HARMON

ARMOR

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Features

Departments

Once More Unto the Breach

Operation Iraqi Freedom exposed a few weaknesses in our Army and, at the same time, showcased our strengths. Our greatest strength is our soldiers and their ability to adapt to a battlefield full of uncertainty, complexity, and downright nastiness. It takes "boots on the ground" to accomplish what our soldiers and units have done. All the high-tech surveillance, gadgets, and intelligence cannot replace soldiers.

The wars in Iraq and Afghanistan have proven time again the importance of air-ground integration in the combined arms fight. In his article, "Attack Helicopters Offer Armor Leaders Third-Dimension Maneuver," Captain Steve Miles explains how attack aviation can best support the ground tactical plan, and how, in the best interest of combat leaders, they should know the capabilities and limitations of each combat multiplier.

In his article, "Sharpening the Spear: Training the Armor Crewman for Future Battlefields," Captain Geoffrey Wright outlines the challenges and the gamut of operations a tank company is required to do while operating in Iraq. Encompassing full-spectrum operations in one day, a tank company can assist in humanitarian assistance, advise a local Neighborhood Advisory Council, conduct a joint patrol with Iraqi security forces, or raid a home to seize an anticoalition operative, weapons dealer, or criminal.

The ongoing war in Iraq has changed the dynamics of armor and cavalry operations. Where tanks and Bradleys were once an armor soldier's most lethal and survivable mode of travel, dismounted patrolling has become the norm. Major Dennis P. Chapman's article, "Tactical Errors in the Dismounted Fight," discusses the importance of exploiting the effects of fire, movement and terrain for gaining tactical advantage and surviving on the battlefield.

Captain Sean Kuester's article, "Using the Patrol Brief in Baghdad," provides an excellent example of how our armor units and leaders are capable of adapting to situations that were once beyond the norm.

Retired Army Colonel Bruce B.G. Clarke offers his years of experience as an armor and cavalry leader to share his idea of a combined arms team at the platoon level in his article, "The Stryker Company and the Multifunctional Cavalry Platoon." He realizes training lieutenants to command such complex platoons will be difficult, but not impossible, adding that during the 1960s, the armored cavalry platoon was organized similarly to what the Stryker company is today.

One of the most overlooked, poorly planned, and difficult missions to execute is conducting casualty evacuation. In his article, "Brigade Reconnaissance Casualty Evacuation," Major Kent Strader addresses tactics, techniques, and procedures that are battlefield operating system-driven and require both primary and secondary staff involvement in the war game, which is the building block to successful casualty evacuation (CASEVAC) of reconnaissance assets. This article also addresses some of the underlying causes, recommended fixes, and possible task organizations that can help units plan and prepare for reconnaissance CASEVAC and reduce the acceptable risks to highly trained and irreplaceable soldiers.

The mine plow on the Abrams tank is a very effective combat multiplier. Unfortunately, most soldiers see the plow as a hindrance to operations because of the constant user-maintenance required. Captain Kyle Brennan's article, "Sustaining Training with Mine-Clearing Blades," dispels many concerns and offers unique insight on identifying improper maintenance procedures, ways to prevent breakage, and tactical considerations to help enhance training.

Restructuring and transforming to the modular Army with units of action and units of employment versus the traditional corps- and division-level tactical headquarters will change, which will change the operating environment. In his article, "Logistics Transformation," Captain Matthew J. Reiter describes the challenges of implementing a logistics rhythm that will keep pace with future warfare and the new modular unit fighting concept.

Establishing a simple command philosophy sets the foundation on which new company commanders can build. In his article, "The Highlander Code: Be a Soldier," Captain Mike Jason outlines steps new company commanders can use to communicate their intent in a clear, understandable fashion that reflects excellence and assertiveness.

In the issue, experts at the Master Gunner Branch, Fort Knox, Kentucky, introduce "From the Boresight Line," which will be a recurring section that offers timely advice and information to our cavalry and armor units.

That's all for now, please keep writing and sending in your ideas, thoughts, and articles.

– DRM

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LETTERS

Why Arm Tankers for Dismounted Operations?

Dear *ARMOR*,

In reference to the article, "Arming the Knight for Dismounted Combat," in the May-June 2004 edition, the author brings up interesting points of contention in the application of dismounted U.S. Army tank crews, but only to a point. Which brings me to a few unanswered questions: why would we want to recreate the tanker's role; why consistently arm him for small unit foot-mobile excursions; with this application of thought, do we further supply each soldier in the field with enough means to carry him through every possible contingency; and when is enough too much?

I agree with the captain, that due to the changing scope of the battlefield, our applications of men and machine must be adaptable. But it sounds as though this officer desires to get 'tankers' more directly involved in sustained, foot-mobile ground operations. There are situations which may dictate that tank crews be dismounted, such as performing limited reconnaissance, engaging hostile forces whereupon they fall victim to a mobility kill, or stripping armor units of personnel and using tank crews as provisional infantry. In the latter instance, I am sure the Army's 'powers to be' would properly equip these soldiers with the necessary means.

In anticipation of these possibilities, they should be well versed in military operations in urban terrain (MOUT); but engaging in dismounted actions should be the exception, not the rule. I also disagree with the statements that "every soldier on the ground needs a rifle." Senior enlisted soldiers and officers should concentrate on the accurate placement of fires by their subordinates, coordinating TacAir and supporting arms to best facilitate accomplishing the mission. Their weapons, like those of aircrews, and most ground vehicle crews, are for personal defense. I believe if there came a time for me to require a rifle, it would mean that the proverbial manure had hit the fan, and as a result, plenty of rifles would be available for my use.

Today's world of lower intensity military actions decreases the likelihood that U.S. armor will be engaged in a toe-to-toe battle with heavily armored Warsaw Pact-like forces. However, heavy armor is still a very valuable commodity to the overall tactical commander. The mere presence of armor causes fear and frustration to even the most dedicated adversary. Armor loses its effectiveness as a major combat support tool if no one is around to man driving stations or provide fire by the primary and secondary weapons systems. The continued use of infantry and armor co-supporting each other is the only viable application, especially in MOUT.

Necessity sometimes breeds *temporary* changes to the primary role of a fighting force, such as using antiaircraft batteries as direct-fire weapons against the Germans at Bastogne. But to completely reinvent the role of heavy armor to be a regularly dismountable force is impractical and dangerous. Taking any portion of a tank crew to conduct an infantry or engineer task is like dropping the firing pin from a rifle; it results in a severely degraded weapons system. Where the rifle can still be used as a club, the tank crewman can now only deliver offensive *small arms* fire. Given a choice, I'd rather have those highly skilled warriors atop their armor, doing what they do best. Having them inside, buttoned-up and watching my six for large-scale threats beyond my immediate scope, has just increased the "ground pounder's" survivability in MOUT ten-fold. The Army already has mechanized infantry, and the newly developed Stryker brigade; why elaborate further?

Armor is necessary, but in today's low-intensity conflict MOUT climate, only missions performed to assist infantry and engineers establish a more solid foothold with which to expand. Except in isolated instances, when it becomes absolutely necessary to do otherwise, I see tankers continuing to do what they were trained to do. Leave the small arms shooting, snooping, and moving to the infantry, and the breaching and other mobility/countermobility skills to the combat engineers. You already have these soldiers, and if you don't, it may be that your table of organization needs to be rewritten, not the table of equipment.

C.E. GILLHAM
First Sergeant, USMC

Determine the Real Problem, Then Seek a Solution

Dear *ARMOR*,

First, I would like to address Colonel Kevin C.M. Benson's article, "Thoughts on Restructuring Army Brigades," in the May-June 2004 issue of *ARMOR*.

As I read Colonel Benson's proposed brigade combat team (BCT) structure, I noted that there is doctrinal confusion and misunderstanding — "modular" is not the same thing as "task organized." Since each BCT is to be fixed and identical, there is no mission tailoring for the task. Regarding the statement, "plug into established/establishing theater support units … for combat service support and resupply," we have been doing that since World War II. Colonel Benson writes that up until now, the standard answer is "a division or nothing." Actually, there are at least two organizations: the separate armored brigade and the armored cavalry regiment, which already fill the role. For that matter, so can a tailored divisional brigade or a division (-).

Colonel Benson assumes that higher echelon fires will shatter the enemy's structure, leaving the BCT to deal with disorganized enemy forces. He assumes that the clash of massed conventional armies is unlikely. I don't buy it. This is no concept, but rather a hopeful dream. This is the trap of trimming down combat power to achieve a mandated organization (as opposed to a mission-oriented) goal.

I specifically disagree with his proposed artillery structure. The 120mm mortar lacks the range to be centralized in a brigade's artillery battalion. Renaming mortar platoons into batteries and merging them with a single howitzer battery to create the illusion of an "artillery battalion" is unnecessary organizational overhead. Instead, leave the mortar platoons at battalion and assign a howitzer battery directly to each combined arms battalion (as in the regimental armored cavalry squadron). This at least eliminates the artillery battalion's headquarters battery and the service battery.

But this is all fluff and opinion. We can go on forever pushing individual preferences, but to what purpose? That's the unanswered question with all major reorganizations attempted within the past two decades. The high-tech light division (motorized), light infantry division, Army of Excellence, mobile strike force, Force XXI, conservative heavy division, and others were nothing but exercises in task organization. Changing the number of companies per battalion and platoons per company, and kicking logistics up and relying on corps augmentation does not equate to a new operational concept. It's just a shell game.

The *real issue* is that transforming a three-brigade division into a five-brigade division, while staying within the same overhead, is a bad idea for several reasons, as outlined below.

Our Army is already made up of modular building blocks. All units are built up of companies (batteries/troops). Typically, three to five companies are grouped with a battalion headquarters and headquarters company (HHC) and a service company (sometimes combined) to form individual battalions. Battalions are grouped with a brigade HHC and a support battalion to form brigades. The brigades are grouped with a division HHC, other divisional supporting brigades, and separate battalions to form a division. The benefit of this structure is that it pools supporting units into a higher echelon for maximum efficiency. It also permits ready task organization and mission specific tailoring of the brigades.

Separate brigades are similarly organized, but one echelon lower. Instead of a division with maneuver brigades, supporting brigades and battalions, the brigade has maneuver battalions, supporting battalions, and companies. Doctrinally, a separate brigade is assigned to a corps and is considered equal to a division. The same applies to the armored cavalry regiment.

A division must provide maneuver support and maneuver sustainment to its entire subordinate maneuver brigades. The current "triangular" structure is suited for three BCTs. To add two maneuver BCTs, you must also add two brigade "slices." Division artillery (DIVARTY) needs two more artillery battalions (headquarters and headquarters battery and service battery). The divisional support command (DISCOM) needs two more forward support battalions (FSB). Division engineer must generate two engineer battalions. Division aviation must do likewise. Finally, each newly created supporting company/battery also needs its own headquarters platoon or section. This entire expanded overhead only serves the same total number of combat battalions.

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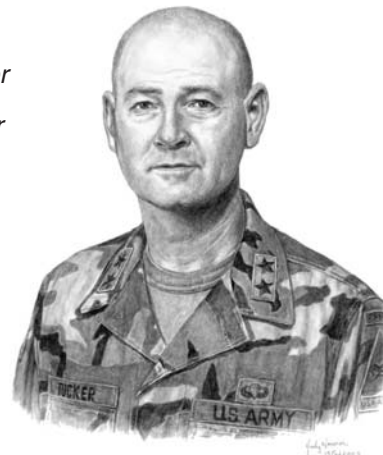
Future Cavalry Organization and the Recon Squadron

Change is nothing new to the cavalry community, and we here at Fort Knox are working hard to manage that continuing change. The Doctrine Division of Training, Doctrine, and Combat Developments (TDCD) is leading this effort. These guys are high-speed and know their business. They are keeping up with the ever-changing security and reconnaissance requirements and a myriad of good ideas on how to improve both.

In simpler times, U.S. Army Field Manual (FM) 17-98, *Scout Platoon*, serviced the six-Bradley scout platoon and the 10-high-mobility, multipurpose wheeled vehicle (HMMWV) scout platoon. True, the HMMWV had survivability and lethality inadequacies and the Bradley was really more of a fighting vehicle than a true reconnaissance platform, but at least the 19D scout knew what he had to work with. This simplicity in organizational design was not to remain, however. The 4th Infantry Division, which began transforming to Force XXI, dropped its brigade reconnaissance troop (BRT) and task force scout platoon strength to six HMMWVs. Other divisions began limited conversion as well. A resulting third organization had now emerged, one equipped with the new long-range advanced scout surveillance system (LRAS3). Then in 2001, another scout platoon organization emerged, this one equipped with four Stryker Reconnaissance Vehicles. For those counting, this makes four different scout platoon organizations, not including dismounted variations.

The new heavy and light brigade combat teams are trading their brigade reconnaissance troops in for reconnaissance squadrons. Not armed reconnaissance battalions or reconnaissance, surveillance, and target acquisition (RSTA) squadrons, they are simply *reconnaissance squadrons*. "RSTA" may remain in the vernacular, but officially (meaning in future doctrinal products) the title will be "reconnaissance squadron."

Those familiar with Stryker organizations will immediately recognize the similarity: three ground troops and a surveillance troop; however, unmanned aerial vehicles, PROPHET, and ground surveillance radar/remotely monitored battlefield sensor systems will remain organized under the brigade rather than with the squadron. Still, the squadron can extend the range and depth of its surveillance capability with the assets. The forward support company may not be organic, but the squadron will have a more robust combat service support organization than that of the Stryker Brigade Reconnaissance Squadron, which has only a combat repair team (CRT). The current FM 3-20.96, *Cavalry Squadron (RSTA)*, will suffice as a doctrinal reference for the short-term. Within the next year, Fort Knox will publish an updated version of FM 3-20.96 titled simply, *Reconnaissance Squadron*, which will incorporate the reconnaissance squadron organization as outlined below.

The reconnaissance squadron in the light brigade combat team is different. Although the squadron has the benefit of a surveillance troop, there are only two HMMWV-mounted reconnaissance troops. The platoon configurations should be familiar: six-vehicle platoons and 18 troopers. The key difference is the addition of a dismounted reconnaissance troop. As in any light organization, the transportation of these dismounted scouts remains a problem. One solution may be that this troop receives HMMWVs to give the squadron three mounted troops. Another is to mount these scouts, but fold them into two mounted troops and create the 10-HMMWV platoon again, thereby increasing each platoon's dismounted capability. Of note, this squadron has a robust antiarmor capability with 12 tube-launched, optically tracked, wire-guided (TOW) missile systems and more than 24 Javelin systems.

The current Stryker organizational model is in use today. The 1st Squadron, 14th Cavalry Regiment, 3d Brigade, 2d Infantry Division (Stryker Brigade Combat Team) has seen considerable success thus far in Operation Iraqi Freedom. The 2d Squadron, 14th Cavalry Regiment, 1st Brigade, 25th Infantry Division (Stryker Brigade Combat Team) is trained and prepared to deploy overseas when called. The many lessons they have learned will greatly assist in the reorganization and training effort of the heavy and light brigades.

The newest organization — the *reconnaissance platoon* — can place a minimum of 12 scouts on the ground while continuing to crew the M3s and the LRAS-equipped scout HMMWVs. This platoon is heavy with the 97E10 HUMINT collectors — some believe that this will better meet the requirements of the operational environment.

By the summer of 2005, there will be doctrinal manuals, which will discuss the employment of these new platoons and troops. For them to be good products, your thoughts on what does and does not work with these organizations are critical.

Forge the Thunderbolt!

DRIVER'S SEAT

Training Master Gunners To Meet Future Force Needs

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

Undoubtedly, the U.S. Army has the best-trained armor units in the world. Over the years, Fort Knox has provided unit commanders with specific soldiers who are trained in current tank technology and crew-training techniques — master gunners. The title, "master gunner," which derives from the term "master of gunnery," is assigned to select noncommissioned officers who assist in planning, developing, and conducting unit-level gunnery training. These highly trained and qualified soldiers serve as a special assistant and advisor to the commander on issues related to tank combat tables.

Initially, master gunners performed a great deal of maintenance on fire controls systems, much like senior turret mechanics. During the early days, turret mechanics were often junior soldiers assigned to unit-level maintenance. This required master gunners to fill the void created by these young soldiers' lack of experience. Unit commanders came to rely heavily on master gunners to provide turret maintenance to ensure combat readiness. For example, the M60A1 tank was equipped with a fire control system that consisted of infrared sights, a coincident range finder, and a ballistic computer with ballistic drives. These fire control systems required a great deal of adjusting and a great deal of unit-level maintenance. How well the crew would perform depended on which variant of the M60 tank and coax machine gun it used, and the tank commander's experience with an M85 machine gun. These types of issues design the master gunner course.

It has been nearly 30 years since the first soldier completed this course to become one of the first master gunners and, since that time, tank systems and doctrine have changed a great deal. The Cold War has come and gone, and the role of the master gunner has not become any less complicated, but rather extremely complex.

The new units of action are changing the Army's force structure to a combined-arms force, which means master gunners must continue to evolve and provide current tank technology training as they continue to broaden their scopes of expertise. Technical competence is what being a master gunner is about; however, master gunners should not be senior turret mechanics, but should focus more on the multitude of weapons system in the combined-arms force.

The strength of the Armor branch relies on the high level of technical competence deliberately placed in the hands of sergeants, making Armor a unique branch. In some career management fields, a master gunner's role would be equivalent to a warrant officer. Aviation officers fly helicopters, while sergeants support the effort. Even Infantry master gunners do not play the same role as Armor master gunners. The master gunner role is exclusive to the Armor branch. The only thing a commander has to do is get those crews to a position of advantage on the battlefield, and the sergeant will shoot to kill.

We have the best equipment and the finest soldiers in history. They can deploy at a moment's notice to wherever needed and successfully meet mission requirements. Current operational tempo and increased deployment cycles make it difficult for units to send soldiers to an 11-week course; however, commanders will continue looking to the master gunner to provide the technical knowledge to train a multitude of weapons and weapons systems. If professional development does not fit within the unit life cycle, commanders are not going to send their soldiers to these courses. This means the Armor Center cannot become complacent with the future development of the master gunner's course.

The master gunner's course, which is greater than eight weeks long, is at risk of not meeting the needs of the future force. Therefore, as Fort Knox and the Armor Center begin to incorporate 56 hours of distance learning (DL) material into the course, we must make a conscious effort to ensure the course remains relevant to the needs of the force. DL material must maintain the standards and reduce the length of the resident phase of the course. This will not be something the Armor School and Fort Knox takes lightly. This is not just a good idea — this is our future master gunner. Information on course prerequisites is listed in Department of the Army Pamphlet 351-4, *U.S. Army Formal Schools Catalog.*

If we are serious about our Army's readiness, then master gunners must be prepared to broaden their scope of expertise, and the Armor School must reduce the amount of time spent training maintenance to master gunners. This is a tough business; it takes discipline, extra effort, and demands that master gunners continue to evolve and grow. I challenge all master gunners to do that.

Iron Discipline and Standards!

From the Boresight Line:

Master Gunner Program Reaches Thirty-Year Milestone

by First Sergeant Jack Cooper

The U.S. Army Armor School's Master Gunner Program was created in October 1973, following the war in the Middle East. In early 1974, senior U.S. Army leaders began to analyze these armor battles, knowing that U.S. armor forces could face the same type of combat. The Army was drawing down from its Vietnam-era jungle/guerrilla warfare mentality and senior leaders were looking for a new focus. Early in their analysis, senior leaders discovered that the first tank that fired with accuracy was the tank that won; armor unit readiness and tank gunnery proficiency are tremendously important on the battlefield; tank crew proficiency at every level is essential; and sufficient force, good equipment, and sound methods of employment alone are not enough.

The study included visits with commanders in the field where it was determined that each unit should have a tank expert to assist the commander and advise him in developing and executing his gunnery program; hence, the master gunner concept for the U.S. Army Armor Force was developed.

Still on the Cutting Edge

The master gunner is probably even more relevant today. The high operating tempos and different environments in which today's Army operates require experts that can adapt to individual unit training needs.

The Armor School's goal is to bring the course in line with future force requirements. This requires a review of current programs of instruction for content and length, but course standards will remain unchanged. We owe it to the force to continue to produce only the best of the best. We will continue to send highly qualified master gunners to the force and provide them with the best set of tools we can design. Our baseline job description will remain "serves as the commander's tank combat tables technical advisor. Assists the command and staff in planning, developing, conducting, and monitoring the unit combat table program to ensure proper readiness posture is maintained." We will ensure that no matter what design the course takes in the future, it will remain relevant and ready to support the force!

What a Master Gunner Does

The dictionary defines "master" in various ways, "a worker qualified to teach apprentices and carry on the craft independently; an expert; highly skilled or proficient; or one who has attained great skill in the use or application of anything." The Master Gunner Branch is designed to train select noncommissioned officers (NCOs) in advanced gunnery methodology, turret weapons maintenance, and training management. The standards to pass the course are high and not everyone will pass. But, of course, not everyone can be given the title of "master." The purpose of the course is to provide subject matter expert support for current and future gunnery training and developments. Our current course consists of three distinct phases: maintenance, gunnery, and training management.

Maintenance phase. The maintenance phase trains the master gunner in various areas, including basic electricity and schematics, diagnostic test equipment, manuals, armament systems, fire control systems, hydraulics, turret electrical systems, commander's weapons station, gun tube technology, fire control maintenance, smoke grenade launcher system, weapons data card, and scheduled services.

There is an assumption that turret mechanics perform all of these tasks and we do not need master gunners teaching maintenance training — this is erroneous. The data we provide through platform and hands-on training is designed to enable a master gunner to quickly diagnose a problem and provide an accurate assessment to maintenance personnel. This process permits maintenance personnel to better focus their efforts, which helps streamline the maintenance program and provides the commander instant feedback on potential issues.

Gunnery phase. Gunnery phase starts fast and furious with classes such as target acquisition, conduct of fire, ammunition, range determination, planning and conducting gunnery tables, firing tables, surface danger-area diagram, training devices, advanced conduct of fire, prepare-to-fire checks, and range training. We teach and train each of these classes to the slightest detail and send qualified personnel to the force to teach other fine tankers. We go to a depth that enables master gunners to be better advisors on soldier training, as well as experts on enemy capabilities.

Training management. The training-management phase is our capstone event. During this phase, students take what they have learned over the past weeks and tie it all together. They compile unit data, assess it, and build a training program that encompasses all of the regulatory requirements, as well as normal training distracters, and mold this information into a viable training program. The student then briefs his training program to a panel of three master gunner instructors who role-play the unit command group. The master gunner instructors evaluate the program to ensure it is logical, is viable in today's training environment, and has all of the components necessary to be successful during soldier training. The student must receive a "go" from two of the three panel members to successfully complete the training-management phase.

Now, it is on to graduation — short, sweet, and to the point. Go forth and do well. Put steel on target! Congratulations, master gunner!

Attack Helicopters Offer Armor Leaders Third-Dimension Maneuver

by Captain Steve Miles

During 10 months of leading attack helicopter missions in and around the "Sunni Triangle" of North-Central Iraq, C Company, 1st Battalion, 4th Aviation Regiment (Attack), 4th Infantry Division, developed and integrated successful tactics, techniques, and procedures (TTPs) for air-ground integration. Due to the unique operational environment encountered during this war, many of these TTPs were refined over several months. In the interest of keeping follow-on units from reinventing the wheel and to further improve existing procedures, this article provides insight on how attack aviation can best support the ground tactical plan.

After reading this article, you will be an aviation "insider" who knows how to obtain the greatest amount of synergy by working with attack aviation. Many aviators might identify this information as "trade secrets." These particular aviators fear micromanaging by shortsighted leaders who do not understand or care how to be a good steward of aviation resources. Unfortunately, there are a few leaders who fit this description, but it is in our best interest as combat arms leaders to know the capabilities and limitations of the other. This article lays it all out on the table, including fighter management, flight hours, and weather. What a reader should understand is that aviation is about risk management, not risk aversion, and the limits discussed below are designed to preserve combat power, while providing flexible and substantive support.

The Attack Aviator

Attack aviators are pretty much volunteers, and like armor officers, they chose to take on the attack aviation mission because destroying the enemy through maneuver, firepower, and shock effect appeals to them. An attack aviator is expected to "move to the sound of the guns," demonstrate tremendous initiative, and attack in the absence of orders. This aggressive demeanor is tempered by a general conservatism born of the unforgiving aviation environment.

Attack aviators come in two basic varieties. Most attack pilots are aviation warrant officers, skilled experts in the tactical employment of aircraft. These professionals focus on being extremely proficient warriors. Other attack pilots are aviation branch commissioned officers, usually company commanders and platoon leaders. Like their armor branch brothers, aviation branch commissioned officers master their fighting platform over several years, and then transfer to staff positions. Both commissioned and warrant officer attack aviators are dedicated combined arms officers who want to contribute to the success of the ground units they support.

What Attack Helicopters Bring to the Fight

During this conflict, the AH-64D Apache Longbow has proven to be both a capable and survivable instrument of warfare; however, like any tool, one must know its capabilities and limitations.

The Longbow Apache is a tandem-seat attack helicopter with a crew of two. The back crew station is optimized for maneuvering the aircraft, and the front crew station is optimized for employing the weapons; however, both crew stations are very similar. The aircraft can be flown and weapons fired from either crew station.

"A heavy division attack helicopter battalion fields 18 Apaches in three companies of six aircraft each — each company has two platoons of three Apaches each. Corps-level battalions have 21 aircraft, while battalions in the 101st Airborne Division have 24 each. Most all unit maintenance and support assets are at the battalion level, a key factor when considering task organization."

A heavy division attack helicopter battalion fields 18 Apaches in three companies of six aircraft each — each company has two platoons of three Apaches each. Corps-level battalions have 21 aircraft, while battalions in the 101st Airborne Division have 24 each. Most all unit maintenance and support assets are at the battalion level, a key factor when considering task organization.

For planning considerations, the Apache can fly at a speed of about 4 kilometers (kms) per minute for about 2 hours without refueling. The hotter the temperature, and the longer the aircraft hovers, less fuel endurance is expected. During extreme heat, Apaches may not have the capability to hover at all.

Technology

Sights and Sensors. The front and back seats are equipped with the integrated helmet and display sighting system (IHADSS). IHADSS has three components, which include a helmet-mounted monocle with aiming reticule, a device that precisely tracks the movement of the helmet in three dimensions, and a boresight reticule for aligning the helmet-mounted sight with the aircraft centerline. The IHADSS displays basic flight, navigation, and weapons information to a pilot through the helmet-mounted monocle. IHADSS enables the aircraft weapons and forward-looking infrared (FLIR) sensors to be slaved to the helmet line-of-sight. This allows the pilot to visually acquire a target, position his head so the helmet-mounted reticule is superimposed on the target, and squeeze the trigger making for incredibly fast acquisition-to-engagement times.

Day television system. The Apache target acquisition/designation sight (TADS) is equipped with a day TV system for acquiring and engaging targets up to a 6km distance during sun hours. The day TV is capable of a 127-power zoom and has a black-and-white display.

