter the immense mass-wave attacks launched by the Iranians. The Iraqis would use artillery as a separate offensive arm and not in support of infantry.

The section on the French Indochina War is particularly interesting. During this war, which was the precursor to the United States' involvement in Vietnam, the Viet Minh, because of their ability to dismantle artillery pieces and reassemble them overnight above the hills looking down on the French firebase, won the 1956 Battle of Dien Bien Phu.

In Afghanistan, Soviet forces tried to use conventional artillery tactics that were futile in the

hills and mountains of that country, it came down to the evolution of air mobile and light cannon that could be placed to make a difference with Mujahedeen guerrillas. The author also discusses how that during Operation Iraqi Freedom a joint fire plan was developed, incorporating air, land, and sea coalition platforms to concentrate fire in support of an operational maneuver to capture the Fao Peninsula in March 2003 and the Port of Umm Qasr.

Bailey's work is seminal and should be read by all those interested in battlefield tactics, not just those with a specialization in gunnery or artillery. Readers will use this book as a reference, time and again. As a Middle East Foreign Area Officer, I devoured the sections on desert warfare; the Afrika Korps desert tactics, and the excellent section on the use of firepower involving Middle-Eastern armies.

YOUSSEF ABOUL-ENEIN
LCDR, U.S. Navy

Touched With Fire: Five Presidents and the Civil War Battles that Made Them
by James M. Perry, PublicAffairs, New York, 2003, 335 pp., $26.00

It was the "greatest generation" of the 19th century. Just as millions answered the call to serve in World War II, so did a generation of young men answer the call to the colors in the Civil War. Among them were five who later became U.S. presidents. Wartime military service has been a traditional steppingstone to the White House. General Washington was the premier soldier of the American Revolution and a sure post-war choice as president. Another veteran of the Revolution who became president was James Monroe, wounded in Washington's bold Christmas attack on Trenton. The War of 1812 also led to two veterans being elected to the presidency, Andrew Jackson and William Henry Harrison. The War with Mexico produced another two, Zachary Taylor and Franklin Pierce. Rough Rider Theodore Roosevelt's service in the Spanish-American War led to the presidency. Artilleryman Harry Truman served with honor in World War I. Seven future presidents served in uniform in World War II, most notably Dwight D. Eisenhower. Three saw combat first-hand: John F. Kennedy, whose torpedo boat was sunk; Gerald R. Ford, whose aircraft carrier service earned him 10 battle stars; and George Bush, at one time the Navy's youngest pilot, whose torpedo bomber was shot down.

West Point graduate Ulysses S. Grant is well known as a professional soldier and Civil War veteran, as is the fact that he rose to be the commanding general of the Union Army. Lesser known for their Civil War experience are the other four subjects of this book, all civilians with no military training who became wartime soldiers, three of them rising to general officer rank and the other a young enlisted soldier who rose to major by the end of the war. In his book, author Perry presents the military career of each and points out how each later capitalized on successful military service to enhance their chances of presidential election.

By the time the war started, Grant had resigned his commission and proven himself quite inept as a civilian businessman. Nevertheless, when war came, experienced military talent was needed, and Grant was soon commissioned a colonel and given command of the 21st Illinois Volunteers, a three-year regiment. He quickly brought order and discipline to a regiment that had already established a reputation as "a rowdy bunch." His military talents soon became evident, gaining national attention in his successful capture of Forts Henry and Donelson. With his demand for unconditional surrender at Fort Donelson, his name became a household word. As Perry points out, Lincoln's lone submission of Grant's name for promotion to major general began his march to the White House.

James A. Garfield had risen from a poor background and was serving as a state senator in Ohio when the war began. Seeing service as inevitable, Garfield wrote the governor and offered his services in any capacity. Soon after, he attempted unsuccessfully to be elected commander of two volunteer regiments. He was finally appointed lieutenant colonel and authorized to raise a regiment. By 18 September, he was promoted to colonel in command of his 42d Ohio Volunteers. Leading his regiment into the backwater southeast corner of Kentucky and in command of other elements in the area, Garfield conducted a successful campaign to drive Confederates from the area.

