

## Once More Unto the Breach

**Thoughts on the edge of the breach:** As this nation approaches the anniversary of 9-11, we can all be proud of how this nation responded to this horrific terrorist attack. We grieved, we mourned, we cried, and then we methodically sought justice. Our Armed Forces systematically, with a special thanks to our CIA field operatives and courageous Special Forces soldiers, destroyed the Taliban and sent the al-Qaeda network running like rats in a sewer. Our nation can be very proud of the men and women who turned this cowardly attack into a renaissance of national patriotism.

The winds of war are now blowing stronger in Southwest Asia, and if you listen to the various media pundits, you would think we will have a Desert Storm redux. It seems the media and all their experts have developed their own course of action based on past plans. WWII French General Maxime Weygand, wrote, "Often, indeed, after a successful war the victor has fallen asleep in a fallacious assurance of his superiority, while his opponent, striving to work out the causes of his defeat, struggles to recover from it. Hence, the victor of today, becomes the vanquished of tomorrow." I surmise he was thinking about the French victory over the Germans in WWI and correlating that with the devastating French defeat to Germany in 1940. I believe our military leaders are savvier than what the media portrays. Just as the world was surprised how quickly our military vanquished the Taliban, the pundits will again be surprised. Check your frequent flyer miles, because it looks as if some of us will be making a curtain call.

Despite the negative reports about the quality of our combat units and the lessons we don't seem to learn at the Combat Training Centers, we still have the finest leaders and soldiers, the most extensive training programs, and the best equipment in the world. I have no doubt, when and if called upon, our combined arms team will deliver the knockout blow, and they will do so with cavalry and tanks leading the charge.

Our cover this month depicts limited war verses total war. CPT Brian Brennan's examination provides historical analysis and examples of the difference between the two, and his conclusion offers debate on how we should approach, and to what extent we should fight future wars. I also hope you enjoy Jody Harmon's symbolic illustration on the front cover relating to this article.

In this edition, several of our articles will provide some sage advice on IPB, the S2 and ISR planning. There are times when we rely on the S2 to provide all the answers or shun the section all together, but that is a dangerous and lazy precedence on the part of the battalion staff as a whole and armor officers specifically. MAJ Kevin Jacobi writes on the importance of commanders to visualize the battlefield and to understand what components influence commanders' decisionmaking.

Trends from the NTC continue to support the fact that units are habitually underutilizing the S2 section in R&S operations and doing the IPB planning in a vacuum with little guidance from the commander, executive officer, or S3. I can remember 15 years ago when the same comments were being made at a task force AAR during my unit's rotation at the NTC.

Two additional articles will add some tools to your kit bag. One article, "The Cavalry Team: Scout-Tank Integration," provides some useful techniques for employing scouts and tanks into the hunter-killer mode. The other article, "Armor and Mechanized Infantry in Built-Up Areas," provides excellent TTP's for employing tanks in urbanized settings.

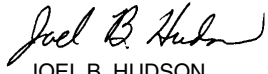
Well, time is getting short, and I want you to enjoy the edition. One final thought, keep the articles coming, I know we have some great thinkers and doers out in the field who would like to share their lessons learned and scholarly thoughts.

– DRM

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# ARMOR

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## ACCC Proposal Contains Fundamental Flaws

Dear Sir:

I read with interest the letter written by CPT Jim Dunivan in the July-August 2002 issue of *ARMOR* magazine. Having served with CPT Dunivan before, I am familiar with his dedication to leader development, as well as his dedication to providing candid feedback. Indeed, his wingmen could always rely on him to draw fire away from us during command and staff meetings.

Be that as it may, I found that the article, "Refocusing the Leader Development Lens," by CPTs Slider and Goin only strengthens CPT Dunivan's arguments against the proposed changes to the Armor Captains Career Course. As I read their article, I reached the same conclusions outlined by CPT Dunivan in his letter to the editor in the same issue. CPTs Slider and Goin rightly point out that, "leadership does not come from a book, but from experience, circumstance, and opportunity." They further outline a plan to give junior leaders the experience they lack at battle school. Although, I'm sure this article outlines the course in a very general way, I noticed fundamental flaws in the first and third phases of the proposed course.

In his letter, CPT Dunivan points out the burdens that the distance-learning phase of the course would place on the student. As a commander, I was significantly challenged to find time to get my lieutenants to any of the required weeklong courses that they needed such as air-load planner, arms room, HAZMAT, NBC, and maintenance supervisor. Additionally, the concept that any SGI would be able to offer "mentoring and coaching" in this setting is laughable. I fear that this environment would lead a student with these competing demands and loyalties to "check the block" to maintain minimum course requirements while still accomplishing their regular duties. Furthermore, the doctrine learned during this phase would "deteriorate" just as quickly as the material taught during the present ACCC. As for Phase II, I cannot agree more to the concept as outlined, and I say, "let's execute!"

Phase III has appeal at first glance. Unfortunately, closer inspection shows that it is flawed in several respects. If the purpose of battle school is to prepare young captains for the rigors of command at the company level, I don't understand how a platoon level focus would benefit them. This concept would be very beneficial to a lieutenant right out of the basic course, but a captain needs to focus on the company and battalion levels of operation. Furthermore, our reorganized tank battalions have only nine maneuver platoons. A typical NTC rotation consists of two maneuver battalions, providing only 18 maneuver platoons for officers to serve as OCs. I do not have a background in personnel management, but a program that graduates only 18 captains a month, and only 180 a

year, does not seem like the type of throughput we need to sustain troop strength in line units. Furthermore, if the country were to go to a wartime mobilization, on a scale that our grandfathers did during World War II, this phase utterly falls apart. Additionally, OC certification is a weeklong course, and must be completed prior to the rotational unit arriving for draw week, allowing OCs to linkup with their units. This means that Phase III would actually last between 4 and 5 weeks, not the 2 weeks outlined in the article.

CPTs Slider and Goin then proceed to outline the challenges of training leaders in the emerging C4I systems. In their article, they state that the recent DCXs showed that, "leaders lack confidence in digital C2 and SA systems ... (and) consistently migrated back to traditional analog methods." I find this statement to be very troubling. As I understand it, the soldiers of 4ID had a thorough and arduous train-up prior to the DCXs to ensure that they were in top form and able to demonstrate the systems' true capabilities and limitations. If 4ID did not have enough time to attain competency on these systems, then the systems are far too complex. Units that will field these systems in the future will have a fraction of the time 4ID received to attain competency, and the training they receive in battle school will also deteriorate before the skills are put into practice.

By the time I finished reading the article, I realized that the battle school concept is treating a symptom, not the disease. Why is it that our officers are not receiving the "experience, circumstance, and opportunity" to develop leadership skills? I do not believe that the problem lies with our approach to leader development, but in the way we manage our officers. The best way for a leader to achieve experience is by serving in a leadership position. The current personnel turnover rate causes us to move leaders out of their positions when they achieve competency, not when they achieve mastery. A typical lieutenant spends 6 to 9 months as a platoon leader before they move on to levels of higher responsibility. I was fortunate enough to spend 19 months as a tank platoon leader. During that time, I was able to shoot four gunneries, as well as participate as either OPFOR or BLUFOR in four TF STXs, six company lanes, and seven platoon lanes. This type of experience is unheard of by lieutenants today.

We need to address the problems within the personnel system to ensure that leaders have time to attain mastery in their position. In the 8 July 2002 edition of *Army Times*, an article titled, "How to Fix My Army," outlines MAJ Donald Vandergriff's proposal to overcome this very problem. Although I have not read his book, the article outlines his proposal to regimentalize the Army and to lock in all personnel in battalions for a 4-year period. His suggestion would certainly solve the problem of junior leaders attaining experience, but it is perhaps more transformation than the Army is willing to bear.

I believe that changes to the ACCC curriculum will not solve the problems they are meant to solve, unless we first address the problems in the personnel system. I propose incorporating CPTs Slider and Goin's Phase II into the existing ACCC program. Although the distance-learning concept is intriguing, it is unproven. I can honestly say that the ACCC was the most challenging course I've attended. I quite literally "didn't know what I didn't know" about our doctrine. A firm foundation in doctrine is absolutely essential in leader development. We simply have to know "what right looks like" before we move into the field for experience. Classroom instruction has its merits, and should not be brushed aside in a rush to attain the field experience our leaders should receive while serving in their units. Let's tackle the root problem first: personnel turnover.

CPT DAN ALEXANDER  
Medical Holding Detachment  
Fort Hood, TX

## Current ACCC Curriculum Needs Only Small Changes

Dear Sir:

I am writing to reinforce CPT J.D. Dunivan's letter regarding the coming changes in ACCC. I do acknowledge that I am a student in CPT Dunivan's small group, but it has minimal bearing on my point of view on this issue. My comments are my own.

I agree with CPT Dunivan's points completely, for several reasons:

- ACCC is already too short. With all the taskings placed on students, time spent learning vital company and battalion-level TTPs is increasingly short.
- The value provided by a live small-group instructor far outweighs the benefits that would be provided by "distance learning technology." Nothing beats the daily feedback and interaction provided by an experienced SGI, and no amount of magic virtual technology can replace that. Available technology should be used to enhance the resident ACCC course, not replace it with an inferior death by e-mail program.
- With the commissioning time to captain being further dropped to 38 months, new "shake and bake" captains will need even more training to be proficient. With training opportunities being scarce, new captains having less lieutenant time (10 months less than it was several years ago) are going to be needing quite a bit of extra professional development. The current ACCC provides extra professional development; distance learning will be hard pressed to do so.
- Additionally, thinking that enough ACCC/CABCC "distance learning" time will be provided to a senior 1st lieutenant or junior captain while still at his unit, I think, is a dangerous mistake. Experienced junior officers in a battalion are a valuable asset, much too valuable to not be used by their superiors. So,

what kind of quality training will a new captain get while he is still at his battalion? (Perhaps while he is in a primary staff position, or on numerous taskings.) Taking a new captain out of a unit environment to provide advanced-level professional training is a must.

Finally, I would like to say that the current ACCC, in my opinion, is the finest military course that I have experienced. It is a 95 percent solution, and only small changes would make it better. It is the first and only course that is committed to professional development of officers, and its methodologies are sound. Distance learning followed by a chaotic gauntlet meat grinder will result in the opposite: garbage in, garbage out. If I were a battalion or brigade commander, I would take a personal interest in the products of ACCC/CABCC that the Armor School will be sending me in the future.

BRETT D. LINDBERG  
CPT, Armor  
Student, SG5N, 3/16 Cav

### Don't Transform the Advance Course

Dear Sir:

As I read the July-August 2002 issue of *ARMOR*, I enjoyed the intellectual battles fought between LTC Szabo and LTC Eden, both of whom I have worked for in past positions. However, my stomach turned with each word and concept I read in the article "Refocusing the Leader Development Lens," written by CPT Jason Slider and CPT William Goin. In addition, I wholeheartedly agree with much of CPT J.D. Dunivan's letter to the editor.

In "Refocusing the Leader Development Lens," the authors' concept of a distance learning phase, a 4-week residence phase, and a 2-week O/C phase at a CTC is novel, at best. It seems that the authors are "looking out for number one" and not for the good of the Army with this concept. The authors proclaim that, "Leadership does not come from a book, but from experience, circumstance, and opportunity." And that "leaders will need a more inclusive, broader base of experience." I could not agree more. However, I disagree on their concept of how to attain their goal of producing trained and confident captains ready to lead the nation in battle. What better form is there to gain this broader based experience than the structured small group with a strong, *qualified* captain as the mentor for 5 months? I believe that transforming the advance course by integrating a 4-week distance learning course, from current duty station, followed by a month long resident phase, and then a 2-week CTC rotation as an O/C is not only detrimental to interpersonal communication and team building, but also unit readiness.

The officer that is enrolled in distance learning is exempt from duty in his troop, company, squadron, or battalion...by concept. First, I will argue that this in fact will not be the reality, these officers *will* be used as USR

officers, survey officers, special projects officers, casualty assistance officers, or as an assistant S3, S4, or S1, the list goes on. We may say, "No, this will not happen, the officer will be focused on his schooling and that is his priority," but when that officer is still on our books, the unit will not receive a replacement for him until he PCS's. A DL requirement will inevitably conflict with an officer's unit responsibilities. The Army will not provide a replacement to fill an officer's position while he works on his DL requirements, so even a marginally professional officer will be compelled to try and balance both requirements.

The new concept of online schooling does not help to reinforce team building or interpersonal communication skills. This method does reinforce and teach captains that it is all right to lead from behind a desk and issue orders and guidance via e-mail. I have been privileged to command and lead troops in two organizations and will stand on my soap box and say that as a leader, a commander, you must be out with the men, in the motor pool, in the field, checking training; you must share their hardships, take responsibility for their failures and enjoy their success. You learn this by communicating, face to face, with peers and small group instructors in the schoolhouse, on TEWTS, on the PT track, on the intramural field, and heaven forbid, over a beer. A shortened course will eliminate the time necessary for officers from different units to develop the relationships necessary for the cross-fertilization of information and ideas. It is my feeling, and most likely that of current and past SGI's, that a shortened course will deny the SGI the time necessary to build the relationship necessary for successful "coaching, teaching, and mentoring" (a phrase one might arguably replace with the more simple "effective leadership"). I will speculate that it takes a month or so to learn the strengths and weaknesses of each student in the small group. The SGI can then place special emphasis on subjects that the small group needs as a whole, and individual training as needed. The SGI will leave lasting impressions on a young captain. You will see, as the course goes on, the small group will take on the personality of the SGI. That captain will choose to incorporate communication techniques, training strategies, values, and officership that he inadvertently learns from the SGI and his peers throughout his career. Bottom line, SGI's need more than one month to train the future commanders of our troops, companies, and batteries. So, if we continue to place quality officers, such as McLamb, Felty, and Seigrist, in SGI positions, then this is good for the leaders of armor, cavalry, infantry, and the Army.

The article in question and MG Whitcomb's response to CPT Dunivan refers to bringing the Career Course "up to speed" and that "our education system must advance at the pace of the U.S. Army's transformation in doctrine, materiel and equipment, and organization." Well, my brothers, I have 158 pairs of PVS-5s and a pair of M19 binoculars

(yes, the same you see strapped around Patton's neck in pictures) in my arms room, how is that for technology and equipment upgrades?

As I remember it, the Armor Captains Career Course was one of the best courses I have ever taken, aside from the Cavalry Leaders Course. The curriculum or the structure of each "volume" was not what made the course a good one. It was sharing ideas, experiences, and lasting friendships made over the 6 months of schooling. To this day, almost 3 years removed, I keep in contact with my SGI and other captains from AC3; not only from the mighty 2-Bravo, but the other small groups as well. We share experiences and ideas and continue to foster new ideas and better concepts for training, warfighting, and family and soldier readiness.

In the words of LTC Calvert, "All of us are better than one of us;" if this all holds true then, all of us in a classroom at Knox for 6 months is better than one of us at home station looking at a computer with a courtesy TDY trip to Knox. I am just a self-proclaimed "knuckle-dragging warfighter" and these are the opinions of a humble cavalryman. I would like to thank LTC Eden, MAJ McLamb, CPT Hollis, CPT Clark, and CPT Schrick for their inputs and ideas.

MIKE KIRKPATRICK  
CPT, Armor  
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### Approbation for "The Blind Men..."

Dear Sir:

I refuse to believe that our senior leaders think that anything less than cohesive and capable units are necessary to winning the nation's wars with the least cost in lives. Further, I am certain they recognize that such units do not arise through accident or solely through the impact of their leaders, however well trained and capable these individuals may be. No, they know that cohesive and capable units come to be only when their personnel are stabilized, which allows them to train collective go-to-war tasks repetitively, as LTC Tim Reese states in his May-June '02 article, "The Blind Men and the Elephant." If this can be taken as axiomatic, then one may surmise that the reason we appear to do so little to create such units is that we have made a conscious decision not to do so. This is sad, at best, and morally reprehensible, at worst. I enthusiastically second Reese's assertion. Moreover, I believe that our march toward an objective force is woefully imbalanced, if we do not simultaneously pursue a holistic and revolutionary transformation in personnel management. An institution that can produce incredibly forward thinking in materiel, organizations, and to a lesser extent, doctrine, surely ought to do more than "tinker on the margins" with personnel management.

I anticipate that Reese will have detractors. I expect that some will argue that we don't need units able to fight like the OPFOR at our CTCs when our future battlefields and enemy are infinitely more variable and unpredictable than theirs. Such arguments miss the point. Cohesiveness and tasks drilled to become second nature are intangibles that transcend any particular conditions of METT-TC. I have noted a growing legion of such thinkers, who seem to be either apologists for or blind to the downward trend in unit readiness apparent in CTC rotations since immediately after the Gulf War. I observed this trend first-hand as an NTC observer-trainer in the 2 years following Desert Storm and no one I have spoken with since has given me cause to reconsider. Rather than addressing the problem, many now argue that CTCs are simply not as relevant as they once were.

A short time ago, I spent 2 years observing the Israeli army as a liaison officer. The Israeli Defense Force (IDF) has a fraction of our resources and even more warfighting training distracters, yet it is able to field cohesive and capable units. Its success is not due to better trained individuals, combat experience, or even to higher quality unit training. It succeeds because it values personnel stability and has systemized it over the lifetime of a training cycle, just as Reese proposes. The IDF is more than 80 percent reservist and has a compulsory service requirement that keeps most of the active force young and in service a maximum of 3 years. Another aspect of IDF personnel management worth considering is that its component branches have great autonomy over the service life of their soldiers and officers, up to and including selection for battalion command. This decentralized aspect of personnel management further enhances cohesion and stability.

I diverge from Reese on one point, but my disagreement strengthens, rather than detracts from, his central argument. I do not believe that the Gulf War, in any great measure, affirmed our Army's ability to execute small-unit tactics. Across the land forces, the prevailing tactic was not to engage through fire and maneuver, but rather to stop, engage at maximum stand off, and employ artillery as much as possible. I was assigned to the advanced guard for VII Corps, which employed artillery batteries down to TF level and, at first contact with the Iraqi Republican Guard, brought companies and battalions on line. This was in concert with the prevailing tactic and a strong desire to avoid fratricide, but it was not the employment of company and platoon tactics. In fact, I noted a great reluctance to fire amongst our small units, let alone maneuver. This was, after all, the first combat for these soldiers and their platoon and company commanders. Accounts where small-unit tactics were forced on outfits as a result of chance engagements, such as the Battle of 73 Easting, demonstrate the resoluteness of small units, but not any particular skill in platoon and company maneuver. So,

if one wants to argue that battlefield success illustrates the problem to be less than Reese suggests, do not use Desert Storm as evidence.

Soldiers and officers want to train to fight and they want to be a part of a unit that is good at it. I concur with Reese's assessment of our fine professional education system and the soundness of our training doctrine. He also poses the question of whether we have our tactical and operational doctrine correct. I believe we do, but like him, I say this is not relevant if we do not train properly to execute it. When he states, "many have argued that we do not follow our own training doctrine," he has grasped the essential issue. Today, there are tremendous pressures on brigade and battalion commanders to look up, rather than down, and establish the kind of units that are committed to warfighting training as their number one priority. The better commanders resist these pressures, but many others do not.

Not long ago, I read an article in *Army* magazine by a former tank battalion commander. In his article, he states that he would do three or four things differently, including that he wished he had invested more time in training platoons in the field. I was dumbfounded when I read this. I have long believed that battalion commanders should focus on developing strong fighting platoons and, likewise, brigade commanders must necessarily focus on developing their companies. The solution is not simply to carve out and protect time for subordinate units to train, but also provide them the focus and resources to succeed. In my mind, the former battalion commander was admitting at failure in one of his primary reasons for being; "training platoons to fight as they will in war." While dismayed, I was not necessarily surprised. I suspect his shortcoming is true of most battalions and brigades. It takes a special breed of division and corps commander to create a climate where the subjective and often intangible single measure of success is platoons, companies, and brigades ready and able to fight.

Relative personnel stability will go a long way in enabling us to be more faithful to our training doctrine, but even then, there are other endemic problems we must address. If anyone is of the opinion that our technology, resources, superior leadership, or lack of a viable enemy allows us to assume risk in managing personnel in a less-than-perfect way, shame on them. If we say that people are our most important resource, then we ought to behave as though we believe it. A problem is that so much of our attention is focused on the individual, meeting his or her needs or wants, rather than on the larger problem of meeting the individual's real needs by making the units and organizations to which they belong the best they can be. The disaffection among troops and junior company and field-grade officers that had our attention in pre-9-11 days was real. This disaffection is not due to the frailty of genera-

tion "X-ers" in our ranks, or to a rise in OP-TEMPO as some surveys and researchers suggest. The truth is that soldiers and officers today will perform well and honorably, as well as contentedly, under the worst conditions as long as they believe they are committing themselves to something worthwhile, day in and day out, and as long as the folks above them demonstrate a daily commitment to making this the case. When we, as an Army, do not appear to aspire to the ideals of our training doctrine and to manage personnel in a way that supports it, we will reap the seeds of disaffection that we sow.

LTC KEVIN W. WRIGHT  
Fort Leavenworth, KS

### **SAMS — The Indirect Approach Over the Direct Approach**

Dear Sir:

I was sorry to read Bill Lind's remarks about SAMS in the July-August 2002 issue of *ARMOR*. He's right and wrong. Right that it has been more than 10 years since he visited SAMS, and wrong that we teach (or ever taught) attrition warfare as the solution to military problems. I first met Bill Lind at the Marine Amphibious Warfare School in 1981. At the time, he and the tactics instructor, Marine Colonel Mike Wiley, were leading an effort to reform how the students thought about warfare and military operations. Bill's efforts, to include a tremendous elective he taught on maneuver warfare, had a profound effect on how I think about military operations, wrenching me away from attrition warfare and toward maneuver (in the fullest mental and physical meanings of the term). Bill and Mike Wiley's grasp of the theory and history of warfare showed me I had much to learn and served as a catalyst for my decision to attend SAMS.

At SAMS, I learned how to think through military problems and come up with creative, yet workable solutions. Our study of Russian theorists, such as Triandivilov and Tucha-chevski, guerrillas such as Mao and Giap, and cavalry officers from Grierson to Patton, confirmed the value of the indirect approach over the direct approach; of multi-dimensional operations over slugging it out in the close fight; and of mental and moral disintegration over physical destruction.

Today, having put maneuver warfare into practice (to the best of my ability) in troop and battalion command, at the NTC, CMTTC, and Bosnia, I have arrived at SAMS as the director. In the post-11 September environment, we are teaching students how to think through problems creatively and effectively, not how tactical processes work. As we transform our Army, SAMS is inspiring our officers to be agents of change, much as Bill Lind and Mike Wiley were reformers in the Marine Corps. SAMS is also leading concept

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*Major General R. Steven Whitcomb  
Commanding General  
U.S. Army Armor Center*



## First Stryker MGS Accepted

In late July, I was honored to accept our first Stryker Mobile Gun System (MGS) at a ceremony in Muskegon, Michigan. This weapons system was developed in response to our Army Vision for the 21st century. Our Chief of Staff, General Shinseki said, "we must provide early entry forces that can operate jointly, without access to fixed forward bases, but we still need the power to slug it out and win decisively." The MGS will be an integral part of the Stryker Brigade Combat Team (SBCT). With its 105mm gun, technology upgrades, and rapid deployability, Stryker MGS provides combatant commanders with a much-needed capability.

The rollout of the Stryker MGS is an important event because of the capabilities that it brings to our soldiers and the Stryker Brigade Combat Team, and the options it provides our nation. We sought a ground maneuver platform that provides infantry soldiers with rapid direct fire to punch through walls, destroy enemy bunkers, machine guns, and sniper positions — to provide punch in the close fight. The Stryker MGS also has to be C-130 transportable, giving our Army and combatant commanders the flexibility of rapidly deploying it, with intratheater assets, to the battlefield. Intratheater transportability will make it tougher for an enemy because it opens up too many options for him to template our most likely points of entry.

The Stryker MGS gives our soldiers a vehicle specifically built to provide rapid and accurate direct fire to enable offensive operations in complex and urban terrain. The MGS fills a capabilities gap for the Stryker Brigade, provid-

ing the teeth and claws the SBCT needs to treat 'em rough. It is important to understand the capabilities that the MGS brings to the Stryker Brigade, and therefore, to combatant commanders, the joint force, and our nation. While the Stryker Brigade needs the rapid, direct-fire punch that the MGS will provide, it also needs the digital capability that enables enhanced situational awareness and joint interoperability. Our Army has been working this diligently for almost a decade. That capability must reside in the Stryker Brigade as well to mass lethal joint and coalition precision effects on an adversary. It is the combination of lethality and rapid deployability that makes this system such a valuable contributor to our joint force. The Stryker Brigade provides flexibility to the commander and will be deployable as a fighting force within 96 hours of alert, prepared to fight when it arrives, and capable of delivering firepower and agility to the soldier in the fight where and when he needs it most.

The Interim Force, of which the MGS is a part, is another step on our path to Army Transformation. Combat development work at Fort Knox, Fort Benning, and other places in our Army led to the MGS capability of hosting, and effectively integrating, existing and planned command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) systems.

Our transformation plan to rapidly field 6 Stryker Brigade Combat Teams called for very little time to develop, test, and build such a system — the first purpose-built infantry mobile support weapon since World War II. But our systems managers (the PM and our own sol-

diers helping with development), General Motors Defense, and General Dynamics Land Systems effectively collaborated to develop this first system, which we will now test extensively.

We will also benefit from the contribution that MGS makes designing the Future Combat System (FCS). One member of our FCS family of systems will be a mobile gun system that is network enabled and capable of direct fire; both line of sight and beyond line of sight, and indirect, nonlinear-of-sight fire. The lessons we learn from Stryker MGS development, testing, fielding, and use by soldiers will help design more effective and lethal systems in the near future.

Our Stryker MGS development work isn't finished. I challenge everyone involved in the program to work the remaining issues. We need that fight-off-the-ramp capability, with a basic level of round-defeating protection for our soldiers. I'm confident we'll get there. What has been done so far is truly remarkable. In just over 2 years, the Stryker MGS team progressed from a signed operational requirements document to delivery of the first MGS. This is one of the shortest timelines ever for a developmental vehicle. Further, we plan to field this vehicle by September 2004 to our first Stryker Brigade Combat Teams. By any measure, this is a remarkable achievement for a combat vehicle to go from concept to the battlefield in less than 5 years! Even Ford Motor Company took 45 years to reinvent its new "T-bird two-seater" and it doesn't have to survive the rigors of the battlefield!

**FORGE THE THUNDERBOLT!**



## Transforming U.S. Forces Korea

by CSM William J. Gainey, Command Sergeant Major, U.S. Army Armor Center

Hello from the home of Armor, good ole Fort Knox, Kentucky. As the United States Armor Center Command Sergeant Major, I would like each and every one of you to know that I am very proud of our Armor Force. We continue being the best in the world and it's all because of YOU!

I would like to share an adventure that my team, SGM Rollie Russell from Fort Knox and SFC Michael Clemens from PERSCOM, and I had from 31 July to 5 August 2002. This adventure took us to a far and distant country. A place that many of us have heard nothing but horrible stories about, a place that many soldiers have misconceptions about.

In this country, training is not a pastime; it is a way of life. The soldiers and leaders that I met during this trip spoke continuously about how it is to live with the constant fact that they could be fighting on a moment's notice. They have a saying, which goes something like this, "We take our mission seriously, because we could be fighting tonight."

I guess you are wondering where it is that a soldier soldiers 24/7, honing his or her combat skills to a razor's edge. My fellow soldiers, this place is Korea. Like many of you, I thought Korea should be put in the same category as a four-letter word (even though it has five). I now have a totally different per-

ception of Korea, not because I spent three days there, but because the soldiers that I spoke with shared how they feel about this training paradise.

South Korea has experienced a positive and dynamic social, political, and economic growth over the past few decades. This country serves as a model for struggling democracies around the world to emulate.

United States Forces Korea is no exception and continues to build on its quality of life goals. In the past few years, restoration and modernization funds have allowed the command to address maintenance and structure needs. Soldiers at Camp Garry Owen have new barracks, with more on the way. Other installations have seen new community activity and physical fitness centers, along with maintenance and training facilities.

There is an ongoing phased renovation program to improve the quality of family housing. Families occupying these quarters are elated over the improvements already made and enthusiasm continues to spread through the military communities. The first project will be completed by fiscal year 2003, with additional family housing projects under design and construction.

The past 50 years have taken a toll on U.S. military facilities in Korea, but much has already been done to improve quality of life. The United States Forces Korea is diligently working on transforming its force into a capabilities-based force, where training and quality of life is first rate.

As we drove from Yongsan to Camp Red Cloud, I was amazed at how the local people drive, and at the many fortified bunkers, and even fighting positions along the route. I had a great visit with the 2d Infantry Division command sergeant major, CSM Wheeler, who gave us a complete mission lay down that his soldiers face daily. This briefing was not conducted in a conference room, but in a bunker, which really stressed the seriousness of the situation.



CSM Wheeler spoke about his soldiers like family, and there was pride in his face with every word. CSM Wheeler, thank you for inviting us to Korea!

We departed for Camp Garry Owen where I was greeted by the 4/7 Cavalry commander, LTC William Hill, and Command Sergeant Major Ralph Middlebrooks. I was asked to tell you old soldiers that Camp Garry Owen does not look the same as it did when you were there years ago. Modern facilities have replaced most of the post-war Quonset huts. This is a great command and the soldiers are full of motivation and pride. One PFC told me that he thinks Korea has received a bad rap and he is glad that he didn't believe half the stories that other soldiers had told him about it, because they are not true. We enjoyed lunch with this fine cavalry squadron, and its NCOs addressed the team about their concerns.

Our next stop was Camp Casey where the commander of the 1st Combat Brigade, 2d Infantry Division, COL Anthony Ierardi greeted us. His command sergeant major, CSM Joseph Zettlemoyer, escorted us. You only have to be in the same room with COL Ierardi and CSM Zettlemoyer for a very short time to fully understand why the soldiers of the 1st Brigade are so motivated. They are emulating these two leaders. After a very interesting talk, we went to the 2d Battalion, 72d Armor where Command Sergeant Major Clarence Keithley welcomed us. We had a very good visit with the NCOs of this battalion and they were also afforded the opportunity to express their concerns to the team.

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I am very interested in receiving concerns, comments, and suggestions from soldiers out in the field. Please send all questions and comments to the following email address:

[CSM@knox.army.mil](mailto:CSM@knox.army.mil)

Two or three questions will be selected and featured in each edition of *ARMOR*.



# Limited vs. Total War

by Captain Brian W. Brennan

Since 1776, the U.S. Government and, more specifically, the U.S. Army have struggled with how best to fight our nation's wars.