FLIR. The Apache is equipped with two FLIR sensors, each of which can be displayed on the helmet-mounted IHADSS monocle. The pilot night vision sensor (PNVS) is designed for use in flying the aircraft. The second sensor, a component of the TADS, features a 32-power zoom for weapons engagements, but can also be used to fly the aircraft. FLIR sees heat, not visible or near-infrared (IR) light. The Apache FLIR is first-generation and is optimized to see armored vehicles, which it does very well. Using the FLIR, vehicles can be acquired and engaged effectively out to 3.5km. However, dismounted personnel can rarely be seen at ranges of more than 1.5km, a serious consideration when employing Apaches at night. To observe small arms weapons carried by individuals, the range is much shorter. Much like tank thermal sights, overcast and rainy weather further degrade FLIR capabilities.

Fire control radar (FCR). One-half of the AH-64D Apache Longbow fleet is equipped with millimeter wave radars mounted on the main-rotor mast, commonly referred to as the "cheese wheel." The FCR is capable of detecting stationary targets out to 6km and moving targets out to 8km. It classifies targets into one of 16 categories, differentiating between airborne and ground, stationary and moving, tracked and wheeled, and other criteria. The radar uses a programmable prioritization scheme to select and display the 16 highest priority targets to the aircrew. The effectiveness of the FCR in acquiring and identifying targets is directly proportional to the amount of other ground clutter around them; for instance, the radar works better in the desert than in a forest. During our operations, the radar has proven most effective in locating vehicles moving after curfew and vehicles attempting to cross national borders in remote areas.

Night Vision Goggles (NVGs). AN/AVS-6 goggles can be employed by Apache crewmembers in the front seat only. These NVGs are just slightly more capable than standard AN/PVS-7 ground goggles and have similar limitations. NVGs are the only way Apaches can observe IR strobe lights, IR chemlights, or IR lasers.

Weapons

Cannon. The M230E1 30mm chain gun is the attack aviator's preferred implement for cutting the heart out of an insurgency.

With a rate of fire of 650 rounds per minute, the cannon sprays high-explosive dual-purpose projectiles with a lethal bursting radius of 4 meters. While the maximum range of the gun is 4,200 meters, engagements are most often made with the IHADSS at ranges of less than 1,000 meters in Iraq. Maximum capacity is 1,200 rounds of 30mm ammunition. The cannon is devastatingly effective against dismounted personnel and soft-skinned vehicles.

Rockets. The Apache can carry up to 76 folding-fin 2.75-inch aerial rockets. These rockets may carry many different types of warheads, to include:

● High explosive (HE) — 10-meter burst radius and 7,500 meter range, useful for surpression and harassment fires.

● Flechette — rockets fly toward the target then explode midair, saturating a 100- by 100-meter target with up to 1,180 "nails." Imagine an air-delivered claymore mine.

● Multipurpose submunition (MPSM) — each MPSM warhead dispenses nine shaped-charge bomblets capable of penetrating four inches of steel and producing casualties out to 20 meters.

● Illumination — each illumination rocket provides illumination similar to a 120mm mortar illumination round. They will burn for about 2 minutes and can significantly aid target acquisition and identification when using NVGs.

● Hellfire missile — the AGM-114 Hellfire missile comes in two distinct varieties: laser and radar guided. The laser-guided missiles have a minimum range of between 500 and 1,400 meters, depending on version and a max range of 8km (remember the sight limitations discussed above). The radar-guided Hellfire is a fire-and-forget weapons system that is not optimal for the current fight in Iraq. Hellfire missiles have a 34-pound HE shaped-charge that will destroy most armored targets, but is not enough to level a building.

Communications

The Apache Longbow is well equipped with a variety of technological communications systems, which include:

● FM single channel and ground airborne radio system (SINCGARS). Each Longbow Apache carries two FM SINCGARS radios with frequency hopping and secure capability.

● Ultra high frequency (UHF) have quick. This is a frequency-hopping UHF radio, capable of secure communications, primarily used for communications with other aircraft.

● Very high frequency (VHF). This is a single-channel nonsecure VHF radio, primarily used for talking to air traffic control services.

● Enhanced position locating and receiving system (EPLRS) and blue-force tracker (BFT). Most deployed Apaches are equipped with either EPLRS or BFT, commensurate with other systems fielded by their parent unit.

Other Equipment

The Apache is also equipped with many other features, which enhance its battlefield capability:

● Laser rangefinder/designator (LRFD). The LRFD has a range of out to 9,999 meters and designator out to 7km. The LRFD can also designate for copperhead and air-delivered, laser-guided bombs.

● Laser spot tracker (LST). The LST acquires laser designations from other Apaches, jets, and laser designators used by fire support teams.

● Videocassette recording system. All Apaches are equipped with a video recorder for capturing FLIR and day TV video. Many use the standard 8mm video format. Effective uses include recon of ground attack routes and raid objectives for pre-mission review by ground leaders, as well as battle damage assessment.

"The M230E1 30mm chain gun is the attack aviator's preferred implement for cutting the heart out of an insurgency. With a rate of fire of 650 rounds per minute, the cannon sprays high-explosive dual-purpose projectiles with a lethal bursting radius of 4 meters. While the maximum range of the gun is 4,200 meters, engagements are most often made with the IHADSS at ranges of less than 1,000 meters in Iraq. Maximum capacity is 1,200 rounds of 30mm ammunition. The cannon is devastatingly effective against dismounted personnel and soft-skinned vehicles."

• Improved data modem (IDM). Longbow Apaches exchange target information, and pass fire support requests to field artillery units digitally through the IDM. The IDM interacts with all onboard radios to send digital messages in various protocols.

Maintenance

Helicopters, like modern tanks, are very maintenance intensive by virtue of their complex systems, but the sky has no tolerance for malfunctions. If a tank throws a track, it stops; if a helicopter throws a blade, it is catastrophic. As a result, helicopters have many inspections required at intervals as short as 10 hours of flight time. These inspections and the inevitable repairs they require take significant amounts of maintenance time. Further, Apaches are required to be completely overhauled after just 250 hours of flight time, which is called a "phase." Just as an armor leader takes care to ensure his tanks do not all require semiannual services at the same time, aviation leaders must ensure their aircraft do not all reach phase at the same time. While in Iraq, our battalion completed an average of four phase overhauls per month and this drove our sustainable flying rate of 1,000 hours per month, or 333 hours per company.

Flight Time

Based on the above sustainable flying rate of 333 hours per company per month, that equates to about 12 aircraft hours a day. Maintenance test flights, required pilot training, and evaluations will take a portion of this time, so do not think an operational control (OPCON) company "owes" exactly 12 hours of air missions per day — 12 hours is more of a total target pace to sustain continued mission support. Twelve aircraft hours flown by a team of two Longbows, results in six mission hours per day.

Fighter management is a tool that keeps aviators and aircraft safe to fly another day. Inadequately rested crews flying $24 million aircraft just does not pass the common-sense test. In our unit, crew rest means 10 hours off between 14-hour duty days, and aviators who do not get quality rest can self-ground. One might think that this self-grounding option would lead to abuses, but in practice, it really does not. Attack aviators are professionals with a strong sense of personal responsibility and duty.

Each aviation unit has a standard operating procedure (SOP) that specifies daily flight hour limits. In Iraq, we used a rough guideline — 8 hours of day flight or 5 hours of night flight during one duty day, assuming the aircraft has sufficient flight time before the next maintenance inspection or component replacement. Finally, aircrews may not fly at night past the 10th hour of their duty day.

Our attack company has six aircraft and six crews. Just like with armor crews, the number one attack aviation crew rule is "never leave your wingman," so we are organized into three teams of two aircraft each. Our default posture is one day team, one evening team, and one late-night team. Each team adjusts sleep schedules to wake just prior to their shift. This provides the ability to support short-notice missions, 24 hours a day. If a unit requests more than one team in the air, we can adjust if given enough notice. We require about a 12-hour notice for two teams, and a 24-hour notice to mass all three teams.

The Apache has several components that warm up slower than Grandma's vacuum-tube television. In the heat of the desert, run-up times are extended due to waiting for components, such as the FLIR, to cool down. Without an advance mission notice, it takes approximately 2 hours to get Apaches airborne. If we receive a forewarning that we may be required to fly, we will preflight and run-up the aircraft in advance to make sure everything checks out. This is called "REDCON 3," and allows us to be airborne within 30 minutes. If we really think we will be needed, we can sit in the aircraft with the auxiliary power unit running, which is referred to as "REDCON 2," and be airborne within 15 minutes, but this burns fuel and is not sustainable in high temperatures. One might think Apaches should always be at "REDCON 3," but remember, getting the aircraft preflighted and ready to go starts the aircrews' duty day and could significantly curtail them from flying when they are needed.

Our attack company has a total of 27 personnel on the modification table of organization and equipment and less on the ground in Iraq. Consisting of only officer pilots and enlisted crew chiefs, these personnel can be considered 10-level operators. All 20-level unit maintenance takes place at the battalion or above. If an attack company is physically separated from battalion-level maintenance, it's just a matter of time until there are several nonmission-capable aircraft. Keep in mind that broken aircraft cannot just be towed back to the unit maintenance collection point. Apaches cover large distances rapidly, 100km is a 25-minute flight; weigh the value of dislocating an attack company from its parent battalion carefully. In most situations, a

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"Like many other weapons systems, since the cessation of major hostilities in Iraq, Apaches have made a significant departure from the Cold War paradigm. Where battalions and even regiments of attack helicopters may have attacked in mass before, a single team of two Apaches has enough firepower to dominate any likely engagement. Where helicopters previously hugged the terrain to avoid engagement by long-range surface-to-air missiles (SAMs), the principal threat to helicopters now comes from small arms, rocket-propelled grenades, and the occasional shoulder-fired SAM. The situation is different, and tactics used by Apaches are changed to suit this difference."

liaison officer (LNO) from the attack company and/or forward aviation refueling will be a better solution.

Ground troops know that the enemy does not attack when Apaches are flying overhead. Commanders want air cover 24/7 because it keeps the enemy at bay. Unfortunately, keeping "iron in the sky" indefinitely is not sustainable, so we must make efficient use of the time we can fly.

Attack Aviation Missions

The low-intensity nature of the conflict in Iraq has blurred the distinction between traditional attack aviation missions and tasks considerably. Supported units have difficulty articulating what they want attack aviation to do for them. Common mission requests include tasks such as "perform presence patrol" and "provide overwatch," but these are not doctrinal attack helicopter tasks and have ambiguous meanings. Staffs and LNOs must shape these requests into tactical tasks that attack helicopters can perform, such as recon or screen missions. The results are worth the effort, as missions will focus on clearly defined goals — staffs know what kind of products are necessary to support the mission, and everyone will understand what is expected. The following examples are fictional, but very accurately portray the character of real missions:

Scenario 1: A forward operating base (FOB) comes under mortar attack nightly and the brigade commander directs his OP-CON attack helicopter company to deter these attacks.

Bad example: *The aviation LNO passes a request for a presence patrol to the aviation brigade, who then passes it to the attack battalion. When it gets to the attack company it is a Power-Point slide with a 1:250,000-scale map of the FOB and states, "perform presence patrol at FOB from 2000-0100." The attack aviators know the FOB comes under mortar attack, they guess*

from 82mm mortars, and perform a map recon for likely firing points within 4,900 meters of the FOB. They arrive overhead that night and identify a truck with a covered cargo bed and warm engine parked along a road. After flying presence patrols over this FOB night after night, they know it is unusual for a truck to be stopped here at this hour. They call the FOB with a spot report, but all the radio operator can do is say, "roger." After some prodding, the attack aviators are finally able to speak with a battle captain and ask for someone to come out and investigate the truck. No one at the FOB is tasked to support the Apaches, so it takes about 40 minutes to get a quick reaction force (QRF) out the gate. During this time, three individuals emerge from a nearby grove, enter the truck, and drive off. The Apaches follow the truck for a while and it merges on to a major highway. The Apaches try to vector the QRF to the fleeing truck, but eventually they must break off for refuel before the QRF can catch up.

Good example: *The brigade S3 tasks the Apaches to perform an area recon to identify, and on order, attack to destroy, enemy indirect-fire assets within range of the FOB. The brigade S2 develops named areas of interest, integrates the aircraft into the FOB reconnaissance and surveillance plan, and provides a detailed estimate to the attack helicopter company of what to look for based on recent attacks and other intelligence. The Apaches come on station that night with a clear plan and observe a truck with a missing front fender, of which, the S2 briefed them, may have been involved in an earlier attack. On closer examination of the vehicle that they may have otherwise disregarded, they observe three figures, hiding in a nearby grove, toss rifles and a mortar tube to the ground. The Apaches call in a spot report to the FOB who dispatch the QRF. The Apaches guide the QRF to the truck and the suspicious individuals are subsequently captured.*

Learning points:

● Always request a tactical task, such as recon, screen, or attack from Apaches. It may seem like placing round pegs in square holes, but assigning tactical tasks enables a wealth of institutional knowledge about what staff work is required to support a mission and what is expected from aircrews.

● Always pass pertinent intelligence information along with a mission request.

● When asking for a recon mission, always consider what actions to take when the Apaches find something. Apaches cannot search cars or boats and the enemy rarely brandish weapons when Apaches are overhead. Have a ground asset ready to investigate spot reports.

Scenario 2: Intelligence indicates an individual on the high-value target list is taking refuge in a house in the 1st Battalion, 55th Infantry Regiment's (1-55) sector. The 1-55 Infantry's S3 operations officer requests Apache support for a 0200-hour raid.

Bad example: *The 1-55 Infantry's assistant S3 calls the brigade aviation LNO with the mission for Apaches to "provide overwatch at 0200 of A/1-55 IN BN raid at grid LC 123 456." Despite having access to digital maps and satellite imagery, he gives a six-digit grid for the target instinctively because the observer controller at the combat training center told him this was the standard last spring. The mission is passed over the radio to the attack helicopter company command post from their battalion, with the additional information to "contact Animal 6 on FH770." The Apaches take off at 0145 hours, fly toward the target house, and attempt to contact Animal 6, the A Company commander. As the Apaches get within 15km of the raid objective, Animal 6G answers and indicates Animal 6 is in a high-mobility, multipurpose wheeled vehicle (HMMWV) moving to the objective and wants the Apaches to contact him on FH772.*

The aircrews switch to the new frequency and begin to monitor Animal 6 and Blue 1, who are discussing an Iraqi police vehicle, which took a wrong turn and left the convoy. The aircrews seize a break in the transmission and check in with Animal 6. Animal 6 replies that he wants the Apaches to keep out of earshot of the objective until he calls them forward to clear the rooftops of Objectives Lion and Tiger. The Apaches make a quick assessment and determine they are upwind of the objective area, so they make a sharp turn to avoid getting any closer. Since they did not receive the company refinements to the mission graphics, the Apaches call Animal 6 back and ask for the grids for Objectives Lion and Tiger. Animal 6 tells the Apaches to standby and then calls Animal 5 to ask if his blocking position is set. Animal 5 says he is "set at the bridge but the red element dismounts are still moving."

Animal 6 calls the Apaches back after reviewing the two company objective graphics on his Force XXI battle command brigade and below (FBCB2) screen and reads off two 10-digit grids to the Apaches. As the Apache crews convert the 10-digit grids into 8-digit grids that their aircraft navigation system uses, Animal 5 calls to say the cordon is set and he has the Iraqi police at his location. Animal 6 replies, "Good, I am crossing Phase Line Claw now and turning into the village, send the Iraqi police up to meet me on Lion." The Apache crews are now orbiting 8km to the north while they study maps trying to figure out at which bridge Animal 5 is located, and exactly which houses are Objective Tiger and Lion.

At exactly 0159 hours, the Apache front seat crewmembers wearing NVGs observe a long stream of tracers arc across the

ground in the vicinity of the objective and erupt into the sky. *"Animal 6, Blue 1, contact with one guy with an AK vicinity Tiger, my gunner engaged with coax but he's gone toward the canal!" an excited voice announces over the radio. Animal 6 acknowledges the transmission and instructs the Apaches, "come on in and look for an enemy dismount egressing west toward the canal." The Apaches turn toward the objective and begin heading inbound. About two kilometers north of the objective, they pass an M2 Bradley astride a canal bridge. The back seat crewmember using the PNVS FLIR saw it first from about 2kms away, the heat of the Bradley engine and exhaust contrasted sharply in the pilot's monocle display, but the front seat crewmember wearing goggles was unable to observe the M2 until he was on top of it due to poor illumination.*

As the Apaches follow the canal down the west side of the objective, the lead aircraft announces to his wingman on the UHF radio, "muzzle flashes, three o'clock, breaking right." The lead Apache banks hard to the right, back across the canal, while the trail aircraft acquires the muzzle flashes and turns toward them. Both crewmembers in the trail Apache crew observe a pickup truck full of personnel firing rifles toward the objective. "Tally," the trail Apache crew responds, "Two's in, switches cold." The back seat crewmember instinctively feels with his thumb for the switch that will send hydraulic power to his cannon turret and slew it at 60 degrees per second, in line with his helmet line-of-sight. Cautious and unsure of what the situation is on the ground, the crew won't action that switch until they are sure they need to fire, but they want to know they can if they have to. As they get closer, the front seat crewmember with NVGs makes a quick short gasp as he clearly makes out the shape of flashing AKs in the hands of the personnel in the truck. A beep and a rush on the radio break the tension, "Animal 6, Animal 5, the Iraqi police are firing something up from the back of their truck."

Good example: *The 1-55 Infantry's assistant S3 calls the aviation LNO and says, "Animal company is going to do a raid at 0200 hours tonight and we would like some Apaches to help with our cordon, I'll send you all the graphics we have right now on email." The aviation LNO reviews the graphics, calls the assistant S3 back, and says, "I see you have the Apaches screening west of the objective to prevent egress through that area, you won't be able to observe from the road." The assistant 3 replies, "Right, and they need to be in a position to visually clear the roofs on the objective houses." "OK," the aviation LNO responds, "I see now, you have this slide with the satellite imagery that assigns a number to each house in the village." "Right," says the assistant S3, "and the target individual should be in house 12. By the way, Animal Company is conducting its final rehearsal at the FOB at 2300 hours tonight, if your aircrews can make it." The aviation LNO passes all this information through to the attack helicopter company. The crews who will fly this mission are asleep when the mission is received the afternoon prior, so their counterparts begin some backward planning to determine if their duty day and the mission timeline will support attending the rehearsal:*

Mission	*0200-0400*
Takeoff en route objective	*0145-0200*
Run-up aircraft at OB	*0115-0145*
Rehearsal	*2300-UTC*
Takeoff en route FOB	*2200-2230*
Brief/preflight/run-up	*2000-2200*
Begin duty day	*2000*

If the aircrew begins their duty day at 2000 hours with their own brief and preflight, their unit SOP permits them to fly until

0600 hours, 10 hours after the duty day starts. The attack helicopter company commander is concerned about starting duty days unnecessarily early, he wants crews to be as fresh as possible during mission execution, but he knows the opportunity to do a face-to-face with the ground unit is worth the risk and approves the mission with the stop off for rehearsal. The aircrews begin their duty day, fly to the FOB, and participate in the rehearsal. They receive the company graphics that subdivide the battalion objective into Lion and Tiger, they know where all the friendly forces will be during the operation, and at the FOB they distinguish the Iraqi police truck. The raid goes smoothly, despite some nervous shooting by the Iraqi police. The Apaches observe an individual fleeing on foot and vector dismounted infantry to catch him. Later, interrogation reveals that this person was the intended target.

Learning Points:

Fratricide prevention is a combat multiplier. Apaches must know the ground scheme of maneuver and should be integrated prior to the mission. Once the raid is underway, it is too late for an effective briefing in the air. Ensure aircrews have all the graphic control measures ground units will be using. If there is any chance of friendly troops using non-U.S. vehicles or weapons, it *must* be briefed to the aircrews.

• Six-digit grids do not offer sufficient resolution to pick out an individual house in a village. Use staffs to develop and disseminate urban grid system products for each mission.

• An 8km upwind and a 4km downwind has been empirically proven in Iraq to be sufficient standoff for Apaches to remain undetected by sound at night. Note that this distance exceeds the capability of Apache FLIR to see individuals or any vehicle details, so do not plan on Apaches observing *and* remaining undetected.

• The best way to brief a mission is in person. Do not hesitate to ask for aircrews, or at least LNOs, to attend rehearsals — they will attend if at all possible.

• Aviation leaders will attempt to start an aircrew's duty day as close as possible to mission execution time. This ensures two things: the aircrews will be fresh for the mission; and if there are delays or a requirement to fly longer, the aircrews will have sufficient duty day remaining to support it.

Other Concerns

Two methods should be used to ensure Apaches know where friendly troops are: use IR light sources and tell the Apaches where friendly troops will be located. Vehicles should have IR strobe lights and personnel should have either an IR chemlight or, even better, an AN/PAQ-4 or AN/PEQ-2 IR laser-aiming device active on their weapons. Glint tape on uniforms is nearly invisible to Apaches because the aircraft has no IR light source to reflect the glint tape. Most importantly, tell the Apaches where friendly troops are before the mission starts by ensuring their locations are passed to the aircrews. It is not a bad idea to ask aircrews to call the battalion S3 via landline before takeoff and discuss the friendly scheme of maneuver, if it is complex or undetermined. If mission graphics do not completely speak for themselves, some information will be lost as the mission is passed up and down the chain. At a minimum, when Apaches come on station, take a minute to ensure the aircrews know where all the moving pieces are located.

Apaches sometimes cancel missions due to weather or maintenance. Aircrews are expected to risk their aircraft to enemy fire to support troops on the ground, but not to take a chance on maintenance or unsafe weather. Various regulations and technical manuals detail what aircraft malfunctions are acceptable to fly with, and which ones are not. There are very few subjective judgments to be made, particularly with an advanced aircraft with onboard test equipment like the Longbow that detects malfunction. Weather minimums are also detailed by regulation and classified theater-specific instructions. Objective Air Force personnel make weather forecasts and observations, not Army aircrews. Only extreme circumstances, such as friendly units in contact with the enemy, would prompt consideration of flying in

below-minimum weather, and that risk decision would have to be made by a senior aviation leader. The best way to avoid mission cancellation due to weather is to request an Air Force weather team be positioned in the vicinity of key operations to accurately report current conditions.

Like many other weapons systems, since the cessation of major hostilities in Iraq, Apaches have made a significant departure from the Cold War paradigm. Where battalions and even regiments of attack helicopters may have attacked in mass before, a single team of two Apaches has enough firepower to dominate any likely engagement. Where helicopters previously hugged the terrain to avoid engagement by long-range surface-to-air missiles (SAMs), the principal threat to helicopters now comes from small arms, rocket-propelled grenades, and the occasional shoulder-fired SAM. The situation is different, and tactics used by Apaches are changed to suit this difference. Apaches now conduct reconnaissance and attacks primarily at airspeeds between 60 and 100 knots for reasons such as improving survivability (it is harder to hit a moving target) and conserving fuel (hovering burns fuel faster than cruise flight). Hovering is a tool we still use, albeit a suboptimal one for most situations we encounter.

In this environment, when planning the tactical employment of attack helicopters, focus on their effects, not their flight paths. Aircrews are more effective when left to determine how to maneuver their own aircraft. Include a purpose and desired end state with tasks to convey intent. Use of fire support control measures, such as restricted fire lines, is a straightforward, clearly understood way to deconflict fires.

The simplest method to get an attack helicopter looking in the right direction is to pass a grid and target description. The Apache Longbow possesses a sophisticated navigation system that obtains a position confidence of less than 14 meters. A grid entered into the navigation system can be used to cue and slew aircraft sensors, weapons, and even the helmet-mounted sight. Imagine having big crosshairs painted on the ground; that is what it looks like when we cue our helmet monocle to a target grid. There are disadvantages to sending a grid, which include the time it takes for the observer to determine it, for the aircrew to enter it, and the many opportunities for it to be misread or incorrectly entered.

If time is of the essence, an old-fashioned talk-on works best. For example, "from the lead vehicle in the convoy, ten o'clock at 300 meters, there is a two-story house with a pickup truck in front of it, in that pickup is the shooter." Talk-ons should be progressive, starting from one known point, preferably a large terrain feature or manmade object, and moving outward to the target. Use the clock technique (12 o'clock means toward the front) or cardinal directions for headings. Because an aerial perspective is significantly different from a ground view, ensure references are as specific as possible; for instance, while the ground commander may observe only one large plume of smoke in front of him, the aircraft may see several.

During hours of darkness, IR lasers work well to mark targets. Purpose-built IR pointers (similar to the type the Air Force en-

listed tactical air controllers (ETACs) use), IR weapon-aiming systems (the AN/PEQ-2), or even a standard briefing laser pointer are extremely easy to acquire with NVGs. Just provide the aircrews with the cardinal direction or clock-technique heading where the laser is pointing. This heading does not have to be exact, but it ensures aircrews are in the right direction for the spot, as laser energy only reflects back in about a +/-60 degree azimuth. For example, "I'm lasing the target to my north now, its the second-floor window of the apartment." Keep the laser spot moving so it will stand out from other lights when viewed through NVGs, often a looping motion around the target works best.

Most infantry and armor units have embedded ETACs. While ETACs usually work with fixed-wing close air support (CAS) aircraft, their skills and equipment transfer well to attack helicopter operations. Do not overlook these specialists. During several large operations where FM radio command nets were constantly in use, the ETAC's UHF radios served as a backup link between the ground commander and his attack helicopter support. Also often overlooked is the synergy that develops when CAS and attack helicopters work together. For example, IR flares dropped by an A-10 CAS aircraft can often make a significant improvement in the reconnaissance ability of an NVG-equipped attack helicopter. When CAS and attack helicopters are simultaneously operating in an area, ensure that both elements are made aware of the other. Attack aviators are also proficient at controlling CAS and can be a "surrogate ETAC" for ground commanders when others are not available or not in a position to observe.

The conflict in Iraq is both unique in some ways and "back to the future" in others. New technologies meet proven tactics to forge enhanced warfighting capabilities for our units. Attack helicopters offer a third dimension of maneuver to armor leaders that our mission and soldiers deserve to have fully realized. The TTPs described in this article successfully enabled one unit to meet the challenge in north-central Iraq. Other locations, different units, and specific circumstances may indicate alternate recommendations. Use this article to compare how your unit does business with attack aviation, and make any sensible adjustments. Finally, the next time you see attack aviators walking around your FOB, offer them the chance to get in your turret and see how you view the world.

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Sharpening the Spear:

Training the Armor Crewman for Future Battlefields

by Captain Geoffrey Wright

"We are very good in the Army in developing single-event people. If we were a track team, we'd have the best 100-yard-dash people, the best milers, and the best discus throwers. But what we really need to be making right now are decathletes that are just good enough at everything."

— General Peter Schoomaker[1]

Serving on the leading edge of operations in Iraq will challenge soldiers in ways never before seen during a Combat Training Center rotation or stability operation. The pace and types of missions in Iraq make no allowance for a soldier's military occupational specialty (MOS) or a company modified table of equipment (MTOE). Unit commanders and leaders must overcome organization and equipment shortcomings to accomplish all missions.

The Army in Iraq faces the true test of the "three-block war," as described by former U.S. Marine Corps Commandant, Charles Krulak. Conducting full-spectrum operations means, in one day, a company can assist in humanitarian assistance, advise a local Neighborhood Advisory Council, conduct a joint patrol with Iraqi security forces, or raid a home to seize an anti-coalition operative, weapons dealer, or criminal.