Armed with stories of the campaign, Garfield's friends in Ohio, including all of the state senators, urged Lincoln to promote the colonel. With further support from Treasury Secretary Salmon P. Chase, the president promoted Garfield to brigadier general. Assigned as a brigade commander in Buell's Army of the Ohio, Garfield's command arrived on the Shiloh field after the battle was won. Later, he performed highly effective service as chief of staff to General Rosecrans. For his services at Chicamauga, he was promoted to major general. Meanwhile, he had been elected to congress. Resigning his commission after two years of service, he took his seat in the House of Representatives in December 1863.

Starting his service as major of the 23rd Ohio Volunteer regiment, Rutherford B. Hayes compiled an admirable military record. By October 1861, Hayes had risen to regimental command. In the next four years of command of the 23rd Ohio or the brigade to which it was attached, he fought in a dozen battles and any number of smaller skirmishes and engagements. He was wounded four times, once seriously. He was an outstanding example of the successful volunteer officer, determined, brave, and impetuous. He served in the minor theater of western Virginia (now West Virginia) until the Confederate invasion leading to Antietam.

Joining the Army of the Potomac, Hayes' regiment fought at South Mountain where Hayes was seriously wounded during the fighting at Fox's Gap. In late November 1862, he rejoined the regiment. Once again in western Virginia, he was appointed brigade and then division commander in Crook's small army, soon designated Nineteenth Corps of Sheridan's Shenandoah Valley command. In October 1864, he was promoted to brigadier general and in 1864, brevetted major general for "gallant and distinguished service" at Fisher's Hill and Cedar Creek. In June 1865, elected to congress the previous June, he resigned his commission and took his seat in the House of Representatives.

One of those who joined Hayes in the 23rd Ohio Volunteers was 18-year-old Private William McKinley. Bright, personable, and deliberate, he had briefly attended Allegheny College. He was an eager and successful soldier, moving up quickly to become regimental commissary sergeant and, at 19, commissioned a second lieutenant. By 1864, he had been promoted to captain, and later that year he was brevetted major for "gallant and meritorious service in West Virginia and the Shenandoah Valley."

Grandson of a president and son of a very demanding father, Benjamin Harrison carried a burden from the start. Joining the 70th Indiana Infantry when it was formed in 1862, he quickly rose to regimental command but was never popular because of the strict discipline he imposed. His first combat, a regimental action against a force of Morgan's raiders, Harrison was successful in employing a pincer movement and capturing part of the force, much of its equipment, and over 40 horses. Nevertheless, the 70th found itself in what would be called "rear area security," even after joining Thomas' Corps of the Army of the Cumberland in late 1862.

It was in Sherman's advance toward Atlanta that Harrison finally had his chance to prove himself in serious combat, and this he did repeatedly in the campaign. Called home by the governor for political reasons, when Harrison rejoined the army, instead of accompanying Sherman on his march to the sea, he was placed in command of a conglomerate of soldiers that had been cut off from their units. His makeshift brigade was sent to join Thomas in the defense of Nashville against Hood's advance. There it played no significant part in the battle or the pursuit of Hood, his last action of the war. In his only major battle as a regimental commander, at Peach Tree Creek, he and his men had made a significant contribution. He was promoted to brigadier general in February 1865.

Each of these five had, indeed, been "touched by fire." They had proven themselves to be competent combat officers, even outstanding in some cases. Each would find that his service was an important factor in his march to the presidency.

Author Perry, whose experience as a journalist is evident in his lively writing, shows how the experience of combat helped shape his subjects. This volume is not so much a history of the war as it is a story of the impact of war on individuals who later rose to be president. It is an interesting and important contribution to Civil War literature and to the story of the United States presidency.

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