Though the terms "total war" and "limited war" are relatively new and were developed to describe the United States' efforts to minimize civilian casualties, prevent global nuclear annihilation, and engage the enemy only in specific, politically driven battlefields, their concepts have been debated for centuries.<sup>1</sup> It is through the lens of military successes that we can truly examine the validity of limited warfare in today's low-intensity conflict laden world. America's lack of success in campaigns and battles on the modern battlefield has been the direct result of a shift in focus from the total war practices of World War II and the American Civil War, to the limited war concepts developed by the Truman and Johnson administrations during the early days of the Cold War, and practiced in the jungles of Vietnam and the deserts of Kuwait and Iraq. If the United States is to

retain its dominant role in world affairs, it will have to look back at past total war strategies and incorporate them into future operations.

The concept of total war is fairly simple. Total war is best defined by the old Soviet definition for a "*Total Naya Voyna*," or "foreign or total war," which states that a total war is "an all-embracing imperialist war, waged by all manner of means, not only against enemy armed forces, but against the entire population of a nation, with a view to its complete destruction."<sup>2</sup> It is in this kind of war that almost every citizen of that nation is mobilized to drive the war effort. Automobile factories are converted to tank plants; cruise ships become troop transports; food and valuable commodities are rationed; and average citizens are conscripted into the military to become soldiers and sailors. There are no holds barred in total war. Soldiers are killed on the battlefield — as in any conflict — but in a total war, commercial shipping is sunk, factories are reduced to rubble by bombs and rockets, and civilian population centers are targeted to deny the enemy the means with which to do bat-

tle and to break his will to continue the conflict.

Limited war is entirely different. At the dawn of the Cold War, when the Soviet Union entered the nuclear age, the Truman and Johnson administrations were concerned that a war of any kind would risk global nuclear annihilation, so a limited warfare policy was developed.

The policy's goal was "to exact good behavior or to oblige discontinuance of mischief, not to destroy the subject altogether."<sup>3</sup> This type of warfare, however, was not at all in accordance with what had become America's way of war. In fact, its citizens and its military were appalled by what political scientist Robert Osgood called the "galling but indispensable restraints" they encountered in limited war.<sup>4</sup>

## Total Victory

The validity of the limited war political philosophy is best seen when examining the victories and defeats of the U.S. military. Over the past 200 years, the U.S. Army's war record is testimony to the importance of the total war

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*“World War II is one of the best examples of the total war philosophy’s success. During World War II, the United States mobilized every asset available to meet the demands of the immense military machine it fielded to meet the Japanese-German threat.”*

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philosophy. Numerous battles and campaigns have been won or lost simply because the combatants either were or were not able to completely destroy the enemy or render him incapable of mounting military operations.

World War II is one of the best examples of the total war philosophy’s success. During World War II, the United States mobilized every asset available to meet the demands of the immense military machine it fielded to meet the Japanese-German threat. By 1945, the U.S. Army had 891,663 officers and 7,376,295 enlisted personnel, and was producing over 2,400 tanks per month — a far cry from the mere 14,186 officers and 175,353 enlisted personnel it had in 1939, while spending a mere 2 percent of the nation’s gross national product on defense.<sup>5</sup>

The total war goal for World War II was the unconditional surrender of Italy, Germany, and Japan. No other options were acceptable. The United States and its allies could not, and would not, be defeated. The degree to which the allies pursued their goals is best summarized in a 1944 British report that states: “In five years of drastic labor mobilization, nearly every man and every woman under fifty without young children has been subject to direction to work....The hours of work average fifty-three for men and fifty overall; when work is done, every citizen...has had to do forty-eight hours a month duty in the Home Guard or Civil Defense.”<sup>6</sup>

Civilian and economic mobilization, however, were not the only aspects of the allied campaign that adhered to the total war philosophy. The strategic military planning involved in World War II also demonstrated total war characteristics. Not only did the Allies bomb major German and Japanese industrial centers to cripple their respective war machines, they also fire bombed major population centers, such as Hamburg, Dresden, Nagasaki, and Hiroshima, to break the population’s will. In Hamburg alone, British efforts to “dehouse” the German population resulted in the deaths of 30,000 to 40,000 civilians as the city reached temperatures in excess of 1,000 degrees and winds blew at

over 300 miles per hour.<sup>7</sup> This seemingly large number of civilian casualties paled in comparison to the 90,000 civilians killed in Hiroshima when the United States dropped the first nuclear device, and the 35,000 killed in Nagasaki when they dropped the second one.<sup>8</sup> By bombing these cities, the United States and her allies showed the Axis Powers that they were willing to go to any length necessary to achieve complete and total victory. There would be no negotiated peace. There would be total, unconditional surrender, or the Allies would continue to fight, as was necessary in the case of Adolf Hitler’s Germany, where the Soviet Red Army was forced to fight all the way through Berlin.

America’s Civil War can also be used to demonstrate one of the many successes the U.S. Army has had using total war philosophy. The United States’ transition from limited to total war can be seen by reviewing the Union’s losses in the early days of the war when the government was, according to General William T. Sherman’s memoirs, “extremely wavering and weak.”<sup>9</sup>

American losses at battles, such as Ball’s Bluff and Bull Run, revealed a Union Army unwilling to go completely to war with the Confederacy. At the onset of the war, Congress was unwilling to admit that Union forces were going to have to adopt a total war strategy to defeat the Confederates and restore the Union. This was possibly due to the fact that at the very beginning of the war, “many of the Southern representatives remained in Congress, sharing in public councils, and influencing legislation.”<sup>10</sup>

Regardless of the causes of this policy, such political decisions as the government’s refusal to immediately adopt Winfield Scott’s “Anaconda Plan” that entailed naval blockades and the seizure of the Mississippi River, served to lengthen the war.<sup>11</sup> The strategy that finally ended the war was that of total war. As Grant’s army held the Confederacy at bay in the eastern United States, General Sherman’s army penetrated deep into the southern states, destroying every Confederate military and economic asset along the way.

When offered the chance to save themselves from “the devastations of war preparing for [them], only by withdrawing [their] quota out of the Confederate Army, and aiding [General Sherman] to expel [the Confederate Army] from the borders of the State,” the Georgian government remained indignant.<sup>12</sup>

Sherman then razed Atlanta and proceeded on his historic march to the sea, again, destroying everything in his path. As Sherman’s march continued, he slowly eroded the Confederacy’s ability to wage war, and in April 1865, General Lee, finding himself and his army between two Union Armies, surrendered to General Grant at Appomattox Court House. The Army of the Confederacy laid down their arms, parked their artillery and went home, never again to take up arms against the Federal Government.

### Limited Defeat

The United States has not always adopted the total war philosophy for various reasons. The U.S. military adopted a limited war strategy for the Korean War in the early 1950s. The fear of escalation and global nuclear war between communist China and Western Allies caused the U.S., under the leadership of President Harry S. Truman, to refuse the use of nuclear weapons against North Korea and its Chinese allies, as well as refuse to invade China. After 3 years of fighting, the U.N. forces, under which the U.S. fought, were only able to re-establish prewar conditions along the 38th parallel.

Today, this cease-fire agreement remains fragile, occupying a great deal of U.S. military power, and allowing North Korea’s government to retain its adversarial role in Western politics. For the first time, U.S. military leaders were restricted in both the weapons they were permitted to bring to bear against the enemy, and the geographic areas in which they were permitted to operate.<sup>13</sup> Politicians and multinational organizations now dictated strategic and, at times, tactical decisionmaking. War was now conducted to meet political goals and create conditions necessary to negotiate agreements and attain certain

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political concessions from the enemy, not to destroy it and render it incapable of future operations.

The U.S. followed a similar strategy during the Vietnam War in the 1960s and early 1970s. So great was the fear of escalation and nuclear reprisals from the Soviet Union during this era, that the United States proceeded with a limited war strategy to suppress the communist North Vietnamese attacks on South Vietnam.<sup>14</sup> The U.S. policy of gradual escalation operated under the assumption that a steady increase in the amount of military presence in the region, coupled with an equal increase in the intensity of the conflict, would eventually convince the enemy to comply with U.S. demands.<sup>15</sup> Against an opponent that was able to match each U.S. escalation and stood defiant in the face of increased conflict intensity, this strategy was doomed from its inception.<sup>16</sup>

U.S. forces were not permitted to enter known North Vietnamese refuges and attack supply lines in Cambodia and Laos. Hanoi, the North Vietnamese capital city, was not bombed, and its harbor not mined. Finally, on 30 April 1975, South Vietnam fell after the United States stopped military and financial support to the region. Henry Kissinger, in his book *Years of Renewal*, very adeptly summarizes the United States' inability to continue combat operations in this environment, "Idealism had propelled America into Indochina, and exhaustion caused us to leave."<sup>17</sup> The defeat was not only a major embarrassment to the U.S. military, but also signified a major step back for the Western Allies in their continuing struggle to combat Soviet communist influence around the globe.

Even the Gulf War was limited in strategy and success. Many people believe that due to the relatively disproportionate losses dealt the Iraqis by U.S.-led coalition forces, this conflict should be seen as a total war-type suc-

cess. This, however, is not the case when one examines both the political restraints placed on the military during the Gulf War, and the current state of affairs that exist due to certain unrealized or misplaced goals. Though the Gulf War did resemble the total wars of the past, in that all aspects of the Iraqi military machine were attacked during the 41-day air war, the fact that a large amount of the Iraqi Republican Guard and other units were allowed to escape from Kuwait into Iraq, and Saddam Hussein was permitted to remain in power, attest to the limiting factors during this operation.<sup>18</sup>

Today, Saddam Hussein is still allowed to play a role in the world community. His refusal to allow U.N. inspection teams into Iraq, his continuing attempts to smuggle oil out of his country and into the global economy, and his constant efforts to develop weapons of mass destruction continue to plague the post-Gulf War world community. The U.S. military may have cured the symptom of Iraqi aggression, but it has yet to cure the disease, that is, Saddam Hussein and his maniacal foreign and domestic policies.

### **The Future of Total War**

Today the United States stands in a relatively complicated position. Though history has proven that limiting military efforts during conflicts rarely provides the options necessary to achieve success on the battlefield and to achieve all of the desired political goals, the U.S. military must now deal with issues that were nonexistent in the 1800s and early to mid-1900s. Today, the military is forced to deal with issues such as low-intensity conflict, an all-volunteer force, and maintaining the moral-ethical high ground in the world community. Either a decision must be reached regarding the management of these pressures, or a vast overhaul of the U.S. military must occur to maintain a force that is capable of sustaining total war operations.

The all-volunteer force is the first issue that the U.S. military must address. Since the end of the draft in the mid 1970s, the U.S. military has relied on volunteers to fill its ranks. This has caused a rather complicated problem — the military needs to put soldiers in harm's way to achieve its goals, but in doing so, risks eliminating its recruitment source. In an army in which 41 percent of incoming recruits enroll in the Army College Fund, it is obvious that service to one's country is not the overwhelming desire of most young soldiers.<sup>19</sup> As soon as the military begins to show casualty numbers, the Army's image as a relatively safe way to pay college tuition becomes flawed, causing young people to opt for other means to finance their educations. In this situation, not only does the military lose recruits, it then becomes necessary to initiate stop-loss programs to retain soldiers.

With an army of finite size, "if victory, and even a repeated victory do not bring an end to the war, the question then arises whether the expense of restoring an army damaged by its victory is not as important as the victory itself."<sup>20</sup> The most successful way, then, of maintaining a large, dedicated force with which to fight these types of modern conflicts would be to reestablish the draft to some degree. The U.S. Government selective service programs have been shown to be less than adequate. With the problems experienced during activation of National Guard units during the Gulf War, the U.S. Army would be hard-pressed to demand service from someone who has no intention of serving and does not feel contractually obligated to do so. By maintaining a moderately sized conscripted force, the military would have a constant influx of new personnel during times that the idea of serving in the military does not seem like a life-enhancing opportunity to average 18 to 25 year olds. Currently, many European countries have man-

datory 2- to 3-year service obligations, and with the current war on terror, it may be time for the United States to follow suit.

The war on terror is the next problem facing today's military. Globally, the U.S. military finds itself conducting numerous peacekeeping and peace-enforcement operations, in what have become known as operations other than war, support and stability operations, and low-intensity conflicts. Conflicts such as regional wars, ethnic hatred, insurgencies, and terrorism, will not be viewed by the public or the media as war, but these conflicts will still interrupt global tranquility and U.S. interests in the global community.<sup>21</sup> Conducting total war in this arena becomes a bit more complicated because there is not a specific nation-state to attack.

Problems in places such as Afghanistan, Bosnia, and Kosovo do not readily present total war solutions; however, the total war principles remain the same. Eliminating the enemy's ability to make war and create problems in his native region and globally, is in keeping with the overall intent of total war. This does not, however, mean that the intervening country maintains a peacekeeping force in the region. By following total war doctrine, the intervening country seeks to militarily eliminate the combat power and political leadership of the aggressors in these regions. Removing heads of state, such as Slobodan Milosovic in Yugoslavia, is a key part in the eventual success or failure of these operations. The United States must aspire to make peace in these regions, not simply settle for keeping peace if it plans to decrease its OPTEMPO and increase its preparedness for large-scale operations in future global hot spots.

Finally, the military must maintain the moral and ethical high ground in the world community. While this stance does require doing away with targeting innocent civilians during times of conflict, it does not necessarily dictate that soldiers be placed in more danger to safeguard enemy civilians. One of this country's founding fathers intimated that it was not only the right of the people to do away with a government that they believed to be criminal or morally and ethically devoid, but it was their obligation as citizens of that nation, and as men. During the Civil War, Sherman's forces evacuated the city of Atlanta prior to razing it. U.S.

forces in Bosnia and Kosovo routinely assist refugees and other people hurt by the war.

These are all fine examples of doing the right thing, however, when civilians allow themselves to be pulled into the fight, they forfeit their rights as civilians. If there are command and control facilities beneath a childcare facility, such as there were in Iraq, then the civilians in that area assume the risk inherent with those conditions. The United States needs to realize, as does the media, that it is the responsibility of the opposing government to safeguard its citizens according to the guidelines set forth in the Geneva and Hague Conventions. Churches, hospitals, and historical monuments must be honored as safe areas, and it is the responsibility of both parties to refrain from targeting civilians to the utmost of their abilities, but only to the extent that those structures and locations do not represent viable military objectives.

In 1945, 95,000 Japanese civilians were killed to save the lives of hundreds of thousands of U.S. soldiers during World War II. This should be the model for total war of the 21st century. No longer can the U.S. military be placed in a situation like the one in Somalia. It cannot allow the feelings of the world community to dictate the policies involved with its military deployments. Had the Rangers in Somalia been equipped with the armor support they so desperately needed, more young men would have come home from Mogadishu, and the U.S. may have even realized its goals.

Throughout the past 200 years, total war philosophy has shown itself to be a highly successful means for conducting war. Limiting oneself to specific weapons, regions, and practices has proven to be costly in terms of human and collateral losses, and ineffective in ending aggression toward the United States and its allies. If the United States continues to pursue limited warfare objectives in areas such as Somalia, Afghanistan, Kosovo, and Bosnia, it will continue to have only limited successes. Total war methods not only provide a means with which to end conflict and eliminate enemies, but also to serve as a deterrent to others, who would attempt to disrupt global tranquility, interfere with U.S. interests abroad, or attempt to attack the sovereignty of the United States. The United States has been truly successful only when it has completely destroyed the enemy and

forced unconditional surrender. By limiting war, one risks fighting the same enemy again and again, and in the worst-case scenario, one risks defeat.

## Notes

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

<sup>2</sup>John I. Alger, *The United States Military History Series: Definitions and Doctrine of the Military Art Past and Present*, Avery Publishing Group Inc., Wayne, NJ, 1985, p. 1-2.

<sup>3</sup>Doughty, p. 913.

<sup>4</sup>Ibid.

<sup>5</sup>Ibid., p. 719.

<sup>6</sup>Ibid., p. 720.

<sup>7</sup>Ibid., p. 732.

<sup>8</sup>Ibid., p. 838.

<sup>9</sup>William T. Sherman, *Memoirs of General William T. Sherman*, Da Capo Press, Inc., New York, 1984, p. 382.

<sup>10</sup>Sherman, pp. 382-83.

<sup>11</sup>Timothy H. Donovan, et al., *The West Point Military History Series: The American Civil War*, Avery Publishing Group Inc., Wayne, NJ, 1987, p. 11.

<sup>12</sup>Sherman, p. 139.

<sup>13</sup>Doughty, p. 873.

<sup>14</sup>Ibid., p. 913.

<sup>15</sup>Ibid., p. 914.

<sup>16</sup>Ibid., p. 920.

<sup>17</sup>Henry Kissinger, *Years of Renewal*, Simon and Schuster, New York, 1999, p. 463.

<sup>18</sup>General Robert H. Scales, *Certain Victory: The U.S. Army in the Gulf War*, U.S. Army Command and General Staff College Press, Fort Leavenworth, KS, 1994, p. 315.

<sup>19</sup>Ibid., p. 17.

<sup>20</sup>Hans Delbruck, *History of the Art of War, Volume IV: The Dawn of Modern Warfare*, trans. Walter J. Renfroe, Jr., University of Nebraska Press, Lincoln, NE, 1990, p. 296.

<sup>21</sup>Donald M. Snow, *The Shape of the Future: The Post Cold War World*, 2d ed., M.E. Sharpe, Inc., Armonk, New York, 1995, p. 212.

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# Keeping the Sword Sharp

by Major Harold M. Knudsen

The conclusion of the Cold War ended the balance of power once insured by a world made up of two armed camps. The subsequent dissolution of the Soviet Union left the United States as the world's only preeminent superpower. With no monolithic rival, the United States undertook a military drawdown in the 1990s and reduced military spending to provide money to expand domestic programs that lawmakers thought were more important.

By the late 1990s, the Army went from a force of 18 divisions, which had three brigades each, down to 10 divisions, some of which now only have two brigades. While decreasing in size, the Army saw its commitments and deployments rise dramatically. The remaining force structure gained few upgrades, as the Clinton administration relied on the Reagan legacy equipment throughout its tenure. Thinly stretched resources and manpower still tied to the traditional two-theater war requirement, were now coupled with a multitude of peacekeeping missions, post-Gulf-War theater presence requirements, and a gaping need to begin another transformation. Various peacekeeping missions and the current war in Afghanistan have many proponents of further drawdown fostering the view that future wars will be laser-guided affairs, primarily using airpower and small ground units. Some of this intellectual incontinence declares that large land wars, M1 tanks, and Crusader howitzers have no future, and keeping heavy divisions equates to maintaining an obsolete Cold War army. This is complete and utter nonsense.

The world is a complex and unpredictable place, and no one knows what the landscape may be in 10 years. While many aspects of Cold War thinking can and should be abandoned, the notion that our current force structure of 10 divisions is a Cold War force is erroneous. For the moment, the Army is engaged in a small land war in Afghanistan, but is now somewhat under-resourced for a high-intensity conflict. What are needed, along with components of transformation composing

lighter, quickly deployable elements, are plenty of heavy equipment sets and enough robust divisions capable of fighting high-intensity wars — an Army that has the right mix of varied capabilities.

## 1940 – 'Poor France' Defeated by a Cult of Complacency

Marc Bloch, French army officer and scholar, wrote in 1940 concerning the defeat of France that year, "We have just suffered such a defeat as no one would have believed possible."<sup>1</sup> In his book, Bloch outlines what happened to a seemingly prepared and robust French army that fell victim to a smaller German army that, although not better equipped, proved superior in organization and doctrine.

The French army's was a defeat fostered by a cult of thinking in the French military that France was militarily superior to Germany and that their insurance policy in choice of organization and doctrine was correct. Save that of De Gaulle, military planners believed the correct use of the tank was as an infantry support vehicle, and subsequently organized their army such that the tank was relegated to a support role. They also built a massive barrier along the Franco-German border called the Maginot Line, and believed it to be impenetrable. In the years following World War I, France believed Germany could no longer successfully invade its soil.

Events proved France wrong. Within a few short years, Germany built an army capable of offensive operations. German military thinkers favored tank concentrations and organized the first tank divisions, pioneering a style of offensive armored warfare known as Blitzkrieg. During 1940, they skillfully maneuvered their powerful tank formations through and around the Maginot line and crushed France in 6 weeks.

The United States has no parallel to France's 1940 defeat. America has, however, suffered painful beginnings in most of the wars in which it has engaged. Historically, the United States

has not maintained an adequate force structure during peacetime. Kasserine Pass, Bataan, and Task Force Smith, still loom as somewhat recent examples of this.

The lessons learned from France's 1940 defeat exist because France's perceived superiority was an illusion. A current parallel to this thought is that some contemporary defense observers perceive the future devoid of large conflicts, requiring no large standing army. Another danger is following the popular belief based on the Gulf War experience, that we would now overcome opponents' size advantages with technology. During the coalition's war with Iraq, Soviet General Nikolai Kutsenko stated, "Iraq's armament, including that which is Soviet made, was primarily developed in the 1960s-1970s and lags at least one-to-two generations behind the armament of the multinational forces."<sup>2</sup>

Based on experiences during 1990, the idea that smaller is somehow more effective and better across the spectrum of operations is a myth.

## Becoming the Wehrmacht of 1943-1945?

It is important to excel at operational maneuver, but it should not be the only play in the book. Ensuring we have enough heavy divisional force structure is just as important as the transformation toward technological advantage and improved deployability. While it made sense to take down excessive force structure in Germany following the decline of the Soviet Union, a minimum number of divisions should be recognized as the benchmark below which the Army will not fall. The reason for justifying a minimum level need not be tied to a formula decided on by think tanks' en vogue far out vision of future war. One guideline we should first and foremost recognize and understand is the timeless reality that at some point quantity has a quality all its own.

World War II Germany, for example, tried to make up the difference against



*“Some of this intellectual incontinence declares that large land wars, M1 tanks, and Crusader howitzers have no future, and keeping heavy divisions equates to maintaining an obsolete Cold War army. This is complete and utter nonsense.”*

the allies' superiority in resources with quality and advanced technology. An excellent illustration of this can be seen in the types of tanks they produced during the last 3 years of the war. The Panther, Tiger, and King Tiger series tanks and assault gun variants were extremely powerful vehicles in their time, and possessed many advantages over the two main allied battle tanks: the American Sherman, and Russian T-34. All three German tanks were able to stand off the allied tanks easily, as their high velocity 75- and 88-mm main guns were of greater size and velocity, granting them range and hitting advantage. If the engagement was within allied tank range, their thicker armor gave the Germans another advantage, as they could withstand frontal hits without fear of penetration from the allied tanks' low velocity 76-mm main gun. Admittedly, there were numerous occasions where German tank design advantages allowed veteran crews to enjoy successes in many tactical engagements, against several times their number. However, the larger, thicker armored, harder hitting Panthers and Tigers still could not provide the decisive advantage in the war.

In the end, attrition wore down the German armored formations. The best King Tiger tank battalions still suffered losses and were pushed back in face of the overwhelming number of American or Russian units they were required to engage. Without time to rest, make repairs, and fill losses, constant allied pressure took its toll on German front-line formations. Eventually, German units became combat ineffective, any advantage of superior equipment was negated. In contrast, the allies could afford heavy losses, pull mauled units out of the line to rest, refit, and replace them with fresh ones. The same is still true today. An army composed of small

divisions and independent brigades cannot be expected to be effective across the entire warfare spectrum. To avoid attrition warfare is to set ourselves up for future defeat where an opponent who has overwhelming numbers will someday force fewer U.S. formations into a pitched battle.

The United States Army is not now in a position like the Wehrmacht of 1943-1945. However, we must realize as politically incorrect as attrition warfare currently may be, attrition is a facet of war that is eternal. More is to come, and we cannot avoid it any more than could Rommel at El Alamein, Robert E. Lee at Petersburg, or any other army that relied solely on maneuver warfare.

#### **Maintaining Robust Force Structure in an Uncertain World**

Over the past 50 years, the size of the U.S. Army was mostly based on countering the Soviet Union. This tendency has led some to think if there is no major threat, we can have a smaller Army and rely on advanced technology as America's ace. Therein lies one major challenge: move away from specific threat assessment as the only justification for maintaining a robust standing Army, and adopt the mindset that we need an Army based on varied capabilities.

Now we are at war again. Although Afghanistan's Taliban army and al-Qaeda terrorist reinforcements have proven no match for a small American land force, this war does not prove correct any assumption that a large rival will not emerge. In actuality, the chance of threats emerging today is greater than during the Cold War. Any instigator of a conflict during the Cold War was very likely a subordinate of either the East or West block. To make war in this world was, in many instances, less

likely as the superpowers and their allies made such action by a single state difficult, if not impossible. The two armed camps did, in a somewhat positive way, manage to keep subordinates in line, very often with little effort.

Today the landscape is different. There exist regional powers that, by virtue of population, resources, and geographical size, are peers or even eclipse the United States. India, Pakistan, China, and several states in the Middle East are also far from peaceful, and regularly engage in arms races and confrontation with their neighbors. Any one of these nations could change defensively postured militaries into offensive capabilities. Even worse, a coalition of such nations, well organized and well led, in a few short years could field a coalition army so large that it would make that of the United States and NATO pale in comparison.

#### **Do Recent Advancements Rate as an RMA?**

Some defense observers suggest a revolution in military affairs (RMA) is currently taking place, of which the United States must take advantage.<sup>3</sup> Whether or not there truly is an ongoing RMA is debatable. If the theory holds true, any current RMA would be in the realm of long-distance, precision-guided missiles, battlefield situational awareness, stealth, and information technology. The United States must continue to use these resources to its advantage.

The Gulf War did provide (on television) an almost entertaining stage for precise stand-off strikes, leading many to believe they were the decisive weapons of the war. In truth, despite the losses, these weapons inflicted, they did not drive the Iraqi army from Kuwait. The tanks, infantry, and artillery took all the actual ground in Iraq and

Kuwait. As stated in a 1996 General Accounting Office report of Gulf War assessment, "In truth, the results of the air campaign were mixed. The claim by the U.S. Air Force that airpower alone defeated the Iraqi Army, has not withstood even brief examination. Airpower failed to destroy 50 percent of Iraqi's armor as advertised."<sup>4</sup>

Like many other wars in the past century, this type of bombardment and preparation is limited in effect. The artillery preparation by the armada of allied ships and the air preparation that pounded the German positions along the Normandy coast the morning of the D-Day invasion in 1944, were also limited in their effects. German soldiers still had to be cleared from their defensive positions by waves of attacking infantry. The situation in Iraq during 1991 was the same.

Thus, it is more accurate to say these advancements are actually expected improvements in the ongoing evolution of military capability, and do not necessarily mean an RMA. The new laser-guided bombs, for example, are still fire support assets that comprise only part of the larger equation of conducting a battle or campaign. These weapons do not win battles and wars single-handedly. They are not such an advantage like the Maxim gun was to the British, who defeated the comparatively primitive Sudanese at Omdurman in 1898, giving rise to an imperialistic doggerel of the period, "whatever happens, we have got the Maxim gun, and they do not."<sup>5</sup>

American air-delivered weapons are believed to be decisive because during the Gulf War and the Kosovo campaign they were given an unusual spotlight in unusual circumstances.

### **Blitzkrieg Was the Last True Land Warfare RMA**

A true military revolution that might change the complexion of land warfare has yet to arrive in a definitive character. The last true military revolution that changed ground warfare was the German Blitzkrieg doctrine. Although Blitzkrieg has undergone some name changes and modifications over the decades, such as adding the helicopter in the 1960s, and the American combined arms warfare in the 1970s and 1980s, it is largely intact. Indeed, the multiple heavy armored divisions offensive into Iraq in 1991 (while executed from the left) had an uncanny simi-

larity to Field Marshal Manstein's Blitzkrieg application for invading France in 1940 (executed from the right of center) and is a clear reminder that heavy offensive armored warfare is relevant. The tank organized into divisions, synchronously supported by infantry, artillery, and the other branches will continue to dominate warfare in the type of terrain that supports such massed forces.

### **Transformation Focus: Deployability & Medium Capability**

During the Gulf War, the coalition had precisely the right instruments at precisely the right time to deal with Saddam Hussein — many heavy armored and mechanized divisions in Europe and the United States, robust and highly trained. These divisions were perfect for ejecting the Iraqi army out of Kuwait. However, the most powerful divisions were garrisoned and logistically bound to Germany, as their Cold War mission was to move out of their garrisons, and roll a few hundred kilometers to general defense positions in the Fulda Gap. Moving these organizations to the Middle East was an unforeseen contingency that was simply going to take time.

Despite victory in the Gulf War, the lessons of force projection difficulties came home to roost as a significant concern. The Army had one division it could quickly deploy — the 82d Airborne Division because it lacked armor. Fighting heavy armored forces in a desert environment is the airborne organization's worst nightmare. Fortunately for the 82d Airborne Division, the Iraqis stopped with Kuwait and left them alone. Lacking heavy equipment, airborne troops are easy targets for tank and mechanized forces in terrain that affords no cover, other than the foxholes that paratroopers can dig. Conversely, while heavy forces dominate the battlefield once in place, moving them in a timely manner was a problem. Airlift was very limited, and mostly not an option beyond moving a few select heavy pieces of equipment per lift sortie. The roll-on roll-off ships remedied the situation to a degree, but were still too few in number.

Contingency operations, such as those in the former Yugoslavia, Somalia, and Haiti, also challenged the military's ability to project force quickly, and further illustrated the unsuitability of heavy armored forces in peacekeeping environments.

Changes are needed to transform at least part of the Army into a force that can be quickly deployed to a troubled spot or an ongoing commitment. The current transformation goal is to outfit units with lighter, more transportable vehicles to meet the Army's goal to deploy a combat ready brigade within 96 hours, followed by a division within 120 hours, and five divisions within 30 days.<sup>6</sup> The fact that we have been engaging in these kinds of theaters establishes that some of our forces will have to be redesigned as an adaptation to the variation of current commitments.<sup>7</sup>

This change is more akin to the extensive use of horse cavalry in the American West following the Civil War, and using the correct type of force and equipment to the corresponding terrain.

At the end of the Civil War, large, slow-moving regiments and divisions of infantry and artillery were the dominant forces, but were unsuited for campaigning against highly mobile Indians over vast spaces. Certainly no Indian force would have been able to survive against a regiment of Confederate or Union infantry deployed on line, delivering volleys of musket fire. However, these large infantry organizations would have never closed with the Indians. Only smaller horse units could cover the ground and pursue bands of Indians in the vast Plains environment. Similarly, this is true for the heavy tank division and its relative unsuitability in the Bosnia environment. The heavy M1 tank, for example, is a lumbering behemoth when forced to maneuver in tight old world Balkan villages, or when traveling along muddy mountain roads barely as wide as its width. Large, heavy M1 tanks are without equal in the former Yugoslavia; their crews need fear no encounter with an armored vehicle of the former warring factions. However, in heavily wooded and hilly terrain, the M1 is restricted in its movement, and susceptible to infantry and mines. Just as the cavalry troop was the formation of choice in the expanses of the 19th-century American West, medium tanks, such as the Danish version of the Leopard I, armored HMMWVs, and other similar vehicles organized into smaller units, are better suited for operations in the Balkans.