Although many of these missions are best suited for infantry, Special Forces (combat missions), or civil affairs (humanitarian assistance) soldiers, they are executed in Baghdad each and every day by field and air defense artillerymen, engineers, scouts, and armor crewmen. All types of units are assigned areas of responsibility and expected to conduct full-spectrum operations. The probable long-term occupation of Iraq by 100,000 or more soldiers, sailors, airmen, and Marines, forces every servicemember to reexamine long-held preconceived notions about the "proper" employment of our services and branches. There will never be enough infantrymen to raid homes, enough Special Forces to train security forces, or enough civil affairs soldiers to establish order in local communities. Armor forces will have to learn to execute these missions regularly, to a high standard — as they have in Iraq.

We have discussed the "post-Cold War battlefield" for nearly 15 years, long enough to make it cliché. Most of today's new soldiers don't even *remember* the Soviet Union, much less how to fight the Red Army in the Fulda Gap! While much pulp and ink has been invested in defining the "asymmetric threat," little work has been done to prepare U.S. Army combat arms units for the asymmetric battlefield. In the armor community, many continue to look at "missions," such as Grenada, Haiti, Panama, Somalia, Bosnia, and Kosovo, as irritating exceptions to the rule — foisted on proud and professional soldiers and Marines by weak and vacillating politicians, United Nations wonks, and nongovernment agitators. Perhaps our experience in Iraq will make us realize that military operations with a relatively short and initial high-intensity phase followed by long-term stability and support operations requiring frequent and

deep military involvement *is* the model for past, present, and future military missions.[2]

For those of us worried about relevance and being obsolete, keep in mind that being able to impose the Nation's will is one skill that will *never* go out of style on the modern battlefield. To succeed in Iraq, or on future battlefields, the Army must focus on developing a multifunctional soldier with particular subject matter expertise in mounted armor operations, rather than adaptable armor crewmen who leave tanks to execute stability operations and support missions for a relatively brief period. As armor leaders, our challenge is to identify the critical skills that will make our tankers, fuel handlers, mechanics, supply sergeants, and forward observers able to impose our will on the enemy or on the host nation.

Preparing for Deployment

B Company, 2d Battalion, 37th Armor Regiment, is an M1A1 Abrams Integrated Management (AIM) system-equipped tank company stationed in Germany as a part of 1st Brigade, 1st Armored Division. The unit received initial warning orders of impending deployment in December 2002. The company conducted high-intensity conflict (HIC) training at Grafenwoehr Training Area during January 2003, which included Tank Tables VIII and XII, as well as externally evaluated situational training exercises (STX) for breach, movement to contact, nuclear, biological, and chemical decontamination, and urban operations.

The company returned to home station in early February and, in early March, received deployment orders in support of Operation Iraqi Freedom. The unit changed commanders and witnessed "shock and awe," the ground war, and the battle for

Baghdad on television and through other media sources.

After loading equipment in late April, the company deployed to Kuwait in mid-May and arrived in Baghdad at the end of the month. B Company spent the entire deployment attached to 1st Squadron, 2d Cavalry, a high-mobility, multipurpose wheeled vehicle (HMMWV)-equipped light cavalry squadron with responsibility for the largest battalion-sized area of responsibility (AOR) in Baghdad. The AOR includes upper-middle-class neighborhoods, poor neighborhoods, and rural areas. In support of the squadron's mission, the company conducts wheeled and dismounted operations in zone, and provides a platoon-sized M1A1 quick response force to the regimental AOR.

Shoot

Individual weapons training. Events during the war in Iraq have prompted the Chief of Staff, Army to reiterate the importance of all soldiers to be riflemen first. Soldiers in Iraq must be capable, accurate, and confident with the M16 rifle or M4 carbine. Soldiers must be taught proper engagement techniques that can be used in the urban environment and at ranges of less than 50 meters. Soldiers must arrive at armor units with greater skills in rifle marksmanship, which must be sustained at the unit level.

As a tank company, B Company is equipped with 61 M9 pistols, 28 M4 carbines, and 14 M16A2 rifles. The company arrived with 100 percent individual weapons qualification on assigned MTOE weapons. Attachments brought additional M16s as well as one squad automatic weapon (SAW). Replacements brought five additional M16A2s from Europe. The squadron provided two additional SAWs for vehicle movements.

The M9 pistol, though a great personal defense weapon for armored crewmen, is not sufficient for conducting patrols in Baghdad. Its range and lethality are not sufficient for personal defense at long ranges, and is certainly not suitable for offensive operations. Perhaps not surprisingly, the perennial shortage of 9mm ammunition that hampers weapons training at home stations effects units in Iraq as well.

The rifle and carbine have proven to be much more versatile weapons. During the war's initial and later stages, tank commanders and loaders used the M4 from tank turrets to engage and kill enemy forces at close ranges when vehicle mounted crew served weapons did not provide the required speed or precision of engagement. This continues to be the trend.

Every soldier in the company team is required to qualify on a rifle. The rifle is the weapon of choice for the combat soldier in Baghdad. Its range, accuracy, and volume of fire make this a superior weapon for soldiers who will operate on foot or from wheeled vehicles. M16, M4, and SAW ammunition is available in much greater quantities to support both operational missions and training. All soldiers are familiar with the rifle from their initial entry training. Training and coaching basic rifle marksmanship offers a challenge to junior leaders and creates a bond when forming fire teams and squads.

Fortunately, there was a standard 25-meter range on our forward operating base (FOB). As operations throughout Iraq continue to consolidate on fewer and larger FOBs, deployed units will find it easier to maintain marksmanship skills. There are several approaches that can be used to better train soldiers on marksmanship skills. At home station, commanders should: qualify all soldiers twice annually on the M16 or M4, to Army standard, to include night and NBC fire; record weapons zeros for individual weapons, pairing soldiers with these weapons whenever possible during operations; schedule monthly platoon range days to integrate

new soldiers, improve the skills of weak shooters, and hone new expert marksmen; conduct M9 firing, as ammunition is available, at least annually; and purchase PVS-7 helmet mounts for every soldier, as well as tank commander and loader combat vehicle crewmen (CVC) helmets.

The U.S. Army Armor Center and the U.S. Army Training and Doctrine Command (TRADOC) should: adjust the MTOE for tank companies to provide one M4 for each tank crewman and mechanic (an additional 33 x M4 carbines); provide M68 reflex scopes and flashlights for each rifle; resource all combat soldiers with the PVS-4 monocular night-vision goggle; resource home station training ammunition for 5.56 qualification at least three times annually for each soldier; and ensure all soldiers conduct basic rifle marksmanship as a part of individual entry training, the Armor Officer Basic Course, or the Basic Officer Leadership Course.

Short-range marksmanship training. Experience in Iraq teaches that most engagements occur at less than 150 meters, and frequently engaging with a .50 caliber or M240 will cause greater than warranted collateral damage. Many units in Iraq were fortunate enough to have Department of Defense (DOD)-contracted instructors teach close quarters marksmanship at Udairi Range in Kuwait. Using a template from *Infantry* magazine, 1st Squadron, 2d Cavalry, developed a short-range marksmanship table system to train and sustain rifle marksmanship at ranges less than 100 meters.[3] This training is conducted on a standard 25m range and requires approximately 100 rounds per soldier. Because tank companies will operate frequently on dismounted patrols, these skills are essential for every soldier in the company team.

Platoon leaders and platoon sergeants complete "train-the-trainer" certification and are tasked to conduct this training bimonthly for all soldiers in the company. A platoon of 16 soldiers can conduct this

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"Soldiers must be taught proper engagement techniques that can be used in the urban environment and at ranges of less than 50 meters. Soldiers must arrive at armor units with greater skills in rifle marksmanship, which must be sustained at the unit level."

training to standard in approximately 3 hours, which includes walkthroughs, dry runs, and live runs. Certified leaders train basic movements, weapons posture, rifle orientation, tactical safety, and target acquisition. Soldiers are taught to acquire and engage targets from stationary positions, on the move, to the flank, and from a variety of ranges both during the day and at night.

The benefits of short-range marksmanship training are many. Soldiers become more aware of their responsibilities to nearby soldiers and noncombatants when engaging in close-combat environments. Squads learn to work together, discriminate between targets, and deliver accurate fire. Platoon leaders and platoon sergeants can use the short-range marksmanship template to learn how to plan and conduct training to the 8-step training model. Coupled with a strong basic rifle marksmanship program, short-range marksmanship builds confident and lethal squads that are comfortable operating in built-up areas.

Short-range engagements are very common in Iraq, and training this technique prior to deployment is imperative, as well as after arriving in an AOR. Unit commanders should: plan and resource short-range marksmanship training at home station; maintain crew cohesion during conduct of training whenever possible; conduct short-range marksmanship monthly during deployments; and ensure unit leaders use the 8-step training model while deployed.

The Armor Center should include short-range marksmanship train-the-trainer in all Armor School programs of instruction and ensure all force-on-force training includes dismounted enemy action at close range.

Squad tactical training. The true test of an armor unit in Baghdad is its ability to operate on the battlefield during wheeled and dismounted patrols. While tank missions certainly display the firepower and lethality possessed by coalition forces, building a rapport with the local populace requires a wheeled and dismounted presence on roads frequently not passable by tracked vehicles. Stopping criminal activity, weapons dealing, and insurgent activity frequently requires coalition forces to cordon city blocks and enter homes during hostile situations. Tank companies, as often as infantry companies, must be proficient in basic squad infantry tactics.

Additionally, a primary focus of coalition forces in Iraq has been to train Iraqi security forces to "put an Iraqi face on security." These units, at least initially, will be very lightly equipped and must develop the same level of proficiency in infantry operations. Armor leaders obviously must have enough proficiency to train these tactics, so that locals can take responsibility for their own security.

Because the tactical situation changed relatively late in the deployment timeline, B Company did not initially focus on dismounted tactics, and no mission rehearsal exercise for Iraq was scheduled or executed. We used the personnel and vehicle search and traffic control point procedures as the foundation for dismounted operations. After arriving in Kuwait, we organized tank sections as provisional infantry squads, and conducted dismounted training for reactions to contact, actions on the objective, and enemy

"The rifle is the weapon of choice for the combat soldier in Baghdad. Its range, accuracy, and volume of fire make this a superior weapon for soldiers who will operate on foot or from wheeled vehicles. M16, M4, and SAW ammunition is available in much greater quantities to support both operational missions and training. All soldiers are familiar with the rifle from their initial entry training. Training and coaching basic rifle marksmanship offers a challenge to junior leaders and a bond when forming fire teams and squads."

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prisoners of war handling before crossing into Iraq. These skills continue to be honed here in Iraq.

The armor commander's challenge is to inspire his 19Ks to be competent infantrymen and scouts, while retaining their pride as mounted warriors. Armor leaders, while maintaining their special skills on tanks, must execute the mission on the ground, as it exists in Iraq. Your subject-matter experts in infantry tactics will be commissioned officers who have gone through this training at their commissioning source, fire support personnel with experience in infantry operations, and noncommissioned officers (NCOs) who have deployed to similar Army operations. Future transitions between tracked and dismounted operations will be easier if we expect our leaders to have expertise in basic infantry tactics.

To meet this challenge, commanders should: use squad and fire team dismounted tactics as the foundation for home station sergeant's time training; identify leaders for dismounted operations and include squad patrolling techniques in unit standard operating procedures; and use the standards for the expert infantry badge as a goal for armor crewman individual training, in the absence of an expert armor badge.

The Armor Center and TRADOC can support this training by: using infantry tactics as the tactical foundation of all NCO education system courses through advanced NCO course; sustaining the infantry foundation of the basic officer leader course; directing and evaluating more wheeled/dismounted missions during force-on-force exercises at combat training centers; and maintaining emphasis on semiannual M1A1 gunnery at crew and platoon levels.

Move

Physical fitness training. Those who have yet to experience the month of August in Baghdad will appreciate the value of good physical fitness while deployed. Temperatures in excess of 125 degrees during the day and 100 degrees during the night will tax every soldier's endurance, especially during missions, when wearing kevlar helmets and interceptor body armor.

Regardless of mission posture, it is absolutely essential that physical training (PT) be conducted at the unit level during deployments. We created a system, which includes three PT sessions and one company sports session per week, to set a baseline standard. Over time, the squadron gymnasium offered the option to workout on personal time. Nutrition, eating habits, and physical fitness can all improve, given proper command emphasis.

An unscientific sampling of new arrivals indicated a higher level of physical fitness than had been expected in the recent past. Whether this is good fortune or the result of command emphasis at one-station unit training is unknown, but we were uniformly pleased with the quality and professionalism of our new arrivals. Our experience suggests that soldiers conducting operations in the Middle East must be physically fit, or they will not be combat effective for the entire tour.

To promote high levels of physical fitness, unit commanders can: set the tone for high physical fitness rates at home station prior to deployment by executing a rigorous PT plan; ensure subordinate leaders understand they are expected to develop and improve their soldiers' physical fitness; develop and execute a physical fitness program for all soldiers while deployed; set goals for overweight soldiers and PT test failures; have master fitness trainers assign mentors to help them reach goals during deployment; and make time for company sports to improve unit cohesion and provide stress relief.

To encourage soldiers to reach higher PT goals, the Armor Center and TRADOC should: place a higher priority on physical fitness training, with specific emphasis on upper-body strength, cardiovascular conditioning, and injury prevention; and teach new soldiers how to develop and execute a personal physical conditioning program.

Combat driver's training/vehicle convoys. Soldiers must have the ability to execute complicated maneuvers in an urban battlespace when they arrive at the unit. Tank drivers, in particular, will be challenged to move safely on narrow and congested roads, among civilian traffic, and in all conditions. To prepare soldiers for the challenges of moving military vehicles, training centers and commanders must execute rigorous driver's training programs that simulate the challenges of urban and rural driving under combat conditions.

Tank operations. Maneuvering the M1A1 will be a stressful situation for personnel in urban areas such as Baghdad. As normal civilian traffic has returned and even increased, M1A1 drivers will find themselves surrounded by civilian vehicles, that, to be generous, have not been inspected by a qualified mechanic. Civilian cars will frequently lack lights, brakes, or even seating. While most are not foolhardy enough to challenge an M1A1 for road space during the day, the M1A1 is nearly invisible to civilian traffic at night, and the placement of headlights can confuse drivers, with deadly results. However, the M1A1 is a useful vehicle in urban environments.

In the early days of the deployment, we established "rolling checkpoints," made up of one tank section and one scout section, to enforce curfew and bring order to

the streets. Vehicles moved with lights off, and used the tank's excellent optics to find curfew violators. The driver would move toward the violator, stop, turn on his headlights, and deploy scouts to search the vehicle and its occupants. The combination of tanks and wheels provided a vigorous symbol of coalition control, allowing the commander to establish a presence over a wide area, and protect the force by avoiding long-term fixed checkpoints.

Units will also find the tank useful for cordons during searches of large neighborhoods, for security during high-profile events, and for route reconnaissance. While we did not use the obstacle-reducing round during our deployment, many noncooperative enemy forces in Baghdad were convinced or eliminated by the tank main gun. Mission success is determined in large part by the tank driver's ability to confidently and safely move a 65-ton vehicle through a half-ton world.

Wheeled operations. Armor units must have a solid driver's training plan to teach combat driving on the HMMWV, in particular, the M1114 armored HMMWV. For most armored crewmen, the HMMWV will most likely be the vehicle they will drive during missions. Soldiers must be taught to safely handle vehicles in congested conditions, maintain situational awareness for roadside improvised explosive devices (IED), execute complex movements under stressful conditions, and react to any form of contact.

Early in the deployment, convoys used aggressive, even dangerous, high-speed driving as a force protection measure. Wheeled convoys wanted to maintain integrity and prevent civilian vehicles from entering the convoy. These measures soon became counterproductive. With the volume of civilian traffic, civilian vehicles will inevitably get in the convoy. Driving at high speeds, or using unsafe lane changes, increases the risk of injury or death to soldiers and civilians.

We found that aggressive combat driving increases the risk to our soldiers without improving force protection, as the most likely form of contact moved from direct fire to IED during the deployment. Bunching up vehicles in a closed column increases the potential number of vehicles and personnel in the IED kill zone. Further, driving at high rates of speed during an IED explosion increases the risk of drivers losing control of their vehicles, causing a subsequent collision.

Drivers and vehicle commanders must be taught to maneuver in the urban battlespace just as they would anywhere else, without being distracted or unnerved by civilian traffic. In our squadron, we found the most effective formation is four-man crews moving in a staggered column, with a minimum of two vehicles armed with automatic weapons (M2, M240, or M249). All personnel are assigned a sector of observation and fire, with the lead automatic weapon gunner maintaining special emphasis on road medians or emergency lanes. Passengers in the rear observe and orient to the flanks of the vehicle, using spotlights to check suspicious areas when possible. Vehicles use the automatic weapons platform to complete a 360-degree plan of observation and fire planning. Using lower rates of speed and a staggered column improves observation and enhances safety.

To ensure HMMWV drivers are properly trained, unit commanders should: conduct regular vehicle licensing periods at home station to ensure all soldiers (including officers) know how to operate and maintain the HMMWV; conduct wheeled convoy STX lanes during training, to include reaction to direct and indirect fires

"Experience in Iraq teaches that most engagements occur at less than 150 meters, and frequently engaging with a .50 caliber or M240 will cause greater than warranted collateral damage. Many units in Iraq were fortunate enough to have department of defense (DOD)-contracted instructors teach close quarters marksmanship at Udairi Range in Kuwait."

Tactical Errors in the Dismounted Fight

by Major Dennis P. Chapman

"They do know what a hand-grenade is, it is true, but they have very little idea of cover, and what is most important of all, have no eye for it. A fold in the ground has to be quite 18 inches high before they can see it."[1]

— Erich Maria Remarque,
All Quiet on the Western Front

A small unit leader's basic task in combat is to exploit the effects of fire, movement, and terrain for tactical advantage. While most leaders understand this concept, many do poorly when it comes to translating the idea into action. Time and again during training, soldiers ignore cover, overlook concealment, and fail to effectively coordinate movement with suppressive fires. This has always been an important training issue for infantry troops. But on the ground in Iraq, armor and field artillery units, accustomed to fighting from vehicles, now find themselves operating dismounted, roles normally assigned to infantry or military police. Under these circumstances, it is more important than ever that soldiers of all branches understand how to exploit fire, movement, and terrain to survive and win.

Some of these mistakes are more serious than others, but they can all result in needless casualties and detriment to the mission. Fortunately, these problems are usually avoidable. At root, they spring from a failure to fully grasp the three fundamental elements of small-unit tactics: fire, movement, and terrain. We can readily overcome this shortcoming through training. This article addresses a few common errors in the dismounted fight.
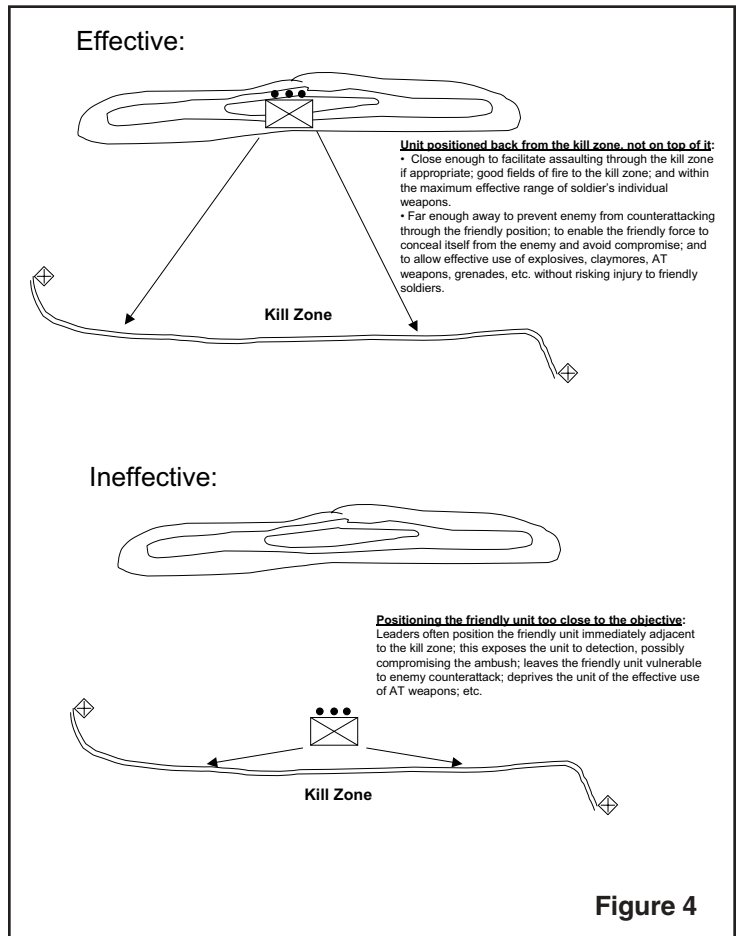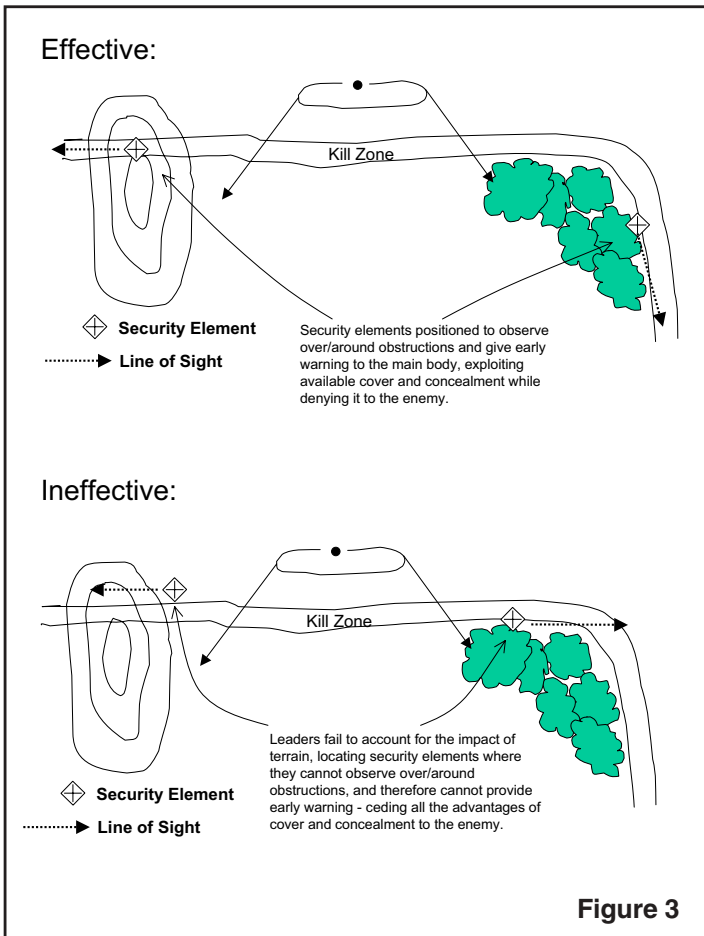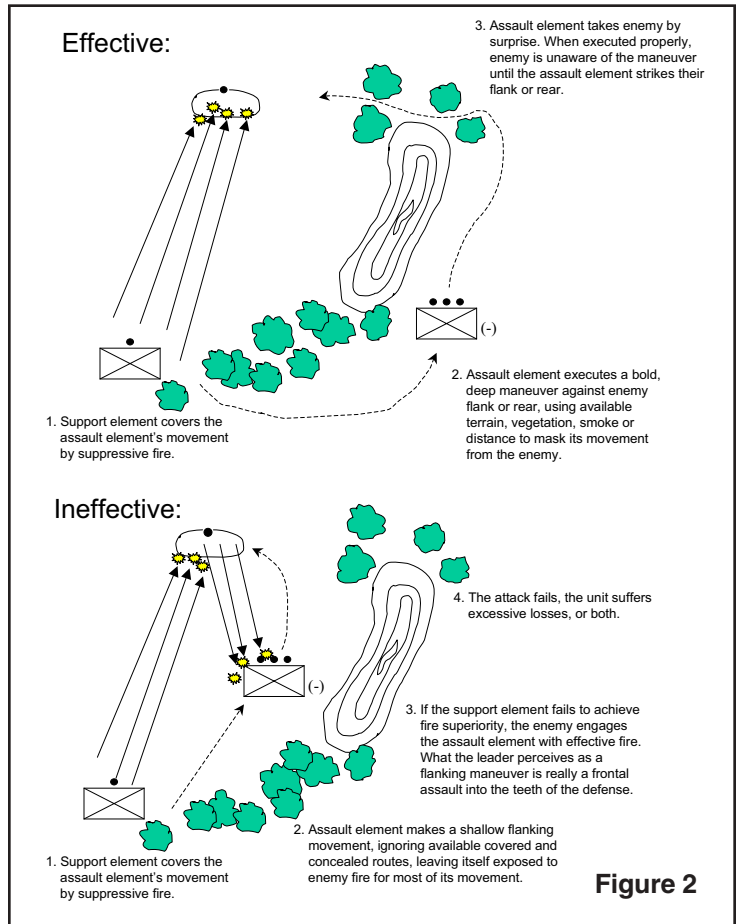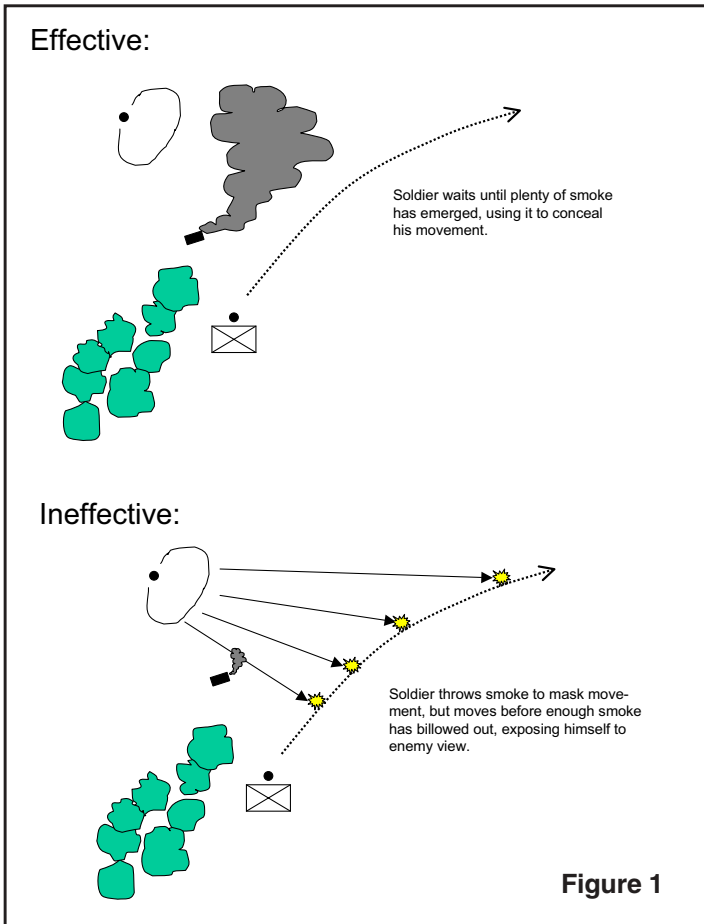
The first is a simple example, depicted in Figure 1. Soldiers frequently use smoke to mask their movement when the surrounding terrain provides inadequate cover or concealment. This is a simple and effective technique. Although it presents a visual signature that might alert the enemy to the maneuver, it also blocks the enemy's view so that they cannot effectively engage the moving element. Simple as this technique is, soldiers often do it incorrectly. When a smoke grenade is thrown, it takes a few seconds for enough smoke to emerge to serve as an effective screen. Instead of waiting those few seconds, soldiers often rush out from under cover almost as soon as the grenade is thrown, well before an effective smoke screen has billowed, exposing themselves to enemy observation and fire, and forfeiting the tactical advantage they sought.

Another common example is depicted in Figure 2: the dismounted squad or platoon attack.[2] In this simple and effective drill, a stationary support element takes up a position from which it can effectively engage the enemy and begins laying down suppressive fires. Undercover of these fires, an assault element executes a bold, deep maneuver, moving by a covered and concealed route using available terrain, vegetation, smoke, or distance to mask the movement from enemy. When executed properly, the enemy remains unaware of the maneuver until the assault element falls on their flank or rear.

All this sounds simple, but its execution is anything but, as Figure 2 shows. Many leaders go through the motions, but sacrifice the drill's synergy by failing to integrate the effects of terrain into the plan. Instead of a bold maneuver, the assault element makes a shallow flanking movement that ignores available cover and concealment, leaving itself exposed to enemy observation and fire along most of its route. If the support element achieves fire superiority (that is, if its own fires are effective enough to prevent the enemy from returning *effective* fire of its own), then the attack may still succeed; but if not, the enemy will engage the assault element with effective fires throughout its movement, so what the leader perceived as a flanking movement, degenerates into what is effectively a frontal assault. The result will be excessive casualties, a failed attack, or both.

Effective:

Soldier waits until plenty of smoke has emerged, using it to conceal his movement.

Ineffective:

Soldier throws smoke to mask movement, but moves before enough smoke has billowed out, exposing himself to enemy view.

Figure 1

Effective:

3. Assault element takes enemy by surprise. When executed properly, enemy is unaware of the maneuver until the assault element strikes their flank or rear.

1. Support element covers the assault element's movement by suppressive fire.

2. Assault element executes a bold, deep maneuver against enemy flank or rear, using available terrain, vegetation, smoke or distance to mask its movement from the enemy.

Ineffective:

4. The attack fails, the unit suffers excessive losses, or both.

3. If the support element fails to achieve fire superiority, the enemy engages the assault element with effective fire. What the leader perceives as a flanking maneuver is really a frontal assault into the teeth of the defense.

2. Assault element makes a shallow flanking movement, ignoring available covered and concealed routes, leaving itself exposed to enemy fire for most of its movement.

1. Support element covers the assault element's movement by suppressive fire.

Figure 2

Effective:

Kill Zone

⬦ **Security Element**

·········▶ **Line of Sight**

Security elements positioned to observe over/around obstructions and give early warning to the main body, exploiting available cover and concealment while denying it to the enemy.

Ineffective:

Kill Zone

⬦ **Security Element**

·········▶ **Line of Sight**

Leaders fail to account for the impact of terrain, locating security elements where they cannot observe over/around obstructions, and therefore cannot provide early warning - ceding all the advantages of cover and concealment to the enemy.

Figure 3

Effective:

Unit positioned back from the kill zone, not on top of it:
• Close enough to facilitate assaulting through the kill zone if appropriate; good fields of fire to the kill zone; and within the maximum effective range of soldier's individual weapons.
• Far enough away to prevent enemy from counterattacking through the friendly position; to enable the friendly force to conceal itself from the enemy and avoid compromise; and to allow effective use of explosives, claymores, AT weapons, grenades, etc. without risking injury to friendly soldiers.

Kill Zone

Ineffective:

Positioning the friendly unit too close to the objective:
Leaders often position the friendly unit immediately adjacent to the kill zone; this exposes the unit to detection, possibly compromising the ambush; leaves the friendly unit vulnerable to enemy counterattack; deprives the unit of the effective use of AT weapons; etc.

Kill Zone

Figure 4

The point ambush is a third example, as shown in Figure 3. Defined as "a surprise attack from a concealed position on a moving or temporarily halted target," a successful ambush depends on early warning of the enemy's approach, usually achieved by deploying security elements on each flank of the kill zone along the enemy's expected route.[3] Proper placement of these elements is critical: they must be far enough out from the main body to give early warning without tipping off the enemy to the presence of the ambush. Here too, leaders often fail to account for the characteristics of terrain, positioning their security elements too close to the main body or in positions where they cannot observe over or around obstructions, preventing them from alerting the main body of the enemy's approach quickly enough, potentially compromising the ambush.

Figure 4 depicts another mistake common in ambushes — positioning the unit too close to the objective. Time and again on the training ground, squad leaders position their units in ambush right on top of the road along which the enemy is expected, often as close as a few meters. This mistake presents several problems: it forfeits terrain advantage and risks enemy detection and compromise; it exposes the unit to the risk of an enemy counterattack through the ambushing unit's position once the ambush starts; it restricts the effectiveness of many weapons; and it may expose friendly soldiers to injury by their own mines and explosives. Where should the attacking unit be located? This depends on the nature of the foe and the on-ground conditions where the unit will fight. The squad or platoon leader should position his unit close enough to the kill zone to facilitate assaulting through the objective, if appropriate, with good fields of fire, and within the effective range of each soldier's individual weapon. But it should be far enough away to exploit any available cover and concealment to avoid detection and compromise, allow effective employment of all weapons and munitions in the unit's inventory, and prevent the enemy from counterattacking easily.
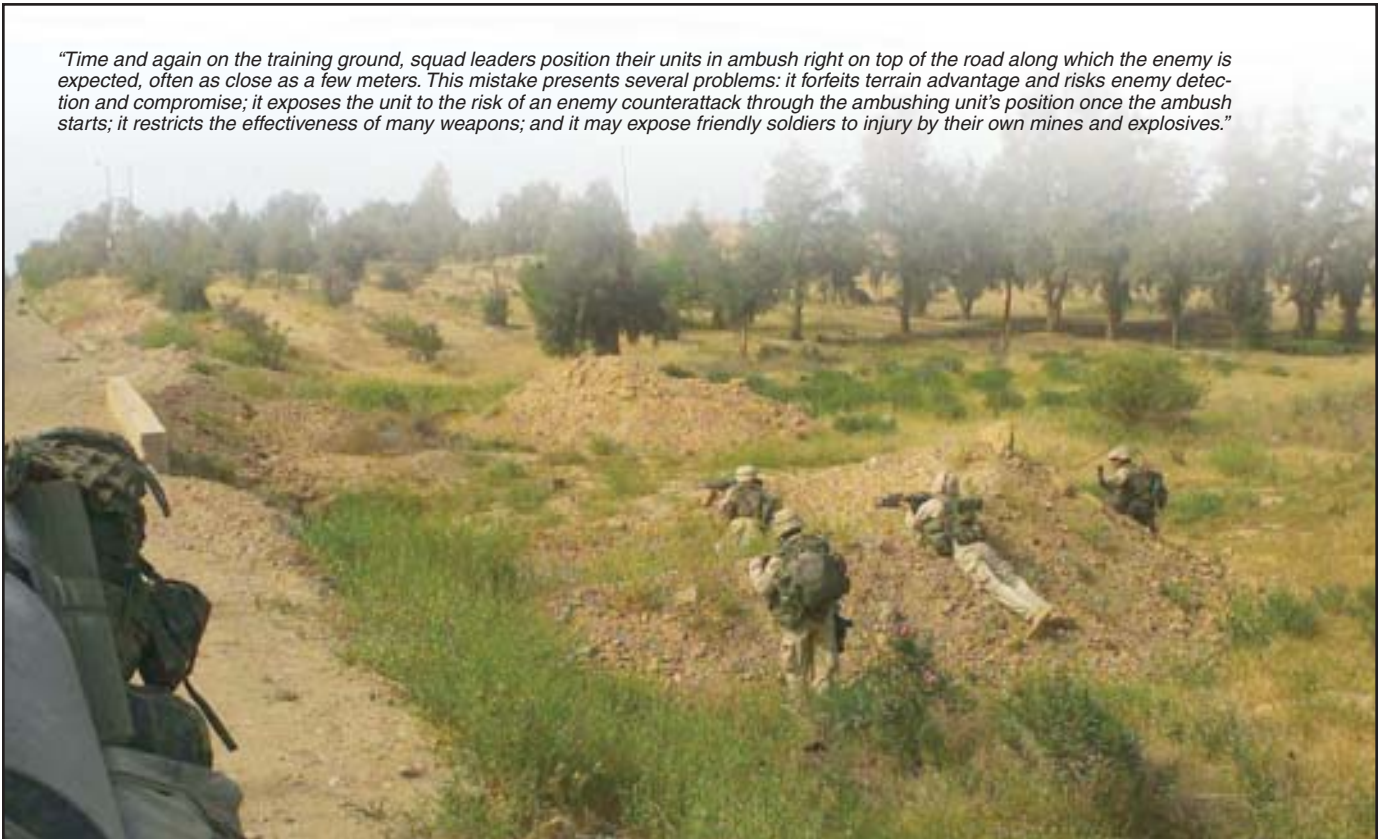
One of the examples in this article touches on the concept of suppressive fires. For purposes of this discussion, I define suppressive fire as "fires employed by a stationary, supporting element to facilitate the movement of another element." Suppressive fires accomplish this support in two ways: by fixing the enemy and suppressing the enemy.

By fixing the enemy, I mean preventing him from withdrawing, repositioning, or counterattacking. We suppress the enemy by gaining fire superiority over him — that is by showering him with such a high volume of effective fire that we thwart his efforts to reply with effective fire of his own. By fixing and suppressing the enemy, we allow our own maneuvering element to accomplish its task relatively unmolested. The support element achieves these effects — fixing and suppressing — in two ways: by inflicting casualties (physical impact), and by convincing enemy soldiers that if they leave their cover to fire or move, they will become casualties (psychological impact). This begs the question: which is more important — the physical or the psychological impact? This is a source of controversy, as illustrated by my own personal experience while serving as a company commander.

One of my platoons had just completed a platoon attack live fire and the after action review (AAR) was being presented. Leading the AAR was the battalion S3 Air, who was criticizing the platoon because during exercise, the support element had, in his view, been firing wildly, keeping up a steady volume of fire on the objective without necessarily being able to identify particular individual soldiers as targets. As it happened, our battalion commander was on hand for the AAR and offered a different opinion. In his opinion, it was the *volume* of supporting fire and not necessarily pinpoint accuracy that was of decisive importance for the

"Time and again on the training ground, squad leaders position their units in ambush right on top of the road along which the enemy is expected, often as close as a few meters. This mistake presents several problems: it forfeits terrain advantage and risks enemy detection and compromise; it exposes the unit to the risk of an enemy counterattack through the ambushing unit's position once the ambush starts; it restricts the effectiveness of many weapons; and it may expose friendly soldiers to injury by their own mines and explosives."

"In Iraq, the Army is aggressively employing dismounted armor and field artillery units in roles customarily filled by infantrymen or military police. Furthermore, even during stability operations and support operations, such as those underway in Iraq, resorting to high intensity conventional combat on a local basis always remains a distinct possibility."

support element. Who was right? By way of answer, I offer an historical account of a Confederate general, grappling with Union troops in an area of close, densely packed vegetation. Perceiving a Union move on the other side of a thicket to his front, he ordered a nearby battery to fire. Fearing his canister shot would be ineffective through the dense undergrowth, the battery commander protested: "But it will do no execution!" To this, the general replied: "damn the execution sir, it's the noise I'm after!" The point is: we should always inflict real physical damage on the foe whenever we can. But soldiers providing suppressive fire in support of a moving element need not necessarily do so to achieve their purpose. While they might have trouble getting clean shots at individual enemy soldiers, the enemy doesn't know this — all he knows is hot lead is coming his way.

The support element must fix and suppress the enemy. While killing the enemy is ideal, the support element need not necessarily do so to achieve its purpose — all it really must do is convince the enemy that certain death or injury awaits them if they do anything more than take cover. This is not to say that the support element can indulge in the "spray and pray" method, firing wildly and blindly. On the contrary, fire discipline is critical to the support element's effectiveness.

The noncommissioned officer in charge (NCOIC) must ensure the support ele-

ment's fire remains constant, without lulls or gaps, particularly those caused by stoppages and magazine changes. He must regulate the rate of fire to ensure that his soldiers do not run out of ammunition before the assault element has accomplished its mission. He must also ensure that the support element's fire is accurate, directing fires against critical points on the objective when positively identified, and ensuring that fires are distributed across the objective, as appropriate, so as not to give the enemy safe haven in any portion of his position. The NCOIC must also lift and shift fires, as appropriate, to avoid injuring members of the assault element as they seize the objective.

The tasks described here are performed primarily by infantry units during high intensity or conventional combat. But they remain relevant to other soldiers in other situations. In Iraq, the Army is aggressively employing dismounted armor and field artillery units in roles customarily filled by infantrymen or military police. Furthermore, even during stability operations and support operations, such as those underway in Iraq, resorting to high intensity conventional combat on a local basis always remains a distinct possibility. Regardless of circumstances, a soldier's success and survival in combat depends on how skillfully he can integrate the characteristics of fire, movement, and terrain for tactical advantage. Too often, soldiers forget these elements or apply

them in isolation. Small-unit leaders and individual soldiers must better understand these fundamentals, if they are to avoid needless casualties and unnecessary friction during tactical operations.

Notes

[1]Erich Maria Remarque, *All Quiet on the Western Front*, G.P. Putnam and Sons, London, April 1930 (23d printing), p. 144.

[2]The discussion of the squad or platoon attack that follows, together with Figure 2, appears slightly different in my article, "An Element of Strength: Reinvigorating Small Unit Training," *ARMOR*, May-June 2004.

[3]U.S. Army Field Manual FM 7-8, *Infantry Rifle Platoon and Squad*, Headquarters Department of the Army, Washington D.C., 1992, p. 3-19.

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The Stryker Company and the Multifunctional Cavalry Platoon

by Colonel Bruce B. G. Clarke, U.S. Army, Retired

During the 1960s, the armored cavalry platoon was organized in a manner similar to one of the special organizations defined in Captain Robert Thornton's article, "Fighting the Stryker Rifle Company," in the March-April 2004 issue of *ARMOR*.

In those days, each platoon had four scout vehicles (two teams), an infantry squad, a 4.2-inch mortar squad, three tanks, and a platoon leader's vehicle. The troop commander could "scramble" the troop to build a mortar platoon, infantry platoon, two tank platoons, and a large reconnaissance platoon. "Scrambling" was the exception, not the rule. The Stryker company looks very similar to a scrambled cavalry troop of old.

The obvious question is: why not 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).

The 21st-Century Cavalry Platoon

An individual cavalry platoon using Stryker-type vehicles of several configurations would be capable of dealing with all but the most sophisticated opponents. The basic organization would be built around a modification of the cavalry platoon described above. Each platoon would have:

- Four infantry carriers with an infantry squad.

- One platoon leader's carrier.

- One 4.2-inch mortar carrier.

- Two gun platforms (either 90mm or 105mm, but able to destroy a T-72).

- Two tube-launched, optically tracked, wire-guided (TOW)/antitank-guided missile (ATGM) platforms (the mixture of ATGMs and guns is required to provide overwatch in depth and deal with situations in urban terrain where only a gun will suffice.)

This 10-vehicle platoon could operate in almost any terrain and over dispersed distances. Its speed on the battlefield and the embedded requisite digital command and control systems will allow it to mass quickly. The speed issue is critical. Any modern unit needs to disperse and then mass quickly to overcome an opponent. In this case, mass means primarily massed fires, not side-by-side vehicles.

Speed, Agility, and Flexibility

Speed is the key to all cavalry operations — reconnaissance, security, offense, defense, and convoy protection. Speed comes from the inherent speed of the platform and the ability to accurately navigate to clearly defined points on the battlefield. The ability to navigate is a function of the digital command and control system and the global positioning system (GPS) links of each vehicle. The combination of digital and vehicular speed provides a significant combat multiplier for every action in which the new cavalry platoon will be involved. Additionally, individual vehicles and elements are free to operate more independently because of their shared operational picture and awareness of the other's location and activity. The electronic links to over-the-horizon-attack capabilities mean that no element of the platoon is truly alone. Each infantry squad would be more like a well-trained scout element — trained and equipped to find and engage targets with indirect fires or to vector direct fire weapons onto the target. The situational awareness data provided from all-source intelligence sources will also facilitate the confirmation of targets and enemy locations.

Massed Fires

This digital connectivity also facilitates massing fires of all kinds —artillery, mortar, close-air support (CAS), and attack helicopters. The troop-level fire support officer (FSO) would be the fire integration expert, who would attack targets developed by squads and platoons timely because of the situational awareness that digital connectivity provides. The FSO would be proactive by monitoring spot reports and instantly matching them with the commander's attack criteria. He would also respond to requests for fire. Naturally, the platoon mortar would always be available for suppression, reconnaissance by fire, and other such missions where other indirect attack assets are unavailable.

Engaging the enemy becomes similar to an ambush in the enemy's mind because of the surprise achieved by the stealthy target acquisition by the platoon and the timely and accurate fire brought to bear. Massed time on target mixes of direct and indirect fires will be the norm and will further enhance the achievement of surprise.

Both offensive and defensive operations are, in fact, reconnaissance operations and could be called security or economy-of-force missions. In each case, the platoon is acquiring targets and engaging them by massed direct and indirect fires. This platoon would not be a commander's first choice for deliberate attacks against well-prepared defenses in depth. Nor would the platoon be a first choice for digging in and defending against large enemy attacks. Such operations would negate the platoon's advantage of speed.

Defensive Operations

Conceptually, in the defense, this places infantrymen on key terrain and in the early warning and channeling mode — building the kill sacks while denying key terrain — and only firing if attacked. Dismounted infantry squads with their carrier are dispersed and capable of observing an axis of advance while denying the enemy infiltration routes. Indirect fires would be planned in depth to allow maximum engagement time and to channel the enemy into kill sacks. The gun systems and ATGM/TOWs are then in depth and available to maneuver to kill enemy vehicles in kill sacks that infantry squads have created. All of this is supported by the platoon's own mortar. Note: The company-level mortar platoon cannot range to cover all three dispersed platoons in a Stryker company.

The defensive example in Figure 1 could be the platoon in the defense, as part of a covering force mission or in an economy-of-force/security mission.

In this example, infantry squads are deployed to screen the platoon's frontage with a focus on the crossroads to the front and within the platoon's sector, and to deny the key terrain overlooking the crossroads

within the platoon's sector. The squads would have on-order positions to the rear to provide options to deal with subsequent threats. The fire support plan would include trigger points and target reference points to mass fires at the right time and place. This might also include family of scatterable mines (FASCAM) or other channeling devices to reinforce a kill sack.

In Figure 1, the concept is to disrupt the attack forward of the platoon and then destroy it within the platoon's sector. The ATGM section and gun section would be positioned to provide defense in depth, while being able to attack by fire within and behind the platoon's initial positions. The sections could operate as pure elements, or the platoon leader could combine a gun platform with an ATGM platform to provide a mix of types of fires deep into the battle position from both sides. Both sections would have hide positions and attack-by-fire locations to move to as vectored by the platoon leader.

As shown in Figure 1, the western gun section could reposition to the rear after its initial engagement and sit behind the second row of hills to engage stragglers who escaped the initial engagement more quickly than they could get from the kill sack.
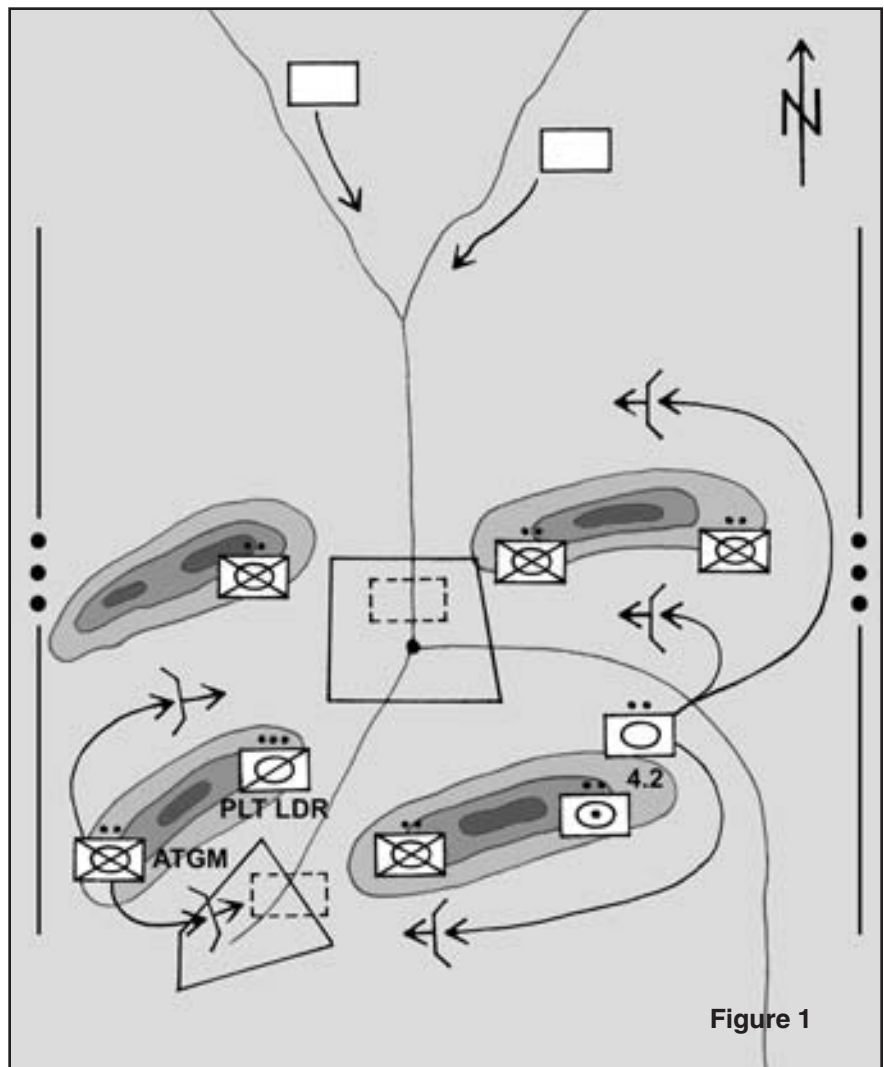

Figure 1

Subsequently, the second gun section could reposition to engage those same stragglers from the east, while the infantry denied follow-on forces entrance into the engagement area. The platoon leader would be fighting a defense in depth.

The ability to fight at night with the aid of night-vision capabilities and digital navigation makes this defense even more robust. The situational awareness coupled with detailed rehearsals — electronic and actual — gives the platoon leader multiple options on where and when to attack the enemy. The word "attack" is chosen to characterize the defense because it uses speed and agility to get forces and fires to the required spot on the battlefield quickly. What looks to be a fairly static defensive operation is, in fact, replete with many options for the platoon leader. His choice is facilitated by his situational awareness advantage and the speed with which he can move his elements around the battlefield. Even at the platoon level he is able to operate within the opponent's decision cycle. The synchronization of this effort, given the ability to structure decision points and decision criteria, would not be as complex as it might appear. The platoon sergeant is an important part of this synchronization. In this example, he might be in command of the gun sections or the infantry sections.

Offensive Operations

In the offense, the process is deliberate and dynamic — deliberate searching, finding, and fixing by dismounted infantry, infiltration, and then coordinated massed fires against critical nodes that cause the enemy's defense to come unhinged. The operational awareness that digital connectivity provides brings to the platoon targets to be verified and engaged, if appropriate. Thus, every offensive operation, except a deliberate attack, will resemble a route/area reconnaissance.

The platoon is attacking against known and unknown enemy positions based on all-source intelligence. The platoon leader has positioned his mortar section in the center of sector so that it can range most of the sector for immediate suppression missions and reconnaissance by fire. The platoon is operating in two sections of infantry and overwatching gun and/or ATGM elements. The infantry squads are overwatching each other and are, in turn, being overwatched by the gun/ATGM elements. The ATGM elements in Figure 2 would probably be mixed with the guns since there are two axes to be covered. Each overwatch element would consist of a gun platform and an ATGM platform. The gun platform would move under careful overwatch of the ATGM platform. Therefore, we have the platoon moving and continually covering the moving elements so that security is provided to guard against the unknown.

The platoon leader would coordinate to ensure both sections' efforts are synchronized. The platoon's first action is to seize overwatch positions and then direct fire from direct and indirect fire assets on the first set of targets. The mortar section could also engage these targets in a reconnaissance-by-fire mode. The mor-

tar section would move forward by bounds, ready to conduct a "hip-fire" mission, if necessary, during its moves. The mortar section would be prepared to provide smoke to deny the enemy observation of moving elements.

As enemy elements are overcome, the platoon continues to move through the sector by coordinated bounds, confirming all-source intelligence, developing new targets, and engaging by the most appropriate means. The anticipated bounds are shown in Figure 2; however, exact sequencing and positions occupied will be situation dependent. Should it be necessary, elements from one axis could be used to flank or engage the enemy confronting elements on another axis.

The platoon, should it encounter unanticipated enemy strength or fortifications, might have the option of bypassing this enemy force so a larger force could deal with it. This offensive action may sound deliberate and slow; however, in actual execution, it will be dynamic and allow the platoon to exploit its inherent speed, agility, and flexibility. Using move-set drills that were important years ago remains important in the 21st century.

The cavalry troop headquarters would include requisite maintenance, command and control, and liaison capabilities. The strike capability orchestrated by the troop fire support team (FIST) is critical in this organization. The interface of this agile, flexible platoon-sized force with air cavalry and other external sources warrants discussion. This interface would initially occur at troop level, though direct coordination between forward elements (platoons) and air scouts is very feasible. Air scouts may be the source of targets and with the digital passing of data, the air-ground team will be able to react quickly and make every engagement tantamount to being an ambush. This is true at whatever level the interface occurs. Since the data is distributed in near real time, the appropriate element will know what is happening. This close integration is available today — one does not need to wait until FCS comes along in the future.

The above characteristics also make the force capable of widely dispersed peacekeeping operations or operations in urban terrain.

As noted, the ability to digitally issue orders, call for fires, and navigate are key to executing tactics and techniques discussed above.