Thus, the current concept of transformation is to create lighter, more mobile, rapid deploying units by outfitting them with lighter vehicles for quicker transport. Something that bridges the gap between heavy and light, and that



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covers the realm of medium operations. The light armored vehicle (LAV) series wheeled vehicles of the new interim brigade combat team (IBCT) would stand no chance in an engagement against a main battle tank, nor should it. It is a vehicle for an interim ground unit stronger than a parachute brigade, almost as quickly deployable, but probably not heavy enough for high-intensity conflict.

### **We Must Keep Enough Heavy Divisions**

Transforming at least part of the Army into highly mobile units better suited for complex terrain and quicker movement is a move in the right direction. However, redesigning forces should not be an effort to change the entire Army into a force of smaller units comprised of lighter, smaller vehicles that can supposedly defeat heavy armor. Force structure choices should not be guided by a cult belief of an unclear role for heavy forces in the future. The role of heavy force structure is clear: to fight high-intensity campaigns and wars. As we focus on striking the correct mix of heavy, medium, and light force capabilities, the heavy forces we retain should not be reconfigured outside of their operational purview. They should be improved and modernized within their level and type of warfare, and not deployed to, or left in places, such as Bosnia, after the implementation force is complete.

### **Warfighters Fight Wars**

Heavy divisions should stay out of the peacekeeping business and focus solely on warfighting. Extensively using troops from heavy divisions for peacekeeping operations during the 1990s should be viewed as something we have successfully gotten away with, done only when no other type of soldier is available.

The primary reason to avoid sending heavy division combat troops on peacekeeping missions is a hidden danger of eroding high-intensity combat effectiveness that might be a side effect of repeated peacekeeping. Perhaps the most overlooked and detrimental aspect of peacekeeping is how training for and conducting peacekeeping will distance the soldier's psychological focus away from the battlefield — his most basic purpose as a soldier. The purpose of engaging in combat with enemy soldiers is to kill them, take them prisoner, destroy their units and their will to fight, and seize victory on the battle-

field. Too much exposure to the constant practice of peacekeeping might diminish our Army's warrior spirit that is so very vital to successful warfare.

At the individual level, a soldier's career should include different and varied experiences — there is more to soldiering than fighting. Combat units earmarked for combat should not be used for peacekeeping. A soldier's tour in such a unit should remain focused while he is there, and not venture too far from the techniques that have been developed by armies over the centuries to condition soldiers to overcome their fear of violence and resistance to killing.<sup>8</sup>

Considerations to commit mainstream combat troops in military operations other than a war should only be done when deemed vital to the United States, and in such cases, combat units should function more like an army of occupation.<sup>9</sup> When combat troops are sent in to conduct a military occupation, they must make it clear to the soldiers that they are occupiers: enforcers of rules set by military authorities, rules that will be obeyed by the local population. Soldiers as occupiers are constantly vigilant, and ready to engage in combat when any opposition may arise.

The benefits of keeping combat units free from peacekeeping would be many. The regular Army could narrow its focus toward the proper force structure and create units that will make up the combat-capable Army. Equally important, the training focus could go back to what it should be — honing warfighting skills and preparing for the next war.

### **Keeping the Sword Sharp – Focus on Doctrinally Based Capabilities**

Eighteen active component divisions was the force deemed adequate to deal with an assault on West Germany by the Warsaw Pact, and also manage a simultaneous conflict in Asia — most notably on the Korean peninsula. Today, however, the Army is performing more missions than during the Cold War. The 10-division force of today is in no way, shape, or form a Cold War army, and should not be considered one. There does not need to be a direct correlation between the now obsolete two major theater wars (MTW) concept and how much force structure we need. In a more uncertain world, the two MTWs concept overinsures the country against the risk of specific regional conflicts, and detracts from global flexi-

bility.<sup>10</sup> While threat analysis is always paramount in planning, in this period of no clear rival, we can place less emphasis on past monolithic threats, and establish doctrine as the most logical determinant for how much force structure is needed.

According to doctrine, we should retain at least two corps of heavy forces, comprised of one armored and one mechanized division each (a total of four), for high-intensity conflict in regions that support maneuver and attrition warfare. Two corps would allow the Army to start a conflict with a theater level effort, affording the Army a decisive force at the beginning of a major conflict, while reinforcements are being marshaled within the United States.

Two corps of light forces would also be maintained, containing two divisions each, for conflicts and missions in terrain best suited for these types of units. These two corps would be the doctrinally correct strength level to deal with a threat decisively. The two heavy and two light corps comprise the first eight divisions, and the two remaining are the 101st Air Assault Division, and the 82d Airborne Division; both specialty divisions that are generally used for quick deployment, and later augmentation of corps in a theater.

Subordinate to the corps and divisions, and initially separate, are the 15 enhanced National Guard brigades and the IBCT, all used for quicker deployment to hot spots that do not initially require heavy forces.

### **Divisions are the Best Self-Supporting Combat Organizations**

While creating some independent brigades called for in the new transformation concept will allow the Army to project limited force to a hot spot, the division as an organization will more than likely keep its place in modern warfare. It is still the best self-sustaining formation for high-intensity warfare in a large theater of operations.

Doctrinally, divisions are basically comprised of three maneuver brigades: an artillery brigade-sized element, an aviation brigade, and a brigade-sized equivalent of logistics direct support to the fighting elements. It is the best fighting organization that bridges the gap between the tactical and operational levels of war. It has two headquarters: one that focuses on the near fight and is designed to fight brigades;

and one that coordinates logistics, and does most of its planning beyond the current fight. These are capabilities a brigade does not have, and it would make little sense to duplicate in a brigade-sized area of operations.

The fact that a division can fight brigades means that it can add to its three organic brigades, and easily manage four or five brigades smoothly, if a situation arises where the corps commander deems it necessary to reinforce the division that he assigns the mission of main effort. This type of command and control in a high-intensity conflict would be difficult for a brigade operating independently, and depending on the type of headquarters and staff it has, to effectively control follow-on brigades. Who is in charge of coordinating a concentration at the right time is an issue when there are several peers who have different perspectives on the situation. Frankly, when there are two or more of the same size unit, there must be a boss such as a higher level headquarters with a commander of the proper rank and experience.

Divisions also add enduring survivability to the Army. For example, during the 1950s, the Army undertook another transformation — the Pentomic Division. This organization was based on five platoons per company, five companies per battalion or battle group, and five combat brigades.<sup>11</sup> This was done so that the division had enough brigades to survive strikes by Soviet tactical nuclear weapons that might render one or more brigades combat ineffective. In this atomic age, the Army decided to disperse its brigades over a larger division area of operations, presenting less of a lucrative target and regaining a margin of safety against a strike by a tactical nuclear weapon.<sup>12</sup> Even if one brigade was sufficiently damaged by a strike, the division commander still had enough units to concentrate on an operation. A division such as the old Pentomic design was most definitely in need of a robust staff and headquarters element to control a widely dispersed group of brigades. The brigades, on their own, would be hard pressed to continuously and accurately know the whereabouts of the other brigades.

However, the division is shaped by transformation, it will be decades before the basic design of the division

that has served armies over the past 100 years will go away. As far as the next few decades, at least 10 full-strength divisions of either heavy, light, and specialty need to remain in the inventory to train and remain ready.

When we look at the world, we see an indescribably complex and infinite array of objects and events, which cannot easily be forecast.<sup>13</sup> Therefore, the right road is to abandon overly specific theater war scenarios, or overly specific threat scenarios. But those who believe that high-intensity wars and wars of attrition are historical are wrong. Even if we view the absence of the Soviet Union as a safer period, we should still maintain a minimum of 10 full-strength divisions in the Army. Even unlikely threat scenarios and the absence of a major rival do not justify further cutting of army divisions.

Accordingly, innovation and technology that allows us to enjoy superiority over many real or potential foes must not be counted on as decisive by itself. Those who believe that M1 tanks, Crusader howitzers, and other heavy equipment are obsolete are also wrong. There is still no substitute for having enough muscle in the form of heavy units organized into brigades, divisions, and corps that can ultimately compose a theater-level war effort when needed.

Many military events in the 1990s resulted favorably for the United States, despite multiple missions requiring our Army to do things and go places that was not particularly easy. The soldiers and leaders still took on the tasks, adapted, and accomplished the missions with great success. Difficulties, and minor failures were few, and resulted in no real harm to the force or the nation.

Still, we must avoid using the lopsided victory against Iraq during 1991 to measure technology's effectiveness. We should heed the lessons we experienced with the slow force projection during the Gulf War and other contingencies, while we undergo transformation. Transformation should enhance deployability, but should retain and continue to improve heavy forces that can be called on to fight high-intensity conflicts. These forces should not be reduced, they should not be used for missions out of their very difficult specialty, and they should not train in ways

that detract from their readiness to engage in the most vicious, high-intensity scenarios that we can anticipate.

## Notes

<sup>1</sup>Marc Bloch, *Strange Defeat: a Statement of Evidence Written in 1940*, WW Norton and Company, New York, 1968, p. 25.

<sup>2</sup>Douglas A. Macgregor, *Breaking the Phalanx: a Design for Landpower in the 21st Century*, Praeger Press, Westport, CT, 1997, pp. 44-45.

<sup>3</sup>Philip Meilinger, "U.S. Defense Review: Forward to the Past?" *Defense News*, Vol. 16, No. 22, 6/4-10/01, p. 17.

<sup>4</sup>John Pimlott and Stephen Badsey, *The Gulf War Assessed*, Arms and Armour, London, 1992, p. 272. Also see the U.S. General Accounting Office Report, titled "Operation Desert Storm: Evaluation of the Air War," Government Printing Office, Washington, DC, July 1996, pp. 4-5.

<sup>5</sup>Hubert P. Van Tuyl, *America's Strategic Future A Blueprint for National Survival in the Millennium*, Greenwood Press, Westport, CT, 1998, p. 20.

<sup>6</sup>Department of the Army Memorandum, "Stationing Objectives," 26 June 2001, p. 13.

<sup>7</sup>Van Tuyl, p. 20.

<sup>8</sup>Dave Grossman, *On Killing: The Psychological Cost of Learning to Kill in War and Society*, Little, Brown and Company, Boston, 1995, p. xxix.

<sup>9</sup>Sam C. Sarkesian and Robert E. Connor, Jr. *The Military Profession into the Twenty-first Century*, Frank Cass, London, Portland, 1999, p. 15.

<sup>10</sup>Michael E. O'Hanlon, *Defense Policy Choices for the Bush Administration 2001-05*, Brookings Institution Press, Washington, DC, 2001, p. 74.

<sup>11</sup>A.J. Bacevich, *The Pentomic Era — The U.S. Army Between Korea and Vietnam*, National Defense University Press, Washington, DC, 1986, p. 5.

<sup>12</sup>*Ibid.*, p. 68.

<sup>13</sup>*Ibid.*, p. 82.

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# Thinking Outside the Maneuver Box

by Captain Michael R. Evans

*There is no teacher but the enemy.*

*No one but the enemy will ever tell you what the enemy is going to do.*

*No one but the enemy will ever teach you how to destroy and conquer.*

*Only the enemy shows you where you are weak.*

*Only the enemy tells you where he is strong.*

*And the only rules of the game are what you can do to him  
and what you can stop him from doing.<sup>1</sup>*

Orson Scott Card hits on an important point in his 1977 science fiction short story: there are no rules in war, everything is fair, and nothing is off limits. There is not an end of exercise, no after action review (AAR), no demarcated maneuver box, and battles do not occur in predetermined time limits that allow restarts. The scope of the exercise is infinite, and everything is fair game. The potential for complacent routine that can lead to tactical disaster is enormous. Training is key to ensuring that an enemy does not teach the most costly lessons.

U.S. Army Field Manual (FM) 25-101, *Battle Focused Training*, tells us what we have all heard and know: that training is the commander's first responsibility.<sup>2</sup> Today this is as true and as challenging as ever.

The challenge is to train with the greatest possible tactical realism and free-play, replicating the fast-changing and adaptive threat. We have made a good attempt toward this goal over the past 2 decades, the most noteworthy being the development of the three combat training centers (CTCs).<sup>3</sup> These premier sites provide the most realistic training available today. They do so, however, with significant cost in time, space, environmental impact, and physical and fiscal resources. Training does not start and end in this classic realm of live training. After all, the Army trained for many years without the CTCs. Today's CTCs are merely the acme of the Army's live collective training methodology. The methodology has been with us for some time; today we have new technological tools to enhance that methodology. The same technology that has accelerated change in the threat envi-

ronment also offers new tools that can be used to prepare for that threat.

Our training tools are multiplying; they are generally divided, however, into three venues differentiated by the environments in which they operate.<sup>4</sup> Each venue has its relative strengths and weaknesses. They are not ends unto themselves because simply throwing tools at a training objective fails to exploit the potential for synergy in combining those tools. The right tools from the right venues must be employed, but they must also be employed in such a way that their effect is not merely cumulative, but complementary. The challenge is to choose the correct combination, maximizing opportunities while minimizing limitations.

The CTCs best teach interaction with the complete combat arms and supporting team. This is best done in a multi-echelon environment that accurately replicates the interaction of higher, adjacent, and subordinate elements. This is not an idea unique to the CTCs. FM 25-101 states that, the commanders' responsibility is "...training one level down and evaluating two levels down; for example, battalion commanders train company commanders with their companies and evaluate platoon leaders with their platoons."<sup>5</sup> This is an enormously complex process, much more so than it might seem; it is a three-dimensional process in which each component part affects other individual component parts, often in a nonlinear way. A unit interacts not only with its subordinate elements, but also with those of adjacent or higher units, and even with other units scattered throughout their battlespace. This interaction is an integral part of realistic training,

particularly in regard to team building and cohesion.<sup>6</sup> The benefits of training in this way transcend individual levels of expertise, for they affect the collective skill and cohesion of the organization.<sup>7</sup> Much of this collective benefit is lost to personnel turbulence, which merely highlights the importance of this relationship.<sup>8</sup> The challenge is to expand the collective training benefit of the CTC experience. The CTCs are incredibly resource-intensive and capable of only a limited number of exercises. It is simply impossible to provide CTC training to all Army units at a rate that would compensate for the ongoing loss of collective skill to personnel turnover.<sup>9</sup> Therefore, if the Army cannot get to the CTCs in sufficient iterations, then the CTC collective training experience should be brought, with greater frequency, to the Army.

## Collective Training Techniques

The U.S. Army employs several techniques for collective training, as discussed in FM 25-101.<sup>10</sup> Essentially, there are three types of collective training, with a fourth technique derived from one of the types:

**Field Training Exercise (FTX).** The FTX is a "high-cost, high-overhead exercise conducted under simulated combat conditions in the field."<sup>11</sup> This is the CTC experience. An FTX is intended to exercise all the battlefield operating systems (BOS) functions to their utmost, including all assigned and attached units functioning as combined arms teams.

**Situational Training Exercise (STX).** The STX is a "mission-related, limited exercise designed to train one collec-



U. S. Army Photo by MSG Larry Lane

*“A unit interacts not only with its subordinate elements, but also with those of adjacent or higher units, and even with other units scattered throughout their battlespace. This interaction is an integral part of realistic training, particularly in regard to team building and cohesion.”*

tive task, or a group of related tasks and drills, through practice.”<sup>12</sup> This experience is often the most detailed exercise that a unit can attempt at home station. STXs are flexible in nature, include drills, leader tasks, and soldier tasks, and can be modified by units to meet their needs.

**Live Fire Exercise (LFX).** The LFX is focused on “unit and weapons integration at the company-team level.”<sup>13</sup> LFXs are intended to incorporate both maneuver and weapons systems using live ammunition. While these can be conducted at home stations, they are often conducted in isolation, partly for safety reasons, partly because of shortage of range space, and partly because their resource-intensive nature frequently limits the employment of supporting, adjacent, and higher elements to nontactical supporting roles, if at all.

**Lanes Training Exercise (LTX).** The LTX is a technique of the STX that is focused on training “company-size and smaller units on one or more collective tasks (and prerequisite soldier and leader individual tasks and battle drills) supporting a unit’s METL; however it usually focuses on one primary task.”<sup>14</sup> Simply, the LTX is a mini-STX that focuses on fewer collective tasks to focus the training. This added focus is not without sacrifice. Significantly, the LTX has no free-play. Opposing force (OPFOR) organization and actions, and the friendly force mission and execution are scripted. The intent of the LTX is not to train for outcome, but drill the execution of the task-based process. The LTX is self-limited in both realism

and in the depth of the training that it imparts. The LTX trains what to think, rather than how to think.<sup>15</sup>

These training exercises have served the force well, providing a flexible and varied array of tools from which a commander can select depending on his resources, level of training, and objectives. The problem is that as the size, complexity, and expense of these exercises increase, commanders’ choices decrease because of resource limitations. The best training venue and the closest to war is the FTX, which is epitomized at the CTCs. More importantly, the FTX is the only exercise where the interaction of the complete system of higher, adjacent, and subordinate elements is exercised. But today, the FTX is often unfeasible at home stations due to the constraints that limit this type of training to well-funded, but limited rotations to the CTCs.

The resource limitations of home station training are not simply shortages of training land or physical and fiscal resources. Home station exercises also lack instrumented feedback, dedicated OPFOR, observer/controller (OC) support, and the detailed scenarios of the CTCs. The lack of these non-TOE components is felt in the tactical realism of the training — what benefit is derived from training without an impartial observer to provide feedback and experience-based mentoring? What benefit is derived from an enemy force who merely replicates U.S. military tactics or who simply acts as a passive target?<sup>16</sup>

In an attempt to overcome the limitations placed on live training, the Army has increasingly turned to technological tools, particularly for larger units. Large unit exercises conducted in the virtual venue however, such as a simulator-based STX, or in the constructive venue, such as a computer-mediated brigade-level FTX, are also limited. They either teach headquarters command and staff interaction; continue to focus on disjointed platoon exercises without interaction with higher, adjacent, or subordinate units; or they lack the essential realism that is inserted by getting soldiers out in the dirt and on the iron. The ironic thing is that we are still conducting multiechelon training — we have simply severed the links by conducting the various events in different locations or in different venues. It is not uncommon for battalions to conduct FTX staff exercises while their companies and platoons train in isolation.

This trend is replicated at all echelons. In an attempt to reduce overhead and limit costs, many units have historically substituted events such as training exercise without troops (TEWT) and use wheeled vehicles instead of expensive tracked vehicles. Recently, this has taken the form of simulations, such as simulation network (SIMNET) or computer mediated staff exercises, to replicate portions of or the entire battlefield. While the various substitutes are valuable tools, they often suffer from limitations inherent to the venue, but most significantly, the different technological tools have been employed separately, as isolated training events. In this way, many units train in isolated segments such as tank tactical tables, platoon STX or LTX, platoon and company TEWTs, and the occasional single-company or single-battalion STX or FTX. The most grievous inadequacy of training executed in these disjointed segments is the lack of interaction with both the full range of BOS elements and with the adjacent, higher, and lower echelons of the organization. There is no substitute for multiechelon training. In addition to learning the true complexities of maneuvering, the complete organization has the added benefits of cohesion and esprit that come from shared experiences and challenges that have been jointly overcome.

The changing scope of technology now offers us the chance to do more with these venues. Just as an FTX comprises many smaller events, these technological venue-based events collectively comprise a conceptually larger

event. The problem lies in the relatively artificial environment. To obtain a collective training benefit, the events must be linked the same way that various units are linked, both in echelons and across echelons. By linking simultaneous isolated events that are already trained in the live, virtual, and constructive venues, all echelons can train in the functional equivalent of an FTX. Connecting the live, virtual, and constructive venues is referred to as the synthetic theater of war (STOW). STOW is not a new way of training; rather, it merely links what we are already doing. In a STOW, a battalion could conduct simultaneous multiechelon training on platoon-maneuver in an LTX, on company-maneuver in a simulator-based STX, and in a computer-mediated battalion FTX staff exercise.

That we already do these things separately and without connection to each other is significant; STOW is not a new event, but a new way of conducting the events we already do. What is new about this is the conceptual framework. By connecting these exercises so that each element participates in the decisions, actions, and effects of the others, we construct a networked training exercise (NTX) that is greater than the sum of its parts. The NTX allows FTX-type training, with all its interaction, teamwork, and cohesion building while reducing overhead, resource demands, and time limits by maximizing available venues, which replicate a much larger environment.

The potential benefits exceed that of simply enhancing current training because the STOW can replicate a battlespace that dwarfs any live environment replicated battlespace. The benefits of linking the various tactical and operational echelons cannot be overstated. The modern battlefield makes it almost impossible to replicate doctrinal distances on most training areas, and the vastly increased battlespace of the interim brigade combat teams will multiply that problem. The NTX is a solution. Just as the FTX is a "high-cost, high-overhead exercise conducted under simulated combat conditions in the field." The NTX will exercise BOS functions, including all assigned and attached units functioning as combined arms teams, only without the associated space, high-cost, and high-overhead detriments. Further, by including a free-play and adaptive OPFOR and the honest-broker feedback of OCs in the NTX, we ensure that we are training as we fight. This way, the NTX al-



U.S. Army Photo by MSG Larry Lane

*"The LFX is focused on "unit and weapons integration at the company-team level." LFXs are intended to incorporate both maneuver and weapons systems using live ammunition."*

lows all parts of a decentralized training scenario to train as if all the parts were present, even while some parts may be separated by large distances or may be present in virtual or simulated form only. The NTX expands the scope of isolated multiechelon exercises beyond that of mere battle drills.

The pieces of the NTX already exist. Virtual, constructive, and live venues are available. By adding OC support, it would be possible to create a CTC-like experience by networking multiechelon events into a virtual exercise extending over an enormous virtual battlespace. For example, the virtual training program (VTP) at the U.S. Army Armor Center at Fort Knox has operated in all three venues for several years.<sup>17</sup>

At Fort Knox, the virtual venue is provided by the SIMNET mounted warfare simulation trainer, which provides maneuver training to tank and mechanized forces from platoon to task force size. Running in the Unix operating system and employing the Modular Semi-Autonomous Forces application, SIMNET creates a virtual maneuver box in which tank and mechanized combined arms teams conduct mission essential task list exercises.

The Janus Mediated Staff Exercise (JMSE) system, a command and training venue primarily for battalion through brigade staffs, provides the Fort Knox constructive venue. Running on PCs, Janus is a highly flexible battle simulation that can run scenarios ranging from high-intensity conflict to disaster relief and peacekeeping operations. Creating a STOW by linking JMSE and SIM-

NET requires no new technology, simply new links and translation tools, a problem already solved by numerous commercial web-enabled systems.<sup>18</sup> Employing the VTP staff, both SIMNET and Janus offer a turn-key environment for Armor School classes and visiting units — an experience that, by adding the Fort Knox OC team, replicates the CTC training experience complete with a challenging OPFOR and feedback from the experienced OC staff.

The Fort Knox live venue is unique in the Zussman Mounted Urban Combat Training Site (MUCTS). This is the only urban operations site in the Army that has been specifically designed and constructed for mounted warfare.<sup>19</sup> By instrumenting the MUCTS with a system, such as the deployable force-on-force instrumented range system (DFIRST) or the deployable instrumented training system (DITS), the complex, already carefully networked for video and audio AARs, could be directly integrated into a virtual battle fought in battlespace represented simultaneously in the live, virtual, and constructive venues.<sup>20</sup> An alternate live venue would be a dry-fire instrumented LFX, in which a tank range, instrumented with DFIRST or DITS, serves as an assault, cordon, or attack by fire segment in support of a further live exercise in the MUCTS and a larger maneuver venue in the SIMNET/JMSE world.

A typical exercise might include a battalion task force with the mission to attack and seize a defended town. One company team (live) will attack the MUCTS at Fort Knox. The other two

company teams (virtual) will form a cordon around the town, denying enemy reinforcement or escape. One of these company teams is using simulators at home station; another is in the SIMNET at Fort Knox. The task force headquarters controls the battle in a JMSE from home station or Fort Knox. OCs participate at all levels, from platoon to task force. For the cost of moving two company teams of personnel, and only one company team of equipment, a complete CTC-like experience has been assembled.

Careful preparation, rehearsal, and a certain amount of imagination and initiative will be necessary to make it work. Conceptually, however, this is no harder than the precomputer days of staff exercises in which junior officers role-played from scripts according to the direction of external evaluator umpires for the benefit of battalion and brigade staffs with maps and grease pencils. For the troops in the virtual environment, all elements will be present and visible; the only loss is the absence of rain, mud, and the smell of cordite. For the staff at home station, the exercise will be perfectly realistic — reports coming over the digital link from the virtual and instrumented live exercises will be as real as those from a real battle, lacking only the ability to drive out and see for one's self. As for the troops in the live venue, while their adjacent units may be invisible, they still know that they are there behind those trees or perhaps on the other side of the hill.

For OCs, crosstalk and initiative will add to the experience. A certain amount of adjudication is necessary in any exercise — actual .50 cal. rounds will shoot through a building and any occupants, but MILES .50 cal. rounds are stopped by dust, smoke, and leaves. Just as an OC will make spot decisions to correct this situation, he can also correct virtual adjacent organizations. For example, an OC in the virtual venue observes that one of the cordon force teams allowed a virtual enemy platoon to infiltrate the town from the west. He quickly calls his counterpart at the MUCTS, who sends in a live OPFOR platoon from the west. The challenge is to the unit commanders and staff — will they notice the enemy movement and alert the team in the close fight? Only through multiechelon training is this sort of change, interaction, and adaptation possible in an environment that teaches the true cause-and-effect rules of the battlefield.

The Army trains for and fights wars. When training for war we must always remember that we are in the training business, not the technology business. Technology will change, but it is only the tool we use to an end, not the end itself. Just as a trained worker discovers new things he can accomplish by employing old and new tools in new ways and new combinations, so must we. Our society excels at rapid and competitive adaptation to new opportunities constantly created by fast developing information technology. By employing the STOW to conduct the NTX, we can continue to train with the detail and precision that we already apply to LTX and STX, while adding the interaction and team-building effects of larger scale exercises. NTXs will allow units to train in CTC-like environments, but at an acceptable cost and greatly increased tempo. It is time to think outside the maneuver box, and realize the benefits from taking existing tools and systems and combining them in new ways.

## Notes

<sup>1</sup>Orson Scott Card, *Ender's Game*, Tor Books, New York, January 1985.

<sup>2</sup>U.S. Army Field Manual (FM) 25-101, *Battle Focused Training*, U.S. Government Printing Office, Washington, DC, 30 September 1990.

<sup>3</sup>Historically, U.S. Army units tend to lose, or at least suffer disproportionate losses, during the first battle of major American wars, the most noteworthy recent occurrences being Kasserine Pass in World War II and Task Force Smith in the Korean War.

<sup>4</sup>From a philosophical standpoint, each venue may be regarded as a product of the age of human development that brought it about. See Alvin Toffler, *The Third Wave*, Random House, New York, February 1980.

<sup>5</sup>FM 25-101.

<sup>6</sup>This interaction is of crucial importance, and is overlooked in much of the Army's performance-based training environments.

<sup>7</sup>Trained soldiers do not make a trained platoon, nor do trained platoons make a trained company. To understand not only how the entire organization fights, but also how the organization's parts interact within it, there must be a common experience base to which the participants can refer in common.

<sup>8</sup>In a typical cycle, a brigade combat team trains intensively for a year to prepare for a CTC rotation. Included in this preparation is the "freezing" of normal personnel rotations so as to maintain the continuity and cohesion that is formed during this high-intensity training.

<sup>9</sup>Ideally, a unit would complete such training at a rate congruent with its turnover: a unit with 25 percent turnover per quarter, for example, should

completely retrain every year to maintain a mere average level of cohesion and collective training.

<sup>10</sup>FM 25-101.

<sup>11</sup>FM 25-4, *How to Conduct Training Exercises*, Washington, DC, U.S. Government Printing Office, 10 September 1984, p. 53.

<sup>12</sup>FM 25-101, p. C7.

<sup>13</sup>*Ibid.*, p. C9.

<sup>14</sup>Training Circular 25-10, *A Leader's Guide to Lane Training*, Washington, DC, U.S. Government Printing Office, 26 August 1996, p. 9.

<sup>15</sup>This is an important point, for it touches on the nature of warfare as a complex adaptive system (CAS). In a CAS, actions beget adaptive reaction in continuous sequential trees. After only a few iterations of this cycle, the results become essentially unforeseeable. In this way, it is difficult, if possible at all, to predict the future actions of an enemy or the future nature of war beyond the first few action-reaction cycles.

<sup>16</sup>Ideally, an enemy force would be made up of tough, motivated, intelligent, and experienced soldiers told to fight to win, even at the expense of ignoring doctrine. There would be no rules governing their behavior, only the limitations of their ability and imagination.

<sup>17</sup>The VTP consists of a standing team of civilian exercise controllers and OCs who both operate and provide AAR services for SIMNET and Janus events, as well as the Fort Knox OC team, "The Warthogs," which provides OC support for platoon-company team size virtual and urban warfare exercises.

<sup>18</sup>Indeed, the OneSAF software of rehosted SIMNET eliminates the need for connecting hardware and software between the SIMNET and constructive computer-mediated systems such as Janus.

<sup>19</sup>Only the Fort Knox MUCTS has facilities and structures built to withstand live fire, demo, controlled pyrotechnic effects, and even the collision of tanks and fighting vehicles. Structures are built of 200 psi concrete with doubled rebar.

<sup>20</sup>Both DFIRST and DITS are deployable, modular systems, MILES compatible, and allow instrumentation of remote training areas from a deployable package. Further, both systems offer a complete player tracking and playback-AAR capability.

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# Battle Command to ISR Planning

by Major Kevin L. Jacobi

In the midst of Army Transformation and the creation of new and emerging doctrine and capstone manuals, it is challenging to stay abreast of current doctrine, much less interpret it and understand its application. This article examines battle command and seeing the battlefield; commander's critical information requirements (CCIR); tiers of reconnaissance; and intelligence, surveillance, and reconnaissance (ISR) planning.

## Battle Command and Seeing the Battlefield

U.S. Army Field Manual (FM) 6-0, *Command and Control*, defines battle command as, "The exercise of command in operations against a hostile thinking opponent."<sup>1</sup> Decisionmaking and leadership are the two sides of battle command. This article focuses primarily on decisionmaking.

**Visualize, Describe, Direct, and Lead.** The latest doctrine states that the commanders' methodology for decisionmaking is visualize, describe, direct,

and lead, and results from combining the art of command and the science of control.

Visualize is the process of achieving a clear understanding of the forces' current state with relationship to the environment, developing a desired end state that represents mission accomplishment, and determining the sequence of activity that moves the force from its current state to the end state. Commanders describe their visualization by participating in the military decisionmaking process (MDMP), specifically through intent, planning guidance, and commander's critical information requirements (CCIR). Commanders then choose a course of action (COA) and communicate it through an order. Finally, commanders lead their units to mission accomplishment throughout the operations process.