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 en-

"Speed is the key to all cavalry operations — reconnaissance, security, offense, defense, and convoy protection. Speed comes from the inherent speed of the platform and the ability to accurately navigate to clearly defined points on the battlefield. The ability to navigate is a function of the digital command and control system and the global positioning system (GPS) links of each vehicle."

emy 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!
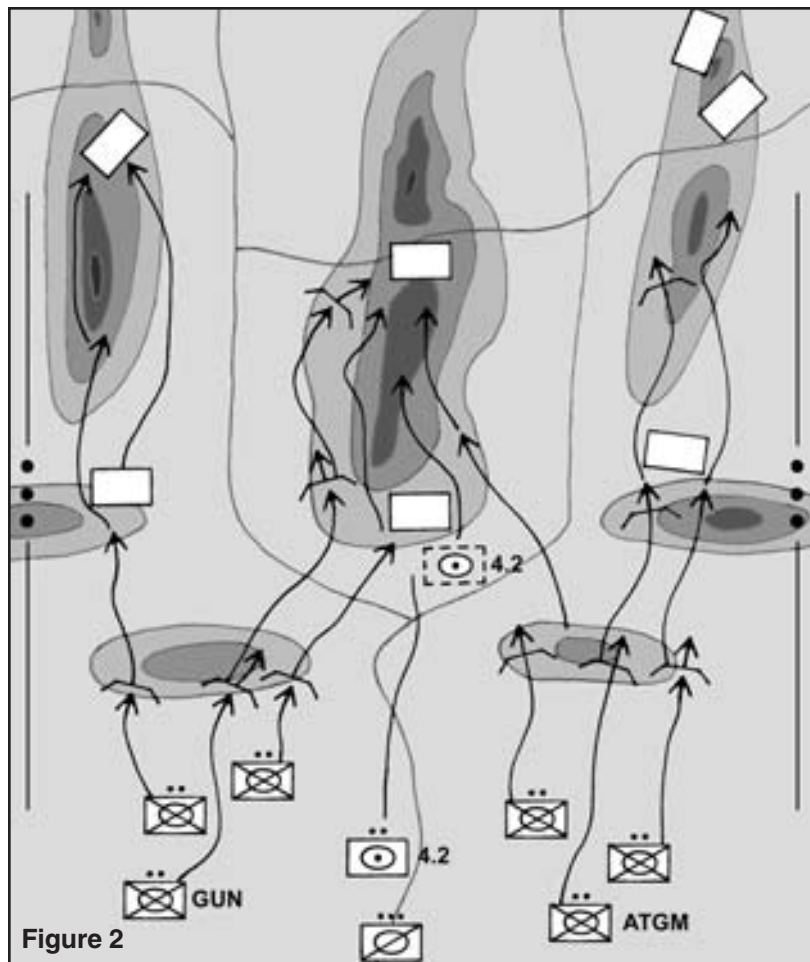
The Armor School Challenge

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!

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Figure 2

Using the Patrol Brief in Baghdad

by Captain Sean Kuester

Alpha Company, 1st Battalion, 37th Armor (1-37), 1st Armored Division, deployed to Kuwait on 11 May 2003 and arrived in Baghdad a week later. The company assumed responsibility for Al-Sha'ab from one of the light cavalry troops assigned to 2d Squadron, 2d Cavalry Regiment. The "right seat ride" period lasted just under one week.

The Al-Sha'ab neighborhood is located in northern Baghdad. The population is approximately 486,000 citizens. Most of the people are Shi'a. The neighborhood can be described as poor with some of its northern neighborhoods, called Mulhallas being downright destitute. The entire neighborhood is urban, consisting of two- and three-story buildings, shops, and homes built of clay brick and laminated with a stucco equivalent.

Streets are typically paved with main roads allowing for large cargo, 18 wheeler-type trucks to pass through; side and residential streets are usually wide enough to allow two normal sized cars to pass easily, or a tank and a car to pass with some skillful maneuvering. Although paved, the roads are all in poor condition and drivers must always keep an eye out for potholes and missing storm drain covers. Traffic is heavy between 0600 hours and 2000 hours due to the incapacitated traffic control system, a shortage of traffic control police, and an utter disregard for pre-existing traffic laws and regulations. Markets typically spill on to main thoroughfares and further congest traffic on the interior of the neighborhood. Horse- and donkey-drawn carts are used to pick up and distribute propane, kerosene, and other goods, which adds to traffic delays. Traffic traveling in the correct direction will be heavy, with the added difficulty of avoiding traffic approaching from the wrong direction.

One highway that runs through the area, Highway 2, is a four-lane highway with a middle median. The median varies, but is typically 12 to 18 inches tall and about 18 inches wide, or 12 inches tall and 4 to 5 feet wide. The latter is typically found near intersections to support street and traffic lights. Aside from heavy traffic, roads are cluttered with every object imaginable.

Although poor, the neighborhood is experiencing a good deal of new construction. Homes are built very close together and are connected, but real estate is at a premium. As new homes are built or older homes renovated, construction materials, typically brick, mortar, and sand, are dumped into the street because there is no where else for the material. Frequently, the streets will be lit on fire to melt the asphalt to allow for cables to be laid. Of course, this causes delays and traffic problems.

Due to security lapses and other concerns regarding large cargo trucks, many companies allow workers to drive company vehicles home. This is because the current weapons policy allows the citizenry to maintain a single weapon at their residence, so the driver can defend his vehicle against theft, and the company does not have to pay a motor pool guard.

Innumerable power and phone cables that neighbors have improvised to tap into services further clutter the street-level air space and super surface. Typically, these cables can be driven under, but on occasion, a bypass does occur.

During the fall, the streets are typically flooded from rains that cause the old sewage system to back up. This slows units as they negotiate the sewage-clogged areas in an attempt to avoid hidden holes and pitfalls. Garbage is haphazardly discarded directly into the streets and lit on fire. By now, most military and civilian hulks have been moved or removed, but a few still exist on less-traveled routes.

"One highway that runs through the area, Highway 2, is a four-lane highway with a middle median. The median varies, but is typically 12 to 18 inches tall and about 18 inches wide, or 12 inches tall and 4 to 5 feet wide. The latter is typically found near intersections to support street and traffic lights. Aside from heavy traffic, roads are cluttered with every object imaginable."

As children identify convoys, they swarm looking for meals, ready to eat. We just smile and wave, say hello, or shake a hand. This creates delays and the obvious hazard of inadvertently striking a small, unobserved child. As children will be children, they have little regard for their own safety and approach within dangerous range.

U.S. Army Field Manual (FM) 3-06.11, *Combined Arms Operations in Urban Terrain*, defines key terrain as, "terrain whose possession or control provides a marked advantage to one side or another. In the urban environment, functional, political, or social significance may be what makes terrain key. For example, a power station or a building may be key terrain."[1]

Al-Sha'ab has numerous locations that are considered key terrain. In the neighborhood, there is one power substation, two benzene and kerosene stations, one kerosene-only station, one fire department station house, one police station, two health clinics, seven open-air markets, dozens of mosques, 75 schools, one neighborhood advisory council (NAC) building, two sewage treatment facilities, and one bank. Each of these spheres of influence, at one time or another, has seen its influence and community value increase or decrease based on geopolitical reasons, environmental changes, local crises, and a myriad of other reasons.

The bottom line is: the environment we occupied was new and strange. We were confronted with a culture we did not understand and the overall situation was complex.

Conducting Patrols

Every situation and operation is unique. FM 3-90.1, *Tank and Mechanized Infantry Company Team*, lists several activities in which patrolling is an essential aspect, including support to domestic civil authority, show of force, peace enforcement operations, and combating terrorism. All of these overarching activities necessitate patrolling.[2]

In Al-Sha'ab, we patrolled specifically to: prevent looting; enforce curfew; interdict the influx of arms and foreign fighters into Baghdad; clear routes of improvised explosive devices (IEDs); conduct show of force/presence operations; enforce traffic laws to facilitate law and order; enforce initiatives established by the Coalition Provisional Authority (CPA); legitimize the NAC, Iraqi Police Force (IP), and Iraqi Civil Defense Corps (ICDC); and to monitor key sites and key leaders.

Patrolling placed us in direct contact with the community, which facilitated the mission of legitimizing the NAC, IP, and ICDC, by showing progress, as well as allowed us to leverage psychological operations (PSYOPS) to disseminate command messages.

The Patrol Brief Format: The Essential Element

Chapter 8, "Stability Operations and Support Operations," FM 3-90.1, *Tank and Mechanized Infantry Company Team*, describes the following considerations for patrolling: rules of engagement (ROE) review, routes and locations of known minefields, using liaison officers and interpreters, off-limits areas, patrol restrictions, overt recognition signals, communications plan, adjacent unit coordination, casualty evacuation (CASEVAC), actions at halts, actions at minefields, actions in an ambush, reacting to indirect fire, actions at illegal checkpoints, and actions at vehicle breakdown.[3]

Other than a quick reaction force (QRF) mission, every single patrol should be preceded by a detailed patrol brief. Every patrol is, in essence, a movement to contact. FM 3-90.1 defines a movement to contact as, "one of the five offensive operations a mechanized company team will conduct."[4] When time is available, always conduct an operations order for any operation — a patrol brief is nothing more than an abbreviated operations order.

Our company patrol brief was specifically tailored for Al-Sha'ab, Baghdad, and included: task and purpose of the patrol; units in patrol and order of march; route to be used (referring to navigational card as required); expected enemy contact and recent enemy activity; actions on contact, such as IED, sniper fire, roadblock, demonstrations, vehicle breakdown, and ambush; resupply plan, to include classes I, III, and V; CASEVAC plan; communications plan; be-on-the-look-out (BOLO) update; and post-patrol actions.

We found this briefing format to be quite useful in our area of operations (AO). Each element of this brief is critical to mission success. First and foremost is the task and purpose of the patrol. Each and every mission should have these two elements clearly defined. The commanding general (CG), 1st Armored Division, modified our patrol techniques during the first trisection of our deployment:

Task and purpose of the patrol. Many units were merely driving around under the guise of conducting presence patrols. Patrol leaders were given missions, such as "patrol the sector from 1000 to 1300 hours." The CG declared we were to transition from presence to precision. Each patrol was to have a specific reconnaissance objective or task and purpose. Every soldier in the patrol knew his mission and post-patrol debriefings began to yield better intelligence because soldiers knew ahead of time what indicators to look for.

Units in patrol and order of march. Routinely, a patrol would have three to five different units. For example, a patrol conducted on 2 March 2004 at 1000 hours consists of five high-mobility, multipurpose wheeled vehicles (HMMWVs) — three from 1st Platoon, A Company, one from the PSYOP unit, and one from the battalion civil affairs detachment. "Slice" elements and combat service support units incorporated into the patrol must be aware of their location in the patrol and the locations of the other vehicles. This ensures that a patrol leader can confirm he has crew served weapons dispersed throughout his column, as well as line up properly at start point on time. Additionally,

slice elements need to be identified and task organized to escort elements in the patrol in case of contact. For example, the patrol leader can operationally control (OPCON) the PSYOPS truck and crew to the lead vehicle's tank commander in the event of an ambush or IED.

Route to be used. The traffic in large population centers can become heavy and congested and breaks in contact are possible. All units in the patrol need to know the route to ensure minor breaks in contact do not result in complete separation of multiple units in the convoy. Additionally, prior knowledge of the route will allow soldiers to anticipate actions that will be required at choke points, bridges, overpasses, and intersections.

Expected enemy contact and recent enemy activity. This is essential information for each individual soldier in the patrol. Knowledge of recent enemy activity makes soldiers aware of indicators. For example, a dead dog was observed on the side of the road with a visible scar running the length of its belly. The scar had visible sutures on it and this, of course, aroused suspicion. The patrol leader halted the convoy, requested explosive ordnance disposal's (EOD) presence, and the dog was found to have a 122mm artillery round sewn into it and rigged for remote detonation.

As the enemy develops new, lethal TTPs, soldiers have to be informed, so they know what to look for. Each soldier is a scout of sorts, but is only effective if he knows what to look for.

Actions on contact. Actions on contact are not duplicates of the actions described in FM 3-20.15, *Tank Platoon*, or in FM 7-8, *Infantry Rifle Platoon and Squad*. In the military operations in urban terrain (MOUT) environment of Baghdad, and conducting operations after the cessation of decisive combat operations, we had to train a different group of battle drills in response to actions on contact. We trained on how to react to demonstrations, protests, roadblocks, and, of course, IEDs. These actions on contact are briefed only as a reminder; to be effective, they must be rehearsed, especially actions on contact with an IED. These TTPs were developed over the course of our time here and are constantly being revised because the enemy continuously adapts his methods.

Resupply plan. Typically, our patrols do not exceed 6-hour shifts. However, we always plan for being out in sector overnight and configure vehicles and personal load plans accordingly. It is very likely that multiple IEDs will be simultaneously found in a brigade AO. There will typ-

ically be one to two EOD teams assigned to the brigade. It could feasibly take 1 to 8 hours for EOD to arrive on site. Units must be prepared to operate in sector independent of logistics support for up to 24 hours at a time. Water, food, ammunition for personal and crew served weapons, communications equipment and resupply, fuel, and first aid equipment are the most essential items. Finally, it is vital to take a translator with each and every patrol — period! Never forget your translator.

CASEVAC plan. Unlike a high-intensity conflict where units typically evacuate casualties away from the forward line of troops (FLOT), in Baghdad, there is no FLOT. In one sense, CASEVAC is easier. Instead of being limited to a single direction of CASEVAC (away from the FLOT), units can conduct CASEVAC in virtually any direction toward any forward operating base (FOB). On the Army canal road, one of the major roads through Baghdad, there are approximately six U.S. FOBs. The Army canal road is approximately 16 kilometers in length. It works out that if you sustain a casualty anywhere along the Army canal road, you are never more than 10 kilometers from a FOB.

With air superiority clearly established, air medical evacuation is also possible. The key here is that during the patrol brief, the available forms of CASEVAC must be briefed (ground versus air, or both) and, more importantly, the locations of FOBs with aid stations, forward support battalions with aid stations, and

the corps surgical hospital (CSH) must be disseminated. Routes to these locations must be briefed because routes constantly change as bridges shut down for repair and marches are scheduled. Each patrol must have a medic; it is tantamount to a criminal act to leave the FOB without a medic if one is available. As a technique, our medic briefed the CASEVAC plan, locations to FOBs and the CSH. Additionally, the company disseminated and posted grids to FOBs with aid stations, as well as the air medical evacuation frequency, on all vehicle windshields.

Communications plan. The communications plan is more difficult than it appears. About halfway through our deployment, the company was augmented with an assortment of HMMWVs. These HMMWVs came from our headquarters and headquarters company, as well as the theater Army pre-positioned stock (APS) fleet. Our number of HMMWVs swelled from two in May to eleven by February 2004. None of the HMMWVs arrived with communications equipment. We retrograded six of our tanks in November 2003 and the communications equipment was taken from these vehicles and used on the extra HMMWVs. But, because we used every vehicle in the company weekly, to include all our armor, the communications setup for the company was always changing.

As the company modification table of organization and equipment changed, we began to run short of variable amp adapters, radio mounts, radios, and installation

"As children identify convoys, they swarm looking for meals, ready to eat. We just smile and wave, say hello, or shake a hand. This creates delays and the obvious hazard of inadvertently striking a small, unobserved child. As children will be children, they have little regard for their own safety and approach within dangerous range."

hardware (cables and antennas). Therefore, it was important, prior to each patrol, to check each vehicle for a radio. Oftentimes, we had to mount a manpack radio in a HMMWV. For communications internal to the patrol, this worked fine.

Many patrols occupied assault positions and conducted dismounted patrols through markets and residential neighborhoods from these assault positions. We relied heavily on handheld radios. While not secure, they do afford an easily accessible (we purchased ours with field ordering officer/class A pay agent funds), inexpensive, and fairly reliable form of local (1-kilometer reliability) communications. Prior to the patrol departing, the frequencies must be disseminated. We also received about a dozen hands-free "squad radios" from the British army. These have a more limited range, about 300 meters, but can operate secure, and are ideal for HMMWV gunners to talk to tank commanders and other gunners in the patrol. Again, the frequencies must be disseminated ahead of time.

Be-on-the-look-out (BOLO) update. This is simply a form of staying current on the tactical situation. Literally, anything can qualify for the BOLO list. Typically, we focus on cars, ambulances, and trucks. Any type of conveyance that had been, or was anticipated to be, used in an attack, such as a drive by shooting, ambush, and vehicle-borne IED, was disseminated to the patrol.

Around the time of Ramadan 2003, the enemy used a new method of attack. He

configured donkey carts with rockets and attacked a U.S. FOB and local hotels housing a large number of reporters. For a period of time following this attack, we stopped all donkey carts and searched their drivers and contents. An important thing for leaders to know is when to remove vehicles from the BOLO list. If this is not done, the sheer volume of BOLO vehicles will become totally unmanageable in no time. Disseminating the BOLO list ensures soldiers on patrol have a reconnaissance focus, in addition to other patrol objectives.

Post-patrol actions. Post-patrol actions are not very sexy, but they are certainly critical. Two primary post-patrol actions are after operations preventive maintenance checks and services (PMCS) and patrol debriefing. Patrol vehicles are in near-constant use due to the high demand for patrols. If leaders do not enforce PMCS, the fleet will self-destruct in no time.

A post-patrol debriefing is essential. HMMWV gunners are on an elevated platform and see all sorts of things tank commanders cannot. They see people on rooftops, new power cables, damaged power cables, banners, and strange objects on bridges and overpasses. There is a wealth of knowledge in the patrol, but you must conduct a debriefing as quickly as possible to capture information. We began our debriefings before the patrol even began by assigning a task and purpose to focus the soldiers. When we sat down to recount events, we broke the patrol into segments. For example, we would

discuss what we saw from route red to route blue. Next, we would discuss what we saw on the way from route blue to the power station. Finally, we would discuss what we saw from the power station en route to the FOB. Again, this focuses the soldiers' recollections. These debriefings or "patrol reports," in conjunction with human intelligence, form the basis for the intelligence picture the S2 will formulate.

Notes

[1]U.S. Army Field Manual (FM) 3-06.11, *Combined Arms Operations In Urban Terrain*, U.S. Government Printing Office (GPO), Washington, D.C., 28 February 2002, p. 1-10.

[2]FM 3-90.1, *Tank and Mechanized Infantry Company Team*, GPO, Washington, D.C., 9 December 2002, Chapter 8, pp. 8-3, 8-4, and 8-17.

[3]Ibid.

[4]Ibid.

[5]FM 3-20.15, *Tank Platoon*, GPO, Washington, D.C., 1 November 2001; and FM 7-8, *Infantry Rifle Platoon and Squad*, GPO, Washington, D.C., 22 April 1992.

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"Routinely, a patrol would have three to five different units. For example, a patrol conducted on 2 March 2004 at 1000 hours consists of five high-mobility, multipurpose wheeled vehicles (HMMWVs) — three from 1st Platoon, A Company, one from the PSYOP unit, and one from the battalion civil affairs detachment. "Slice" elements and combat service support units incorporated into the patrol must be aware of their location in the patrol and the locations of the other vehicles."

Sustaining Training With Mine-Clearing Blades

by Captain Kyle Brennan

It seems the only opportunity for a unit to train with mine plows is during the evaluation phase at local combat training centers. This is probably because plow tank crewmembers are convinced that training with the plow will result in breaking it, that the plow is difficult to repair, and leaders know very little about plows. Unfortunately, most tankers view serving on a "plow tank" as a burden and ask the perennial question, "When is someone else going to take the plow?" Educating ourselves on this piece of equipment will help us to train and use the plow for its intended purpose — a combat multiplier. This article focuses on identifying improper maintenance procedures, ways to prevent them, and some tactical considerations to help enhance training.

Maintenance

As with any piece of equipment in our mechanized force, training effectiveness depends on maintenance. Within our maintenance system, we maintain a prescribed load list (PLL) of repair parts based on demand. Why not maintain something similar (and unofficial) for your mine-clearing blades? To render the plow incapable of functioning, all it takes is to break a moldboard extension by scraping a large tree en route to a breach. Will you

Figure 1

have time to order and wait for your new upper-left moldboard extension to arrive before you breach an obstacle, or would it be beneficial to have an extra one on hand? When creating your PLL, it is good to know what plow parts break most often, and more importantly, why. The maintenance portion of this article focuses on travel locks, adjusting plates, skid shoes, moldboard extensions, and lifting mechanisms, as shown in Figure 1.

The travel lock, as shown in Figure 2, breaks more often than other parts, mainly because few crewmembers take the time (or know how) to properly mount the plow. Mounting the plow can be time and labor consuming for experienced crews in a paved motor pool. The difficulty increases significantly when mounting a plow on uneven, rough terrain. Despite common practice, this process does not end when the two attaching pins in the plow's mounting frame are inserted, but ends when the adjusting bolts are tightened to reduce the gap between the front of the tank and the plow, as shown in Figure 3. When these bolts are not properly adjusted, the plow slams into the tank as soon as the driver begins plowing, the travel locks subsequently hit the headlight protecting bars on the front slope of the tank, and are broken before spoil even begins to build. Once the plow is lifted again, the travel locks will not properly stow the plow, and the crew must emplace emergency chains to prevent the plow from inadvertently dropping. Plow training generally ceases at this point. The parts that tend to break most often are displayed and listed in Figure 4. All of these parts can be placed in a .50-caliber ammunition can and stored in a sponson box.

Adjusting plates and skids shoes are other easily broken components. During operation, the adjusting plates and skid shoes are adjusted to determine the depth plowing will occur and prevent the plow from driving straight into the ground. In other words, they bear almost the entire force the engine exerts on the plow. Generally, these break as a function of terrain, inexperienced drivers, and/or improper hardware. Unfortunately, we cannot always choose terrain, and the only way to have experienced drivers is to train inexperienced hopefuls. However, improper hardware can be remedied. Crewmembers tend to use whichever bolts, pins, washers, or cotter pins they find in their spare-bolt bins to hold together this portion of the plow. It is important that the right screw, nut, bushing sleeve, and washer/half moon,
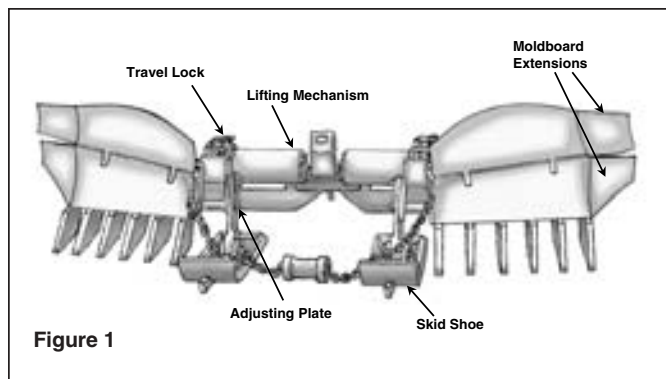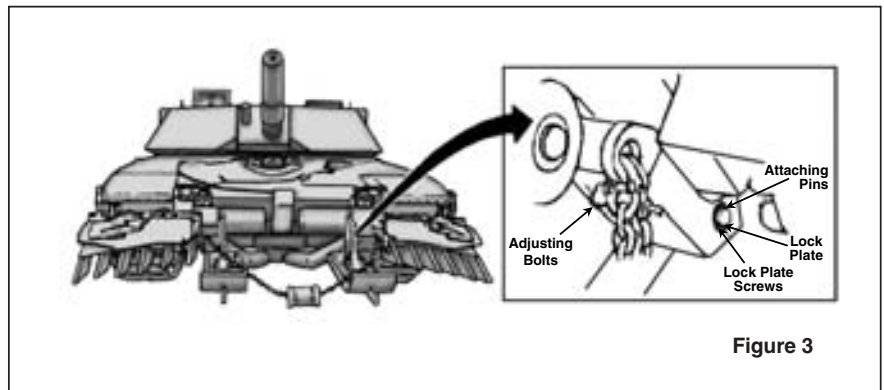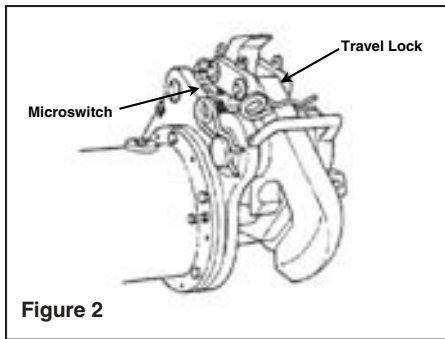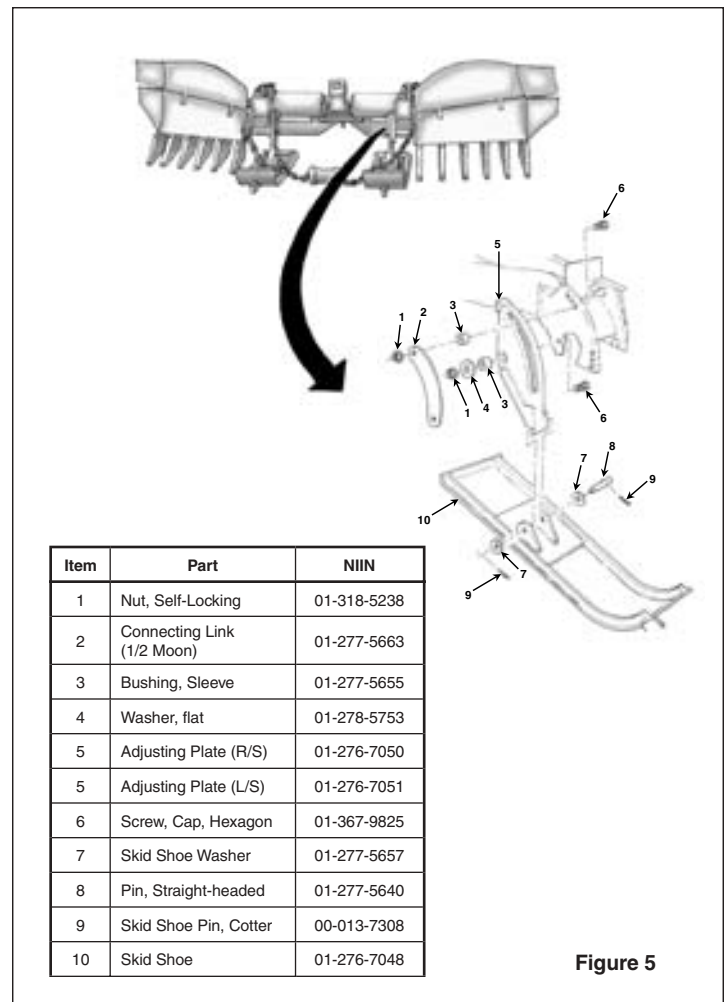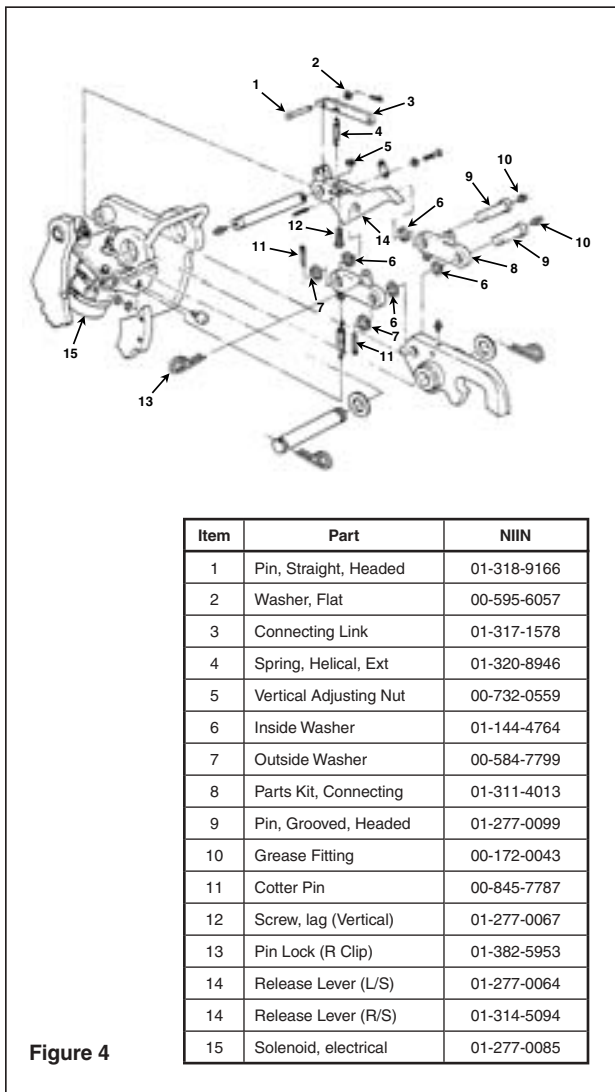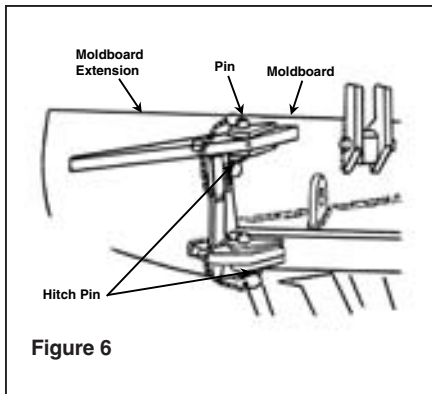
Figure 2

Figure 3

as shown in Figure 5, are used and the adjusting plate is not bent. A plow crew should maintain at least two complete sets of items 1 through 4 and item 6, listed in Figure 5, to quickly replace broken adjusting plate hardware. These parts also fit in a .50-caliber ammunition can.