Visualization is the single most important part of this methodology. Visualizing or seeing the battlefield is by no means a new concept. It has been embedded in our doctrine for decades. A

commander's ability to see and understand the components of the battlefield is fundamental to his decisionmaking. Although not graphically illustrated in FM 6-0, the commonly accepted components of the battlefield are terrain, enemy, and self. All three components affect each other, and the commander must understand the relationships between them:

- Terrain is neutral and affects both enemy and friendly forces; each side can use it to their advantage or demise.
- Enemy actions affect us and our actions affect the enemy.
- Self includes our own forces and support as well as other units involved in the operation.

Visualization, as well as the other parts of the methodology, occurs in all three steps of the operations process — plan, prepare, and execute. In each step of this process, visualization remains a cornerstone. However, it has different implications depending on where the commander is in the operations cycle.

**Planning.** During the planning phase, visualization is the most difficult to attain as there are a multitude of factors to grasp. Before the commander can begin to visualize how to get to the desired end state, he must first mentally attain situational awareness (SA) using:

- Mission. The unit's mission, task, and purpose and how it relates, or is nested, with the overall brigade and division operations, as well as understanding the commander's intent.



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*"...the commanders' methodology for decisionmaking is visualize, describe, direct, and lead, and results from combining the art of command and the science of control."*

*“The commander often launches reconnaissance before developing a complete plan. In fact, it is often necessary for reconnaissance to provide additional information on which to base the final plan...”*

- **Enemy.** Initially, how the enemy is an obstacle to the operation; subsequently more info will be needed.
- **Terrain and weather.** An absolute key aspect of visualization. Initial understanding may simply be major aspects of terrain and how it will impact options for both friendly and enemy forces; subsequently more info will be needed.
- **Troops and support available.** Initially, grasping troops to tasks to identify major shortcomings in units or support; subsequently more details on force ratios, resource allocation, and strengths will be needed.
- **Time available.** Time available, but initially how time relates to the process — plan, prepare, and execute; extremes on either end will drive how the commander executes the methodology.
- **Civil considerations.** Initially, may be controlled; subsequently a plethora of info may be needed.

The commander will gain SA or initial visualization as he begins his commander’s analysis of brigade warning orders (WO), participates with the brigade commander in collaboration, and listens to the brigade operation order (OPORD). The final validation or refinement of the task force commander’s visualization is when he receives his staff’s mission analysis — a key step that the staff must understand. This evolution of visualization will obviously vary based on experience, training, education, and knowledge of doctrine.<sup>2</sup> Not until the commander has first gained SA through seeing the battlefield and attains situational understanding (SU), can he achieve the higher level of visualization.

### Commander’s Critical Information Requirements

Before we discuss other aspects of the preparation phase, it is necessary to examine CCIR. The key to understanding CCIR is to understand the categories of

information as described in FM 5-0, *Army Planning and Orders Production*.<sup>3</sup> Although FM 6-0 is not as clear as FM 5-0 on the types of information — routine, critical, and exceptional — these types of information are still very relevant to how we do business. FM 5-0 states that, “CCIR has three components: priority intelligence requirements (PIR), friendly forces information requirements (FFIR), and essential elements of friendly information (EEFI).<sup>4</sup> FM 6-0 drops the third, EEFI stating that, “Although not a CCIR, they become a priority once the commander states them.”<sup>5</sup> Regardless of where EEFI belongs, CCIR are best understood when viewed holistically. Simply put, CCIR is about what decisions will be made and what types of information a commander needs to make those decisions. Figure 1 graphically explains CCIR, how it is related to seeing the battlefield, what the elements typically drive, and where they are found.

**Preparation.** FM 6-0 defines preparation as, “activities by the unit before execution to improve its ability to conduct the operation including, but not limited to, plan refinement, rehearsals, reconnaissance, coordination, inspections, and movement.”<sup>6</sup> It further states that, “reconnaissance is often the most important part of the preparation phase, providing data that contribute to answering the CCIR. As such, the commander should plan and execute it with the same care as any other operation. The commander often launches reconnaissance before developing a complete plan. In fact, it is often necessary for reconnaissance to provide additional information on which to base the final plan.”<sup>7</sup> This idea is not new; it is embedded in our troop-leading procedures at the lowest level. It is, however, easier said than done as demonstrated at our combat training centers (CTCs) and in countless Center for Army Lessons Learned articles on reconnaissance planning failures. During preparation, the commander up-

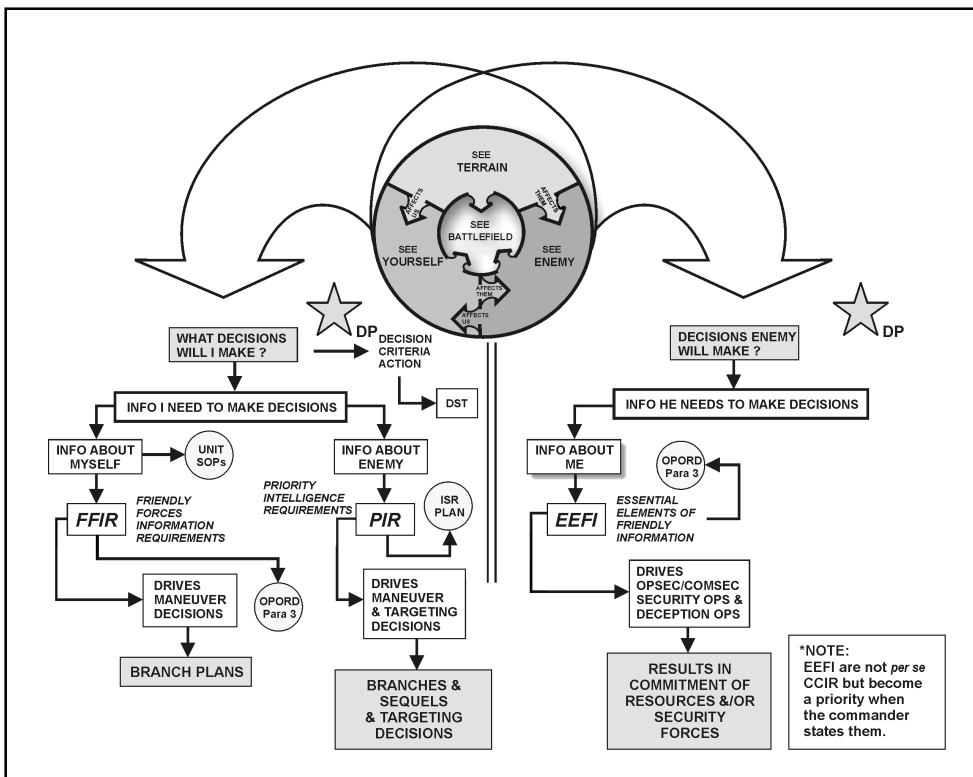


Figure 1. Seeing the Battlefield and CCIR Relationship





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the decision support template (DST) for CCIR; and external requirement — higher IR or CCIR and lower requests for information (RFI).

Once the commander receives the new mission, he immediately begins formulating an initial visualization through commander's analysis of brigade WOs, or collaboration with the brigade commander and listening to the brigade OPORD. During this early stage, the commander and staff will identify gaps in information that need to be filled. Some of these voids may be answered through RFIs to brigade, while others can be handled through the task force organic assets. The majority of these voids are probably Tier 1, but potentially Tier 2. Once the commander and staff complete the initial assessment of the new mission, the commander issues his initial guidance.

The commander's initial guidance for reconnaissance is based on information voids identified by him and his staff. The commander's initial guidance could include: how to abbreviate the MDMP; initial time allocation; initial ISR planning guidance to staff and/or initial recon to begin, usually based on movement; authorized movement; and additional staff tasks.

At this point, the staff is in a whirlwind analyzing tactical problems as well as beginning ISR planning based on the commander's guidance. Once the staff conducts intelligence preparation of the battlefield, it will generate terrain IR and enemy PIR.

Terrain IR is used to assess task force elements, such as the task force's ability to move tactically through mobility corridor 1 — or is it a defile; the task force's ability to cross a creek anywhere — are they restricted to fords or just two bridges; or can they use the area for an attack position?

Enemy PIR is the contrast between situation templates, which will yield the initial event template. The initial event template will only focus on identifying which COA the enemy has adopted — primarily a Tier 2 focus. The staff combines the commander's initial guidance for reconnaissance and the initial event template, which includes named areas of interest that indicate a particular enemy course of action (PIR) with any terrain IR and external IR to form the initial ISR plan. The initial event template is the base graphics for that plan.

**Developing the plan.** Now that we know what ISR assets do initially, the staff integrates all the ISR assets into a plan such as developing a COA. There are a plethora of considerations such as availability, capability, vulnerability, performance history, cueing, redundancy, mix, and integration. Once the staff has developed the plan, it must make all provisions necessary for its success — the scheme of support, better known as a wargame. Several issues must be addressed, to include: other reconnaissance assets in the AO; location, mission, and specific instructions to scouts; maneuver support, fire control measures, or extraction considerations; air defense artillery and Army airspace command and control measures; what kind of fire support scouts need; does it have to move to support them; is there a requirement for essential fire support tasks, fire support coordination measures, mobility, countermobility, and survivability assets; what kind of logistics do they need; do they need Class I, III, or V medical and maintenance support and evacuation; what about communications and long-range comms; does retrans need to move; and does the tactical operations center (TOC) need to move? These are just a few questions, but the questions will not be asked unless the staff wargames the action. This wargame is not a democratic COA analysis however, there is no time for that, it is a synch drill of the battlefield operating system to ensure ISR operation is not just successful, but actually supports the commander's decisionmaking.

Once the task force commander is ready to receive his staff's mission analysis, including the proposed initial ISR plan, his SA has evolved into SU — not only can he see the battlefield, he understands it — which has perpetuated his visualization. He will describe that visualization as apart of his planning guidance. However, the mission analysis, particularly the ISR portion, is critical to ensure that the commander has a full appreciation for the battlefield, and the staff has properly identified the tactical problems. During the brief, the staff's analysis helps the commander verify his visualization. The commander approves, or approves with additions, the initial ISR plan during the mission analysis brief. Once approved, reconnaissance can begin. Accomplishing all this at mission analysis is obviously the challenge. What is realistic, yet timely enough to do what

our doctrine says initial reconnaissance is supposed to do — and give it time to do it? Is it possible that all our high-speed planning guides that say one to two hours to mission analysis brief are wrong? Or are they right and we just have not cracked the code on getting the ISR plan done in time? Maybe the reader has some TTP that will help bridge the gap, or perhaps the new FM 5-0 or FM 3-55, *Intelligence, Surveillance, and Reconnaissance*, will lend some clarity to this dilemma.<sup>11</sup> Reader's comments are welcome.

### Tasking or Requesting Collection

Tasking collection is done through the ISR order. Whatever TTP is used to communicate the order, such as matrix, written, sketches, or a combination, it must be flexible and user friendly to accommodate receiving new tasks and instructions. These additional tasks and instructions may occur throughout the operation, but we know for sure that additions will be added after the task force completes COA analysis and the DST. In a time-constrained environment, the initial ISR order may be as simple as an ISR graphic with matrix issued to scouts and other assets. However, when time is available, it is preferable for ISR assets to be briefed by the task force staff in addition to receiving the graphics and order. This method is also preferred because it gives the task force commander an opportunity to personally convey his focus for reconnaissance to his scouts. Upon completion of COA analysis and the DST, fragmentary orders (FRAGO) are used to refocus and add requirements to the ISR executors, based on the DST architecture. This is vital because it provides the scout with critical Tier 3 collection requirements that support the most up-to-date CCIR. The method of dissemination is probably frequency modulation or digital. Due to the criticality of ISR assets receiving and understanding these requirements, it is paramount this skill is trained regularly between the TOC and the scouts. Understanding, familiarity, and good standing operating procedures between the TOC and the scouts will help this crucial communications exercise be successful.

**Dissemination.** The ultimate goal of dissemination is to get the right information into the hands of the decision-maker in time for him to make a sound decision. Planners arrange direct dis-

semination whenever possible. For example, information regarding NAI 1 that triggers target area of interest (TAI) 1, the task force allocation of close air support (CAS) should go directly to the task force commander on the task force command net, the battle captain and S2 are checking the information against the CCIR/decision support matrix to see if it meets the criteria and is what the commander wants to target. The fire support officer, air liaison officer, and air defense officer are monitoring and are beginning to lean forward. The battle captain and S2 quickly agree and the battle captain pushes to talk and makes the recommendation to the commander to execute DP 1 — CAS in EA HAWK to destroy the MIBN reserve. A good ISR plan directs the collectors on what net information is to be passed and to whom. The other mark of a good ISR order is that it's not only included in the task force OPORD, but it is integrated with maneuver to ensure a full synchronization between maneuver and ISR.

The last topic to remember about dissemination is perishability. During execution, most information from reconnaissance elements sitting in Tier 2 and Tier 3 is combat information. Combat information is unevaluated data, gathered by or provided directly to the tactical commander that, due to its highly perishable nature or the criticality of the situation, cannot be processed into tactical intelligence in time to satisfy the user's tactical intelligence requirements.

**Evaluating reports.** Throughout preparation, the scouts are sending vital information to the task force. The task force XO oversees the S2 and battle captain who track the status of each specific order and request (SOR), and analyze specific IR and PIR. They pay particular attention to which assets are not producing the required results. It is very likely that the staff's assumptions about the threat COAs will not prove entirely correct. The XO, S2, and S3 assess the value of the information from collection assets and refine SORs to fill gaps during execution. The commander's evaluation of this information is also very critical to his visualization. As friendly assumptions prove true or false, as reconnaissance confirms or denies enemy actions and dispositions, and the status of friendly units change, the commander adjusts or aborts his plan to account for the current situation. He determines whether new in-

formation invalidates the plan, requires him to adjust it, or validates it with no further changes. He balances the loss of synchronization and coordination caused from changing the plan against the problem of trying to execute a plan that no longer fits reality.<sup>12</sup> Changes in the plan will result in changes to the intelligence requirements or adjustments to the collection timeline.

**Updating intelligence, surveillance, and reconnaissance planning.** As stated above, the ISR plan will require adjustment during execution. The following factors could drive changes to the ISR plan:

- The commander generates new CCIR as he refines or adjusts the COA to fit the current battlefield situation.
- An SOR is satisfied or overcome by events and frees an asset for other operations.
- A single asset has unexpected success, freeing redundant assets for other operations.
- An asset cues the task force staff, but requires confirmation that requires dynamic retasking of other assets.
- Timing the operation has become desynchronized which requires modifying the latest time information is of value (LTIOV) or changing priority.
- Higher headquarters orders the task force into an unplanned operation.

**Executing.** During execution, the commander's ability to see the battlefield feeds his SA of terrain, enemy, and self; a clear mental picture of these facilitates his SU. The commander's SU is fleeting — he may slip in and out of it depending on his ability to accurately see the battlefield. If the commander's visualization is accurate and still applies to the tactical situation, his CCIR are valid and he continues to follow the plan and the execution decisions already identified in Tier 3. However, the commander's assessment of the operation may change his visualization to fit a changed tactical situation, such as exploit an unplanned opportunity, counter an unexpected threat, or change it from an unsuccessful decisive operation to a more successful shaping operation.<sup>13</sup> These are called adjustment decisions, and require a commander to describe the new visualization to subordinates and staff so that they understand the intent and can adjust the execution and exercise initiative in their area of responsibility.

Although this examination of theory is based on doctrine, it is permeated with the author's interpretation and opinion. As the Army continues to transform and move into the information superiority age, it is appropriate to revisit what we already know as a point of departure into unknown territory. "Reconnaissance has always been, and will continue to be, the precursor to all operations. As such, we must plan with the same care as we do for any other operation."<sup>14</sup> Anything less will hinder the commander's ability to see the battlefield and make decisions at the right time and place.

## Notes

<sup>1</sup>U.S. Army Field Manual (FM) 6-0, *Command and Control (DRAG Edition)*, U.S. Government Printing Office (GPO), Washington, DC, 2001.

<sup>2</sup>*Ibid.*, p. 2-4.

<sup>3</sup>FM 5-0, *Army Planning and Orders Production*, GPO, Washington, DC, TPB.

<sup>4</sup>*Ibid.*

<sup>5</sup>FM 6-0.

<sup>6</sup>*Ibid.*

<sup>7</sup>*Ibid.*, p. 6-12.

<sup>8</sup>*Ibid.*, p. 4-12.

<sup>9</sup>FM 34-2-1, *Tactics, Techniques, and Procedures for Reconnaissance and Surveillance and Intelligence Support to Counterreconnaissance*, GPO, Washington, DC, 19 June 1991.

<sup>10</sup>*Ibid.*

<sup>11</sup>FM 5-0; and FM 3-55, *Intelligence, Surveillance, and Reconnaissance*, GPO, Washington, DC, TBP.

<sup>12</sup>FM 6-0, p. 6-13.

<sup>13</sup>*Ibid.*, p. 6-25.

<sup>14</sup>Quote from Major Gregg Athey, Chief, Cavalry Branch, Directorate of Training and Doctrine Development.

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# The Cavalry Team: Scout-Tank Integration

by First Lieutenant Leif Nott and First Lieutenant Ryan Popple

*“The reconnaissance detachments are responsible for seeking out and reporting as much as they can, without drawing attention to themselves. They must be speedy and agile, have a good range, possess good means of communication, and be responsive to command... If their task demands something heavier in the way of fighting capacity this must be forwarded to them.”<sup>1</sup>*

– Major General Heinz Guderian

The armored cavalry troop is the best trained and best equipped unit in the U.S. Army to win the reconnaissance fight. The combination of cavalry fighting vehicles, main battle tanks, and heavy mortars, make the heavy cavalry troop one of the most powerful and flexible elements on the modern battlefield. While there is much information available on the doctrinal employment of the cavalry troop, scout platoon, or tank platoon, the scout-tank team is an often practiced yet doctrinally neglected organization. This article explores several useful tactics, techniques, and procedures for developing and executing effective scout-tank cooperation.

Using combined arms cooperation at the lowest unit level ensures that the cavalry troop retains the initiative during the reconnaissance and security fight. The most important benefit of scout-tank cooperation is that it allows the cavalry troop to use the most appropriate system against a threat, which leads to greater survivability and an economy of force. If the scout and tank platoons successfully cooperate on the battlefield, the tanks will be in the right place at the right time to maximize combat power and the scouts will be free to continue reconnaissance and not become decisively engaged by superior enemy forces.

## Missions of a Cavalry Troop: Tank and Scout Platoon Roles

The heavy cavalry troop is a unique organization that allows troop commanders flexibility to accomplish various missions. The diversity of its organic elements affords the troop commander this flexibility. The missions of a heavy cavalry troop are reconnaissance, security, and economy of force:

- Reconnaissance missions include route reconnaissance, zone reconnaissance, and area reconnaissance.
- Security missions include screening, area security, and convoy security.
- Economy of force includes offensive operations such as hasty attack, attack, and movement to contact; defensive missions such as defending a battle position and defending in sector; and retrograde missions such as delay.

The tank and scout platoons in each cavalry team work together to accomplish troop missions, though their roles are not the same. In most missions, the tank and scout platoons have very different roles. It is the simultaneous execution of these two different elements that ensures the cavalry team’s success.

During reconnaissance, the scout platoon is the main effort. The scout platoon’s mission tends to be identical to the troop’s mission, with task and purpose being the same. The tank platoon mission should emphasize its ancillary role to the scout platoon, emphasizing that the tank platoon follows and supports its sister platoon until substantial enemy contact is made. The tank platoon prepares a hasty attack or defense to preserve the scout platoon’s combat power.

During security missions, the relationship between the scout and tank platoons remains unchanged. The scout platoon’s mission is still identical to the troop’s mission. The tank platoon gives depth to the security mission. While not expected to make first contact with enemy forces, the tank platoon is expected to react quickly and violently. It is also important to note that during security operations, the scout platoon must ensure that the tank platoon’s lo-



cation is not exposed to enemy reconnaissance.

During economy of force missions, the tank platoon is the main effort. All offensive operations revolve around allowing the tank platoon to maneuver to a tactically advantageous and decisive spot on the battlefield to maximize its combat power. During the defense, the tank platoon anchors in the troop defense while the scout platoon covers the flanks.

## Cavalry Team Task Organization

The cavalry team’s flexibility allows it to array its individual vehicles to accomplish the diverse missions of division cavalry units. In some tactical situations, an immediate response across the entire forward line of own troops may require a cavalry team’s tanks to spread out behind scout sections. In other tactical situations, the factors of mission, enemy, terrain, troops, time, and civilians may dictate that the tank platoons be massed to most effectively respond to greater enemy threats. The scout and tank platoon leaders must organize their cavalry team to meet



different situations. This article identifies two methods of task organizing a cavalry team: the hunter/killer concept and the quick reaction force (QRF). The authors have successfully employed both methods during many tactical scenarios.

During the Vietnam conflict, heavy cavalry troops were composed of platoons designed for the hunter/killer concept. These platoons were one-half M48/M60 tanks (the killers) and one-half M113 Armored Cavalry Fighting Vehicles (the hunters). Tankers and scouts worked together at the platoon level. Modern cavalry troops are composed of pure tank and scout platoons. While this change facilitates training focus on specific MOS and weapons platforms, the cohesion necessary for effective cavalry team operations is removed.

Hunter/killer works by providing the scout section tank support in the immediate area. This denies the enemy the ability to react, because the enemy will be unable to maintain contact. The scouts will make contact with the enemy and call for tank support from the

sister tank platoon while continuing reconnaissance, allowing tanks to destroy the enemy. Used successfully, both scout and tank platoons maintain momentum. The distance between the scout and tank platoon is not fixed. The tank platoon should not be so close that it makes contact with the enemy at the same time as the scouts, but should not be so far away that it cannot be in position to quickly destroy the enemy.

Hunter/killer is most effective during reconnaissance missions, where enemy contact is most likely at the individual vehicle or section level. Due to this limited enemy contact, it is possible to divide a tank platoon into sections without jeopardizing its combat power. Additionally, it further disrupts the enemy's counterreconnaissance objectives because the enemy is unable to identify the cavalry team's focus. To further disrupt the enemy's counterreconnaissance, scouts and tanks should continuously communicate with each other. Scouts should look for ideal tank routes, hide positions, and fighting positions as they maneuver through a zone. As these routes and positions are identified, they should be reported to

the tank platoon. Scouts also need to continuously update the tank platoon on the location of each scout element to prevent fratricide and decrease response time. Tanks should use covered and concealed positions to avoid enemy detection. Tank platoon leaders should also minimize using formations, as they tend to expose armored vehicle movement. The tank platoon should also keep the scout platoon leader informed on the tank's location, activity, and RED-CON level.

The advantages of the hunter/killer concept lie in decentralized decision-making. The concept also provides additional resources to the reconnaissance effort. Most reconnaissance forces in the security role will allow superior contact to bypass their positions. The tanks provide an additional reconnaissance team with thermal-sight capabilities to find and destroy these elements. The tank section should never assume an area is clear of enemy presence after the scouts have moved through the zone. Enemy reconnaissance forces will also follow engagement criteria, and it is often to their advantage to allow the scouts to bypass their positions and tar-

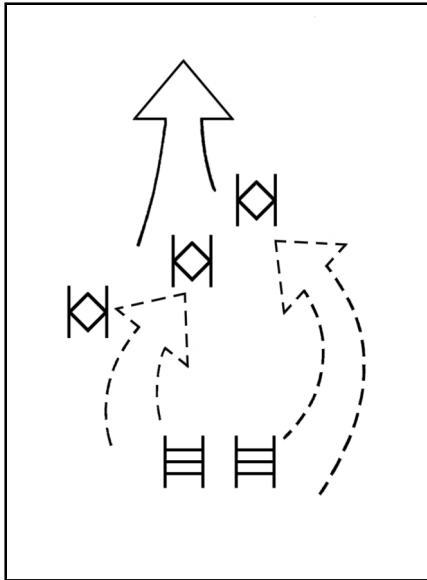


Figure 1. Hunter/Killer Technique

get tanks. This is especially true of dismounted guided missile teams.

The disadvantage of the hunter/killer technique is lack of mass and flexibility. Since tank sections are divided across a scout platoon's front, it makes it untimely and difficult to mass them on one location. If either platoon begins taking casualties, it is very difficult to maintain momentum without losing security. To avoid some of the tactical risks of becoming decisively engaged by a superior force, the engagement, bypass, tank mass, and troop mass criteria must be thoroughly briefed and rehearsed. In these situations, the troop abandons the split-vee hunter/killer organization and prepares for an economy of force mission.

A second option in task organizing and executing the scout-tank cavalry team is the quick reaction force (QRF) technique. The QRF structure uses the tank platoon as a potent and flexible reserve to the scout platoon. The QRF technique is most often used in security missions, especially on the screen line. In this structure, the scout platoon establishes a screen line forward of the no-penetration line to observe all infiltration routes into their assigned sector. It also selects displacement routes that do not interfere with the tank platoon's engagement areas. Depending on the terrain, weather, and visibility factors of the assigned area, the tank platoon establishes routes, platoon battle positions, and engagement areas. The triggers for the tank platoon are determined by either the troop commander, the scout platoon leader, or engagement criteria outlined in the operations order. When the conditions are met, the tank

platoon quickly reacts to a specific location and type of enemy contact.

Using the QRF technique places the scout platoon leader in tactical control of the tanks during the counterreconnaissance fight. It frees the tank platoon leader to conduct parallel operations, establishing the engagement area and timing the possible routes through the zone. While the scouts maintain security and reconnaissance, the tanks set the conditions for engagement. The level of preparation that the tanks may execute depends on several factors, including time available, enemy situation, observation into the sector, additional assets available to the tank platoon, and the threat of indirect or air attack. Ideally, the QRF technique maximizes the effects of preparation during the security mission. When the conditions of a security mission require the screen to be set immediately, a QRF approach enables the tanks to continue priorities of work while the scouts provide early warning.

The QRF technique ensures that the tanks deploy into combat in mass. The tank assets of the heavy cavalry troop are limited, and their proper employment is essential to defeating armor threats to the scout platoon. Whenever possible, mass should be used to provide concentration of fires, shock effect, and survivability. The QRF technique makes tank mass possible because of the reconnaissance information provided by the scouts. This information allows the commander to analyze the tactical risk of concentrating the tanks. The scouts also allow the tanks to fight in multiple engagement areas and to continuously ambush, engage, and destroy the approaching enemy.

Using the QRF technique, the engagement areas can be behind or ahead of the scout screen line. The availability of concealed positions is the primary consideration in deciding where to place the engagement area. If the engagement areas are established behind the screen line, as shown in Field Manual 17-97, *Cavalry Troop*, then it is assumed that the enemy will not detect scout observation posts

or has decided to bypass the observation posts.<sup>2</sup> Rather than gambling on the enemy choosing to bypass friendly scouts, it is favorable to never let the enemy decide. The scouts' concealment must be so thorough that the enemy will not detect them with or without thermal sights. The above consideration reinforces the importance of terrain analysis in choosing where to establish the engagement area and the observation posts. In certain terrain and thermal conditions, it is simply not possible to hide a platoon of scout vehicles along the suspected avenues of approach.

If the terrain allows the scouts to deploy forward of the proposed engagement areas, then the tanks are given the initiative in engaging the enemy. This situation gives the tank platoon ample time to prepare for the enemy entering an engagement area. The only disadvantage is the possibility of losing enemy contact. If the terrain allows the enemy to infiltrate the zone, then the scouts must ensure that they maintain some form of enemy contact after the enemy has bypassed the scout hide positions and observation posts. In most situations, the terrain does not permit placement of six concealed vehicle observation points. Any scout vehicles not placed directly on the forward screen line are used to provide depth to the screen. Thus, contact can be passed from scout to scout, and then to the tanks.

Another major consideration in placing the engagement areas behind the screen line is the risk of fratricide. Although vehicle identification can prevent some types of fratricide, there is

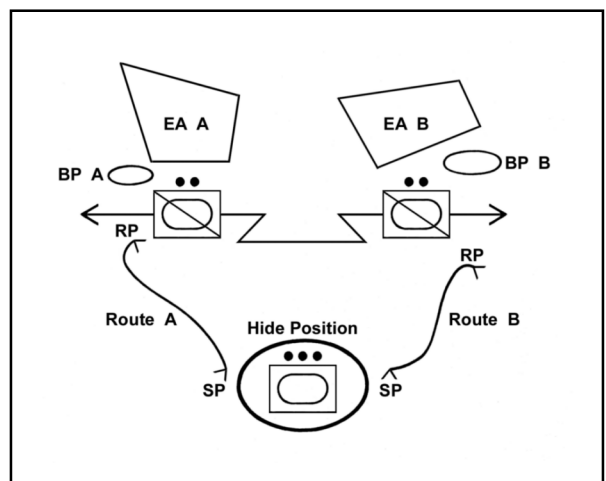


Figure 2. An example of the QRF technique. Scout platoon, in two sections, arrayed along a screen line while the tank platoon, in a hide position, prepares to engage in EA A or EA B.

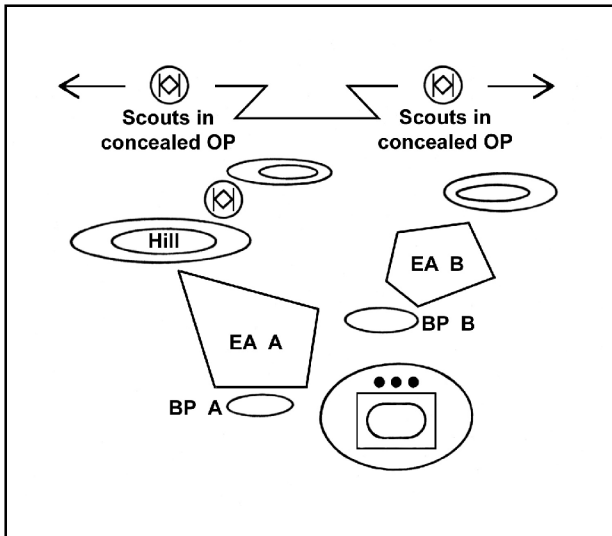


Figure 3. An example of a QRF technique in which the engagement areas are established behind the screen line. The primary considerations are concealing the scouts, maintaining contact with the enemy, and preventing fratricide.

also the risk of tank main gun rounds penetrating enemy vehicles and continuing into friendly scouts. A major terrain feature must be used to backstop the engagement area if the scouts must remain on the forward screen line. If the scouts have met their displacement criteria, there is also the risk of passing through the tank engagement area while in contact with the enemy.

Various techniques exist to aid the tanks in identifying the displacing scouts. These techniques include gun-tube orientation, combat identification panels, chemical lights, infrared lights, signal pyrotechnics, and radio coordination. Regardless of the technique used, it is thoroughly rehearsed and understood by every soldier in the troop. This type of operation is a major tactical risk for the scouts due to the difficulty of displacing while maintaining contact with a superior enemy force. The troop mortars and air cavalry helicopters can be of great assistance in this situation. The risks to the scout platoon are lowered if they choose a route that avoids the tank engagement area, but this makes the task of maintaining enemy contact much more difficult.

If the terrain and other mission factors preclude the troop from establishing the engagement area behind the scouts, then another form of the QRF technique can be more effective. Establishing the engagement areas forward of the scouts reduces several tactical risks. The importance of placing the scouts in perfect hide positions is lowered because the enemy will never be allowed to close with the scouts and bypass or

destroy them. Displacing the scouts is also a more simplified tactical task in this scenario because the tanks are forward to suppress and destroy the advancing enemy. As the tanks make enemy contact, the scouts can concentrate on survivability and movement rather than maintaining enemy contact. If displacement is a tactical necessity, the scouts can guard the flanks or support the tanks with long-range TOW missile fires. The scouts should not risk fighting along side the tanks unless

their additional firepower is required. The ability of the tank platoon to survive and win direct fire engagements is vastly superior to the scout platoon. The scouts must ensure that they survive to provide their critical task on the battlefield — reconnaissance.

The disadvantage of this technique is the difficulty of moving the tanks into position to intercept the enemy. The tanks must be prepared to move to any location on the screen line to engage enemy armor. During an extended screen mission, a tank platoon might support a 10-kilometer section of the screen line. In certain terrain, tank movement is severely restricted. The tanks should time the routes to each possible engagement area to provide the scouts with their requirement of how early they must identify enemy contact. The longer it will take the tanks to deploy to the correct engagement area, the further out the scouts must identify the enemy. Proper vehicle identification from the scouts is critical to avoid a premature commitment of the tanks. The scouts must win the counterreconnaissance fight to ensure that the tanks win the armor fight. If the tank platoon is repeatedly committed to destroy enemy reconnaissance vehicles, the risk of the enemy properly identifying the screen line and disabling tanks with indirect fires or close air support increases.

In a QRF concept, preparation and timing will determine the cavalry team's success. Scout platoon leaders must develop a sense for tactical patience and timing. Prematurely deploying a tank platoon can be as ineffective as

not deploying at all. Additionally, in a heavy troop, scouts must remember that they are an armored reconnaissance unit, capable of destroying significant enemy contact. Troop commanders and scout platoon leaders should select engagement and hand-off criteria that efficiently balance the capabilities of the scout and tank platoons.

### General Tactics, Techniques, and Procedures

The key to an effective cavalry team is in the approach the scout and tank platoon leaders take to bring the two platoons closer together. Along with training, developing cohesion, and conducting preparation together, the two platoons must also execute as one element. There are several techniques, tactics, and procedures that give the cavalry team this sense of unity. The soldiers of each platoon must understand the benefits of the cavalry team. This is accomplished through team-building and collective training. Social and sporting events, garrison details, physical training, or any tasking that requires manpower, are opportunities to pair up members of the two platoons.

During field training, combining the troop leading procedures also results in unit cohesion. The scout and tank platoon leaders must develop a scheme of maneuver together. During plan development, they should constantly consider the other platoon's actions throughout the mission. Another technique is to have soldiers from both platoons build one large terrain model. The tank and scout platoons can stagger their operations order time and brief from the same terrain model. Later, they can gather both platoons together at the terrain model and conduct rehearsals. This maximizes Bradley and tank commander interaction, and ensures that everyone understands the same plan. During reconnaissance missions, this allows tank and Bradley commanders to know the specific vehicles that are mutually supporting one another. It increases response time during the mission. For example, Green 2 (tank) is informed that Blue 3 (scout) has made contact. He immediately knows which direction to move without any further information, because during the rehearsal, Green 2 learned where Blue 3 would be operating.

During mission execution, additional procedures create a stronger cavalry team. The key consideration is situational awareness. Although digital equipment, such as Force XXI battle

command battalion/brigade and below alleviates some of the voice reporting traffic, the scout and tank platoons need to constantly communicate and share information. Monitoring each other's radio net is essential. In a QRF technique, a tank platoon leader can react instantaneously to scout contact if he monitors the scout net. In the hunter/killer concept, one of the scouts can keep the tank platoon frequency in the second radio. This allows the scout to guide the tanks directly to contact, increasing effectiveness to close with and destroy enemy contact. Any combination of overlapping the tank and scout radio communication can be effective as long as it reduces time between scout contact and tank action.

Using guide vehicles ensures that tanks and scouts are mutually supportive. In certain low-visibility terrain or weather conditions, using a scout guide vehicle makes a tank section's or platoon's movement quick and synchronized with the scout platoon's movement. This also reduces fratricide among scouts and tanks because the guide vehicle can set the tank section or platoon in a hasty battle position as well as orient the tank's field of fire.

Another technique lies in the conduct of casualty evacuation. Traditionally, platoon sergeants are responsible for the casualty evacuation of their platoons. If both platoons take casualties, each platoon sergeant conducts casualty evacuation, reducing the combat power of the cavalry team by at least two cavalry fighting vehicles and two tanks. A cavalry team can maintain more combat power in the fight by designating the scout platoon sergeant (or any Bradley commander) to evacuate all casualties. This maintains the most combat power possible to continue the mission. Scout vehicles, such as a Bradley, are better suited to carry litter patients, while tanks are more useful in the direct firefight.

### Additional Assets

In the heavy cavalry squadron, there are many assets, organic and attached, that enhance the cavalry team's combat power. Three additional assets often attached to the ground cavalry team are

indirect fire support, air support, and engineer support. Organic to the troop, a cavalry team has a 120mm mortar section. Organic to the squadron, OH-58D Kiowa Warrior helicopters are a powerful asset for the cavalry team. Finally, attached assets, such as engineer units, broaden the capabilities of a cavalry team.

It is important to focus on the indirect fires due to the troop-organic mortar section and the attached fire support officer (FSO). Scout and tank platoon leaders and platoon sergeants should become well versed in the capabilities



Scout and tank platoon leaders conduct combined rehearsals.

of the mortar section. Understanding the technical aspects of mortar fire, such as ammunition selection, range, and rate of fire, allow for better integration of indirect fires and maneuver elements. Additionally, scout and tank platoon leaders should ensure a positive working relationship with the troop FSO. Primarily, it is through the FSO that a cavalry team will be calling for indirect fires. Scout platoon leaders especially should brief the FSO on the cavalry team's scheme of maneuver. Together they should develop a fire support plan that assists the maneuver of the scout and tank platoons. Scouts should learn how to select a good mortar firing point. This allows the scouts to inform the mortar tracks on the terrain ahead and expand their options when the mortars are required to jump to their next firing point. In the same manner, scouts should report to the FSO on suitable observation points for the fire support team vehicle.

Air cavalry support is especially useful during limited visibility. A divi-

sional cavalry squadron has two troops of OH-58D Kiowa Warriors. At any time, a cavalry team can count on one to two helicopters in its area of operations. Air scouts have many practical ways of improving the cavalry teams' situational awareness. Generally, air scouts will be the first to observe an area of operations. They are effective at clearing terrain from a distance as the cavalry team begins its zone reconnaissance. Air scouts also do a great job of quickly clearing lateral avenues of approach. They can clear natural obstacles like riverbeds, wadis, and canyons. Additionally, they can clear dead space through which a cavalry team may not be able to maneuver. Finally, air scouts improve maneuver through overwatch. During passage of lines, air scouts can provide security or maintain contact as scouts displace rearward. They allow for smooth transitions between a cavalry team and a follow-on task force.

Engineer assets work with cavalry teams much the same way they support any maneuver element. Mobility, countermobility, and survivability all are augmented through engineer units. During reconnaissance missions, minelayer platoons work very well at sealing off avenues of approach or named areas of interest. During security missions, engineer assets have even more uses. Digging assets allow a tank platoon to build more survivable battle positions. Mine layers can canalize enemy avenues of approach, allowing scout platoons to execute an extended screen line or allowing tanks to build a more effective engagement area. The engineers can also deceive the enemy as to the strength, composition, and disposition of the cavalry troop. Deception fighting positions, which are shallow and quick to build, can deceive the enemy reconnaissance as to the location and number of tanks in the sector.

Regardless of the type of attachment augmenting the cavalry team, scout and tank platoon leaders must do everything possible to incorporate these assets. They must exchange information with the attachment leader, teach them about the cavalry team and learn detailed asset capabilities. This maximizes the combat power of the cavalry team, but most importantly, leads to suc-



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cessful operations. Preventing fratricide is another consideration when integrating attachments. Soldiers need to be familiar with all friendly equipment on the battlefield. Leaders should not only exchange information with each other, but they should share that same information with platoons and sections. Leaders should also find ways to reinforce this knowledge. If an air defense section were attached to a scout platoon, the platoon leader could coordinate to boresight with the new vehicles. This forces the scout crews to view unfamiliar vehicle at long ranges with multiple sights.

Armored and mechanized forces are designed to advance quickly on the modern battlefield. The cavalry units that support these forces must accomplish the reconnaissance mission quickly and carefully. The combination of speed and caution is difficult to balance. All mechanized units face the problem of maintaining security while rapidly advancing toward the mission's objective. This problem is an even greater challenge to an armored reconnaissance unit because they must quickly advance, often lacking specific knowledge of the terrain or enemy situation to the front.

## SEAT continued from Page 7

It's interesting to note that some of the NCOs feel much like the young PFC and are concerned that soldiers are not coming to Korea because of the bad, and sometimes not so truthful, information that they receive from other soldiers.

The next morning we went to Rodriguez Range, a state-of-the-art multipurpose tank range, and were greeted by the 1st Battalion (1st Tank as they say), 72d Armor commander, LTC Christopher Queen, and his command sergeant major, CSM James Williams. We sat in the tower (a platoon was going through Tank Table XI) while LTC Queen and CSM Williams shared with me the in-depth process that they go through to ensure tank crews are combat ready. During my 27-year career, I have never seen anything like it. It was a true art of personnel management to ensure that the tank commander and gunner combination was correct. I was once again thoroughly excited at how much energy these two leaders put into ensuring that

The assets of the scout platoon allow for hasty reconnaissance and movement, while the assets in the tank platoon allow for rapid destruction of enemy forces. Combined correctly, the two elements facilitate expedient movement and decisive actions on contact. Armored reconnaissance is difficult and seldom successful without close coordination between the scout and tank platoons.

To accomplish the mission and survive, the cavalry troop must locate, outmaneuver, and decisively engage the enemy reconnaissance forces. If the heavy cavalry troop loses a fight, it no longer provides critical intelligence information to the commander. The scout and tank platoons must provide detailed reconnaissance information while maintaining combat power. These two distinct platoon elements greatly enhance each other's ability to accomplish the mission. An effective scout-tank cavalry team embodies the finest virtues of cavalry tradition — speed, responsive maneuver, and leverage. This team is most deadly when it retains the initiative and chooses the engagement area. The platoon leaders and noncommissioned officers in each platoon should seek opportunities in garrison and tacti-

every soldier is given the opportunity to be successful.

We also visited the dining facility, to eat lunch with some young soldiers and talk to them about their tour in Korea. I spoke with a few soldiers who were excited about going home after 12 months. Some of the Korean soldiers, who are required to serve 26 months, were just as excited about finishing their tours. They also call it "going home." Not one of the U.S. soldiers said that they disliked Korea, but felt that a year is a long time to be away from home. I assured them that all soldiers have the same feelings about being separated from their loved ones. Before we departed, we met with the NCOs of this fine unit and gave them the chance to vent.

We all need to be proud of these men and women who are defending freedom daily. I have never seen a more focused group of soldiers and only wish that I could be a part of this great mission.

cal training to build a lethal cavalry team. The rewards of such teamwork are evident in improved camaraderie and decisive battlefield maneuver.

## Notes

<sup>1</sup>Guderian, Heinz, *Achtung-Panzer: The Development of Armoured Forces, Their Tactics and Operational Potential*, Arms and Armour Press, London, 1992, p. 164.

<sup>2</sup>U.S. Army Field Manual 17-97, *Cavalry Troop*, U.S. Government Printing Office, Washington, DC, 1995.

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Finally, I would like to personally thank COL Ierardi and CSM Zettlemyer for allowing us to talk to their soldiers. The 1st Brigade leaders are an example of how direct and personal involvement with your soldiers can and does make a difference. It is very refreshing to see such leaders.

Again, I would like to say that I feel extremely fortunate to be your Armor Center Command Sergeant Major. I look forward to hearing from you. Your comments and concerns surrounding the Armor community are very important. We are continuing to look for ways to improve our armor force and want to assure you that the welfare of our soldiers will always be our main priority. Although technology is very important, our soldiers continue to be the main factor for success.

Always seek self-improvement, keep your head up, even pump out your chest a little and remember, "PRIDE IS CONTAGIOUS!!"

# The Brigade Deep CASEVAC Plan

by Captain David Meyer

Since the inception of reconnaissance, commanders have been faced with how to evacuate deep assets and how to convince scouts that they will survive the next battle. Extended distances, timing, and the lack of authorized personnel and equipment all contribute to the calculus problem — intelligence, surveillance, and reconnaissance evacuation.

Evacuating casualties from the brigade security zone continues to be a challenge — one of connectivity and access. If casualty evacuation (CASEVAC) is to be successful in the brigade security zone, the brigade must create a positive link between the soldiers conducting deep reconnaissance and the medical assets required to save their lives. This requires the commitment of the entire brigade.

The brigade security zone can be populated by a diversity of ISR units, operating across the full spectrum of command and support relationships. Battalion scouts are an organic battalion asset and have interior lines with counter-reconnaissance forces, which directly link the scouts to the battalion treatment teams and Echelon I care. The brigade reconnaissance troop (BRT), the combat observation lasing team (COLT) platoon, and the ground surveillance radar (GSR) platoon are typical residents of the brigade security zone and have no direct connection between the point of injury and an Echelon I treatment facility. To establish this connection, the brigade must leverage assets from all its units. Responsibilities must be clearly delineated during planning and supervised during execution.

## The Plan

Before the first ISR asset ever crosses the line of departure (LD) or forward edge of the battle area (FEBA), the brigade must be prepared to support their infiltration and recovery. This is accomplished through Annex L (ISR Operations) of the brigade operations order (OPORD) and through the rehearsal process.

The brigade will generally designate a staff officer as an ISR planner, who primarily constructs and disseminates

Annex L. This officer must understand the capabilities and limitations of the brigade's ISR assets, how to work with the medical planner, and the capabilities and limitations of medical assets. In authoring the plan, the ISR planner must ensure several tasks are assigned to subordinate units:

- Ensure the brigade has sufficient medical treatment facilities to accept and treat casualties in support of ISR operations. This preparation represents a major change in timing for the brigade medical units, who are generally prepared to receive casualties just prior to the main battle. Given this new requirement, medical assets must be prepared to support ISR operations as a component of transitioning from one operation to another, and 24 hours sooner than they are currently accustomed.

- Work together to allocate sufficient dedicated evacuation assets to the brigade security zone evacuation effort. This may be an M997 front line ambulance from the forward support medical company or an M113 armored ambulance from one of the task forces. The specific type and origin of the asset is up to the planners based on unit requirements, maintenance status, and a host of other intangible factors. As long as the requirement for dedicated evacuation assets is recognized, tasked, and filled, the brigade has fulfilled its requirements.

- The brigade must direct the battalions along the LD to perform several tasks. The LD/FEBA will be secured, and the units securing it must conduct CASEVAC of brigade ISR assets from a predetermined point, established by the battalions, and fully disseminated to all involved units. In effect, this predetermined point then serves two purposes. The battalions use it as a casualty collection point (CCP) for their own organic ISR assets, and the brigade uses it as an ambulance exchange point (AXP) where evacuation assets supporting the brigade ISR operations can be met and casualties can be transferred to battalion evacuation assets and entered into the medical system. Battalions must be prepared to escort evacuation assets forward to the CCP/AXP with ground combat power. CASEVAC from an Echelon I to an Echelon II treatment facility in the brigade sup-



*"Battalions must be prepared to escort evacuation assets forward to the CCP/AXP with ground combat power. CASEVAC from an Echelon I to an Echelon II treatment facility in the brigade support area is accomplished by combining ground and air transport..."*

port area is accomplished by combining ground and air transport according to the brigade's SOP.

To fully synchronize the efforts of all units involved in deep CASEVAC, the brigade uses two forums, the ISR and combat service support (CSS) rehearsals. The ISR rehearsal occurs first and a representative from each unit in the brigade is present. This representative should come prepared to discuss, in detail, the execution of their unit's ISR plan. Additionally, this representative must come to the ISR rehearsal with the proposed location of their unit CCP, which will later function as the ISR AXP. Details, such as radio frequencies and call signs of all recon and counter-recon forces, the type and number of vehicles assigned to the units tasked to conduct the evacuation, and specific procedures for linkup at the AXP, should also be disseminated. These details are critical as a fratricide prevention measure designed to mitigate the risk incurred by converging units approaching one another forward of the LD/FEBA, possibly during hours of limited visibility.

The brigade ISR planner must ensure that the combat health support (CHS) planner briefs the brigade CHS plan. Additionally, the medical planner serves as another set of eyes to ensure the brigade's medical plan can support the width and depth of the brigade's opera-

tion. The brigade CSS rehearsal works the problem from the opposite end. Critical players in the brigade CHS system are present at the CSS rehearsal. The medical commander of the forward support battalion and a medical platoon leader from each battalion must be present. The BRT first sergeant (1SG) attends this rehearsal to coordinate all actions established during the ISR rehearsal with the brigade logistic executors. The BRT 1SG must leave the CSS rehearsal with the confirmed grid location of every treatment team, CCP, and AXP in the brigade, along with the time they will be established.

### The Execution

The methods of brigade security zone CASEVAC can be broken into two main categories: evacuation from the point of injury to a unit casualty collection point and the evacuation from that casualty collection point to an AXP. Figure 1 depicts a typical brigade security zone.

Evacuating casualties from the point of injury to a CCP is the responsibility of the affected unit. Using organic assets, the BRT, COLT, or GSR must recover their wounded and evacuate them to the appropriate CCP. During the ISR, medical planners can map CCP routes by using Terrabase, or similar terrain mapping systems, to determine covered and concealed points on the battlefield for collection. These points and routes are then included in the OPORD. A fragmentary order (FRAGO) is issued with the approved locations of the adjacent unit CCPs and the brigade ISR AXPs determined during the ISR and CSS rehearsals. There are basically three ways to transport casualties: recovery by a BRT platoon sergeant to the CCP; self-recovery to the CCP; and self-recovery to the AXP.

**Recovery by a BRT platoon sergeant (PSG).** The BRT PSG is centrally located and is equipped with an M1026 armored HMMWV, armed with an MK19 machine gun. The PSG can move forward, recover wounded personnel in his vehicle, and evacuate them to the predetermined collection point. In Figure 1, this method would apply to BRT observation posts (OPs) 1 and 2 and to COLT OP 1.

**Self-recovery to the CCP.** If the compromised OP is closer to the CCP than the BRT PSG, the injured unit assumes responsibility for its recovery. In Figure 1, this method would apply to COLT OP 2.

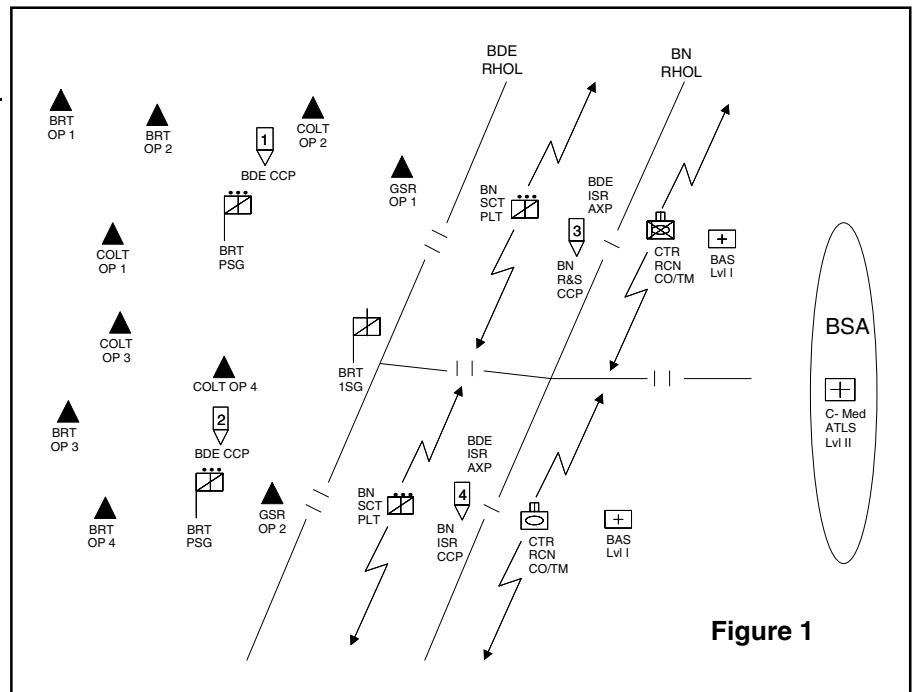


Figure 1

**Self-recovery to the AXP.** This would occur if the compromised OP was closer to the AXP than the unit tasked to provide evacuation support from a CCP to the AXP. In Figure 1, this method could apply to GSR OP 1.

Evacuating casualties from a CCP to the AXP is the responsibility of the unit controlling the brigade security zone. This is generally the BRT. When properly resourced, the BRT has the command and control capability and evacuation assets required to conduct a rearward passage of lines with evacuation assets to the designated AXP. The primary executor of transport is the BRT 1SG. The 1SG is equipped with an M998 cargo HMMWV and is accompanied by the medical evacuation assets, which can evacuate up to seven litter casualties at once. When notified of a casualty, the troop command post notifies the nearest battalion to activate their ISR AXP on the brigade operations and intelligence radio net. This alerts the battalion to prepare its casualty treatment system to receive a casualty, and alerts counterrecon forces that the 1SG is arriving with a casualty; again, as a fratricide risk reduction measure. Once confirmation is received by the troop, the 1SG moves forward from a central location to the local CCP, links up with the PSG or individual, and transports the casualties through the battalion security zone to the AXP. Once at the AXP, the 1SG must drop to the radio net of the company conducting the evacuation to conduct final coordination for the linkup. The 1SG meets the evacuation assets on arrival, transfers

the casualty to the evacuating unit, and the casualty enters the medical system.

The key to successfully transporting casualties to the AXP is synchronizing the movement of the battalion evacuation team forward while the BRT 1SG moves rearward. The brigade ISR planner must ensure that the shift battle captain or noncommissioned officer is fully versed in the plan and is prepared to contact the battalion or brigade for additional guidance.

Studies conducted at the National Training Center by the Rand Corporation have conclusively demonstrated the links between success in reconnaissance and success in battle. The brigade cannot win without the ISR assets and those ISR assets cannot survive without the support and dedication of medical and maneuver assets from the entire brigade.

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# Applying Expertise: Tankers, S2s, and Intelligence Preparation of the Battlefield

by Major Chris Tatarka, Major Casey Carey, and Major Brian Poe

*“There are only two results to military operations: maneuver successes or military intelligence failures.”*

– A battalion task force S3,  
BCTP rotation

*“Hey S2, go do some of that IPB crap and tell me what the enemy is going to do!”*

– A maneuver brigade  
commander, JRTC rotation

Although these quotes are meant to be humorous, both frequently reflect the relationships between maneuver experts and their intelligence battlefield operating systems (BOS) counterparts. Too often, staff officers and noncommissioned officers (NCOs) relegate intelligence preparation of the battlefield (IPB) to the S2. Frequently, the S2 section fails to integrate their maneuver counterparts' expertise into the IPB process. The Center for Army Lessons Learned (CALL) recently noted that during training at the National Training Center (NTC), “Brigade S2s generally conduct the intelligence preparation of the battlefield (IPB) without any input from any of the other brigade staff members.”<sup>1</sup> Unfortunately, this lack of teamwork results in too many intelligence failures.

This article provides insight into why and how armor officers and noncommissioned officers must provide invaluable expertise to the S2 to ensure that maneuver operations, at all levels, are successful for the entire combined arms team.

Since our military decisionmaking process (MDMP) begins with the S2 representing the enemy and terrain, it is critical that other staff members provide input for the IPB process.

## Seeing the Enemy

Intelligence officers learn very early in their careers that intelligence drives op-

erations, and this often-repeated phrase serves as both a motivator and a challenge for the intelligence BOS and military intelligence professionals. Being the proponent for IPB and having the responsibility of being the enemy staff expert means that battalion/brigade S2s play a critical role in the commander and staff's ability to not only see the enemy, but also to determine how to use friendly forces to defeat him.

To be an effective S2, the intelligence officer must be an excellent enemy S3 and see the battle from the enemy's perspective. Unfortunately, as numerous anecdotal war stories and CALL pamphlets note, maneuver commanders and their S2s frequently fail to gain a solid

appreciation for the enemy and see what the enemy is likely to do. As one experienced commander notes, “You have to focus on the enemy. You have to think like the enemy, and that's really the most critical piece of battle planning. But we pooh-pooh that all the time.”<sup>2</sup> Unfortunately, this often happens as a result of how the enemy is depicted by the S2 and staff during the MDMP.

Ultimately, the battalion staff is responsible for telling the maneuver commander where the task force should kill the enemy. During an attack, the staff provides a template of how the enemy will be arrayed in the defense. Conversely, during defense, the task force



4th Brigade, 85th Division (TS) Photo

*Ultimately, the battalion staff is responsible for telling the maneuver commander where the task force should kill the enemy. During an attack, the staff provides a template of how the enemy will be arrayed in the defense... the S2, bolstered by the other staff members' opinions, must “put the bony finger on the map” and recommend to the commander where the task force should focus its efforts.*

cannot defend everywhere; the S2, bolstered by the other staff members' opinions, must "put the bony finger on the map" and recommend to the commander where the task force should focus its efforts. The sequential nature of the MDMP ensures that if the S2's "bony finger" is inaccurate or his read of the enemy incomplete, the ensuing plan and execution will be corrupted from the onset. A great plan based on an inaccurate enemy course of action is likely to fail when an S2 does not have an appreciation for the enemy's capabilities in certain types of weather and terrain.

### Tankers Must Help the S2 See the Enemy

Since intelligence drives operations, and units and their maneuver commanders often fail to see the enemy, then certainly the S2's ability to successfully do his job is as critical to the tankers' success in an engagement as ensuring there are enough main gun rounds on hand. However, CTC data suggest that many S3s and other staff experts are frequently reluctant to get involved in the S2's IPB process and

enemy course of action development.<sup>3</sup> This is unfortunate for many reasons, including the S2's lack of experience and scarce manning of the S2 section.

Usually, battalion and brigade S2s have less than 8 years of experience as commissioned officers. Although some S2s have maneuver experience as a branch detailed officer, many have never actually spent any appreciable amount of time in a tank turret. However, these generally inexperienced officers are the proponents for arguably the most critical aspect of the MDMP — enemy courses of action (ECOAs).

Time hinders the S2 section's ability to devise a comprehensive ECOA. In most maneuver units, the S2 section is smaller and less experienced than the S3 section. After receiving a mission, the S2 must create a lengthy array of graphic IPB products, determine enemy capabilities and his most likely and most dangerous courses of action, develop a collection/reconnaissance and surveillance plan, and analyze and update incoming information and intelligence. If the unit is engaged in a fight, the S2 section must execute both current and fu-

ture operations with an extremely small section. It is important to note that the enemy the S2 is trying to see is not the static doctrinally bound force that too many military professionals would prefer to fight. In other words, neither their plan nor ours survives first contact with the enemy. The enemy, like our forces, will only follow his most likely COA until it becomes untenable, at which time he will audibly, based on knowledge of friendly forces through reconnaissance and tactical success or failure. This clearly requires the S2 to remain close to the current fight during tactical operations, which will hamper the section's ability to determine enemy COAs for future operational planning. Given these limitations, plus tracking enemy battle damage assessments and generating intelligence summaries (INTSUMs) for higher and subordinate units, CALL finds it miraculous that S2s can do a reasonably good job of seeing the enemy, templating his actions, and staying in the current fight.<sup>4</sup>

Although unit S2s can adequately tread water during operations, the idea is for the intelligence BOS to move forward — swimming into future operations. This is where the armor community can play a role. Instead of watching S2s pull out their hair and virtually drown beneath the crush of preparation for mission analysis, armor and other staff BOS experts should participate in the IPB process, just as our doctrine states.

### Where S2s Need Help

At the same time the S2 section conducts its IPB, a number of subject matter experts are on hand in the tactical operations center (TOC). Tankers, engineers, and air defenders can provide valuable input into IPB and preparing ECOAs. For example, very few S2s can truly understand the impact of terrain on armor operations better than an armor officer or NCO who has spent considerable time in a tank. A quick glance around a battalion or brigade TOC will show that a number of these experts, such as battle captains, assistant S3s, and staff NCOs, are on hand. However, units fail to capitalize on the available expertise. Since S2s are the staff proponent for IPB and enemy templating, this lack of integration is often blamed on the S2. However, pointing fingers



*After receiving a mission from a higher headquarters, S2s have very little time to carry out their required duties before the mission analysis briefing. IPB is a methodical, step-by-step process...What does not help is a pool of experts rushing over to offer opinions about the enemy as soon as the order is received from the higher headquarters.*

after the battle is lost will not turn a unit's failure into a success.

### Where/How the Armor Officer or NCO Can Provide Expertise

After receiving a mission from a higher headquarters, S2s have very little time to carry out their required duties before the mission analysis briefing. IPB is a methodical, step-by-step process in which steps cannot be skipped or shortcuts taken. S2s generally know how to conduct IPB and where to save time. What does not help is a pool of experts rushing over to offer opinions about the enemy as soon as the order is received from the higher headquarters.

Instead, the armor — and other staff BOS experts — should allow the S2 the time and space to go through the IPB process. One technique that will aid the S2 section is for the staff to provide short bullet comments on a 5x8 note card or a preformatted reverse BOS worksheet to the S2 section as each staff element does its own IPB. The intent of the reverse BOS worksheet is to see the terrain and weather from the enemy's perspective, thus taking advantage of the knowledge available from the S2's peers in the TOC.<sup>5</sup>

The comments on these note cards or worksheets do not need to be exhaustive and need not state the obvious. Comments like, "Enemy tanks are incapable of fording the river with a depth of fifty feet," are unnecessary. It is more useful to identify any subtleties that are only apparent to an expert. A good example might be a tanker who notes in the enemy capabilities section of the reverse BOS worksheet, "because of the narrowness and shallow depth of the river at this point, the enemy will mine the potential ford site and cover it with direct fires." In the equipment/capabilities section, appropriate information may be something as simple as, "enemy tanks can't navigate through the terrain at WA123456, but recon vehicles can, and probably will, use this route. This may be a good NAI for counterrecon."

This technique works because it provides information to the S2 in a system that is both push and pull. Experts push information about the enemy to the S2. He can then use this information whenever he needs it within the methodical process of IPB. When he is ready to in-

tegrate the expert knowledge into IPB, the S2 can look at the information, analyze it, and ask necessary questions. This works far better than an expert providing information during the IPB process when the S2 is too overwhelmed to process the data. This method is also far superior to forcing the S2 to seek out the experts who have a myriad of other tasks for which they are responsible; the other soldiers in the TOC are frequently under demanding time constraints as well.