Moldboard extensions, Figure 6, are absolutely mission essential for breaching operations, yet tend to break very easily (despite recently upgraded mounting brackets and hitch pins). These extensions direct spoil (along with undetonated mines) outside the track path, but tend to break when maneuvering through re-strictive terrain (especially in wooded areas) because they extend wider than the tank. One of the most effective ways to preserve moldboard extensions is through intelligence preparation of the battlefield (IPB). If the area of operations contains restrictive terrain, consider mounting extensions in a covered and concealed position prior to a breach, instead of using the assembly area.

Each plow should have at least one extra set of extensions with hitch pins readily available during training/operations, Figure 7. Unfortunately, there are four separate moldboard extensions, which are very heavy, awkward, and difficult to pack efficiently. Bringing these to a field environment takes a company effort. They can either be carried by other platoon members or stored on the company supply sergeant's truck.
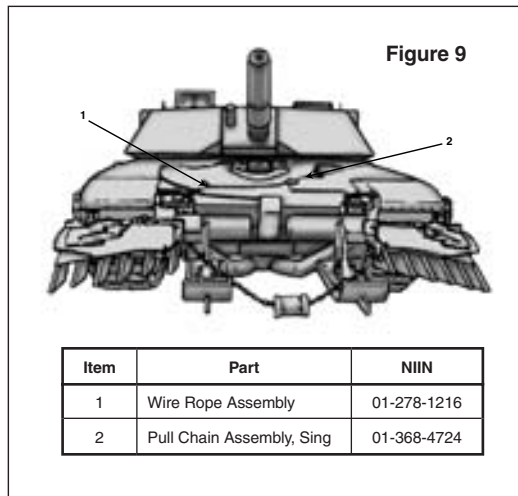

Item	Part	NIIN
1	Pin, Straight, Headed	01-318-9166
2	Washer, Flat	00-595-6057
3	Connecting Link	01-317-1578
4	Spring, Helical, Ext	01-320-8946
5	Vertical Adjusting Nut	00-732-0559
6	Inside Washer	01-144-4764
7	Outside Washer	00-584-7799
8	Parts Kit, Connecting	01-311-4013
9	Pin, Grooved, Headed	01-277-0099
10	Grease Fitting	00-172-0043
11	Cotter Pin	00-845-7787
12	Screw, lag (Vertical)	01-277-0067
13	Pin Lock (R Clip)	01-382-5953
14	Release Lever (L/S)	01-277-0064
14	Release Lever (R/S)	01-314-5094
15	Solenoid, electrical	01-277-0085

Figure 4

Item	Part	NIIN
1	Nut, Self-Locking	01-318-5238
2	Connecting Link (1/2 Moon)	01-277-5663
3	Bushing, Sleeve	01-277-5655
4	Washer, flat	01-278-5753
5	Adjusting Plate (R/S)	01-276-7050
5	Adjusting Plate (L/S)	01-276-7051
6	Screw, Cap, Hexagon	01-367-9825
7	Skid Shoe Washer	01-277-5657
8	Pin, Straight-headed	01-277-5640
9	Skid Shoe Pin, Cotter	00-013-7308
10	Skid Shoe	01-276-7048

Figure 5

Figure 6

MOLDBOARD EXTENSION PARTS	NIIN
Lower Moldboard Extension (R/S)	01-276-7040
Lower Moldboard Extension (L/S)	01-276-7046
Upper Moldboard Extension (R/S)	01-276-7041
Upper Moldboard Extension (L/S)	01-276-7047
Pin, Grooved, Headed (1 of 2)	01-450-2432
Pin, Wedge (2 of 2)	01-450-1125
Pin, Retaining (R-clip)	01-098-6455

Figure 7

Figure 8
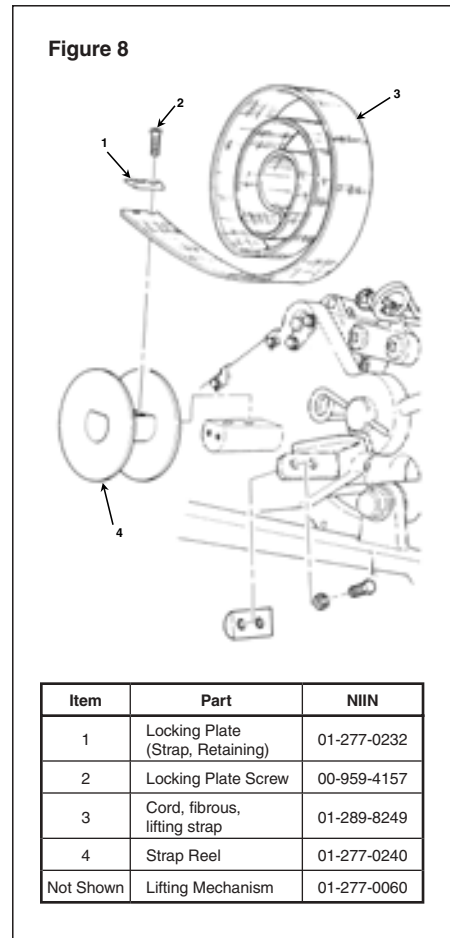
Item	Part	NIIN
1	Locking Plate (Strap, Retaining)	01-277-0232
2	Locking Plate Screw	00-959-4157
3	Cord, fibrous, lifting strap	01-289-8249
4	Strap Reel	01-277-0240
Not Shown	Lifting Mechanism	01-277-0060

One of the greatest morale boosters for a crew is when the plow electrically raises and lowers on both sides. When the plow is not functioning electrically, most crewmembers are generally unaware how easy this can be to fix. In terms of lowering, the electrical microswitch/solenoid that releases the travel lock is easily replaceable, and most times fails simply because the adjusting nut and bolt are not properly adjusted. Oftentimes a plow fails to lift electrically as a result of a loose or dirty wiring harness.
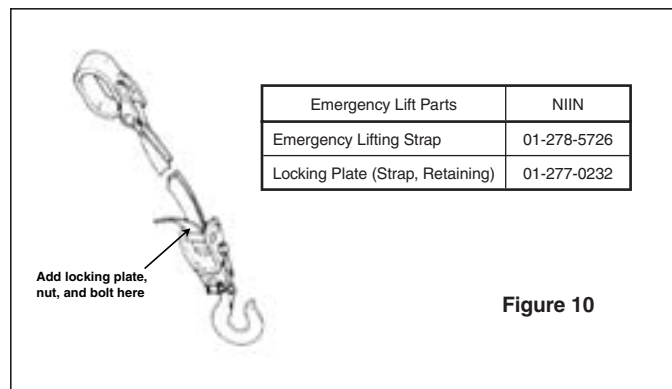
Motors and lifting straps can fail because crewmembers attempt to lift the plow while the blades are full of dirt and debris. Backing up a tank at least 20 meters after plowing will free the blades of all loose debris that strain the motor and straps during lifting. Some debris, such as heavy mud and rocks wedged between the blades, may need to be removed with hand tools. If it is determined one of the motors is not functioning, consider replacing the entire lifting mechanism instead of dissecting it and undergoing a labor-intensive motor replacement. One tank crew can usually accomplish this task in about an hour. A crew should maintain at least two extra lifting straps, locking plates, and screws in the event straps are cut or frayed during operation, as shown in Figure 8.

In the event the plow does not raise or lower electrically, always be prepared to do so manually. Your loader should never have to jump out of his hatch with a handful of tools just prior to a breach to lower the plow. The emergency release cable assembly, shown in Figure 9, that the driver uses to manually lower the plow, without leaving his station, will usually break when crewmembers forget to detach the cable from the front fuel cell before dropping the plow. In terms of emergency/manual lifting, most crews generally have to scrounge throughout a company or battalion to find functional lifting straps. These straps usually break when a driver continues to reverse during the lift, after his ground guide has signaled him to stop. This either rips the emergency lifting strap or pulls the cable out of the hooked end of the strap.

Emplacing a hasty locking plate in the strap can prevent this slippage. Order an extra locking plate per strap, drill two small holes in the strap, and fasten the locking plate to the strap using a short nut and bolt that fit through the holes in the locking plate as shown in Figure 10. This will prevent the straps from sliding out of the hook end of the strap as the plow is lifted. Each crew should maintain at least two sets of emergency lifting straps.

Figure 9

Item	Part	NIIN
1	Wire Rope Assembly	01-278-1216
2	Pull Chain Assembly, Sing	01-368-4724

Emergency Lift Parts	NIIN
Emergency Lifting Strap	01-278-5726
Locking Plate (Strap, Retaining)	01-277-0232

Figure 10

There are critical tasks that a plow crew needs to perform in a combat environment, such as manually lifting or emergency dropping a plow. To expedite training, this article contains a few recommended crew drills for these critical tasks. For example, a crew is required to recover a plow following a breach, the electric lift is inoperable and emergency lifting is impossible because of a hostile environment. There is a method to recover the plow if there is a small hill mass nearby. Once through the breach lane, the plow tank can reverse to the nearby hill mass and climb the hill in reverse. As soon as the rear end of the tank is elevated, it will start to naturally raise the plow. The plow tank continues reversing up the hill until both sides of the plow are locked in the travel locks.

As long as mine threats exist, operation and employment of the mine-clearing blade is an essential task for all tank companies to train. Although maintaining the equipment can require seri-

ous labor, understanding which parts break most often, why they break, and how to prevent breakage will help maximize training. Practicing critical tasks as crew drills will help focus training.

PLOW DRILLS

Drill 1: Lift Plow With Manual Lifting Straps

TC: Direct driver to stop if still moving. Report failure to lift electrically to platoon sergeant. Announce "lift drill," and obtain two emergency lifting straps from stowage, dismount tank, lift fenders, and prop open. Open number 1 skirt with loader's assistance. Inspect dirt in moldboards and spoil around blade for presence of mines. Once it has been determined that spoil and blade areas are mine free, direct loader to begin removing excess dirt from blade with shovel, mattock, and/or tanker bar. TC fits emergency lifting strap over end connector, ensuring the strap is aligned properly over end connectors, and closes number 1 skirt. NOTE: Moldboard extension may need to be removed to open/close number 1 skirt, depending on soil conditions and depth of plow.

TC then assists loader in clearing away excess dirt from moldboards. Once majority of dirt is cleared, TC moves to a spot where he can ground guide driver backward while maintaining visual contact on the travel lock and the lifting strap. TC must ensure the driver stops quickly, to keep the lifting strap from breaking! Once the blade is seated, direct loader to slide safety locking pins over travel lock release mechanism. Repeat on other side. Secure lifting straps, remount tank, and continue mission.

Gunner: Immediately moves up in TC's hatch to assume radio watch and security at the commander's weapons station. If wingman is present, security may not be necessary. Be prepared to assist loader with cleaning dirt from the blade.

Loader: Ensure armed/safe lever is set in the "safe" position. Obtain tool bag, dismount tank, and place on front slope. Assist TC in opening number 1 skirt. Obtain shovel, mattock, and tanker bar (if necessary) from stowage and check spoil area for presence of mines around the blade. At TC's direction, begin to remove dirt from the moldboard and blade. Concentrate on one side at a time. Perfect cleanliness is not the goal — remove the majority of the dirt and move on to the next side (if applicable). Once dirt is cleared, move between blades to the front slope after securing safety locking pins. Be prepared to insert them over the travel lock release mechanism as soon as the blade locks. Ensure 2-pound hammer is in hand — the travel lock may need a tap or two. Once blade is locked in place, secure all equipment and remount tank.

Driver: Stop tank at direction of TC. Immediately open hatch and raise seat. Prepare to follow ground guide's directions. When backing up, drag the brakes. Move very slowly and stop immediately on TC's command to keep the lifting strap in one piece. Once plow is raised and locking pins are in place, lower seat and close hatch.

Drill 2: Drop Plow Manually in a Field Environment Without M88 Assistance

In the event the plow must be dropped manually, the crew takes the following actions:

NOTE: It is recommended that the plow tank's wingman (at a minimum) cover him for the duration of this drill.

TC: Direct driver to the best covered and concealed position available, attempting to find a level spot on solid soil. Once the tank stops, direct driver to shut down engine, open hatch, and dismount tank. Direct loader to obtain tool bag and two wooden chock blocks, and dismount tank. Direct gunner (provided wingman is providing overwatch) to secure bottle jacks and dismount tank. TC secures leveling jack and dismounts tank, fitting leveling jack to lift point. Direct crew to drop plow in accordance with appropriate training manual. Be prepared to cover down on gunner's responsibility if no overwatch is available.

GUNNER: Secure bottle jacks, and place them at right and left side lift points. Secure hammer, breaker bar, and sockets. Begin removing three half-moon mounting bolts from each side, set half moons and bolts aside. Be prepared to reinstall half moons and bolts on plow after it is dropped. Gunners' primary purpose is then to supervise the driver and loader as they jack up each side. Once each side is aligned for pin removal, gunner, using hammer and punch/pry bar, taps pins out and secures them. NOTE: If no overwatch is present, provide security and monitor radio from TC's hatch.

DRIVER: Shut down engine, disconnect power cable and manual lowering cable, dismount tank, move to right side of plow, and obtain bottle jack from gunner and chock block from loader. Remove right side moldboard extensions and stow on moldboard. Position jack and chock block (if necessary) beneath right side lift point. Follow instructions of TC/gunner. Once complete, drop cable assembly from driver's hatch and secure on vehicle. Remount right side vision block.

LOADER: Obtain two wooden chock blocks and tool bag and dismount tank. Give driver one bottle jack and one chock block. Set remaining bottle jack and chock block, if necessary, under left side lifting point. Follow instructions of TC/gunner. Once complete, secure tool bag and remount tank.

Notes

Figures 1, 2, 4, 5, 6, 8, and 9 are from Training Manual 9-2590-509-23&P, *Mine Clearing Blade, M1, IPM1, or M1A1 Abrams Tank*, U.S. Department of the Army, Washington, D.C., 10 May 1998.

Figures 3 and 10 are from Training Manual 9-2590-509-10, *Operations Manual for Mine Clearing Blade, M1, IPM1, or M1A1 Abrams Tank*, U.S. Department of the Army, 12 May 1990.

The plow drills listed above were developed by Sergeant First Class Harley C. Crawford, platoon sergeant, 2d Platoon, B Troop, 1st Squadron, 16th Cavalry, Fort Knox, Kentucky, and Sergeant First Class Sean C. Mayo, Platoon Sergeant, 3d Platoon, A Company, 1st Battalion, 12th Cavalry Regiment, Fort Hood, Texas.

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Sharpening the Spear from Page 19

— STX lanes should be conducted in cantonment areas to better simulate the urban environment, which can easily be done in an afternoon at home station; convert the commander's M998 to an M1026 (the soft top HMMWV is useless in Baghdad); add a rear-facing gun mount to the first sergeant's M998 and commander's M998 (if conversion is not feasible); install reflective strips on sides of M1A1s to help improve civilian observation; and deadline M1A1s or HMMWVs with nonfunctioning headlights.

The Armor Center and TRADOC can assist by: continuing to train soldiers to a high standard on driving the M1A1 by using both simulators and live training; add HMMWV driver's training to initial entry training; conduct wheeled missions as part of the Advanced Noncommissioned Officers Course, the Armor Officer Basic Course, and the Armor Captains Career Course; change the tank company MTOE to include at least one M1026; and develop an M1114-based package for military pre-positioned stocks to better equip units for stability operations and support operations.

Communicate

Give a spot report/develop the situation. The most challenging transition for your armor soldiers will be to teach them to find and analyze information on the battlefield. While 19D soldiers will usually adapt easily to the urban environment, for the 19K this is a radical transformation. Frequently, a tank commander or senior gunner will represent the company to a public utility, community leader, or religious figure. To save time required for action, these same leaders must understand how to develop the situation, and provide useful information to the chain of command.

Commanders set the tone for patrolling by assigning platoon leaders specific priority intelligence requirements and desired endstates for company information operations. Sending patrols to drive around wastes soldier time and usually lead to a substandard patrol. Giving a platoon a piece of a company's vision gets everyone involved and focuses the efforts of your soldiers in a useful way.

Early in the deployment, we used written reports and oral debriefs with patrol leaders daily. When reporting incidents or information, patrol leaders must accurately report the time and location of the incident or conversation, including the name and title of the citizen involved, and conduct an initial reconnaissance of the

report to give an eyes-on perspective to the commander. Once a basic standard of information required is understood by company leaders, an oral debrief to the company information officer (usually the fire support officer) will be sufficient to develop required reports.

Developing the situation in this environment is an art. Units will find that, in talking with local people in Iraq, rumors are rife and Iraqis do not necessarily analyze the truthfulness of information or sources — frequently, local citizens report rumors as if they were facts. Patrol leaders should conduct an initial reconnaissance or ask follow-on questions to allow the unit to get a better understanding of what is happening in the community, and also separate true reports from false reports.

Teaching armor leaders to always be scouts will be the capstone of your company's transformation. We use nighttime dismounted patrols in residential neighborhoods to teach these skills, which requires speaking to groups of local citizens on various topics, including water services, propane, and criminal activity. Patrols leave with assigned neighborhoods and topics, but are free to discuss anything of interest to the community. By assigning junior leaders and soldiers to be the "speaker," the company will build a team of scouts who are comfortable using a translator to speak to the local population. The neighborhood will be appreciative of the interest and the interaction, and will see soldiers doing something other than searching homes at midnight.

Finding and analyzing information on the battlefield is a challenging mission. Unit commanders can make this transition easier by: developing priority information requirements for missions to support platoon collection plans — debrief all patrols after missions; appointing the company fire support officer or executive officer as the information officer and interact with the battalion S2 and S5; developing, at home station, STX for soldiers to interact with civilians on the battlefield to collect on assigned information requirements; and have the information officer develop scripts for civilians working in public utilities or other situations, with differing levels of cooperation or knowledge.

A tank company deploying to Iraq will return as a multifaceted organization capable of achieving any mission. Soldiers will perform at a high level, show great patience and discipline, and want to make a difference.

Although it is impossible to predict the future of warfare, perhaps Operation Iraqi Freedom will cause us to reassess our recent and not-so-recent past. While we always see ourselves as the gallant mounted warriors of large mechanized battlefields waiting for the next Kursk, to achieve our national objectives, we must see beyond a narrow view of who we are and what we do and instead focus on what we can and must do. From that perspective, our training and training priorities, while professionally planned and vigorously executed, are insufficient.

In nearly every war, the U.S. Army has been asked to destroy the enemy and win peace. Arresting a confrontational leader or financier, destroying an ambush position, or finding terrorists might win peace in Iraq. Discovering why a water-pumping station does not work or ensuring the efficient operation of a petroleum station in times of shortage might also win peace in Iraq.

We will return to home stations that are ever busier and have even less "precious white space" with which to train. We have a responsibility to train the best armored force in the world, but also to build "decathletes" capable of winning the peace to ensure the sacrifice made in this and future conflicts is not in vain.

Notes

[1] Greg Jaffe, "A Maverick's Plan to Revamp Army is Taking Shape," *Wall Street Journal*, 12 December 2003, p 1.

[2] My grandfather, an infantry officer veteran of five campaigns in Europe, once told me "high-intensity conflict" could be defined as "one guy with a gun shooting at *you*."

[3] Captain Bret Van Poppel, Captain John Paganini, and Captain Jeffrey A. Rynbrandt, "Close Quarters Marksmanship: Training for Conventional Infantry Units," *Infantry*, January-April 1999, p. 39.

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Brigade Reconnaissance Casualty Evacuation

by Major Kent Strader

Reconnaissance casualty evacuation is a combat operation.

Trends establish norms, whether positive or negative, which change very little during standard military operating conditions unless they receive command emphasis. At the National Training Center (NTC), as well as the Combat Maneuver Training Center (CMTC), trends show observer/controllers that brigade combat teams struggle to plan and execute reconnaissance casualty evacuation.

In a normal NTC or CMTC rotation, intelligence, surveillance, and reconnaissance (ISR) operations are not viewed as combined-arms operations. Instead, they are viewed as a subset of maneuver without the allocation of appropriate resources. ISR operations that are poorly resourced result in unnecessary casualties that frequently die from wounds sustained in contact. This article discusses tactics, techniques, and procedures (TTPs) that are battlefield operating system (BOS) driven and require both primary and secondary staff involvement in the war game, which is the building block to successful casualty evacuation (CASEVAC) of reconnaissance assets. This article also addresses some of the underlying causes, recommended fixes, and possible task organizations that can reverse these trends.

The typical rotational planning for ISR CASEVAC is often limited to the combat service support (CSS) rehearsal where combat resources are not allocated to mitigate risk to our collectors. Instead, CASEVAC should be addressed during either the combined arms rehearsal or the reconnaissance and surveillance (R&S) rehearsal. Frequently, the ISR plan is already in motion and resourcing at this late date is either unimaginable or committed without prior planning. Fully resourced planning for ISR casualty evacuation starts with a fundamental shift in brigade and battalion staff thinking. The staff, overwhelmed with planning back-to-back combat operations, may fail to resource the operation for success, because they do not appreciate the fact that reconnaissance "sets conditions."

To visualize the relevance and importance of ISR CASEVAC planning as a combat operation, we must discuss information management and infiltration. Task force and brigade combat team commanders who plan and prepare for reconnaissance CASEVAC reduce the acceptable risks to their most highly trained and irreplaceable soldiers.

Removing layers of communications infrastructure that restrain the responsive flow of information is the starting point for all successful ISR operations. Architecture must be well thought out, trained, and rehearsed at home station prior to arriving at the NTC. Fundamental elements used to assess whether intelligence information is stovepiped or receives broad dissemination include where the intelligence is gathered, who gathers it, who prioritizes it, who disseminates it, who determines when it is disseminated, and who needs it most. Having all of the collection headquarters on the brigade reconnaissance troop (BRT) commander's net or the brigade operations and intelligence net is a starting point. While the BRT commander may operate a troop internal net for command and control and support, the brigade operations and intelligence net is where all deconfliction, targeting, information dissemination, and raw intelligence is passed. The task force scout platoon leaders, tactical air controllers, the engineer reconnaissance team (ERT) platoon leader, and any other elements in front of the forward line of troops (FLOT) should be on the brigade operations and intelligence net. This may seem like a lot of collectors on the same net, but the value-added reality in shared information and deconfliction will prevent fratricide and unnecessary casualties. The brigade intelligence officer monitors this net and discusses intelligence collection requirements with the BRT commander. The task force scout platoon sergeant or ERT platoon sergeant passes informa-

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tion over the task force command net where timely intelligence is also needed and being analyzed.

Now that we have a common picture of the communications architecture, we must discuss using information to successfully infiltrate an enemy's position. Infiltration is an art that is only learned through repetitive action, but more importantly, requires coordination of combined-arms assets to ensure success. Too frequently, we see task force scouts follow the same infiltration lane that a dead BRT or Stryker vehicle traversed, falling victim to the same BMP or BRDM at the same location. This point is emphasized because this could have been alleviated by two simple principles: if a reconnaissance element dies at a given location, consider that infiltration lane blocked; and if you are going to exploit the same infiltration lane, then you may have to apply combined arms to break open an infiltration seam.

While this may sound like an oversimplification, there are some implied tasks here that merit further examination:

• Why did the task force scout not know that the BRT scout died at NV123456?

• Did he eavesdrop on the BRT platoon's net to ascertain what obstacles and enemy would influence his infiltration lane?

• Did the task force scout platoon leader annotate all of the enemy contacts on his map?

• Did he participate in the target handover between the BRT and Stryker crew who had last contact with the enemy scout?

• Did anyone at brigade record all the contacts, target them, and provide situational awareness to the brigade or task force collector as he attempted to negotiate the lane?

• Was infiltration executed sequentially as assets became available, or was it more like a desynchronized drive-to-your-death scenario as trends have repeatedly demonstrated?

• Was artillery responsive and readily available?

• Was the brigade fire support officer (FSO) actively involved in targeting, planning obscuration, illumination, and a critical fire zone (CFZ), and recommending fire support assets to ensure success?

• Were diversionary fires considered along parallel avenues of approach?

Artillerymen, in the absence of other guidance, want to achieve destruction on every target, massing guns and achieving decisive results, instead of applying just the right amount of ordnance. In the reconnaissance business, it is more important to push aside or obscure the observation of an enemy scout, rather than destroy him, unless a collector is pinned down and hope of extrication is slim. Application of fire support must be just enough, not too much! The sensor must communicate the desired effects to the shooter. At the same time, brigades must be prepared to create a penetration in the enemy's counterreconnaissance screen to allow all the scouts to penetrate an infiltration lane, move through sector, and come from behind the enemy to occupy their observation posts (OP).

"How do we best conduct reconnaissance CASEVAC given the role of the brigade intelligence collection manager (BICM), the application of fires, a contiguous communications architecture, and an emphasis on the importance of infiltration training? We must apply the appropriate task organization. Once again, the CASEVAC operation must be a combined-arms operation. Command and control of the operation must be at the appropriate level, elevated, as the situation requires."

How do we best conduct reconnaissance CASEVAC given the role of the brigade intelligence collection manager (BICM), the application of fires, a contiguous communications architecture, and an emphasis on the importance of infiltration training? We must apply the appropriate task organization. Once again, the CASEVAC operation must be a combined-arms operation. Command and control of the operation must be at the appropriate level, elevated, as the situation requires. Finally, the CASEVAC unit must be identified, trained, and rehearsed at home station prior to rotation or combat.

A task organization based on the unit's modified table of organization and equipment (MTOE) is recommended. However, redundancy is very important; therefore, aviation assets are essential and should be maintained under brigade control. Figure 1 details a light infantry CASEVAC unit task organization, including combat multipliers. The span of control is at the maximum, therefore, the company commander should be the most seasoned and experienced in the brigade. This task organization applies to a light infantry as well as an airborne or air assault MTOE. The heavy task force organization is represented in Figure 2.