Likewise, this technique is elegant in its simplicity. It does not require lengthy briefing or discussion, but rather passes the critical, expert based, IPB information to the IPB proponent — the S2. The only challenge of implementing this system is forcing officers and NCOs to adopt this new procedure, and then ensuring that each expert develops an understanding of the strengths and weaknesses of their S2 sections, so that the information passed fills the gaps in the S2 section's experience/knowledge base.

The IPB process is far too important to a unit to be left solely in the hands of the unit S2. Armor units should use their expert knowledge in battalion and brigade TOCs by ensuring that IPB is done by the entire staff. Because the S2's development of an ECOA is the first critical step in developing the friendly unit plan, an error in this process corrupts the unit's entire plan and execution.

One significant way to improve IPB and ECOA development is to use the experts in the TOC to help facilitate IPB. The push/pull technique of reverse BOS worksheets or IPB note cards will go a long way in developing good ECOAs and success in planning and execution. They may also help ensure that every mission is not just a military intelligence failure or maneuver success.

### Notes

<sup>1</sup>Center for Army Lesson Learned (CALL), *TA 5.2.1 NTC Trends Compendium 3d Quarter FY 98-4th Quarter FY 99* (May 2001), online at [http://call.army.mil/products/cte\\_bull/01-11/01-11toc.htm](http://call.army.mil/products/cte_bull/01-11/01-11toc.htm)

<sup>2</sup>Rick Lynch, "Pick Up the Red Pen First," *66 Stories of Battle Command*, Command and General Staff College Press, Fort Leavenworth, KS, 1999.

<sup>3</sup>CALL, *TA 5.2.1 NTC Trends Compendium 3d Quarter FY 98-4th Quarter FY 99*.

<sup>4</sup>Ibid.

<sup>5</sup>CALL, *Joint Readiness Training Center Leader Training Program (LTP) Observations* (March 2001), online at <http://call.army.mil/products/newsletters/01-4/page7.htm>

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MAJ Casey Carey is currently an English instructor at the U.S. Military Academy, West Point, NY. He received his commission in 1989 from University of Wisconsin-White-water and holds a Master of Arts degree from Northern Illinois University. He has served in various command and staff positions, including tank platoon leader, B Troop, 4-8th Cavalry, 3d Armored Division; assistant S3 and support platoon leader, 2-68 Armor, Baumholder, Germany; commander, HHC, 3d Battalion, 73d Armored Regiment, 82d Airborne Division; and S2, 505th Parachute Infantry Regiment.

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# Tanks, Battleships, And the Future of Armored Warfare

by Nader Elhefnawy

In 1950, Basil Liddell Hart observed that the conflicting imperatives of increasing a tank's mobility, protection, and firepower were bound to create "an increasingly clumsy monster." His prediction appears to have been accurate. The cycle of heavier guns, thicker armor, and bigger engines, which for so long propelled the development of the tank, enters its last phases.

A similar cycle, the life story of the battleship, completed itself more than a half century ago. This article contends that the evolution of the warship holds important clues to the long-term future of the "landship," as conceived by tank theorists such as J.F.C. Fuller. This change points in the direction of a "net-centric," missile-firing tank — a point well worth discussing given the Army's plans to field a net-centric future combat system (FCS).

## Rocket-Firing Tanks

Hart suggested a lighter, smaller, and less-expensive rocket-firing tank. Since then, tanks have become bigger, heavier, and more expensive. However, the warship developed much like Hart described, ceasing to rely on armor for protection and relying primarily on missiles for armament. Additionally, smaller vessels built around new armament, such as missile boats, have proliferated.

While this was a logical direction, mounting fewer and smaller guns in favor of missiles entailed a trade-off. The shell packed a greater punch than any conventionally armed missile. Shells are also cheaper, which is why cannons are used for fire support. Nevertheless, the advent of more powerful explosives and inexpensive missiles — due to increasing research and wider production — may change that. Another contribution was miniaturizing missiles and their launchers to allow more rounds to be carried.

Even without such developments, the missile's longer range and greater in-



telligence has long accounted for more than the shell's advantages in naval conflict, despite the use of smart shells to extend the effective range of guns. The rate of missile fire is limited less by the number of gun tubes than the capacity of its fire control system, so that a missile-firing combat system could simultaneously lock on to and destroy several tanks before a battle tank like the Abrams destroyed even one tank. Warships, of course, still carry guns, because they are inexpensive and useful for self-defense at close range, secondary targets, and fire support. Consequently, even if the tank gun has a future, the tank's future depends on its ability to incorporate the missile into its armament, and to defeat it. The net-centric tank appears to be crucial to that capability.

## Net-Centric Armored Warfare

Hart also advocated developing a remote-controlled tank for achieving a breakthrough, but technological developments that he did not anticipate allow future armor to go even further. Information technology has made it unnecessary for firepower, sensors, and controls to be united in a single, discrete package. Such thinking has made the U.S. Navy increasingly net-centric by tying ships, aircraft, and even submarines more closely together; this is also the premise underlying the net-centric tank.

A dispersed tank is not a singular unit, but several smaller units — a system of

systems. The present requirement for the FCS is that no unit can be larger than 20 tons, in the interest of mobility. However, they may be much smaller because each unit only has to be big enough to perform its specialized function.

The dispersal of sensors and weapons among different vehicles would extend striking-power range and help eliminate blind spots, allowing more options in target designation, or massing fire without necessarily massing forces. As formidable as a barrage of missiles fired from a single tank may be, several salvos of missiles launched at once from several different fire vehicles would be all the more overpowering. The potential that such a system has for modularity will make it easy to configure for different types of terrain and for particular missions. Assuming that an all-purpose missile system is not developed, a wide variety of missile launchers could be attached to the unit as needed.

Taking such an approach, even the smallest tank units could have their own, independent surface-to-air missile and even artillery capability, dramatically increasing their independence and offensive power. Warships do not rely on airpower as an independent, separate component launched from a distant base for support. Instead, airpower is an integral part of the unit, so warships may have their own drone carriers. The net-centric tank's ability to disperse would go a long way in creating a tank suited to an urban environment where the ter-

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rain is highly fragmented, isolation is all the more dangerous, the capacity to interface with infantry and strike targets outside the line of sight is crucial, and compactness is imperative.

Where the battleship relied on the thickness of armor to protect it, today's warships take a more active approach, relying instead on their ability to confuse and destroy missiles that threaten their existence. Stealthy features, such as lower silhouettes, surfaces that reflect and absorb radar, and electronic warfare capabilities, are being incorporated into warship designs. Antimissile defenses have found their ultimate expression in the outer air battle strategy, which interposes rings of fighter aircraft and surface-to-air missiles between a massed missile attack and the aircraft carrier at the center of a battle group. It has been suggested that future battle groups will use directed-energy weapons, such as microwaves, particle beams, or laser beams, to perform this function, enabling the ships to best position themselves to launch their missiles.

The future tank may go a similar route, relying on evading, rather than absorbing, blows. In the case of a dispersed tank, an enemy would have to hit several small targets designed to have the smallest possible radar and infrared signatures and a better capability to exploit natural cover than a single large vehicle. They may increasingly rely on jamming sensors and launching decoys which mimic tank signatures in the event of an attack, though dummy vehicles may also be included in formations. Assuming that the multiplicity of sensors and weapons launchers would create redundancy, making the system survivable, especially given the high rate of attrition warfare where both sides are capable of fighting an information-based war. Though it is inconceivable that the manned vehicles will be unprotected, the protection afforded by armor may be increased by improvements in materials rather than by the bulk or weight of armor.

Like the carrier groups of the future, a net-centric tank may eventually include a directed-energy weapon for countering air and missile threats, and even artillery-fired submunitions. While a laser weapon, for instance, can be used against ground targets, its inherent inefficiency and high power consumption would mean that the tank's more tradi-

tional weapons would deliver a heavier blow. It may also be better to conserve the laser's punch for self-defense, at least in high-threat environments. In short, laser weapons would function as the shield, missiles as the arrow.

Separated into units, such tanks would be swifter on the ground and able to use bridges that could not bear the weight of heavier tanks. They would also be easier to transport by air because they take up less space in the holds of aircraft, and at least some of these components can be airdropped or moved by helicopter. Fewer combatants would be on the firing line because of automation.

The logistics imposed by this large number of vehicles may be less than they appear. Developments like condition-based maintenance will simplify the task, and a net-centric approach offers certain advantages over old-fashioned armor. It would be easier to replace individual elements of the net-centric tank than to pull a battle tank out of action for repairs. Smaller vehicles, and reducing or even eliminating armor, would allow greater leeway to experiment with new types of power sources, which would ease the logistics strain that modern tanks impose on armies, and revolutionize logistics as well as precision.

### Beyond the Dispersed Tank

For all its advantages, a dispersed tank will lack some of the assets of older-style tanks, just as guided-missile destroyers lack some of the battleship's strengths. The dispersed tank will lack the shock effect of a 70-ton Abrams. It may be more vulnerable to electronic warfare because it relies on electronic links, which may even make older-style, unitary tanks more practical under certain conditions.

Moreover, it should not be assumed that the net-centric tank is the final word in armored warfare, any more than today's guided-missile destroyers are the final word in naval warfare. The actual practice of net-centric armored warfare will undoubtedly raise problems that have not been considered. For instance, deploying directed-energy weapons capable of neutralizing attacking missiles and shells may bring about a stalemate on the battlefield. Armored vehicles capable of flight and aircraft capable of ground combat cannot be en-

tirely ruled out. Creating a laser weapon that is compact, powerful, and efficient enough to be a tank's primary weapon will require yet another rethinking of the tank, and perhaps the missile. The same applies to the advent of infantry equipped with armored exoskeletons and much-enhanced weapons, since these may themselves become the new tanks.

Even if these predictions prove inaccurate, the reality is that the rate of technological advance and political change often outrun the speed at which major new weapons systems can be acquired and absorbed. The end of the Cold War deprived a great many weapons systems of their original mission, while the war on terror has made apparent a greater need for systems suited to missions such as homeland defense. Consequently, while one of the inherent strengths of a dispersed, modular tank is its mutability, even the dispersed tank has limitations which will eventually be superseded.

### References

- Stanley C. Crist, "The M1A2 Abrams: The Last Main Battle Tank?" *ARMOR*, July-August 1997, pp. 14-16.
- Federation of American Scientists, "Future Combat System," online at <http://fas.org/man/dod-101/sys/land/fcs.htm>.
- George and Meredith Friedman, *The Future of War*, New York: Random House, 1996.
- J.F.C. Fuller, *Armaments and History*, New York: De Capo Press, 1998.
- Basil Liddell Hart, *Defence of the West*, Westport, CT: Greenwood Press, 1970.
- William C. Martel, *The Technological Arsenal*, Washington D.C.: Smithsonian Institution Press, 2001.
- Ralph Peters, "The Future of Armored Warfare" *Parameters*, Autumn 1997, pp. 50-59.
- Mike Sparks, "A Crisis of Confidence in Armor?" *ARMOR*, March-April 1998, pp. 20-22, 44.
- Patrick Wright, *Tank*, London: Faber and Faber, 2000.

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# Attrition vs. Maneuver And the Future of War

by Lieutenant Colonel Ernest A. Szabo

*“The supreme excellence lies not in defeating our enemy in battle, but in defeating him without a battle.”*

– Sun Tzu

What will warfare in 2032 look like? Will it be the future of a revolution in military affairs promised by Force XXI? Will we see transformational U.S. forces destroying legions of mechanized enemies beyond visual range? Will we see the rise of a peer opponent who matches us tank for tank, computer for computer, and forces us into a higher tech version of the battles of attrition which we saw in the Civil War, WWI, and WWII? Or will it be the urban chaos of Chechnya and the West Bank? How do we predict the future, and how do we plan and prepare for it? Of all the possible scenarios, which is most likely and which is most dangerous?

## Attrition or Maneuver?

*Attrition* - The reduction of the effectiveness of a force caused by loss of personnel and materiel.<sup>1</sup>

*Maneuver* - Employment of forces on the battlefield through movement of combat forces in relation to the enemy, supported by fire or fire potential from all sources, to gain potential advantage from which to destroy or threaten destruction of the enemy to accomplish the mission.<sup>2</sup>

A recent article, “Three Cheers for Attrition Warfare” (March-April 2002 issue of *ARMOR*), argues the inevitability of attrition. The article seeks to demonstrate the futility of planning esoteric concepts of maneuver warfare based on a revolution in military affairs. The article’s thesis is that the most likely and most dangerous type of warfare likely to be faced by American soldiers in the future would be a war of attrition against a massed, mechanized peer

opponent. The article cites many historical examples to demonstrate that most wars are won by attrition. While it addresses many interesting points, the thesis is wrong.

Maneuver warfare is not dependent upon technology. In fact, we are far more likely to have it inflicted on us by a technologically and economically inferior foe than we are to wage it against him. Second, while war between evenly matched opponents does often degenerate into attrition warfare, we are very unlikely to meet a peer opponent who can force us into a war of attrition. Last, even if destroying an opponent by attrition is feasible, it is unlikely to be

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*“Maneuver warfare is not dependent upon technology. In fact, we are far more likely to have it inflicted upon us by a technologically and economically inferior foe than we are to wage it against him.”*

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considered acceptable or suitable by the American people.

If we do not see the need for maneuver warfare, our enemies certainly will. The fans of transformation and Force XXI often talk about how technology will enable us to outmaneuver our opponents. This may be true, but the converse is not true. Technology will not prohibit our enemies from maneuvering against us. Our enemies will adapt to avoid our sensors and other technology and will still arrive on our flanks and in our rear when least expected. A competent enemy will not mass his mechanized forces for JSTARs to detect, and for ATACMS and an Apache Longbow to destroy. He will disperse his armor in cities and complex terrain and strike our CSS units once we pass. We may enter the war planning a grand campaign of maneuver only to find our opponent unwilling to stand up and

fight. We will then settle in for what we think is a long war of attrition only to find our opponent waging a thousand small maneuver battles against us.

The logistics of mechanized warfare may require a secure rear area, but our enemy is unlikely to grant us that luxury. We will have to fight each and every day to secure our lines of communication. The larger our rear area, the more forces we will have to detail to secure it. The greatest battles of the next war are likely to be fought by CS and CSS units and reaction forces rather than major commands. If this “death by a thousand cuts” process sounds like attrition, it may be from our point of view. From our enemy’s, it will be maneuver 101.

Asymmetric warfare from our perspective may mean, “I have tanks and you do not.”

Asymmetric warfare from our enemy’s perspective means, “you have tanks and I blew up your 5,000-gallon fuel tankers.”

In addition to simple physical maneuver, such as envelopment and dispersion, by an enemy, we must also plan for enemies who maneuver against us off the battlefield. Maneuver warfare means to dislocate an enemy or to gain a positional advantage so that he cannot effectively respond to your attack. How many different ways can future enemies maneuver against us using the media, terrorism, NBC weapons, and electro-magnetic, political, or economic measures? How will we respond if we have not thought about them ahead of time?

None of this is an argument for scraping heavy forces. It is a fallacy to think that wars of attrition will be fought with heavy forces while wars of maneuver will be fought with light or transformational forces. Nothing in Force XXI or any of the transformation process will eliminate the need for heavy forces.

*“Attrition warfare may be feasible, but it is rarely suitable or acceptable. While style does not count in war, casualties do count. The greatest numbers of casualties in battle are inflicted once an enemy has been defeated and is attempting to withdraw.”*

The Army will always need a full spectrum of forces to deal with a full spectrum of threats. Even if all our enemies eliminated their tanks, we would still need them for the same reason they were first invented, to allow us to maneuver across a killing zone against a dug-in enemy.

The ability or necessity to conduct maneuver warfare is not simply a question of technological or economic differences. Schlieffen's quote about “a perfect Cannae requiring both a Hannibal and a Varro” is pithy, but half wrong. Maneuver warfare requires a mobility differential between the forces. One side has to be more agile than the other. This can come from a difference in abilities of the commanders, but there are many other sources. In addition to leadership at the top of an army, there is also the quality of the soldiers, their subordinate leaders, and their training. Many of the famous maneuver battles were not due to brilliance of the generals but to the quality of the troops who were able to execute complex courses of action beyond the capability of the enemy soldiers and units.

The early success of the German army in WWII was largely due to the quality of its soldiers and junior leaders compared to their opponents. When the British army made their frontal attack on the Somme in 1916, they did not intend to needlessly waste their soldiers lives. However, their leaders were afraid that the recently raised levies would be unable to execute a more complicated maneuver and chose a battle of attrition as their only viable course of action.

Beyond military specific training, there are also cultural differences that may allow one side to obtain a significant mobility advantage over an opponent. It was the American soldier's ability to use machines as much as the machines themselves that gave us a mobility advantage and allowed us to conduct maneuver warfare in WWII and in Iraq. Maneuver warfare requires a mobility differential between opponents. It can come from technological, economic, leadership, training, cultural differences, and more. Many of these differences are already evident or can be predicted.

The most likely course of action is that we will be able to maneuver against our enemies and that they will find a method of maneuvering against us.

### **Lack of a Peer Opponent**

What about the most dangerous course of action? What happens when all of these potential differences go away? The result can be a deadlock that results in a war of attrition. For this reason, we should also study doctrine for attrition warfare. But how likely is it? Who will have the ability to fight us to a standstill in the next 30 years?

While none of us can name whom we will fight in 2032, we can predict how they will fight. We can do this by looking at world economies. We cannot predict the political insanity and delusions that cause war; we can predict the economic power that supports war. Who has the means to create a massed mechanized army? While, our enemies will likely have some number of tanks, no country will have enough to challenge us as a peer opponent. There is no country or coalition of countries with the industrial base to challenge the U.S. in a mechanized war in the next 30 years. If any country is going to fight a massed, mechanized war in 2032, they need to be building that army today. The tanks, personnel carriers, SP field artillery, and hundreds of trucks will not need to go into production for another 10-15 years, but the factories that make them are currently behind schedule.

One of the reasons that Iraq lost so quickly was that the thousands of armored vehicles in its inventory were purchased rather than manufactured. The Iraqi nation did not have the means to produce its war machines internally and did not understand them. They could not properly crew their vehicles or employ them en masse. They could not replace what was destroyed.

While we did not know we would fight Iraq in 1962, we did know that tanks and other weapons were being produced and that we would someday fight a massed, mechanized opponent. The T-72s that Iraq used in 1990 were built in the 1970s and '80s. The T-55s

that made up the bulk of their armor were built in the '60s and '70s. When were the Chinese and Soviet factories that produced them constructed? When did these tanks go into development?

We knew long ago that our M1s would be facing T-72s, we just did not know where. Which nations now have, or are developing, the industry to rival the U.S.? Look for the steel mills and factories and your potential mechanized opponents fall out quickly. Russia and China, or a client state, are the two most likely. India is possible. The only other countries with the capability to produce large numbers of mechanized units are in Western Europe and Japan. Even they cannot or will not produce the integrated systems that would allow them to take part on equal footing with the U.S. during the campaigns in Yugoslavia and Afghanistan.

Which nation will wrest air superiority away from the U.S. Air Force? Where are their thousands of fighters, dozens of AWACS, hundreds of refueling tankers, and the global command and control system to synchronize this air battle? The bottom line is they don't exist and will not exist before mid-century. We *can* trade gold for blood at a pace no mechanized enemy can match. Our enemies will be forced into campaigns of asymmetric maneuver to stay alive.

### **Is There Ever a Time for Attrition?**

If we are forced into battles or campaigns of attrition in future war, it should generally be against our will. Attrition warfare may be feasible, but it is rarely suitable or acceptable. While style does not count in war, casualties do count. The greatest numbers of casualties in battle are inflicted once an enemy has been defeated and is attempting to withdraw. Whether the initial battle was maneuver or attrition, the loser is generally destroyed once he accepts defeat and attempts to get away.

The greatest past victories have occurred when an encircled or cut off enemy was destroyed in open terrain or began to surrender en masse. It is always easier to take an enemy prisoner than to kill him. In breaking an enemy's will to fight, it is important that

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casualties occur quickly and visibly, rather than slowly. A unit that defends a fortification may suffer 50 percent casualties over a period of weeks, yet still defend effectively because it has had time to adjust to the losses. The same unit that finds itself flanked or encircled in the open will often break and run or surrender after suffering 25 percent casualties in the first few minutes. Battles of attrition, which attempt to destroy the enemy before he begins to withdraw, will run up body counts almost as high for the victor as the vanquished. "Meat grinder" battles such as Petersburg, Verdun, Aachen, and the Huertgen Forest leave the victors as exhausted as the vanquished and unable to pursue or exploit the victory.

Will the American people support such bloodlettings? Battles of attrition destroy more than lives. They destroy economies, infrastructure, and often the society itself. How many of our Allies will submit to having their countries destroyed to save them? Americans are impatient people and value their children's lives. They have always and will always demand that wars be won quickly and at the lowest human cost possible. We know that future wars will be broadcast live to the world by the media. We will have to explain our actions in real time. We will constantly be asked if we could not have found a better way to resolve any tactical problem.

Attrition is generally what happens when our plans fail and we can no longer maneuver. If maneuver is the essence of the art of tactics, then attrition is the absence of art. It is important to remember that maneuver should not be reduced to formulas based on correlation of forces and means (COFM) or historical examples. Maneuver is not always the "indirect approach" of Liddell Hart. Sometimes the best maneuver might be a frontal attack on a wide sector, if the enemy is disorganized but will recover if given time. Other times it might be to disperse into small elements over a wide area to deny the enemy targeting systems a lucrative target. The goal is always to create a situation in which you can strike at the enemy while limiting his ability to strike at you. There may be times when it is tempting to create a scenario that will allow us to bleed the enemy white, however, these have rarely turned out as planned.

Examples of ineffective attempts at battles by attrition were the battles of

Dien Bien Phu and Khe Sanh. In the first, the French were frustrated by their inability to bring the Vietnamese to battle. The enemy possessed a significant mobility advantage over the French and was able to avoid decisive engagement with the superior firepower of the French. The French thought that by occupying a fortified position in the heart of enemy territory, they could force the Vietnamese to fight. The French could then bleed their enemies white as the Vietnamese impaled themselves against the French positions. However, the French did not have the firepower to withstand the resultant siege, and it was they, not the Vietnamese, who marched into the POW cages. The fact that the French may have inflicted nearly equal numbers of casualties on the enemy did not alter the result. They lost the battle, and it was the political fallout rather than the losses in men and materiel that caused France to lose the war.

Less than 20 years later, the U.S. military attempted a similar attrition strategy. We occupied a fortified position at Khe Sanh. Like Dien Bien Phu, it was on a valley floor in the northern part of our area of operations in a place that the enemy could not abide us owning. We would then bleed the enemy white as he tried to assault our position. We thought we had learned from the French. Unlike the French, we owned the hills around the airstrip. Unlike the French, we had the firepower to defeat every attack and the airpower to resupply the position, despite heavy losses. Unlike the French, Khe Sanh was never in danger of being overrun and was evacuated by ground after inflicting many thousands of casualties while suffering relatively lighter losses ourselves. Yet, like the French, we also lost this battle. We did not lose it in the hill fights or on the airstrip. We lost it a little bit every day on the six o'clock news when the newsmen reported how many Americans had died that day, the XXX day of the siege of Khe Sanh.

So what does the future hold? All of these historical examples do not prove that we will fight wars of maneuver any more than the examples of the previous article on attrition prove that it is inevitable. We cannot deduce a theory of war from historical examples since we can never know all of the tiny variables that cause a battle to be won or lost. Nor can we predict the future through purely technical analysis since technological change has an unpredictable.

nature. First we must study history to understand the nature of war, which is unchanging. This is because the nature of war depends on human nature, which changes at an evolutionary pace. We still kill each other for the same reasons our ancient ancestors did. We must combine this study of the historical nature of war with the study of technological change. For technology determines the characteristics of war and this changes at an ever-increasing pace. In combining the two, we can better understand the how and why of future war.

We know that we will fight somewhere at least every 20 years, if not more often. We know that our wealth and technology will give us the ability to move against and strike large distinct enemy forces from a relative advantage. We know that our enemies will respond to this by dispersing, and in other unpredictable ways that will negate or limit the effects of our weapons. We know that we will fight in other population centers under the media's scrutiny. We know that our enemy's culture is likely to be far more tolerant of the prolonged and indecisive nature of attrition warfare than our own. We know that our soldiers and our people do expect us to win with style, that is, quickly, with as few casualties as possible. Attrition can happen and we must be prepared for it. But, it is our duty to avoid the bloodlettings and find ways to maneuver to defeat our enemy quickly and at the lowest cost.

## Notes

<sup>1</sup>Department of the Army, Field Manual 101-5-1, *Operational Terms and Graphics*, U.S. Government Printing Office, Washington, DC, 30 September 1997, p. 1-14.

<sup>2</sup>Ibid., p. 1-96.

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# The Training Support Brigade's History, Mission, and Role

by Captain Joe Redmon

*You are a sergeant first class (19K) stationed at Fort Carson, Colorado. You have been a successful company master gunner and are currently the battalion master gunner. The "old man" loves you, your wife and kids are happy, and you even like your quarters. Your branch manager calls you at your 30-month mark and reassigns you to an AC/RC slot at TSB Shelby with duty in some small town in Mississippi. You looked for the town on a road atlas and can't even find it. You think that your career and life are over.*

*You are a tank company commander at Fort Hood, Texas, and you have just completed 3 weeks of very successful gunnery training. You have been in command a year and you have just about figured it out. The telephone rings, its Armor branch and the assignments of officer suggests that you pack your bags because you're PCSing to TSB Knox or TSB Stewart in a few months. Which do you prefer? You innocently ask, "What's a TSB"?*

Both of these outstanding soldiers are entering a new world — Training Support XXI and the training support brigade (TSB).

## The Training Support Brigade

During 1961, reserve forces were mobilized in response to the Berlin crisis. As in earlier mobilizations, failure to attain peacetime training objectives and shortages of equipment proved to be major problems that generally prevented mobilized units from meeting post-mobilization readiness objectives.<sup>1</sup>

The TSB's story begins with the U.S. Army and its leaders recovering from the Vietnam ordeal, dealing with an increasingly turbulent society, operating within severe fiscal constraints, and mapping a strategy to reinstate an all-volunteer force. This shift was part of a larger strategy and would have some clear implications. First, the Army needed to be closer to the nation it served. It would do this, in part, by decisively linking its Reserve Component (RC) and Active Component (AC) in a total army concept. National Command Au-



**OC/T teams coach, teach, train, mentor, and assess U.S. Army Reserve and Army National Guard combat, combat support, and combat service support units to enhance their combat readiness.**

thorities could not commit U.S. military forces to long-term operations without mobilizing reserve forces.<sup>2</sup> Second, doctrine needed to be inculcated across all branches and components.<sup>3</sup> The concept of a total army was inspired by lessons learned from Vietnam experiences and was a conscious effort to "prepare for the next war, not the last."<sup>4</sup> The Total Army would be incapable of conducting sustained combat operations without significant mobilization of the RC.

Readiness groups were eventually constituted to train reserve forces.<sup>5</sup> However, to some extent, the Berlin crisis replicated itself in 1990 and 1991 during the Gulf War buildup. It became apparent to all that past attempts to train and prepare reserve forces for mobilization and ultimate mission accomplishment had fallen woefully short.<sup>6</sup>

Readiness groups continued to operate in place for most RC units; however, AC division commanders took a greater interest in training their round-out brigades.<sup>7</sup> This greater interest became known as Operation Bold Shift and led to the establishment of resident training detachments (RTDs).

By 1995, Congress pushed for, and U.S. Army Forces Command (FORSCOM) instituted and manned, regional training brigades (RTBs). These RTBs

were assigned according to geographic location. Battalions east of the Mississippi River were assigned to First Army and battalions west of the Mississippi River were assigned to Fifth Army. The RTBs provided training support to the renamed enhanced readiness brigades and other high priority units. Training Support XXI (TS XXI) went into effect in October 1999, and changed the RTBs to training support brigades (TSBs) and expanded their mission requirements to include training support to enhanced separate brigades, while providing the same training support to all others units within a clearly defined geographical area.<sup>8</sup> TS XXI absorbed the force structure of the readiness groups and used it to stand-up more TSBs to cover specific areas.<sup>9</sup> TS XXI placed training support battalions under the command and control of the TSB commander.<sup>10</sup>

Today, the mission of the TSB can be divided into three distinct areas: training support; mobilization assistance and support; and military support to civilian authorities.

## The Mission — Training Support

The TSB provides world-class training support to RC units through a mobile operations group. The TSB is deployable, unconstrained by terrain, and capable of providing higher control with both digital and voice communica-

**Observer controller teams stay in a training environment, working continuously with soldiers and leaders, observing the same training that they would execute in an MTOE unit. This is very much a muddy boots assignment.**

tion capabilities to brigade-level units and below. This enhances the combat fitness and combat readiness of RC units by providing comprehensive assistance with the planning, preparation, and scenario development of multi-echeloned lanes training at the platoon, company, battalion, and brigade levels, while simultaneously providing the supported training unit chain of command a complete external evaluation.

The TSB's mission is simple: observer controller/trainer (OC/T) teams coach, teach, train, mentor, and assess U.S. Army Reserve and Army National Guard (ARNG) combat, combat support, and combat service support units to enhance their combat readiness. The intent is continual improvement and the emphasis is on doctrinal training to standard, not simple evaluation.

This training support mission is largely accomplished through a mentoring relationship between the OC/T and his training counterpart, and is verified by aggressively using after action reviews (AARs) at all collective levels of training. During TSB AARs, the OC/T facilitates a focused, doctrinal discussion on collective training that may or may not have gone well and leads the training unit to discover why the training results were positive or negative and how to sustain or improve that training.

OC/Ts stay in a training environment, working continuously with soldiers and leaders, observing the same training that they would execute in an MTOE unit. This is very much a muddy boots assignment.

OC/Ts develop training scenarios which are approved by higher-level unit commanders, and then used to facilitate the training unit's collective training. OC/Ts are also expected to doctrinally operate within the parameters of these training scenarios. OC/Ts with a solid working knowledge of doctrine will hone their doctrinal skills and quickly become doctrinal experts.

In a TSB, OC/Ts do not merely observe training execution, set the tactical and doctrinal conditions for collective training success, and facilitate an AAR, they also assist training units in the planning and preparation of their collec-



tive mission essential task list (METL)-based training. Ideally, the OC/T begins the mentoring process with his counterpart commander early in the planning process and coaches him toward a successful training event during annual training. The intended end result is a better unit, measured objectively against mission training plan standards, and verified through an AAR. For example, a tank battalion would have a minimum post-mobilization training goal to receive a "P"-rating on each of its collective METL tasks (platoon, company, and battalion) and qualify each of its tank platoons on Tank Table XII. Given today's training environment, this goal would be ambitious for most AC tank battalions. However, ARNG tank battalions are doing much of this as a matter of course as they prepare their units for CTC rotations.

Many have questioned the efficacy of assigning valuable training rotations at the CTCs for ARNG battalions. However, if the growing role and increasing responsibility of reserve forces for our nation's real-time defense is to be adequately addressed, assigning those valuable resources would seem very reasonable indeed.

The training support mission is not limited to annual training; it is a year-round process incorporating functional assistance visits during inactive duty training (IDT) weekends, OC/T involvement in IDT collective training events, and mobilization files review.

### **Mobilization Assistance**

September 11 was a wake up call for the entire country, and the TSB was no exception. As the towers of the World Trade Center fell that tragic Tuesday morning, we anticipated new, challenging missions. We watched President

George W. Bush firmly dig the foundation for the Department of Homeland Security. We proactively visualized that homeland security could not be achieved without the RC.

TSBs immediately dispatched mobilization assistants to ARNG units throughout the country to assist commanders with the task of mobilizing and to serve as liaison officers for TSB commanders. Simultaneously, TSB S2s and intelligence officers at the MACOM level began to analyze and describe the threat facing ARNG commanders as they assumed their post-mobilization duties and prepared to mobilize. As directives began to arrive from FORSCOM, TSBs began to identify individual and collective tasks that needed to be trained. Mobilization plans called for TSB commanders to certify mobilized units as trained and prepared to accomplish the mobilization mission.

When units are mobilized within a TSB commander's area of responsibility (AOR), the mobilization mission takes priority over all other missions.<sup>11</sup> The TSBs, incorporating guidance from higher headquarters and analyzing the training units' post-mobilization mission, quietly developed a post-mobilization training plan to support ARNG commanders as they busily mobilized their units in response to the attacks. TSBs developed what are now known as homeland security individual readiness training (HSIRT) lanes, and security and stability operations (SASO) lanes to support the commander's post-mobilization training intent.

HSIRT lanes train soldiers and units in individual and team tasks such as checkpoint operations, vehicle search, personnel search, force protection, media awareness, clearing a weapon, and processing a detainee. Additionally, dur-

ing HSIRT, all soldiers receive a briefing on rules for using force (RUF) from the provost marshal's office.

TSB Knox, 4th Brigade, 85th Division (TS), developed a SASO training event to serve as the culmination of a unit's post-mobilization training for homeland defense mobilizations. We used the world-class, multimillion dollar mounted urban combat training facility at Fort Knox to give the commander a realistic training experience. The responsible training support battalion tailored the training scenario to closely replicate the mission that the ARNG commander would be executing after completing post-mobilization training. The training replicated as much of the security mission as the TSB could envision, from the tedium of standing guard post to handling the media and suspected threat operations.

The mobilization mission is a developing story. Units will soon be demobilizing and will be replaced by other units requiring HSIRT and SASO training and certification. Demobilizing units will process through their mobilization stations, providing lessons learned to TSB personnel, as well as lay the groundwork for future mission essential task list training.

### **Military Support to Civilian Authorities**

In the event of a presidential-declared disaster, the TSB stands ready in coordination with the Federal Emergency Management Agency (FEMA) to provide disaster relief assets in support of local civil officials. Under provisions of the Stafford Act, the TSB — as the DOD action agency — coordinates and controls DOD assets at the request of FEMA to meet state and local needs.<sup>12</sup> This mission requires much planning and coordination and is directed by a special component of the TSB staff, the defense coordinating element (DCE). The DCE is highly flexible, continually exercised, and prepared for immediate deployment throughout the TSB AOR.

### **The TSB's Future Role**

The challenges of maintaining combat readiness with a maximum of 39 training days per year are enormous. To verify this statement, we should look no further than the AC battalion commanders as they rotate from commanding ARNG modified table of organization and equipment battalions. Their experiences and judgment would seem critical to the future role that TSBs can and will play in providing effective training support to the RC.

TSB support of RC units has been extremely expensive in terms of trained manpower taken from our force structure, as well as dollars spent in support. The dedication and application of these incredible, immeasurable resources have had indisputably positive effects. As our military continues to transform and evolve during our nation's war against terrorism, a top-down cost-benefit analysis would seem logical.

The mission of the RC is currently in flux. The homeland defense and homeland security missions could easily be viewed as an insatiable drain on the current force structure. Viewed within the context of an omnipresent war — sometimes hot, sometimes cold — current RC force structure would seem woefully inadequate. Its organization would also seem outdated.

Finally, in reference to the two young soldiers at the beginning of this article, they are entering a dynamic training environment not much different from the one they are leaving. The professional dedication they have brought to bear in their current positions will pay big dividends for themselves, our institution, and the TSB. They will coach, teach, train, and learn more about doctrine than they realize. As Lieutenant General Fisher points out, "they will return to the force better for the experience. They will gain an acute appreciation for the special challenges facing their counterparts in the RC and will undoubtedly provide the best training support possible."<sup>13</sup>

### **Notes**

<sup>1</sup>*American Military History*, Hermes, Chapter 27. Undoubtedly, this solidified DOD Secretary McNamara's well-documented bias against reserve forces, online at <http://www.army.mil/cmh-pg/books/amb/AMH-27.htm>; and MG Bruce Jacobs, "Tensions Between the Army National Guard and the Regular Army," *Military Review*, October 1993, online at <https://calldbp.leavenworth.army.mil/calldb.html>.

<sup>2</sup>On a strategic level, nations fight wars, armies are the instruments used by nations. This commitment of America's reserves would represent far more political and strategic value than the sum total of the forces' capabilities; it would signal the nation's commitment to fight and win, forcing the National Command Authorities to formulate and communicate clear goals for winning and ending future conflicts.

<sup>3</sup>Major Paul Herbert, "Deciding What Has to Be Done: General William E. DuPuy and the 1976 Edition of FM 100-5, *Operations*," Leavenworth Paper #16, "...authoritative fundamental principles by which military forces guide their actions," online at <https://calldbp.leavenworth.army.mil/calldb.html>. I would add that doctrine gives us a common language and a common frame of refer-

ence to communicate how we fight to disparate and far-flung components within our institution.

<sup>4</sup>Ibid.

<sup>5</sup>Readiness groups were not the only tool available to commanders to increase the combat readiness of reserve forces; however, readiness groups were a direct precursor of regional training brigades and, finally, training support brigades. Even today, FORSCOM Regulation 220-3 retains provisions written with the readiness groups' lack of resources in mind: the training assessment model evaluator requirement to observe and evaluate training for a battalion or squadron is three personnel.

<sup>6</sup>Lieutenant Colonel Richard Stouder, "Round-Out Brigades — Ready or Not?" *Military Review*, June 1993, online at <https://calldbp.leavenworth.army.mil/calldb.html>; Major Craig Chapman, "The RC and the Gulf War: Non-Deployed Round-Outs," *Military Review*, September 1992, online at <https://calldbp.leavenworth.army.mil/calldb.html>. The perception crystallized by RC readiness failures at Fort Polk and the National Training Center predominates here.

<sup>7</sup>Round-out brigades can be traced directly to the Vietnam experience. Theoretically, placing one-third of a division's combat power in the RC would achieve the intent of forcing that brigade's mobilization in case of general war. It didn't work.

<sup>8</sup>Lieutenant General George Fisher, "Training Support XXI," *Military Review*, May-June 2000, online at <https://calldbp.leavenworth.army.mil/calldb.html>.

<sup>9</sup>For example, in 1996 and 1997, RTB Knox covered the 53d SIB (FLARNG) and the 155th IN (M) (MSARNG). When TS XXI came into effect, TSB Shelby assumed responsibility for training support for the 155th and TSB Patrick took responsibility for the 53d.

<sup>10</sup>The RTDs were formally assigned to the AC division associated with the enhanced readiness brigade and personnel were taken from the division's MTOE. TS XXI focused all training support through TSBs.

<sup>11</sup>Commanding General, First Army, Yearly Training Guidance, 2002. This is a longstanding situation.

<sup>12</sup>The Robert T. Stafford Disaster Relief and Emergency Assistance Act (PL 93-288), as amended, authorizes the U.S. President, Executive Order 12673, to provide financial and other forms of assistance to state and local governments, certain private nonprofit organizations and individuals to support response, recovery, and mitigation efforts following presidential-declared major disasters and emergencies, online at <http://www.fema.gov/r-n-r/pa/papd/105.htm>.

<sup>13</sup>Fisher, "Training Support XXI."

CPT Joe Redmon is assigned to the 4th Cavalry Brigade, 85th Division (TS), TSB Knox, Fort Knox, KY. His career spans almost 20 years, with his most enjoyable assignments being in Germany, Fort Riley, Kansas, and Fort Knox.

# Armor and Mechanized Infantry in Built-Up Areas!

by Major Rich Rouleau, Sergeant First Class Wesley Wyatt, and Sergeant First Class Martino Barcinas

*The tank platoon roared up the road and stormed into Shughart-Gordon. As the M1s sprayed heavy machine gun fire at lower windows and doors, Bradleys hosed upper floor windows and roofs. The surprise and speed of the tank penetration shocked the OPFOR. A gleeful heavy team commander swaggered toward the brigade commander, expecting a well-earned slap on the back, maybe even a mention at the AAR. He was surprised to see the colonel's face darken with concern as the brigade combat team commander talked to his lead infantry unit.*

*Meanwhile, back in the MOUT complex, the armor platoon occupied the street like a beached whale waiting to be carved for its blubber. This time, however, no Eskimo would do the cutting; Geronimos of the 1-509 crept up to the windows overlooking the tanks. Their "knives" were smoking satchel charges hurled onto the decks of the exposed Abrams tanks. Yep, the heavy team would make the AAR all right.*

Heavy team is the combined arms armor/mechanized company team of the Joint Readiness Training Center's rotational light infantry brigade. It functions as the heavy initial ready company for brigades during unit rotations to the JRTC. The heavy team can be tank heavy, mechanized infantry heavy, or a balanced team with equal tank and mechanized infantry platoons. Each has a specific MTOE, depending on whether it has a tank company headquarters or an infantry company headquarters. Because of this unique MTOE, each team can develop its tactics, techniques, and procedures (TTP) for operations in built-up areas. There are more generic TTPs that can be adopted or modified, regardless of MTOE. They are not intended to be the only solution, merely to illustrate how one unit can get the job done and complement existing field manuals. In addition, the U.S. Marine Corps' Project Metropolis provided a wealth of information and TTPs that can be adapted by Army mechanized forces to enhance crew and dismounted infantry survivability. U.S. Army Field Manual (FM) 7-8, *Infantry Rifle Platoon and Squad*, and Center for Ar-

my Lessons Learned Newsletter 98-10, "Light/Heavy Fighting in Restricted Terrain," outline integrating the light infantry and mounted forces.<sup>1</sup>

Because of these diverse requirements, the heavy team must be a multifunctional unit capable of operating as part of the brigade task force, battalion task force, or independently down to section level. The heavy team can have up to four maneuver platoons, a company headquarters section, and a brigade liaison team with a robust combat service and support slice. The tank platoons have four M1A1 or M1A2s. The mech platoons have four M2s and three dismount squads. The headquarters section has either two M1A1s or two M2s. Force XXI infantry company headquarters also has a weapons squad consisting of three sniper teams. The heavy team also has a maintenance contact team, communications team chief, medics with vehicles, engineers, air defense, and a heavy combat service support package from its parent battalion.

To apply these TTPs, you must understand the phases of offensive MOUT in accordance with FM 71-1, *Tank and*

*Mechanized Infantry Company Team*, and additional planning considerations.<sup>2</sup>

There are four phases to offensive MOUT operations: recon the objective, isolate the objective, secure a foothold, and clear the built-up area. First, we must look at MOUT planning considerations and how they impact the heavy team as it applies to supporting a light infantry brigade. The planning considerations outlined in FM 71-1 are valid for the JRTC fight and should be followed as well as translated to the infantry task force commanders.<sup>3</sup> Offensive techniques in MOUT start with task organization.

**Task Organization.** The heavy team must plan on being task organized down to section level. The heavy team commander should assume the role of breach commander of the penetration force. The heavy team commander should have control of two penetration/breach teams to maintain the momentum and redundancy of the combat team. Team headquarters would have a headquarters tank section, an engineer platoon, a smoke platoon, and company trains. Teams 1 and 2 would each have

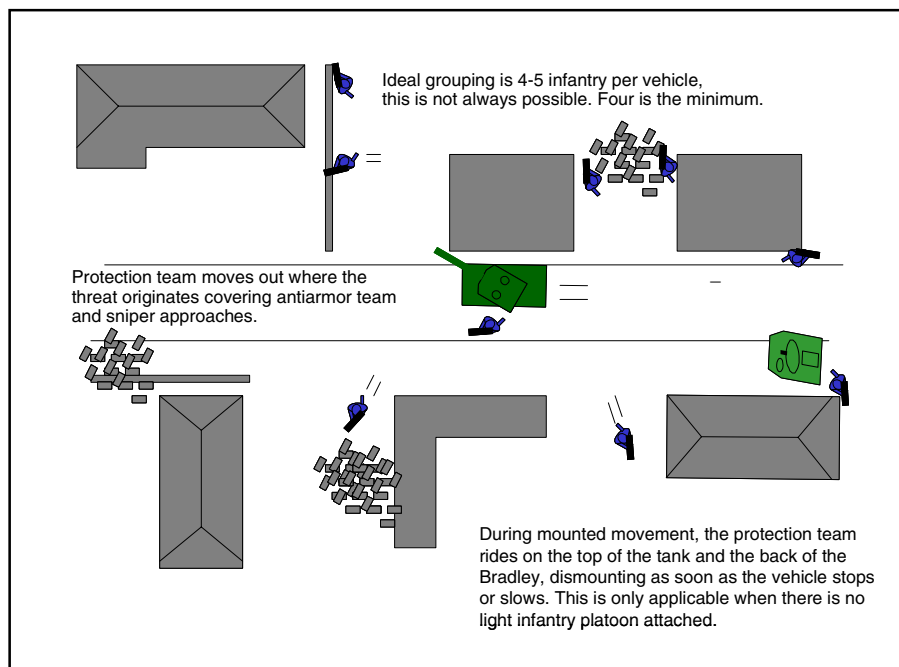
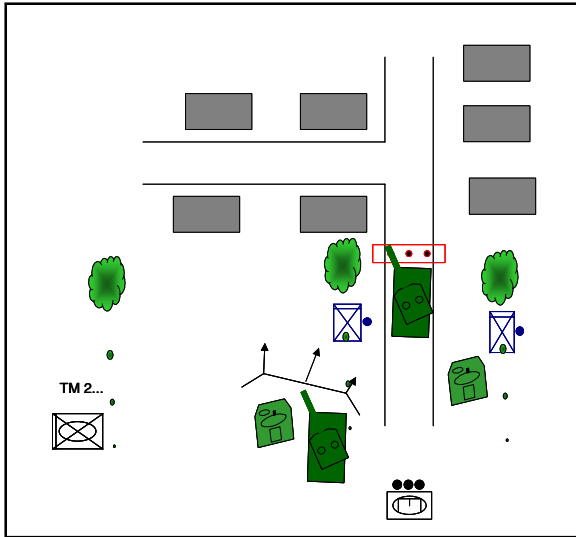


Figure 1. Tank and Bradley Protection



**Figure 2. Breaching Method 2**

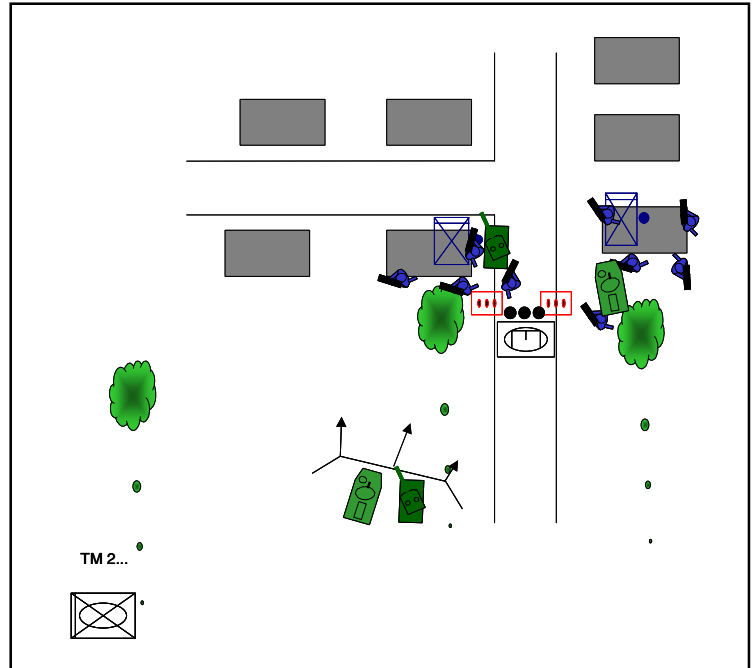
a light infantry platoon, a section of two tanks with plow and roller, a section of two Bradleys with dismounts, a mine clearing line charge (MCLC), and an engineer squad. Platoons 3 and 4 would each have two sections of tank/Bradley wingmen.

The remaining two platoons are assigned the roles of outer cordon and combat team reserve. Due to this austere task organization, the heavy team must be given a clear and concise task and purpose, be prepared to assume several roles, and conduct centralized planning and decentralized execution.

### Task, Purpose, Role, and Mission of the Heavy Team

“Team Heavy” will be part of the task force that secures a foothold in the town. It may have a follow-on mission to support clearing the built-up area. For this purpose, the team is task organized with its assets into a breach force, assault force, and a support force. Because of the restricted terrain, the team’s operation could be limited to super-sized platoons or teams that execute the breach. They might conduct assaults and possible support missions on their own. In some cases, if the terrain is sufficiently restricted, the company can execute the breach in its entirety.

For example, the breach force and support force come from Team 1. The breach force consists of the tank/Bradley section with dismounts for local security and MCLC with engineers for mechanical breaching. The support force is the remaining tank/Bradley section with dismounts and a light infantry platoon. Team 2 provides the assault force. A thorough recon and overlay of the town should identify hazards for the



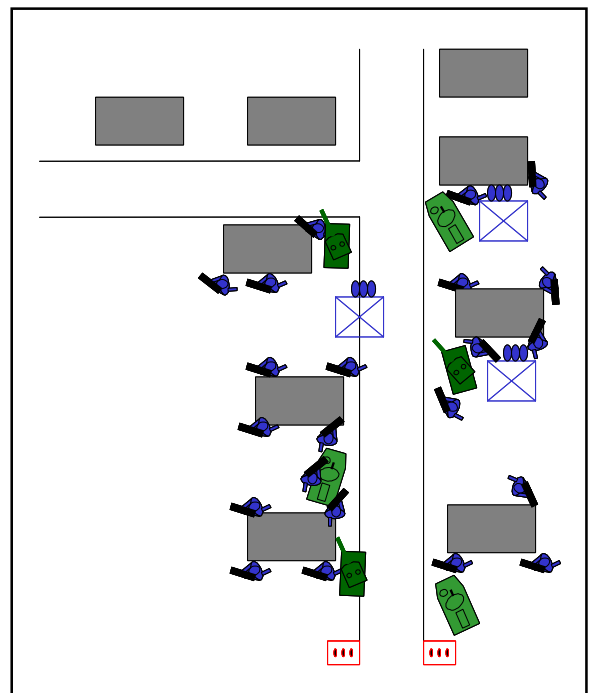
**Figure 3. Breach Complete Method 2**

MCLC. Avoid using the MCLC if there are overhead hazards such as power lines; this highlights the need to have a sapper squad available to conduct a manual breach. The MCLC is a tempting target for the OPFOR and its destruction can greatly hinder BLUFOR operations.

For extremely restricted terrain, the breach force might have one tank and one Bradley, plus dismounts with MCLC and engineers as a redundant means to breach. The support force consists of the remaining tank and Bradley. The assault force is the light infantry platoon. Team 2 is kept in reserve with a follow-on and assumes a follow-on and support role. Additionally, Team 2 can be OPCON to the clearing battalion. This keeps a redundant means for breaching and exposes the fewest number of friendly forces to the enemy. After Team 2 secures the foothold, it can support clearing the built-up area.

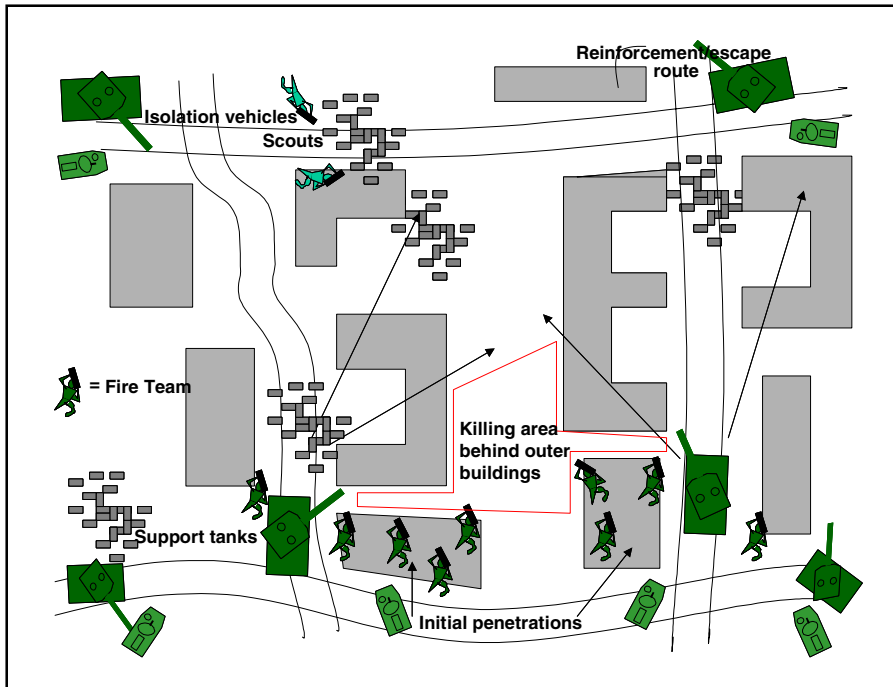
In either scenario, the heavy team still has its remaining two platoons to support the combat team’s cordon of the town and can assist in clearing the built-up area or as the reserve. Team-

ing the Bradley section with the tanks as wingmen provides local vehicle security of the tanks and Bradleys as shown in Figure 1. This option provides the greatest security to armored vehicles from satchel charges and other dismounted threats. The armored vehicles, in turn, will be available to provide mutual support to the dismounted infantry platoons as they attempt to provide far side security or secure a foothold.



**Figure 4. Clearing BUA Method 2**





**Figure 5. Combined Arms Clearing**

**How might it work?** The commander responsible for securing the foothold determines where the penetration will occur through reconnaissance. Team Heavy moves forward and makes the initial penetration using one of the above listed methods. Figures 2 and 3 illustrate breaching method 2, with Team 2 OPCON to the clearing task force. Another key issue in mechanical breaching is the number of hits the roller can sustain and when to bring the MCLC forward to enhance its survivability. In Figures 4 and 5, Team 2 supports the clearing task force using the tanks to protect the light infantry as they move from building to building. The Bradleys provide mutual direct fire support to limit collateral damage, and dismounts from the Bradleys provide armored vehicle security. The other two platoons assist in cordoning the built-up area.

There is no definite method to keeping dismounts and armored vehicles alive in a MOUT environment. However, using combined arms techniques greatly enhances their chances.

**Refinements.** All operations can be improved. Equipment shortages or lack of the proper tools is nothing new. Those needs often stimulate force development. For example, sniper rifles would enhance operations for the tank company or its mechanized infantry platoons. They provide excellent overwatch with minimal risk of collateral damage. Marking systems for ground-to-air assets is another shortfall. The AIM-1 laser provides a higher density

light than the AN/PAC-4C and can be distinguished with the trained eye. It, however, is not the cure for all lasing tasks.

Command and control of the beast is probably the heavy team commander's greatest challenge. Where is the best location for him and with what command and control platform? There is no right answer and it is probably personality driven. Historically, we find that the commander that goes into the built-up area in his tank becomes a fighter. He loses perspective of the team fight when he becomes engulfed in personal survivability. Therefore, the combat team loses its momentum and operations grind to a halt. In this scenario, the commander's primary purpose is to breach and secure a foothold, along with passing follow-on forces through. The heavy team commander may find himself occupying a room in a secure building with the ramp of his first sergeant's M113 up against a window, removing his communications while synchronizing casualty evacuation and obstacle reduction.

The days of bypassing all built-up areas greater than 1 kilometer are gone for armor forces. Throughout the world, urban sprawl and modernization has made MOUT a fact of military life. These operations require unit leaders to carefully applying doctrine, training, leader development, organization, materiel, and soldiers. Finally, the unit should continuously refine its TTPs for combat drills and its ability to meet MOUT challenges.

## Notes

<sup>1</sup>U.S. Army Field Manual (FM) 7-8, *Infantry and Rifle Platoon and Squad*, Washington, DC: U.S. Government Printing Office, 22 April 1992, Change 1, 1 March 2001; Center for Army Lessons Learned Newsletter 98-10, "Light/Heavy Fighting in Restricted Terrain," Fort Leavenworth, KS.

<sup>2</sup>FM 71-1, *Tank and Mechanized Infantry Company Team*, Washington, DC: U.S. Government Printing Office, 26 January 1998.

<sup>3</sup>Ibid.

MAJ Richard R. Rouleau enlisted in the Army National Guard in 1982 and transferred to active duty in 1984 as an M60A1 armor crewman, serving in various assignments, including 133d Engineer Battalion, 2-6 Cavalry; 2-72 Armor; 2-12 Cavalry; and 3-16 Cavalry. He was commissioned as an armor officer in 1991 from Niagara University. His assignments have included scout platoon leader, 2-127 Armor; tank platoon leader, XO, and BMO, 2-37 Armor, 3d ID; commander, A Troop, 3-17 Cavalry, 10th Mountain Division; and senior armor/mech company and platoon observer/controller at the Joint Readiness Training Center. Currently, he is attending CGSC.

SFC Wesley Wyatt enlisted in the U.S. Army in 1983 as a 19E. He has served in various assignments, including 3-73 Armor, Fort Bragg, NC; 2-77 Armor, Fort Lewis, WA; 5-68 Armor, Germany; tank commander, TF 1-10 Cavalry, Fort Knox, KY; squad leader, 1-4 Infantry; platoon sergeant and first sergeant, 1-35 Armor, Germany; and observer/controller at the Joint Readiness Training Center. Currently, he is assigned to 2-16 Cav as a senior instructor/writer for AOB.

SFC Martino A. Barcinas is currently an observer/controller at the Joint Readiness Training Center. He enlisted in the U.S. Army in 1982 as a 19D reconnaissance specialist. He has served in various assignments, including 2-11 ACR; 5-12 Cavalry; 2-67 Armor; 1-509 PIR; 3-73 Armor, 82d Airborne Division; and 1-17 Cavalry, 82d Airborne Division.

# A Technique for Preparing the M1 Series Tank for MOUT Operations

by Major Richard Rouleau and First Sergeant Carl A. Pope

In an environment of combat teams, task forces, and expeditionary forces, the need for understanding combined arms operations continues to be a challenge during real world contingency missions and at the Joint Readiness Training Center. Preparing the M1-series tank for MOUT with units that rarely train together continues to challenge tank crews and their supported infantry. There are some simple tips on TTPs for preparing the M1 and its supported infantry for MOUT operations. Using existing stocked supply items, off-the-shelf items, as well as locally manufactured materials, you can prepare the M1 for MOUT operations.

There is no current system on the M1 that allows the tank commander to communicate with supported dismounts without using radios or hand and arm signals. Communications with the dismounts remain a challenge, but can be accomplished by mounting a C-2296 vehicle radio communications intercom control unit on the back of the

tank. Procedures for attaching this system can be found in the Center for Army Lessons Learned Newsletter 98-10, "Fighting Light/Heavy in Restricted Terrain."

Protecting tanks from the enemy can be accomplished by attaching concertina wire and chicken wire around the tanks' skirts, including the rear. This protects the tank without risking severe injury.

A modified ski boat recovery ladder attached to the bustle rack will allow friendly dismounts as well as the tank crew to access the tank when the turret is traversed over the side. This system can be initiated by the loader who folds out the ladder and retrieves it as necessary.

One of the M1 crew's top priorities is protecting the company/team dismounts. Current configuration of the M1 does not allow for dismounts to follow behind it because of the exhaust system. Dismounts are forced to follow on the

flanks of the tank, blocking their view of the opposite side. Using an engine exhaust deflector, such as the one currently used to support M1s towing M1s, is a possible solution that would permit the infantry dismounts to follow behind the tank. The heat is either forced straight up or straight down, which allows dismounts to stack behind for maximum protection. The September 1999 *PS* magazine has the information necessary to accomplish this. It is also available in Appendix D-20-1-5 of the technical manual.

The combined M1 and dismounted infantry team is a lethal force to be reckoned with in a MOUT environment. Using some good old-fashioned American ingenuity, the M1 can easily be configured to overcome shortcomings in current operational requirements. The U.S. Marine Corps is the Department of Defense proponent for MOUT operations and their publications and TTPs offer excellent sources for armor soldiers.

## LETTERS continued from Page 5

development for what will be the doctrine of the Objective Force, and it is certainly not attrition warfare. We teach and embrace the science of chaos and theories of complexity, with an understanding that all warfare is asymmetrical and that linear thinking must be a thing of the past (something most cavalymen knew instinctively long ago). I will contact Bill and invite him out to SAMS. It has been far too long, and I think we still have much to learn from each other.

COL JAMES GREER  
Director, SAMS  
Fort Leavenworth, KS

### Are 19Ks Best Suited for the MGS Platoon?

Dear Sir:

Aside from the interim brigade combat teams (IBCT) at Fort Lewis, Washington, few people are concerned with the Mobile Gun System (MGS) platoon. In the near future, this discussion will expand to many voices when more armor soldiers and officers are assigned to such units. More discussion will emerge when 19K and 19D soldiers leave the IBCT brigades and are absorbed back into a more conventional MOS role. Most

likely, NCOs and officers will judge these former-IBCT soldiers and make assessments of their tactical and technical skills, and then judge the training standards in the IBCT brigades.

The MGS platoon belongs to an infantry company composed of 171 personnel. The infantry company has three infantry platoons, a headquarters platoon, a sniper team, a mortar section, a fire support team, and the MGS platoon.

At full strength, an MGS platoon has only one officer, five noncommissioned officers (NCOs) and six soldiers, E-4 or below. Presently, six of the nine platoons have platoon leaders and the average strength is five NCOs and three soldiers.

Each platoon has three vehicles; each vehicle has a driver, a loader, a gunner, and a vehicle commander. Currently, the MGS platoon vehicle is a HMMWV, Series 1121, mounted with a tube-launched, optically tracked, wire-guided (TOW) missile system. The TOW system is fitted with the improved target acquisition system (ITAS), which allows daytime visual enhancement from 8- to 12-power magnification, and allows night vision enhancement from 8- to 24-power enhancement. To fire the TOW ITAS weapons system, the vehicle must be stationary

and the gunner must track the vehicle throughout the missile's flight. The maximum range of the TOW missile is 3,750 meters, and at maximum distance, the missile's flight time is 27 seconds.