The 101st Air Assault Division has been conducting deep CASEVAC operations for decades, and as such, has superior standard operating procedures outlined in a gold book that all brigade operations officers should use for structuring and executing brigade-level deep CASEVAC operations. Figure 3 provides a baseline organization for deep CASEVAC. You will immediately notice the task organization exceeds a normal rotation's combat power. Every brigade commander and S3 should weigh this option and consider the benefit to unit morale among its scouts, and whether this training method will be used in combat. The task and purpose of each of the subordinate elements is nested in the company task and purpose — to conduct CASEVAC of reconnaissance elements requires clearly defined es-

Light/Airborne/Air Assault Task Organization

Figure 1

Mechanized/Armor Task Organization
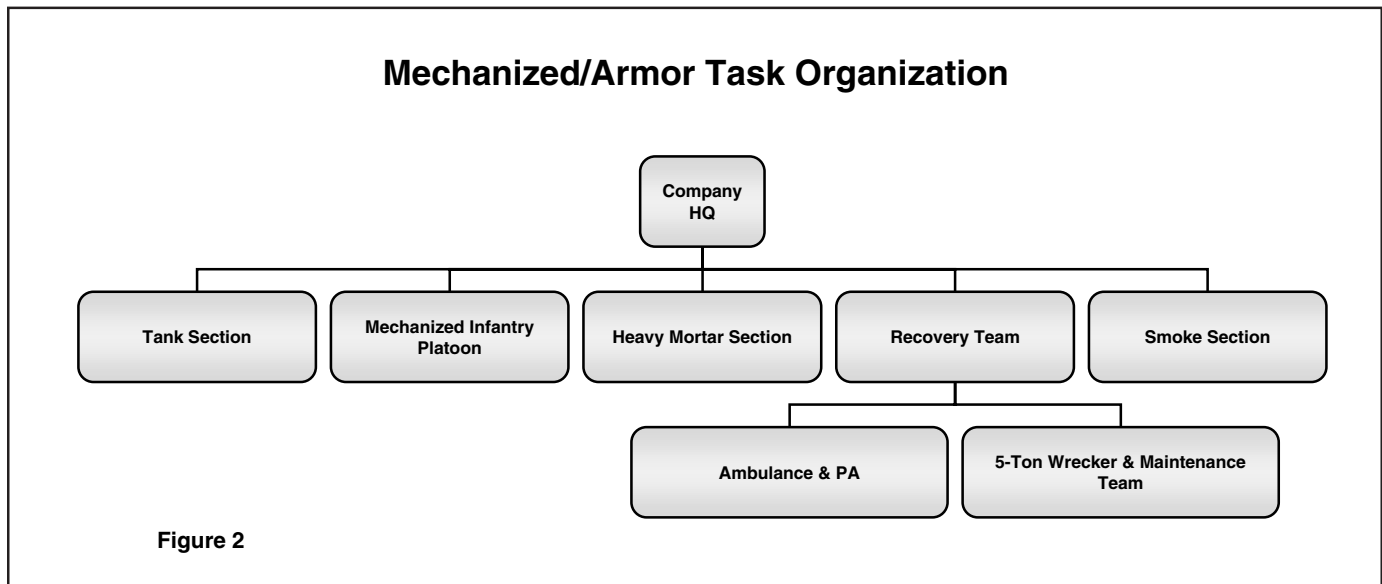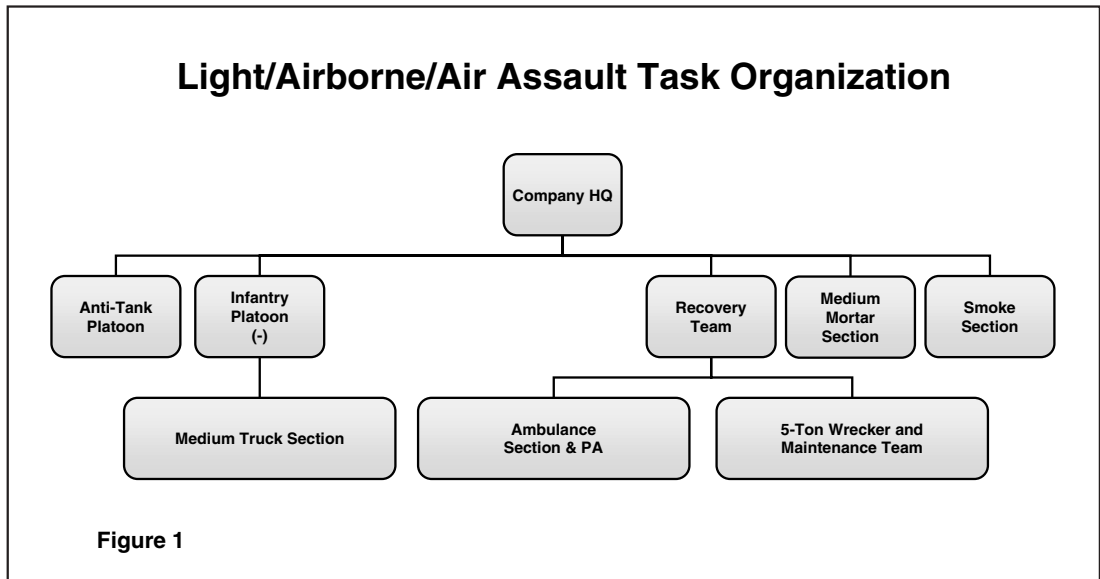
Figure 2

Brigade Deep CASEVAC Task Organization

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│ Attack  │ │ Scout    │ │ Lift     │            │ Recovery     │
│ Aviation│ │ Weapons  │ │ Platoon  │            │ Team         │
│ Section │ │ Team     │ │ (-)      │            └──────┬───────┘
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                      │ Infantry       │ │ Air Ambulance│ │ CH-47 Lift     │
                      │ Platoon (-)    │ │ Section & Doc│ │ Capable &      │
                      │ & ETAC         │ │              │ │ Maintenance    │
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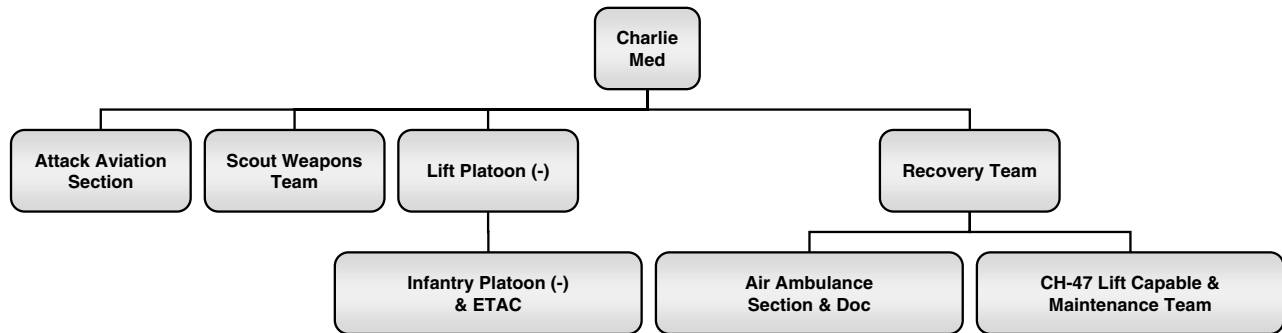
Figure 3

sential elements of friendly information (EEFI) that set minimum essential combat power for mission success.

Task and purpose may vary based on the course of action statement of the CASEVAC commander; however, the missions should still follow certain guidelines of employment. The company task and purpose is obvious; however, the subordinate element role deserves some explanation.

The antitank platoon, tank section, and scout weapons team screen the main effort to prevent the enemy from bringing direct fires onto the CASEVAC site and, on order, destroy any enemy elements to prevent disruption of the CASEVAC operation. The infantry platoon, mechanized infantry platoon, and the attack aviation section has the same task purpose — to secure the CASEVAC site to allow the main effort to triage, stabilize, and evacuate casualties. Here, the recovery team is the main effort; whereas, in a normal combat operation, we may have selected a combat element.

The intent is to protect, by whatever means necessary, the recovery team. The task and purpose of the mortar section, as well as the cannon battery or battalion, is to disrupt enemy attempts to influence the recovery operation and, on order, obscure the CASEVAC site. They may also be called on to provide illumination as the situation dictates. The smoke section is a very vital part of the operation and, as such, should be provided maximum protection, second only to the recovery team. Their task and purpose is to screen the recovery team from enemy observation to prevent accurate direct and indirect fires from being placed on the CASEVAC operation. If the tanks or antitank trucks are leading, then the smokers should probably be behind them to obscure the remainder of the element. The main effort is obviously the recovery team. I have weighted the recovery team with not only ambulances and a physicians assistant, but also a wrecker or a CH-47 with a maintenance team to recover the vehicle. The situation is as follows:

The platoon sergeant cannot recover the scout in contact and the scout has radioed that he has casualties and is pinned down. The Alpha Company commander is on alert for movement during the scout infiltration. His element is gathered in an assembly area near the FLOT in covered and concealed terrain. A call is initiated by the scout platoon sergeant for CASEVAC on the task force administrative and logistics net. Meanwhile, the brigade is monitoring the operation because the alert is also passed over the brigade operations and intelligence net. The task force S3 will immediately assess the situation and alert the company

commander in the form of a fragmentary order on the battalion command net. In addition, the task force S2 will give the company commander an intelligence update on all reported enemy contacts within his area of operations and area of interest. The company commander who was present at the scout platoon operations order or was briefed on the scout infiltration plan by the task force S3, conducts hasty mission planning and then briefs his leaders.

The screening force is the first to move, using their thermal imaging and overlapping sectors of observation to identify enemy counterreconnaissance elements during movement. They are followed by the smokers, who allow the screening element to move at least one terrain feature ahead of the security and recovery teams or outside of direct fire weapons range of an enemy BMP. The smokers need only to create a haze, unless the operation is conducted during daylight, then a smoke blanket is more applicable. The lead section of the security force is the next to move with the recovery team sandwiched between. The mortars follow, with two-thirds of their range forward of the screening force, which will require the commander to conduct a good terrain analysis. Additionally, preparatory fires should be used on the enemy's last known location, if available. The element is now free to move forward to the CASEVAC site. The screening force must clear the CASEVAC site of enemy contact, preferably by talking directly to the scout, if he is able to communicate.

Although a burning vehicle (or a combat vehicle kill indicator light) may be clearly visible, never go to the blinking light! Instead, the screening force should clear the area around the scout looking for the enemy able to affect the recovery site, and not be concerned with buddy aid or getting a combat lifesaver to the site.

Once the screening force has destroyed or cleared the terrain around the CASEVAC site, the smokers should move up and blanket the area while the infantry move up and secure the site. It is vital that casualties are removed from the vehicle as quickly as possible and then moved outside of enemy artillery fires that may target the disabled vehicle, unless the casualty cannot be moved. The mortars should remain within indirect fire range of the main body to provide responsive fires, should the screening or securing force identify a threat to the recovery site. Once the recovery operation is complete, the order of movement should be smokers, securing force, recovery team, mortars, and screening force to cover the withdrawal.

If the task force recovery team is pinned down, a reconnaissance asset is outside friendly artillery range, or the collector is behind the enemy's obstacles and requires a company breach to reach him, then brigade-level aviation assets must be employed. Planning such an operation is much like planning a division-level joint air attack team mission. Suppression of enemy air defense (SEAD) must be planned for known and suspected enemy air defense and enemy concentrations, emergency close-air support must be requested through division, a critical fire zone must be established over the CASEVAC site, the downed aircraft recovery team must be alerted, and the forward support battalion's medical company must be alert to prepare for receiving casualties.

Inserting the brigade CASEVAC element is similar to the task force. However, smoke will not aid aviation assets; therefore, SEAD is the only mechanism for suppression as they move forward to recover the casualties. The decision to recover the vehicle is a critical one and should be measured by predetermined command-directed decision points, such as the sensitivity of the equipment on the vehicle or whether the capture of the vehicle will be a propaganda victory for the enemy.

The scout weapons team must clear at least one terrain feature ahead of the recovery team. The attack section must secure the recovery team en route to the recovery point and secure the recovery site. The lift section must insert the infantry on or near the recovery site to secure the area, then take up station on a predetermined restricted operating zone that is secure from enemy air defense and direct fire, and will not impact close air support employment. Once the area is secured, medical evacuation and recovery assets can evacuate the casualties, and situation dependent, the vehicle, while the scout weapons team covers the main effort's withdrawal and the attack aviation section secures the recovery team. The recovery of the security force is a synchronization issue, which depends on the operation being conducted in contact.

The operation described above appears a bit resource intensive for one scout team or section, but it is necessary to look at the effect that permanent loss will have on the morale and combat effectiveness of the task force or brigade. We must be reminded of how long it takes to train a scout team to reach their maximum effectiveness then have to replace that team. It takes a full year to train a 19D scout on individual tasks, as well as a collective member of a squad and section. Can a replacement crew from a theater replacement depot be expected to operate as effectively as the scout you trained and evaluated, the one who had the trust of his platoon members, the one who had the experience of operating in your area of operations, and the one who knew the platoon or troop standard operating procedures? Are we prepared to tell mothers and wives we could not recover their son or husband because it would have risked too many other lives to bring him back? Can we afford to continue training at our combat training centers, relying on change of mission to recover our scouts? The resources are worth it, the training time is worth it, and the application of precious combat power is worth it — reconnaissance sets conditions.

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Logistics Transformation

by Captain Matthew J. Reiter

Implementing a logistics rhythm that keeps pace with future warfare is the key element that will sustain modular unit battalion, squadron, and brigade elements. Unit interchangeability will become more prevalent in the Army as we execute the modular unit fighting concept introduced by Chief of Staff, Army, General Schoomaker.

Task Force 3d Squadron, 17th Cavalry Regiment (3-17), is the aviation unit attached to 3d Brigade, 2d Infantry Division (Stryker), and on a small scale, is already functioning much like a modular unit in a combat environment. To conform to the new vision of the Army, overhauling the systems that currently track and manage logistics requirements needs to be reevaluated and implemented for the success of future operations. The logistics challenges that Task Force 3-17 face offer a valuable glimpse into the future of warfare and support relationships for our Army.

The Plug and Play Logistician

Tailoring Army units to ever-changing missions does constitute a rational pro-gression toward an asymmetrical battle environment. However, lack of habitual relationships within each unit of action's logistics pipeline can disrupt the unit/supply relationship between the user and supplier. For instance, a support element, such as the Stryker supplier, has no history of supporting an aviation unit, such as the air cavalry unit, so the commodity managers at the supplier level for bulk fuel, ammunition, and petroleum, oil, and lubricants (POL) products must be flexible enough to adapt to an aviation unit's specific user requirements.

A specific hurdle in the logistics pipeline is processing and handling fuel to meet stringent aviation guidelines. Aviation fuel is processed differently than fuel for the M1-series tanks, Strykers, and other indigenous ground vehicles. The lack of habitual support relationships has caused unnecessary consternation between the air cavalry user and Stryker supplier. This confusion could have been avoided had the supplier been familiar with the specific standards of supplying aviation-grade fuel; but the supplier's prior missions did not require him to have an understanding of aviation fuel requirements. If a supplier lacks vital information regarding a user's particular needs, the main combat platform of that unit is in danger of being rendered useless and, therefore, unable to achieve the very mission it is in place to perform.

Armor platoon members can relate to logistics problems when attached to an infantry or mechanized task force not familiar with supporting armor units. To resupply one tank platoon, it requires the armor battalion's support platoon to carry honeycombs filled with 120mm rounds, M978 heavy expanded mobility tactical trucks (HEMTTs) filled with 2,400 gallons of fuel, and low-boy trailers to carry the mine roller. Ordering something as simple as oil for the turbine engine can become a large problem in the future. For instance, oil could arrive in one-quart cans, not in the five-gallon containers required to sustain the POL-demanding tanks.

Getting There

Unit movement prior to deployment will also be an issue with the modular fight-

ing system. Army units of action could potentially be plucked from anywhere off the face of the map, which would require large sealift assets. For example, planning for movement and communications will become challenging for units deploying Strykers from Alaska, OH-58D Kiowa Warrior helicopters from Hawaii, a corps support group from Georgia, and a military police unit from Michigan, all headed to the same location.

Historically, a brigade would prepare equipment for movement by rail to the seaport of debarkation (SPOD). At the SPOD, the brigade's equipment would be loaded onto several ships, and the ships would be launched simultaneously to a far-off land. The modular fighting system could make this deployment process even more cumbersome. There is potential to stress sealift capability, rather than alleviate sealift requirements. Instead of making smaller, more mobile forces, the potential is there to create multiple SPODs and require a greater number of ships to service each unit.

Task Force 3-17 Cavalry is located at Fort Drum, New York, and 3d Battalion, 2d Infantry Division, is located at Fort Lewis, Washington, which required coordinating across the continental United States to successfully deploy both units. The mission was accomplished in this case, but with multiple units of action simultaneously deploying, there is the potential to require more sealift assets, rather than less, due to the noncontiguous nature of the units of action home stations.

A lack of habitual relationships could adversely effect combat operations, or stability operations and support operations in the future. To combat these logistics shortcomings, leaders must identify units of action early (8 to 12 months) in the planning process and begin training at the National and Joint Readiness Training Centers. Consolidating units of action for movement after a major training exercise at a common SPOD will decrease the logistics assets required for onward movement, and units will have the added benefit of arriving at the same time, in the same location, prepared to begin their missions.

Classes of Supply

Once the unit of action is assembled, and training and coordination begins, the logisticians will be very busy. I cannot over encourage the squadron and battalion S4s to consolidate the numerous amounts of supplies at the earliest possible time. Based on current deployments in support

of Operation Iraqi Freedom, and for future modular fighting units to be successful, the following items should have special focus:

Class I: Always maintain one case of meals, ready to eat (MRE) per soldier. Kellogg, Brown, and Root (KBR) is set up in Iraq, but a unit must be prepared if the food supply is interrupted. Securing bottled water is a huge undertaking; one can safely plan consumption in the middle of summer to be five each, 1.5-liter bottles per soldier per day. Plan to stockpile necessary amounts of water when a unit is in theater.

Class II and IX: Replacement parts flow will be slow at best. If the motor pool has the ability to bring a large authorized stockage list (ASL) and prescribed load list (PLL), do so. Also be prepared to dust off your battle damage assessment and repair (BDAR) manuals. Organizational mechanics will get to test their skills like never before. A huge help to the battalion-level unit of action would be a portable satellite system to help blast parts orders to your higher support unit. Company supply sergeants need to bring extra desert camouflage uniforms (DCUs). Also bring unit specific clothing, such as Nomex coveralls and mechanic coveralls. Your unit will go through many of these items and

the capacity to direct exchange uniform items is not readily available.

Class III: Fuel flows freely for coalition forces. But packaged products take time to order. Make a comprehensive list of your POL requirements for a 30-day period and submit to your higher support unit, before you deploy, so they have time to stock your unit's requirements. A good planning factor is a 3- or 4-day supply of the unit basic load (UBL) for each vehicle.

Class IV: Wood is in short supply in Iraq. Once you get to your forward operating base, you may need to build structures, battle positions, or help the local community. All types of wood, to include plywood, 2 x 4s, and 4 x 4s, are in high demand. Large quantities of wire and pickets will be needed for security. Make sure you bring your unit's UBL and then pack even more. This will help with the security while you wait on your shipment of bulk Class IV from your support unit.

Class V: Ammunition requirements need to be determined by the Department of Defense Damage Assessment Center (DOD-DAC) before deployment. This will allow the supply unit to organize and request specific ammunition. For example, a support unit may not be familiar with

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the large amount of 7.62mm linked ammunition a tank battalion requires. Again, the S4 needs to consolidate all ammunition requirements to pass on to the higher supply unit prior to deployment.

Class VI: Believe it or not, the Army and Air Force Exchange Service (AAFES) isn't always there. Sundry packs do not normally make it out of Kuwait. Soldiers should bring 45 days of personal hygiene items when they deploy. A good tech-

nique is to prepare a package and have a loved one mail it when needed.

Class VII: Major end items can be a problem to procure once deployed. Unless your higher headquarters keeps extra tanks, Bradleys, or Strykers on hand, do not count on getting a replacement end item any time soon. The best plan of action is to identify the process for requesting major end items and make contact with those agencies early in the de-

ployment. The worst time to figure out how to order combat essential equipment is right after it is destroyed.

Class VIII: Medics will contact the local combat service hospital to get acquainted with ordering procedures. Deploy with the requisite amount of medication. S4s will need to procure refrigerators (110v and 220v) prior to deployment for some medications. Human remains bags are a Class II item. You will need to have these on hand in convoys and at your forward operating bases.

The nature of this style of warfare will cause logisticians to project requirements like never before. Plan early and update your staff estimates often to keep the unit of action in the fight.

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The Highlander Code: Be a Soldier

by Captain Mike Jason

As a new commander, write down everything you think is important. You can call it whatever you like, from "command philosophy" to "important stuff," but your soldiers need to know what is important to you. Although you might believe that this is just management stuff and is unimportant, your soldiers expect you to be clear, and if you are going to be a good commander, your first step is communicating your intent in a clear, understandable fashion.

As most new commanders, you need a command philosophy, perhaps something simple that will fit on one card — simple phrases that could be used as talking points when speaking with your unit. As a junior leader, there are dozens of great one-liners that you will receive as advice. Many come from commanders and mentors, many more from good noncommissioned officers, and some from historical resources. Soldiers are not likely to read a 3-page prose paper. So, on the eve of taking command of Headquarters and Headquarters Company (HHC), 1st Battalion, 35th Armor Regiment, the "Highlanders," I wrote the Highlander Code. Each soldier would soon receive a 3x5 card with the code, and every new soldier would sit down with me and discuss each point.

The code not only offers a command philosophy, but also sets the foundation for a company culture — a culture that reflects excellence and assertiveness in every action taken. The code is simple, straightforward, and unshakeable, working very similar to the Roger's rules in the *Ranger Handbook*.

Below is the Highlander Code. I have added some suggestions on how to share it with new soldiers:

Rule 1. If they ask for it, we never say, "no." As an HHC, our mission was to support the battalion. Saying, "no" means you are not doing your mission or avoiding your responsibility. This is vital for setting the line-units-first priority.

Rule 2. If they ask for it, we have already failed. Again, try to focus logistics soldiers to anticipate and be one step ahead of the trigger pullers.

Recognize that you have volunteered to serve your country. Try to impart the notion that the U.S. Army is a volunteer force. They made a conscious decision as adults. This is targeted at breaking the "getting screwed" malaise.

Everybody fights, nobody quits.[1] It's a great line from a great book. Use a little speech about how today's fight may be a company run or cleaning latrines. Whatever it is, you fight and do not quit. It also alludes to the "every Marine is a rifleman," which encourages admin soldiers to identify themselves as warriors.

Good units do routine tasks routinely. Lots of units are capable of surging and "making it happen" in a crisis. The difficult tasks are the routine things such as pay, guard duty, physical training, and good counseling. Focus on transparent admin systems that take care of soldiers without losing them in bureaucracy. A competent training room is an initial priority. If a soldier has a pay/family problem, it becomes a top priority of the day.

At all times, you must be able to "ride, shoot straight, and speak the truth." The cavalry mindset has long been an inspiration due to the characteristics of such units, namely autonomy, reliance, élan, courage, and a unique brand of self-

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confidence. Soldiers should know that this is the old forerunner to "move-shoot-communicate," but is more vital and more basic. Prepare a pitch on good physical training, weapons, and maintenance, but above all, integrity.

It's either attitude or ignorance. When soldiers or leaders make mistakes, the responsibility can go two ways: "If it's ignorance of the standard, then it is my fault, and I will train and teach you. If you know the standard and blow it off, then it's an attitude problem, and you'll fix it (with my help)." As time passes, re-

"Leaders usually explain tasks to their soldiers; however, sometimes they just have to trust their leaders (of course, that is earned trust) and execute regardless. This sets up a two-way implied contract: we do not waste soldiers' time and efforts and they follow leaders even when the mission has not been thoroughly explained."

duce emphasis on this portion of the code. You may not need it at all, unless your unit has a discipline problem.

"**Don't forget nothing.**"[2] When briefing new soldiers, offer a 4-day pass if they can tell you the origin of this expression. Sadly, I only gave out one. Apply this to everything, such as ensuring alarm clocks are set, preventive precombat checks are scheduled, soldiers' bills are paid, and parent-teacher conferences are attended. In this profession, we do not have the luxury to forget; when we forget something in this job, people get killed.

Soldiers only do well what leaders check. So check everything! Warn good senior noncommissioned officers (NCOs) not to feel diminished if they are spot-checked. A commander should make the NCO aware of how much he cares and of how important it is for the NCO and commander to share similar priorities. This is clearly aimed at cutting through the dreaded "NCO and officer business" myth.

Standing priorities of work: horse-saddle-man. Old cavalry mottos are great! Do not even ask if the platoon can be dismissed until vehicles, equipment, and soldiers have been taken of. This goes for chow, sleep, and even garrison days. Priorities for leaders are actually horse-saddle-men-self.

Discipline is not an option. To paraphrase the words of Napoleon, "an Army without discipline is just a mob. It is the core of a military unit."

There is only one standard. This one is self-explanatory and you can use this line from time to time to suit subjective leadership challenges you are trying to fix in your unit. It is vague in the sense that it can be adapted to current issues or trends in your company.

There is no room for harassment or discrimination, nuf' said. Be adamant that soldiers are aware that this covers families as well — I was the equal opportunity (EO) officer for my soldiers' wives and children. We all need a positive environment in which to work and play.

Sometimes there is no "why," it's just your duty or the right thing to do. The emphasis is on *duty*. Leaders usually explain tasks to their soldiers; however, sometimes they just have to trust their leaders (of course, that is earned trust) and execute regardless. This sets up a two-way implied contract: we do not waste soldiers' time and efforts and they follow leaders even when the mission has not been thoroughly explained.

Be a man. Take care of yourself, your family, your fellow soldiers, and your equipment — do your duty. This is the corner stone to our company's leadership climate: personal responsibility and accountability. Three months after I took command, the junior enlisted soldiers approached me and asked to change the company motto to "Be a Man!" That was a great day in command.

If you have male and female soldiers, you will of course have to change the "man." When discussing this portion of the code with your soldiers, add what kind of people you consider men, such as John Wayne, then add that *men* pay their bills, *men* do not beat their wives, *men* know how to drink within their limits, and *men* do not need to be told to shave and be in the correct uniform. Be blunt and tell soldiers they will be held personally ac-

countable for not taking care of themselves. If they cannot manage this, they are children, and "I don't give guns to children; I need *men* to fight."

During my first article 15, a known troublemaker stepped in front of my desk and before I could speak, he volunteered, "Sir, I failed. I gotta be a man. I did it and I am ready to execute like a *man* whatever punishment you give me." That soldier had already been busted to E1 and was on the short list for an administrative discharge. He is now a sergeant, serving in Operation Iraqi Freedom — another great day in command.

After 19 months in command, including a deployment, this code really worked. Together, HHC, a 300-man company, led the brigade in retention, had zero DUIs, drug incidents, spousal or domestic problems, absences without leave, and EO/harassment issues. With the announcement of the Chief of Staff, Army's new Soldier Creed, the timing for simple leadership codes is perfect.