The ITAS optics system is the greatest combat multiplier of the TOW ITAS. The same optics system is used on the M1A2 SEP, the Bradley Fighting Vehicle A3, and the long-range acquisition system, but without the same magnification power. Presently, there are no bunker-buster or fire-and-forget missiles available for the TOW system, but the vehicle can be mounted with an M-2 .50 caliber machine gun.

All TOW gunnery training is conducted with MILES, and the live-fire allocation for a TOW company is one round per vehicle, annually.

The vehicle, originally intended for the MGS platoon, is a Stryker with a 105-mm cannon. This vehicle only requires a three-man crew, and the fourth man on each vehicle is a back-up loader; the MGS vehicle has an autoloader. The vehicle can carry 18 ready rounds of 105-mm rounds and shoot at a 6-second cyclic rate. According to a June issue of *Army Times*, this vehicle is currently 4,000 pounds over the Department of the Army's mandated weight, which requires all combat

vehicles in the 3d Interim Brigade Combat Team to be air deployable.

Presently, the MGS platoon can accomplish four missions independently — attack by fire, support by fire, ambush, and convoy escort. With support from an infantry platoon or section, the MGS platoon can operate traffic control points or perform hasty route reconnaissance.

Obviously, the MGS platoon is very different from the traditional tank platoon, especially technically. Until the MGS Stryker variant is fielded, 19Ks do not belong in the MGS platoon, a 19K misses required training, therefore the chance to improve technically and tactically. Although attack by fire and support by fire are important armor platoon tasks, they are not conducted in the same way due to the survivability of the different vehicles and the tracking and reloading capabilities of the TOW system. This contradictory mission training from an armor platoon is especially important for younger soldiers. In three platoons, there are six soldiers who will have served with MGS for a minimum of three years before a permanent change of station. They will arrive at their next duty station (most likely a conventional armor unit) as sergeants or senior specialists without having shot a Table VIII gunnery, or served only as a loader on one Table VIII gunnery. They have no experience in performing maintenance on an M1 platform, and they do not know how to break track. Although platoon leaders and platoon sergeants have a responsibility to maintain traditional 19K skills, the primary focus is to train personnel to accomplish the tasks of an MGS platoon. By placing these soldiers in the MGS platoon, platoon leaders and platoon sergeants have been put in the contradictory position of training what is necessary to accomplish the platoon's mission, while also training what is important for the individual soldier to succeed in his next unit. This is not an issue that traditional armor platoon leaders and platoon sergeants have had to face.

Not only does this contradictory mission affect a soldier's professional skills after he leaves an MGS platoon, but it also affects retention. By no means are we saying that 19Ks cannot meet the standard in an infantry company. On average, our platoons are the best disciplined in the company. Our NCOs know more about maintenance and motor pool operations than most infantry NCOs. But, 19Ks — especially those who are coming to these platoons from other units — have different ideas of combat: they stay mounted, they do not see much use in ruck marching, and they like to shoot big guns. Is it important that soldiers enjoy what they do? Not necessarily. But, if you ask an armor or cavalry officer to take command of the brigade laundry platoon, he will perform to the best of his abilities; after a year or two he might rethink his interest in the Army.

As MGS platoon leaders, we feel that 19Ks are not needed in the MGS platoons, and to

keep them there is doing them and the armor community a disservice.

Our first recommendation is to replace 19Ks with 11-series soldiers or 19Ds. Without need for much explanation, 11-series soldiers are more at home in the infantry company than 19Ks and, like those in the brigade antitank company, are able to perform all the same tasks as the MGS platoons. Also, 11-series soldiers can train in areas that 19K soldiers cannot, such as the expert infantry badge.

Another option we feel is viable for manning the MGS platoon is the 19D. Two of the three of us spent time as platoon leaders of a RECCE scout platoon, and our opinion is that 19Ds are better suited for the day-to-day operations of an infantry company. They are more accustomed to dismounted operations. The traditional 19D tasks do not differ much from those of the MGS soldiers, especially in the route reconnaissance missions. Many 19Ds understand the TOW system and how to fight from a HMMWV, training they may have received in past units, and training that may prove valuable in their next units. Especially for those 19Ds serving in a reconnaissance, surveillance, and target acquisition squadron, their working knowledge of MOUT operations further enhances the effectiveness of a platoon that is designed to support a company that fights in this environment. Eventually, 19Ks will have a place in infantry companies. When the MGS platoon can train for precision gunnery (MOUT or non-MOUT) on a biannual schedule and can effectively support the infantry with the proper equipment, no soldier will fulfill this role like a tanker.

Another recommendation that will maintain the effectiveness of the MGS platoon is to have armor officers, rather than infantry officers, as platoon leaders. Based on training received at the Officer Basic Course, armor lieutenants have a better understanding of the mounted mission than infantry lieutenants. This is not true of infantry officers as a whole — armor officers do not have the market on maneuver warfare.

The recommendations we have made are based only on our personal experiences. We feel that at present, 11-series soldiers or 19Ds better meet the mission requirements of the MGS platoon. Once the platform and equipment allow the MGS platoon to support the infantry according to its original design, 19Ks will have a place. Until then, placing 19Ks in this role negatively affects the armor community. Future MGS and RECCE officers will be the final decisionmakers as the IBCT proves its effectiveness during real-world deployment. Armor branch has an important role in the success of these units, and as armor officers, we can make it more successful.

1LT JOSH JONES,  
1LT WALT REED,  
and 1LT JOHN WHEELER  
Fort Lewis, WA

## Memories of the Huertgen Forest

Dear Sir:

Captain Sullivan's article in the May-June 2002 issue of *ARMOR* on Huertgen Forest brought back many unhappy memories for me.

At that time, I had just turned 20 and was a member of CCR of the 5th Armored Division, which was the first U.S. unit to breach the Siegfried Line at the Our River, between Luxemburg and Wallendorf, Germany, between the 15th and 25th of September, 1944. This is where I earned a Purple Heart from a shrapnel wound.

In Huertgen, CCR was given the mission to attack, seize, and hold the towns of Huertgen and Kleinhau, then Brandenburg and Bergstein. CCR lead elements consisted of: 10th Tank Battalion, minus B Company and plus A and C Companies from 47th Armored Infantry Battalion, plus Company C, 628 Tank Destroyer Battalion; and 47th Armored Infantry Battalion plus B Company, 10th Tank Battalion, plus 1 platoon, Company C, 22d Armored Engineer Battalion, minus the A and C Companies from above.

The weather was miserable with rain, sleet, snow, and freezing cold, causing many non-operational casualties such as trench foot and pneumonia. The roads went from bad to worse, and tracks either slipped off the side, hit a mine, or were hit by enemy direct or indirect fire.

The attack started on 29 November 1944, and from CCR's after action report at the end of the day on 6 December 1944, the married 10th Tank Battalion Task Force had 10 operational tanks, 70 infantrymen and 1 tank destroyer. CCR achieved its objective, but at a big cost. So much for armor in Huertgen Forest!

I personally was a crewman on a tank destroyer of Company "C," 628 TD Battalion and was one of the lucky ones, since we only were disabled after hitting a mine. When we were relieved, I went to a hospital for 10 days with trench foot. When I was released, I went back to my company, which had been reconstituted and was attached to a parachute regiment of the 82d Airborne Division on the north side of the Bulge.

After the Bulge, we reverted to CCR control and ended up on the Elbe River, the closest U.S. unit to Berlin. There we were stopped because of the Yalta Agreement.

Armor proved to be highly effective in winning World War II, despite the problems encountered in the Huertgen Forest. CCR received a Presidential Unit Citation for the Huertgen Forest action and a French Croix de Guerre for action at Walendorf, Germany. I am proud to have been a member of CCR, 5th Armored Division, and a small of our country's proud military history.

ROBERT W. HERMAN  
LTC, Armor, Ret.  
Folsom, CA

# REVIEWS

**From Normandy to the Ruhr: With the 116th Panzer Division in World War II** by Heinz Gunther Guderian, Aberjona Press, New York, 2001, 648 pp., \$39.95.

The English-speaking student of military history — and armored warfare — is well served by numerous thoughtful and stirring accounts of the fighting in France, the Low Countries, and Germany during 1944-45. Building on the base established by definitive official histories, these accounts, collectively considered, illuminate virtually every aspect of the Allied experience at every organizational level. The translated picture of the German experience is less complete, however, and generally has been refracted through the prism of Allied interpretation. Eyewitness anecdotal accounts from private German soldiers and reflective memoirs from senior German leaders are reasonably available, but treatments concerning the broad middle range of how brigades, divisions, and corps put together their battles — the subjects



**This photo of a hunting Panther tank destroyer of Panzer Regiment 16 in the Ruhr Cauldron in April 1945 appears in *From Normandy to the Ruhr*.**

Photo used by permission, Heinz Guderian and Kurt Wendt

most of interest to our own mid-grade officers — are woefully thin.

*From Normandy to the Ruhr: With the 116th Panzer Division in World War II* by Major General (then Major) Heinz Gunther Guderian, the son of the famous panzer visionary, does much to fill this need. The younger Guderian was the division's First General Staff Officer and, in that capacity, weathered such epic struggles as those in Normandy, Argentan, Falaise, Arnhem, Aachen, the Hürtgen, the Ardennes, the Reichswald, and the Ruhr. The 116th Panzer Division was organized in 1944 from elements of other units and fought exclusively on the Western Front. Its adversaries included such famous outfits as the American 1st, 4th, 28th, 29th, and 30th Infantry Divisions and 2d, 3d, 5th, 7th, and 8th Armored Divisions. Its engagements were some of the most famous of the war.

Guderian went on to a distinguished career in the Bundeswehr and writes in a clear, straightforward style. In his candor, he provides a useful antidote to those prone to uncritical adulation of the fighting skills of the

Wehrmacht. Mistakes are as clearly analyzed as successes, and Guderian does not flinch from describing the suffering that soldiers endured to compensate for the miscalculations of their leaders. The accounts of Mortain and the Ardennes are particularly gripping in that regard, and the discussion on handling armored reserves during the Normandy landings is particularly instructive. I was also fascinated by the account of the division's twin efforts at Aachen to fight off American attacks while simultaneously sheltering its commander from apprehension by the Gestapo. This vignette provides a vivid illustration of the damage the Nazi regime routinely inflicted on the German army.

The quality of the translation bears favorable comment as well. Ulrich and Esther Abele have done an excellent job, and Guderian himself approved the English text when complete. Ulrich Abele previously translated *Five Years, Four Fronts: The War Years of Georg Grossjohann, Major, German Army (Retired)*. Readers who have enjoyed that

fine piece of work can anticipate what they have to look forward to in *From Normandy to the Ruhr*.

*From Normandy to the Ruhr* is a must read for the serious student of WWII or armored warfare. It should not, however, be the first or only book one reads about the Wehrmacht's Western Front. The tactical detail that is the book's greatest strength could be lost on a reader who does not have a reasonable appreciation of the larger campaign. Similarly, the cartography — featuring 26 maps — is detailed, in black and white, engagement specific, and uses European military conventions. Maps or atlases depicting the flow of the campaigns will be helpful to the reader as well. That said, I strongly recommend this book to anyone who truly wants to understand the campaigns in France, the Low Countries, and Germany, and to anyone who wants to understand how battles are fought at the division level.

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**Battleground Europe: Cambrai - The Right Hook** by Jack Horsfall and Nigel Cave, Pen and Sword Books Limited, South Yorkshire, England, 1999, 176 pages, \$16.95.

If you've ever attempted to conduct a staff ride, you have no doubt asked yourself this question on one or more occasions: "Why doesn't some smart guy gather all the relevant historical data and some good maps of this battle and put them all into a single source book, preferably one that will fit in my pocket?" Apparently, the folks at Pen and Sword Books have also asked that question. Fortunately for those with an interest in World War I, Pen and Sword went one step further — they hired smart guys to actually do the work.

The result is a series of compact guidebooks to the major battlefields of World War I in Europe. The series is organized with major battles broken into small increments, creating three series within a series of guidebooks. Currently, the publishers offer guidebooks for three major battles: the Somme (1 master book and 15 individual guidebooks), Ypres (1 master book and 5 individual guidebooks), and the Hindenberg Line (1 master book and 4 individual guidebooks). Each guidebook fits easily into a large pocket, contains significant historical background, provides plentiful maps, includes photos of the battlefield as it existed then and as it looks now, and provides information about parking, lodging, and dining in the battlefield area.

*Cambrai* represents the series. The authors devote 110 pages to the story of this relatively short battle, which marked the first massed use of tanks. The historical material includes more than a dozen maps with overlays, short character studies of the more significant participants, orders of battle for both forces, and a surprisingly detailed account of the battle itself. The remainder of the book is devoted to five separate battlefield tours. Each tour includes additional historical information, one or more maps with recommended stops identified, a short discussion of the significance of each of the recommended stops, and photos of both the modern battlefield and the war zone as it existed during the battle. The guidebook also provides specific information about local facilities to support each tour, including addresses and phone numbers.

The only drawback to this excellent resource is that it is currently limited to only those battles fought in Europe during World War I. Compact, easy to read, and full of the most important historical data, these guidebooks should be high on the list of priority purchases for any military professional traveling to Europe. They are also great examples of a staff ride handbook.

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**The Decorations, Medals, Ribbons, Badges, and Insignia of the United States Army: World War II to Present** by Colonel Frank C. Foster (Ret.), Medals of America Press, Fountain Inn, SC, 2001, 148 pages, \$24.95 (softcover).

Colonel Foster sets out to write a fairly comprehensive, but still manageable, reference to the plethora of awards and devices used by the U.S. Army since WWII and succeeds admirably. He describes most medals, ribbons, and badges authorized since WWII, including the criteria for earning the device and a brief history of each. Also discussed are some of the most common patches and other uniform insignia over the same time period. The material is well organized and contains a surprising amount of detail given the publication's brevity. It is a decidedly thorough guide to U.S. Army and joint awards since WWII and, although clearly not intended as a particularly rigorous historical work, it is still an informative reference for every soldier.

This book contains full color reproductions of every award or other device mentioned in the text, is serves as a useful guide to award precedence, and contains black and white illustrations of many other items discussed in text. While the author fails to cite the sources for his historical information, he does provide a solid bibliography, and a casual reader will find little controversy in his information. This is a laudable effort by a reliable field expert, and a book that should find its way to every soldier.

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**April 1865** by Jay Winik, HarperCollins Publishers, New York, 2001, 461 pages, \$32.50.

Jay Winik believes that America faced a fork in its historical path during the last month of the Civil War. One road, the road eventually taken, led to national reconciliation and a real peace. The Reconstruction Period, albeit troubled, nevertheless laid the foundation for modern America — unified, rich, and powerful. The other road led to continued conflict; rather than the honorable surrender of Confederate arms, a smoldering, endless guerrilla war that impoverishes the North and devastates the South. The implications of endemic warfare, weakening the Republic, delaying westward expansion, and exacerbating, rather than extinguishing, regional hatreds would have had incalculable consequences for American and world history.

Winik argues that either outcome was possible, and that the hinge of fate turned on four key events: the decisions by Robert E. Lee and Joe Johnston to eschew partisan warfare and surrender the last two Confed-

erate armies in the field; the lenient policy toward surrendered rebels, formulated by Lincoln and implemented by Grant; the capture of Jefferson Davis and the fleeing Confederate government; and the assassination of Lincoln — or rather the failure of this shattering event to derail the closure of hostilities.

The author certainly captures the grand dramatic sweep of the last month of the war, and forces even the knowledgeable reader to rethink the significance of individual actions on subsequent events, but this reviewer ultimately found his argument unconvincing. While Winik demonstrates that a dystopian outcome was possible, he fails to prove that it was likely — I still do not believe that the South possessed the material or spiritual resources (or the motivation, for that matter) by mid-1865 to continue the fight, even as bushwhackers and guerrillas. However, though he indulges in breathless prose from time to time, this is a good read and a refreshing interpretation of a momentous period.

Readers looking for a military history of the last days of the Confederacy may be disappointed. Though he does provide a good overview of the final campaigns — particularly of Johnston's fight in the Carolinas — there is little new here and his analysis of tactics and strategy is simplistic, to say the least. Winik concentrates instead on personalities, so that the fighting becomes something of a dramatic backdrop for the protagonists.

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**The T-72 Tank: Yesterday, Today, Tomorrow** (in Russian) by Sergey Suvorov; a Tekhnika-Moledzhi/Tankomaster Publication, Moscow, 2001, 64 pages, \$17.95 from East View Press (ISBN 5-93849-002-7).

The book's advantages include good, clear photos of the most recent T-72 models. It's disadvantages include mundane text with totally unsourced and unimpressive history; no English captions or translations.

**The Unknown T-34** (in Russian) by I. Zheltov, M. Pavlov, I. Pavlov, A. Sergeev, and A. Solyankin; Eksprint Publishing Center "Military Museum" series, Eksprint, Moscow, 2001, 184 pages, \$31.95 from East View Press (ISBN 5-94038-013-1)

The book's advantages include clear, concise history of the creation and use of the T-34 tank, covering many unknown models of the tank and its combat history. The only disadvantage this book has is that only the photographs are captioned in English.

Since the fall of the Soviet Union, many of the secrets of the former Soviet Union — "enigmas," as Winston Churchill once described them — are becoming common

knowledge due to access to the once-secret state archives. Historians, researchers, and even enthusiasts have taken advantage of that access to write a wide number of books and pamphlets covering a myriad of subjects, and military history has fared very well at their hands. The only sad thing about it is that too much of it remains in Russian, and too few people in the West read the language to enjoy how the Russians have taken advantage of this change to write about the missing pieces in their own history.

Armor history is a good case in point, as many past mysteries are being sorted out regarding the history of Russia's mighty tank industry. The former Soviet Union produced more tanks than anyone else prior to WWII, and overall, they probably account for more than 50 percent of all the tanks ever built. But until researchers gained access to the archives, people in the West only saw very convoluted histories — most of which read like U.S. auto ads from the 1950s — bigger, stronger, faster, best in the world.

Most of these publications have a set format: a history of the development of the machine which is the subject of the book, a detailed description of the most common version's interior workings and design, and a short combat history of the vehicle. This is usually accompanied by a large number of photographs, cutaways from the original operating manual for the vehicle with callouts, and plans of the vehicle in either 1/35 or 1/76 scale, which are extremely useful to modelers. They may have a small number of color views of the vehicles in service to show their service markings and paint schemes as well.

In the first book on the T-72, the author (who appears to have been on the Soviet General Staff at one point in his career) sticks to the classic Russian formula, providing a very sketchy overview of the developmental history of the T-72. It was created from the T-64 as a backup using the V-45 12-cylinder vee-type diesel, the evolutionary follow-on to the legendary V-2 diesel of WWII. But the design team, headed by Leonid Kartsev at the Nizhniy Tagil tank plant, hated most of the features of the T-64 and replaced them with ones of their own design, which resulted in a totally different tank. Equipped with the V-46 production version of the big vee diesel, and Nizhniy's own design of autoloader and running gear, the T-72 emerged as a competitor to the T-64 rather than its consort.

All of this is glossed over in the book, and Suvorov does cover it in passing. He also covers many of the foreign-built versions and the modifications made to them — if you want to dramatically improve a T-72, think France.

The history section is awful, as it reads like Soviet propaganda from 1955. Most U.S. tankers, especially those from B Company, 4th Tanks, USMC, would be interested to know that Iraq only lost 14 T-72 tanks in combat, the rest were either blown up by

their own crews or destroyed by naval gunfire. Those lost in Chechnya were lost due to overwhelming odds, not poor protection. Overall, it would seem Suvorov failed to obtain information relating to honest reports on the tank's failures, and the fact that the T-72BM tank had to be renamed after Desert Storm (to T-90) as sales fell when the Coalition took the Iraqi army apart in 1991. He simply states that T-72BM and T-90 are virtually the same tank.

To its credit, the book does have a lot of nice color photos of recently seen T-72B and T-72BM tanks, as well as currently offered variants such as BREM-1 and foreign variants.

The T-34 book, on the other hand, covers much more — it's three times as long with smaller print. But the T-34 book is a "warts and all" view of the tank, and covers its protracted development history from 1937 to the end of WWII. It uses the classic formula, but much better and with more respect to its subject than to the book's propaganda value.

The authors of this book are all Russian armor enthusiasts, which means they do not bring a lot of corporate baggage into their writing and analysis. They cite the CC CPSU resolutions that brought the T-34 into being, as well as all of the letters and documents that cover the vehicle's convoluted production path.

The history section covers the tank's use during WWII, from the first battles on the Western Front through its high watermark at Kursk, and on to its final battles in the East against the Japanese. The reader gets an idea of just what the T-34 really meant to the Red Army as both a weapon and a symbol of its determination.

The casual reader and armor enthusiast can at least follow the history of the vehicle because the photographs are captioned in English. Modelers will be delighted with the fact that it contains nice, fresh 1/35 plans for six different stages of the life of the T-34 from its beginnings as A-32 tank prototype Number 2 to T-34-85 Model 1944.

It's just a shame that they are not all available in English, and the Russians have shown only lukewarm interest in translating them or having them translated. The information is really quite useful, and when presented honestly, as in the T-34 book, clears up many myths that are still taken as fact today.

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**The Long Walk** by Slavomir Rawicz,  
The Lyons Press, Guilford, CT, 1997,  
242 pages, \$14.95 (paperback).

Rawicz's humility might briefly mislead readers who find the most recent version of his WWII struggle for freedom, but they will begin a journey that represents the most thorough warning against an overthrow of free-

dom. He takes them through the depths of imprisonment and returns them to an exalted paradise. His book seems modest in presentation, dominated by the deceptive title and a simple, blurred picture of barbed wire. At first glance, Lyons Press has produced an unobtrusive journal of a man's search for freedom, not unlike many others. However, Rawicz captures the reader as easily and decisively as the barbed wire on the cover, which readers abruptly realize imprisons them. The wire blurs, and the distance fades, before it reaches more than a few inches; the rest of the world does not exist.

Lyons Press designed the few pages leading to Rawicz's journal to draw the reader further into Rawicz's state of mind as he begins his trek. It begins with a simple two-word quote on the cover, "Positively Homeric," solidifying the project's sense of scale. Opening the cover and finding the title helplessly scrawled on an overwhelmingly white page, the massive sense of isolation settles on the reader. Lyons Press follows with the only illustration — a map spread across two austere pages, encompassing the whole of Asia. A 7,000-mile black line represents the hard odyssey of a man into and out of freedom, which stretches from Moscow to Siberia, and down to India.

Richard Downing, the original translator, introduces us to Rawicz briefly and quietly, preferring to leave the weight of the warning to Rawicz, whose carefully chosen words create a more lush image than any photograph could. "I had to tell my story as a warning to the living, and as a moral judgment for the greater good (Rawicz, xii)," adds Rawicz in his foreword. Then we delve swiftly into the story of a Polish cavalry officer captured by the Soviets on his return from fighting the Germans, tried at Lubyanka Prison and convicted of spying for Poland, and finally sentenced to 25 years in a Siberian prison camp. The extraordinary displays of endurance, just to survive the deadly journey to imprisonment, across the whole of Russia, goes a long way to establish that the Soviets threw many decent men into Siberia.

Throughout the resulting escape, untarnished by time and unblemished by vain-glory, Rawicz unflinchingly turns the lives of his companions into his warning, and much more. He sends the reader through Siberian winter nights, the Gobi Desert without food or water, across the length of China, over the crests of the Himalayas, and into the liberty of British India. He successfully avoids painting a pessimistic view of the whole of humanity. Rawicz unassumingly presents a story of great men overcoming tragic events, forcing us to wonder what those men could have achieved in the absence of tragedy. Rawicz very successfully presents his warning.

Rawicz's *The Long Walk* should sit on every person's shelf, not just those of us in the military. His journal not only provides us with ample warning and motivation for our

unfailing will, but also with a glimpse at the heights of our own endurance. Undoubtedly, no reader can set down this book before completion.

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**China Attacks** by Chuck DeVore and Steven W. Mosher, Infinity Publishing, Haverford, PA, 2001, 415 pages, \$19.95.

Historically, victors do not learn nearly as well as losers. Generally, battlefield embarrassment or looming threats make military transformation easy. The post-9/11 environment proves we have both criteria. Terrorists executed unthinkable acts and *China Attacks* provides a clear depiction of a looming threat.

*China Attacks* is an astonishing novel portraying a People's Republic of China (PRC) invasion of Taiwan. The authors describe nuclear-driven, electromagnetic pulse bombs — ICBMs. Post-9/11 perspectives must preface that these are no longer unthinkable acts but dangerous courses of action, making *China Attacks* a realistic and bracing look at the threats to the United States and her allies. Moreover, the depicted actions on part of the PRC match what many analysts suggest as the outcomes of actual PRC actions. Fortunately (for Taiwan), the American fighting spirit and ingenuity repulsed the PRC's plans to reclaim its "renegade province."

As an intelligence officer, DeVore has done his research and has portrayed the most dangerous course of action. As a reported member of Congressman Christopher Cox's staff, the portrayed weapons capability of the PRC leads me to believe that he was involved in creating the January 1999 Cox Report describing the acquisition of United States' nuclear secrets by the PRC. Perhaps he used the report to highlight the effects of PRC intelligence activity against the United States. Mosher's regional expertise probably picked up where DeVore's background left off, providing the extensive cultural background for this endeavor.

A lesson learned from *China Attacks* is that, when preparing for future operations, we should not focus on how we could better do what we have tried. We must look at our actions through a transformational lens. We must ask how we can do things differently. Militaries on the losing end of historical turning points fail because they did not adapt to new environments. The terrorists of 9/11 wrote the new history. They executed the unthinkable. *China Attacks* provides us with looming threats of immobilizing tactics. In *China Attacks*, the PRC stole the initiative. Transformation is on us; we must maintain the initiative.

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# Enforcing the Nametag Defilade Standard

The U.S. Army has made quantum leaps in track vehicles since the M48-series tanks. Technological advances have provided computerized fire control systems, thermal sights, laser range finders, and suspension systems that allow tanks to maintain a steady platform over rough terrain.

Although technology has improved the tank's lethality, it has not changed the need to have a bird's-eye view of the situation; vehicle crewmembers still stand in hatches of moving vehicles with their bodies exposed.

Training Circular 21-306, *Tracked Combat Vehicle Driver Training*, recommends all vehicle commanders stay below chest (nametag) defilade in moving vehicles. When standing in the hatch of a moving vehicle, applying the nametag defilade standard provides ease of dropping down in the vehicle, which greatly reduces risk in a rollover situation and gives less exposure to enemy fire.

Ignoring the nametag defilade standard has been the cause of many accidents where soldiers have been injured or killed. Just in the past year, two soldiers died in accidents because they were not following established procedures during the operation of a combat vehicle. In the first accident, a M1A1 tank commander (TC) lost his life when his tank slid off a concrete turn pad and rolled over, crushing the TC in the process. While there were other factors involved in this accident, the TC was not at nametag defilade.

The second accident occurred when a Bradley commander, standing waist defilade in the commander's hatch, received a blow to the face from a tree limb that was 22 inches in circumference. Had this soldier been at nametag defilade, the branch would have passed harmlessly over his head rather than crushing it.

Proactive leaders can reduce the risk of injury, or even death, by training and executing battle drills, which allow leaders to

execute complex or unplanned missions by using them as basic building blocks in planning and executing missions. Battle drills are a form of risk management because they can enhance command and control, reduce uncertainty, and insert risk management into the military decisionmaking process during the planning and rehearsal stage of an operation.

Consider risk management in all that you do. You do not need a written product to conduct risk management. When you are sitting in your assembly area, take a moment to think about the types of missions that you could receive.

Take time to consider environmental effects, such as weather, terrain, time of day, and sleep deprivation, when executing missions. Identify and assess the reasonably expected hazards of the operation, and possible ways to reduce the effects of those hazards as you execute the mission.

This hazard is not unique to M1-series tanks and Bradley fighting vehicles, it applies to trucks with ring-mounted weapons, HMMWVs, M109s, recovery vehicles, and many other tracked/wheeled vehicles. Leaders at all levels must conduct a risk assessment to determine if it is mission essential for soldiers to stand in hatches of vehicles. Leaders must also ensure that vehicle crews practice rollover drills until it becomes reactive for soldiers standing in hatches to drop down and brace for a rollover.

The nametag defilade standard is as old as tracked vehicles, but still requires constant enforcement by leaders at all levels. The Army needs hard-charging, motivated soldiers to enforce standards, execute battle drills, and incorporate risk management into everything we do.

*Information for this article was provided by the U.S. Army Safety Center, Fort Rucker, Alabama.*



**INCORRECT**



**INCORRECT**



**CORRECT**



**CORRECT**

M1 Photos by Robert Stevenson

# Army Accepts First Stryker MGS

Following a 27-month development phase, the U.S. Army received the first Stryker Mobile Gun System in July 2002. The MGS is a version of General Motors' LAV-III 8x8 chassis, armed with General Dynamics Land Systems' 105mm low-profile turret. The MGS was developed as a rapidly deployable direct fire weapon system for the Army's Stryker Brigade Combat Teams (BCT).

One of 10 configurations being fielded to the Stryker BCTs, the MGS is designed primarily to provide direct fire support to dismounted infantry. It can be deployed by C-130 with minimal preparation. It moves at speeds up to 60 mph and is agile enough to work within tight quarters, such as urban warfare.

The Stryker MGS is crewed by three soldiers — a driver, a vehicle commander, and a gunner. The MGS's other characteristics include:

- M68A1E4 cannon with 18-round autoloader
- Full solution M1-like fire control
- Fires all NATO standard 105mm tank ammunition
- 7.62mm M240C coaxial machine gun, with 3,400 rounds
- Commander's M2 .50 caliber main gun, with 400 rounds
- Independently stabilized Commander's Panoramic Viewer with target hand-off capability
- 60 mile-per-hour top speed
- 9-second 50 meter dash speed
- 78 inch gap crossing
- 23 inch vertical climb
- 330-mile cruising range
- Projected 41,300 pounds full combat weight; 38,000 pounds C-130 transport weight
- Embedded, interactive electronic TMs (IETM)



- Embedded training capability
- On-board diagnostics
- Integral 14.5mm armor and spall liner
- Scaleable RPG armor package.

The MGS is 275 inches in length; 107 inches wide; and 106 inches in height. It is equipped with a 350 hp engine; a 6-speed transmission; a 2-speed transfer case; 4 automotive differentials; an 8-wheel hydro pneumatic independent suspension with height management system; full-time 4-wheel drive, with an 8-wheel drive selection; and power brakes with ABS on rear three axles.

Eight preproduction vehicles will be provided to the Army over the next five months. These vehicles will undergo Production Qualification Tests (PQT), user evaluations, and contractor testing. This test program will produce the first durability, reliability, and maintenance information on the MGS. The MGS is expected to be fielded to the Stryker BCTs beginning in FY05.

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## **ARMOR**

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