I do not for one second pretend to have invented anything new. This is commonsense stuff, borrowed from numerous places. It works in a tank company, an HHC, and with staff soldiers when I was an aide.[3]

CPT Mike Jason is currently a student at Georgetown University, enrolled in the Joint Chiefs of Staff/Office of the Secretary of Defense intern program. He received a B.S. from the United States Military Academy and is completing his M.S. at Georgetown University. His military education includes Armor Officer Basic, Armor Captains Career Course, Airborne School, and Combined Arms and Services Staff School. His has served in various command and staff positions, including aide de camp, G6, U.S. Army NATO Southern Region, Italy; commander, Headquarters and Headquarters Company (HHC), 1st Battalion, 35th (1-35) Armor Regiment, 1st Armored Division, Baumholder, Germany and Kosovo; commander, B Company, 1-35 Armor, Baumholder; XO, B Company and HHC, 2d Battalion, 12th (2-12) Cavalry Regiment, Fort Hood, TX; and platoon leader, 2d Platoon, B Company, 2-12 Cavalry, Fort Hood.

"At all times, you must be able to "ride, shoot straight, and speak the truth." The cavalry mindset has long been an inspiration due to the characteristics of such units, namely autonomy, reliance, élan, courage, and a unique brand of self-confidence. Soldiers should know that this is the old forerunner to "move-shoot-communicate," but is more vital and more basic. Prepare a pitch on good physical training, weapons, and maintenance, but above all, integrity."

With two combined arms battalions, the BCT has a total of only four infantry and four armor companies. Once any one company is rendered ineffective, its battalion loses cohesion and the BCT is unbalanced. Task organizing a replacement company is one remedy, rotating in a fresh replacement battalion while reconstituting the original is another. Both are simple for a home-stationed division that has deployed one or even two brigades into theater. In fact, the division can routinely rotate maneuver battalions in and out of the battle area and even in and out of theater. But this is impossible for a "modular" (fixed) BCT. Without task organization, the entire BCT must remain at reduced effectiveness or be withdrawn for reconstitution.

"I want to know if he can turn his three brigades into five maneuver brigades, and if I provide the right equipment, can they be one and a half more lethal than before…This is just a question, but I believe with the right enablers it can be done." If Colonel Benson uses this quote from General Schoomaker's speech accurately, then the Chief of Staff, Army provided the answer he expected, and is now sure to get it. Colonel Benson expresses concern that, "Far too many people adhere to the notion that the Army cannot transform from within, as we are too hide-bound, too wedded to orthodoxy." I'm sorry to say, but that about sums it up. Army staffs have been handed the answer to prepare and are simply buffing and burnishing minor details. There is no serious analysis of alternatives, much less deep thought. [History buffs should compare this guidance with MG Leslie McNair's guidance for and subsequent testing of tank destroyer doctrine during the "Louisiana Maneuvers" of 1941].

What is missing here is a clear understanding of *why* we need these numerous small units and why are they supposedly better than divisions. A separate brigade is obviously easier to deploy than a division, but why not deploy a tailored divisional brigade or task force? Perhaps two or three such BCTs should be stood up, but do we really need *all* divisions and brigades to be organized this way?

So, what is the answer? Quit reorganizing and instead determine the actual *problem* to be resolved, and then look for solutions. Just because the phased deployment of some unit did not go according to plan is no reason to reshuffle the entire Army's force structure.

But if you *must* reorganize, if you absolutely insist on it, then *expand* the size of and *increase* the number of companies and battalions within each brigade. Expand the size of each BCT, not the number of BCTs within a division.

That is why the armored cavalry regiment is so effective. It has a very flat organization. Numerically, each of its three cavalry squadrons has the equivalent of a tank battalion, a mechanized battalion, and an artillery battery. The regiment can be augmented with tank, mechanized, and engineer battalions without any expansion of organizational overhead.

Heck with it! Here's the *answer* — *eliminate* the division echelon altogether and replace each heavy division with three separate ACRs. Instead of one commanding general (O-8), two

deputies (O-7), and six or seven brigade commanders (O-6), you need only three regimental commanders (O-6), and you get increased combat power to boot.

Do the analysis! Count the personnel, count the systems, and count the organizational overhead. Check doctrine, check history, and figure logistics. Fewer but larger units (flatter organizations) are better.

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

A Close Combat Badge Would Recognize All Who Face Fire

Dear *ARMOR*,

I have to add my voice to the debate on whether or not we should have an armor combat badge. My vote is "no," because we are now and likely will always be fighting on a noncontiguous battlefield. Our Chief of Staff, Army, has rightly called on all of us to be and remain warriors. With that in mind, what we really need, in my opinion, is a close combat badge for any soldier of any military occupational specialty (MOS) who has engaged with the enemy on the ground.

Here is a portion of a note I received from an officer who worked for me and is now the XO of a military intelligence (MI) battalion in Iraq: "Sir, I tell you today was one of those days you don't forget. We sent soldiers down a road in harm's way on a high-risk mission that had to get done. That does something to you to look men in the eyes and tell them to run a gauntlet of enemy fire to get supplies to folks who are black on food, water, and fuel. But it wasn't the fact that we could not get anyone to go, or that guys were bitching. It was the fact that we had to hold guys back from getting into the trucks to move out and get the job done that hit me. I had guys in tears because I had to pull them off the convoy. We are definitely in a fight, but in all honesty, I don't think the bad guys understand what we are made of and they are about to find out the hard way." MI troopers in the attack! At one time this would be the punch line of a joke, but now it is a reality.

We cannot be exclusionary in our quest for recognition for our armor and cavalry troopers who are in harm's way against a cunning foe. All of our soldiers are in the fight, therefore, we have to come to grips with recognizing anyone who faces fire regularly. We can work out the details on the level of command, duration of action, and so on. This is what armor/cavalry should be leading the charge on — a close combat badge that will recognize everyone who faces fire. The combat infantryman and combat medical badge have an honored place in our tradition of recognizing people who do war's dirty work.

Given the reality of noncontiguous battlefields, improvised explosive devices, unconventional war, and the need to sustain morale in the face of these challenges, as well a thinking enemy, everyone must be a professional soldier and everyone who faces fire ought to have the opportunity to be recognized in some tangible form. If authorizing a badge will allow its wearer to stand out as one who faced fire,

we ought to take this step. All of our soldiers are taking the fight to the enemy.

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

Experience in Iraq Has Changed View on Need for Tanker's Badge

Dear *ARMOR*,

First off, I would like to say that I have always been against the proposed combat tanker's badge. Having been an armor crewman and master gunner for the past 18 years, I have not felt a need to advertise to the world who I am or where I have been (isn't that what ribbons are for?), besides, we already have enough bells and whistles.

Even though there have been some very good arguments, my views were steadfast. However, I have recently discovered that I may have been wrong.

My platoon is currently serving in Iraq and is doing so without the protection of armor in a very dangerous place. In reality, I lead what is now a small infantry platoon, whose biggest gun is only 7.62mm, which receives and executes the same missions that our other two platoons in the company execute (we are attached to an infantry company). On a normal day, we go from conducting raids to dismounted night patrols and conducting cordon and search operations, and, of course, ducking during daily mortar rocket-propelled grenade and improvised explosive device attacks. All of this, is done either on foot or from a HMMWV, which is fine with the platoon — we have received some outstanding training and we understand facing ground warfare is different over here because you cannot get a sniper out of a crowd with an M1A2 SEP.

What has changed my mind regarding the combat tanker's badge is the look on my soldiers' faces when they watch their infantry partners receive their combat infantryman badges, which was subsequently rubbed in the faces of armor soldiers, but was handled professionally.

They do not understand how they can be placed in the same dangers and stressors as their counterparts (including receiving the Purple Heart), and still not receive any recognition for their service while someone who doesn't even leave the patrol base receives an award. I hate to think that 10 years from now soldiers will be judged by the badges and tabs they wear and thought to have done nothing but sit in a rear area and stare at their tanks during Operation Iraqi Freedom.

As I prepare to retire in a couple of years, I look back and see all the great things that our 19-series guys have done (and the scouts as well). From missions in Bosnia, Somalia, and Haiti to some very dangerous times in Baghdad, our armor force has shown that it can take any mission and conduct it as well, if not better, than the next guy. It is time that armor soldiers and future Army leaders gets the recognition they deserve.

SFC WILLIAM FERGUSON
U.S. Army, Baghdad, Iraq

REVIEWS

Counterinsurgency Lessons From Malaya and Vietnam: Learning to Eat Soup With a Knife by Major John Nagl, Praeger Publishers, Westport, CT, 2002, 272 pp., $81.95 (hardback)

The next war and how it will be fought are primary concerns today as the U.S. Army finds itself engaged in counterinsurgency operations in Iraq and Afghanistan while in the midst of its transformation to a more mobile force. Of utmost concern is how to combat the guerrilla forces in Iraq — well-resourced insurgents that strike and then disappear into the population.

Major John Nagl addresses the problems of fighting a guerrilla force with a conventional army in *Counterinsurgency Lessons From Malaya and Vietnam*. In his study, Nagl looks at the British army's experience in Malaya in the 1950s and America's experience in Vietnam. For both of these conflicts, Nagl provides an in-depth analysis of the military institutions and how they adapted to effectively combat an unconventional enemy.

The British army of the 1950s was a conventional force fresh from the battlefields of World War II. In the early days of the conflict, it was a force unsuited for the task of trying to subdue the communist guerrillas of Malaya, wasting manpower in huge battalion sweeps of the jungle. Yet its organizational culture allowed it to evolve over time. A history of colonial policing and small-unit actions, along with a receptive command climate, permitted the British army to adapt to its environment and eventually destroy the communist insurgents.

The author contrasts this counterinsurgency success with the performance of the U.S. Army during Vietnam. Solely concerned with the next big conventional war and misusing lessons from Korea, the Americans failed to adapt to their environment, preferring to use indiscriminate firepower as the solution, and viewing the eventual North Vietnamese invasion rather than the Viet Cong forces within South Vietnam as the enemy. Refusing to learn lessons from the British and their junior leaders in the field, the U.S. Army failed to learn as an organization and eventually lost the conflict.

Impeccably researched and well written, Nagl has chosen a subject critical to today's Army, namely, how to defeat an insurgent enemy. He contends that to succeed in future "savage wars of peace," the Army must adapt as an organization and step away from the preoccupation with solely waging conventional warfare against other nation states. Overall, this is a great book and a must read.

ELIAS OTOSHI
CPT, U.S. Army

JARHEAD: A Marine's Chronicle of the Gulf War and Other Battles by Anthony Swofford, Scribner, New York, 2003, 260 pp., $24.00 (hardcover)

The dust jacket on the back of this book contains paeans of praise, saying that this book

will "elbow for room on that short shelf of American war classics that includes Phillip Caputo's *Rumor of War*." Malarkey — this book has no business being near Caputo's *Rumor of War*, Webb's *Fields of Fire*, Herr's *Dispatches*, or even Westmoreland's *A Soldier Reports*. I read this book because my sister sent it to me. Don't bother.

Swofford is indulging in what some folks would call a catharsis. He is purging his soul. He talks about how hard it was to become a Marine scout/sniper. I'm sure it is; I remember attending Amphibious Warfare School and a demonstration by the truly expert marksmen from the Marines' Sniper School. Those were impressive warriors. This book is more about self, self-pity, and a dysfunctional outfit.

There are flashes of very good prose in this book. Swofford will likely become a good writer; indeed, he taught at universities, received a fellowship, and is even now writing a novel. The prose is terse and well constructed. As far as an example of the writer's craft, this is a good book, with an interesting style. Still, when I read this book, I rather felt as if I was overhearing a confession, rather than learning something about young men going to war.

The case could be made that I am what I am, an old, balding, middle-aged colonel who is a long way from being a young man going through war. That would be admittedly correct, but it does not disguise the fact, in my view, that this book is more about how not to prepare young men for war and the results of absent leaders.

Swofford's description of his scout/sniper platoon brought to mind lone wolves; he was clearly influenced by Oliver Stone's movie *Platoon*. I know that there are weak platoon leaders/commanders and independent soldiers and Marines, but I have a difficult time believing Swofford's platoon was as dysfunctional as he portrays.

Once, in the desert of Saudi Arabia, he describes becoming so despondent that he loads and locks his M16 and places the muzzle flash in his mouth. One of his platoon mates stumbles on him and talks him out of doing something really stupid. This brought to mind descriptions of "le cafard" or "the bug" of boredom faced by French Legionnaires. He also describes another incident wherein he places a loaded weapon against the head of an annoying fellow Marine. If this outfit had a halfway competent officer or noncommissioned officer, Swofford would have been in a padded cell away from weapons or facing courts-martial.

There are also the too-familiar stories of how difficult it is to adjust, once warrior heroes return from the fray. The narrative of Swofford's career and life even after he leaves the corps, or "the suck," as he refers to the Marine Corps, is peppered with drugs, drinking, and fighting.

I am not naïve enough to think that units, such as the 1st Marine Division and the 3d Infantry Division, faced tough times with light hearts and unburdened spirits during Iraqi Freedom, just as Desert Storm units faced tough chal-

lenges during Swofford's time. I do not look at the world with rose-colored glasses; again, I have served too long in the service for that self-deception. Swofford describes not a well-trained unit, but hubris bumping into uncertainty with a large dose of undisciplined bravura.

I recommend this book to others only if they wanted to read a book that would help them identify indicators of a rogue outfit; other than that, give this book a pass. It is assuredly *not* as good as the dust jacket would indicate.

KEVIN BENSON
COL, U.S. Army

Tannenberg 1914 by John Sweetman, Cassell, Sterling Publishing, Inc., New York, 2002, 240 pp., $21.95 (hardbound)

The Battle of Tannenberg, which was the opening conflict on the Eastern Front, was quite possibly one of the most crucial battles of World War I. Pre-war agreements with the French committed the Russians to military operations against Germany 15 days after the initiation of hostilities. Launching a two-pronged invasion of East Prussia, the Russians had numerical superiority, but the German plan (executed by the combined team of von Hindenburg, who was called out of retirement at the age of 66, and Ludendorff), as well as Russian tactical errors, resulted in a massive Russian defeat with over 30,000 casualties and an estimated 95,000 captured, as opposed to 20,000 German casualties. The battle ended with the suicide of Samsonov (the Russian commander), which contributed to the eventual promotions of von Hindenburg to chief of staff, and Ludendorff to quartermaster general, and shocked Russia's allies, who were relying on the strength of Russia to keep pressure off the Western Front.

In *Tannenberg 1914*, John Sweetman gives us an in-depth and well-crafted historical review of a pivotal battle. Recounting the whole of the Russian campaign in East Prussia, Sweetman's book comes across as an authoritative, finely researched, and methodically constructed historical account. He has selected an excellent series of photographs, as well as supporting maps and illustrations to sustain his research. On an interesting historical note, Sweetman prefaces his study of the battle with an account of the defeat of the Teutonic League by the Poles near Tannenberg in 1410. This conflict four centuries earlier weighed heavily on the Germans, who viewed their defeat of the Russians in 1914 as a just revenge.

I found *Tannenberg 1914* easy to read, well documented and a recommended addition to any professional military library. I have a personal interest in World War I as my paternal grandfather fought in France at Verdun with the 29th Infantry Division, receiving the Distinguished Service Cross and French Medaille Militaire for his actions, so this was an easy and interesting read for me. Aficionados of modern warfare and warfare in the Industrial Age will find the book interesting to compare

with other historical texts on the Great War — contrasting the Eastern vs. Western Fronts, or reviewing the composition and employment of forces early in the conflict, which were vastly different by 1918. Tannenberg also saw some of the first uses of aircraft in combat, and the accounts of the German and Russian use of cavalry forces will appeal to the student of mounted warfare.

STEVE PATARCITY
LTC, U.S. Army

The Eve of Destruction: The Untold Story of the Yom Kippur War by Howard Blum, HarperCollins Publishers, New York, 2003, 368 pp., $25.95

This year marks the 30th anniversary of the 1973 Arab-Israeli War and award-winning *New York Times* journalist, Howard Blum, has written a book that details the human side of this war.

Interviewing Israeli tank commanders and discovering a treasure trove of unpublished papers at the Air War College written by Egyptian officers on this war, Blum paints a highly gripping account that is personal and difficult for readers to put down. Blum offers an excellent account of the Egyptian operations center and the stresses of the Egyptian army chief of staff, General Saad-Eddin Al-Shazli. Readers will experience the nail-biting moments of Egyptian forces crossing the Suez Canal and the exhilaration of Al-Shazli who expected 10,000 casualties during the battle of the crossing, but ended up with fewer than 250.

The book includes tense arguments between Shazli, president Sadat, and minister of war, General Ismail Ali, over advancing Egyptian armor beyond the surface-to-air missile range. There were also highly charged discussions at the Israeli command center known as "The Pit." Blum covers the decision on "prepare temple," a highly classified program of arming Israeli fighter-bombers and missiles with nonconventional weapons as a last-resort option.

Readers will also discover a key Egyptian source of intelligence for the Israelis. Known as "in-law," married to Egyptian president Nasser's third daughter and confidant to Sadat, this human intelligence source is not revealed until the final chapter of the book. In-law would be the prime source of Israel's "Hakonceptzia," the concept that certain capabilities must be met before the Egyptians attacked Israel.

Most students of the 1973 Arab-Israeli War remember Israeli intelligence officer Lieutenant Benjamin Simon-Tov, who attempted to warn his chain of command of an imminent attack, but whose report sat on his superior's desk. The book discusses the efforts of Lieutenant Colonel Shabtai Brill, who, while working at Unit 848, Israel's super-secret signals, electronics, and communications intelligence unit, pieced together deployments on the Syrian and Egyptian fronts with precedence in the 1967 Six-Day War, and made a compelling argument that the Arabs meant war. Having been disregarded by his immediate superior, he took his findings to General Zvika Lidor who finally took his warning seriously. Blum masterfully weaves how Israeli intelligence officer Brill and Egyp-

tian Chief of Staff General Al-Shazli's minds worked in tandem, each worrying about the opposing issues. He also loathed his chain of command for not allowing him to fully develop his mini remote piloted vehicle (MRPV), an early forerunner of the unmanned aerial vehicle (UAV) that would allow Israel to take photos of Egyptian preparations on El-Balah Island and of armored formations along the Syrian-Israeli Purple Line. Brill would be ostracized and drummed out of the military for being a constant reminder of Israel's failure to heed telltale signs of an imminent attack.

The book captures conditions of Israeli tankers facing 1,700 Soviet tanks along the Golan Heights. It tells the story of Major Shmuel Askarov, who refused to see his 188th Armored Division wiped out. Having endured surgery for shrapnel wounds fighting the initial Syrian assault, Askarov got out of the hospital bed and into another tank, attempting to collect as many reservists and active soldiers along the way. Lieutenant Colonel Yossi Ben Hanan went from a honeymoon in Nepal, and, in the nick of time, to a tank turret to help turn the tide of a massive wave of Syrian T-62 tanks in the Golan Heights. The author recreates the feeling Israeli tankers had as their Syrian adversaries were equipped with the latest infrared sighting equipment, while they had to resort to moonlight and the lighting from an explosion of a T-62 tank struck by a HEAT armor-piercing round.

This is a highly recommended book for those with a passion for armor tactics, Middle East history, and intelligence indications and warnings.

YOUSSEF ABOUL-ENEIN
LCDR, USN

With 3 Para to the Falklands by Graham Colbeck, Greenhill Books, London, 2002, 224 pp., $29.95

Graham Colbeck served as a sergeant in the Milan antitank platoon of the British army's 3d Battalion, Parachute Regiment (3 Para), throughout the dramatic 1982 campaign to eject the invading Argentine forces from the Falkland Islands. Colbeck's battalion played a key role in the conflict, Operation Corporate, as highlighted in this well-written and interesting chronicle.

After a 40-day, 8,000-mile voyage on board the cruise liner *Canberra*, 3 Para and other units, filled with nervous anticipation, landed at Port San Carlos on 21 May 1982. This was in the middle of winter in the southern hemisphere, and the cold temperatures and rainy weather had a marked impact on tactical operations. The battalion "tabbed" (marched) to Teal Inlet and onward, with the Argentine-defended Mount Longdon as its objective.

During 3 Para's attack on Mount Longdon on 11 June 1982, B Company was severely mauled by the Argentines. "B Company's battle had not been the fluid, steadily advancing 'Deliberate Attack' of the textbook that we all knew and had trained for," Colbeck notes, "instead it consisted of a confused succession of independent attacks by various sized groups of men." Uncommon bravery on the battlefield that night was shown by Sergeant Ian McKay's

courage and intrepid leadership that was recognized by a posthumous award of the Victoria Cross, Great Britain's premier gallantry decoration, and in many other heroic actions. A number of tactical errors were also made, as Colbeck notes in a candid assessment of the battle. During the 9-hour battle to capture Mount Longdon and the subsequent Argentine shelling, 3 Para suffered 23 men killed and 47 wounded. The Argentines surrendered on 14 June 1982.

With 3 Para to the Falklands was published to coincide with the 20th anniversary of the Falklands campaign. This worthwhile and superbly illustrated volume, in addition to being the memoir of a participant, highlights the indispensable role of ground soldiers in achieving battlefield victory.

HAROLD E. RAUGH, JR.
LTC, U.S. Army, Retired

West Point: The First 200 Years by John Grant, James Lynch, and Ronald Bailey, Globe Pequot Press, Guilford, CT, 2002, 208 pp., $29.95 (hardcover)

This coffee table book — excuse me, commemorative volume, according to the press release — offers a serviceable history of the United States Military Academy in an attractive package. A 'companion' of the PBS television special aired recently on the same subject, it recycles the oft-told tale of the Academy from revolutionary outpost to present day.

The story of West Point is presented in accordance with the standard historiography: establishment of a fortress at West Point and the dastardly attempt by Benedict Arnold to betray this vital post to the British; the founding and early troubles of the Academy; the arrival of Sylvanus Thayer, who cast the school in its present form; the growth of West Point's reputation during the Mexican and Civil Wars; its ossification in the latter part of the 19th century and the halting (albeit ultimately successful) reforms initiated by Douglas MacArthur after World War I; and the various trials, triumphs, and tribulations of the institution over the past 50 years. Numerous sidebars cover the rich tapestry of cadet life and the unending struggle of a tradition-bound school trying to integrate into a society that refuses to stand still.

Artistically, the book is pleasing to the eye, interweaving images from the past with contemporary photographs that allow the reader to appreciate both the changes and continuity that characterize the Academy — though graduates of the august institution will spot a few howlers among the captions that should have been caught by an attentive editor. Nevertheless, the book should make a handy memento for distinguished visitors to the school, or a nice gift for that hard-to-shop for old grad. As far as the history is concerned, it is inevitably superficial, given the volume's scope and format. Those with more than a passing interest in the history of West Point would do better to stick with Stephen Ambrose's *Duty, Honor, Country*, or any of several works by Theodore Crackel.

STEVE EDEN
LTC, U.S. Army

Training Marksmanship for an Army at War

Commander
COL James K. Greer

Command Sergeant Major
CSM David L. Morris

At the 1st Armor Training Brigade, we are training tomorrow's combat veteran today. He has been in the Army for less than 2 months, but within 6 months, he will be in harm's way. In all likelihood, he will not be in a foxhole the first time he rotates the selector switch from "safe" to "semi;" the first time he fires his pistol he will not be standing perfectly still and upright. We know this, but 50 percent of our basic rifle marksmanship training takes place in a foxhole and 100 percent of our basic pistol marksmanship training takes place standing still at the firing line.

Current training is based on a conventional, linear battlefield and enables drill sergeants to concentrate on the fundamentals of marksmanship. Training fundamentals is essential, but to train no further is inadequate when soldiers require a different skill set to survive in Iraq and Afghanistan. We are not fighting an enemy at 300 meters from a foxhole; we are standing at checkpoints, walking through urban areas, and clearing rooms. To address the shortcomings in the current marksmanship curriculum for initial entry training (IET), Fort Knox has piloted a quick-fire training exercise for the M16/M4-series rifle, and a combat scenario training exercise for the pistol.

Quick fire is the doctrinal term for short-range marksmanship in which a stationary soldier engages a stationary target at 15 to 25 meters. Speed is the key, but not at the expense of all accuracy, especially considering the likely presence of noncombatants in the immediate area. The techniques described in U.S. Army Field Manual 3.22-9, *Rifle Marksmanship M16A1, M16A2/3, M16A4, and M4 Carbine*, allow a soldier to suppress a target immediately on contact from a standing position, find cover or take a knee, and then place well-aimed shots on the target. Our training curriculum covers both the pointed and aimed quick fire techniques; however, we conduct live fire training using the more accurate aimed quick fire technique.

On a standard 25-meter zero range, soldiers engage one of three e-type paper silhouettes based on the tower command (left, right, or middle). Both of the two scenarios have 10 engagements; before each scenario begins, the tower designates one of the three silhouettes as a noncombatant. As each engagement starts, the soldier holds the weapon at the low-carry or high-carry position with the weapon on "safe." These positions are reinforced later during military operations in urban terrain (MOUT) training.

On hearing the tower command, "left," the soldier lifts the rifle, while simultaneously setting it on "semi," and fires when the front sight post is center mass of the appropriate combatant silhouette. The soldier does not use the rear aperture, but looks above it to the front sight post and the target, enabling him to fire more quickly. To complete the engagement, the soldier sets the weapon on "safe" and returns it to the "start" position. The next tower command will be "right," and the sequence begins again.

Prior to the live fire event, soldiers conduct the two scenarios using blank ammunition. Using blank ammunition replicates the cyclic function of the weapon, allowing the soldier to switch from "semi" back to "safe" after firing, without charging the weapon. This training covers the manipulation of the selector switch and the weapon muscle memory. It is the muscle memory that frees the soldier to think about which target to engage and whether or not that target is a combatant.

On the 9mm range, tankers receive training beyond traditional qualification requirements. Wooden barriers that replicate tall walls, low walls, and windows are used to train soldiers to shoot around, through, and above various obstructions. After qualification, soldiers begin the two-phase dry fire train-up and then engage 30 targets using all three of the techniques they have been taught, the same techniques they will use in combat.

During the first dry-fire phase, an instructor demonstrates, and then coaches soldiers through, the proper stance, scanning techniques, engagement techniques, and rapid magazine exchange for each of the three barrier types. The second phase incorporates the laser marksmanship training system, which provides soldiers feedback on accuracy of engagement techniques while an instructor analyzes other techniques the soldier must use to become an accomplished marksman. Once the dry-fire training is complete, soldiers conduct the live fire portion on the qualification range where they will engage 10 targets from the left and right side of the tall wall, 10 targets through the window, and 10 targets over the short wall.

The training is fairly simple and range requirements are minimal. The largest impediment to training new soldiers for the current operating environment is that our more experienced soldiers are not trained on these marksmanship techniques. We have a train-the-trainer program for drill sergeants of all military occupational specialties to address this issue, but a better solution is to standardize marksmanship training Army-wide. Quick fire and a combat pistol table should be taught at the Primary Leadership Development Course, Drill Sergeant School, and at the unit level. There is not a better marksmanship-training program for an army at war. As we cultivate the warrior ethos across our Army, what better place to do it than on a weapons range?

Please continue to send comments to 1ATB at:

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Armor in Asia

On 4 July 2004, the Patton Museum of Cavalry and Armor, at Fort Knox, Kentucky, conducted their annual "Armor in Asia" demonstrations. The program features living history displays, a Vietnam-era armored cavalry mock battle, and flamethrower demonstrations. Here, Dr. Karley Little fires an original World War II M3 flame gun from the glacis ball machine gun mount of the museum's M4A3 Sherman tank.

Photos by Brent Lewis