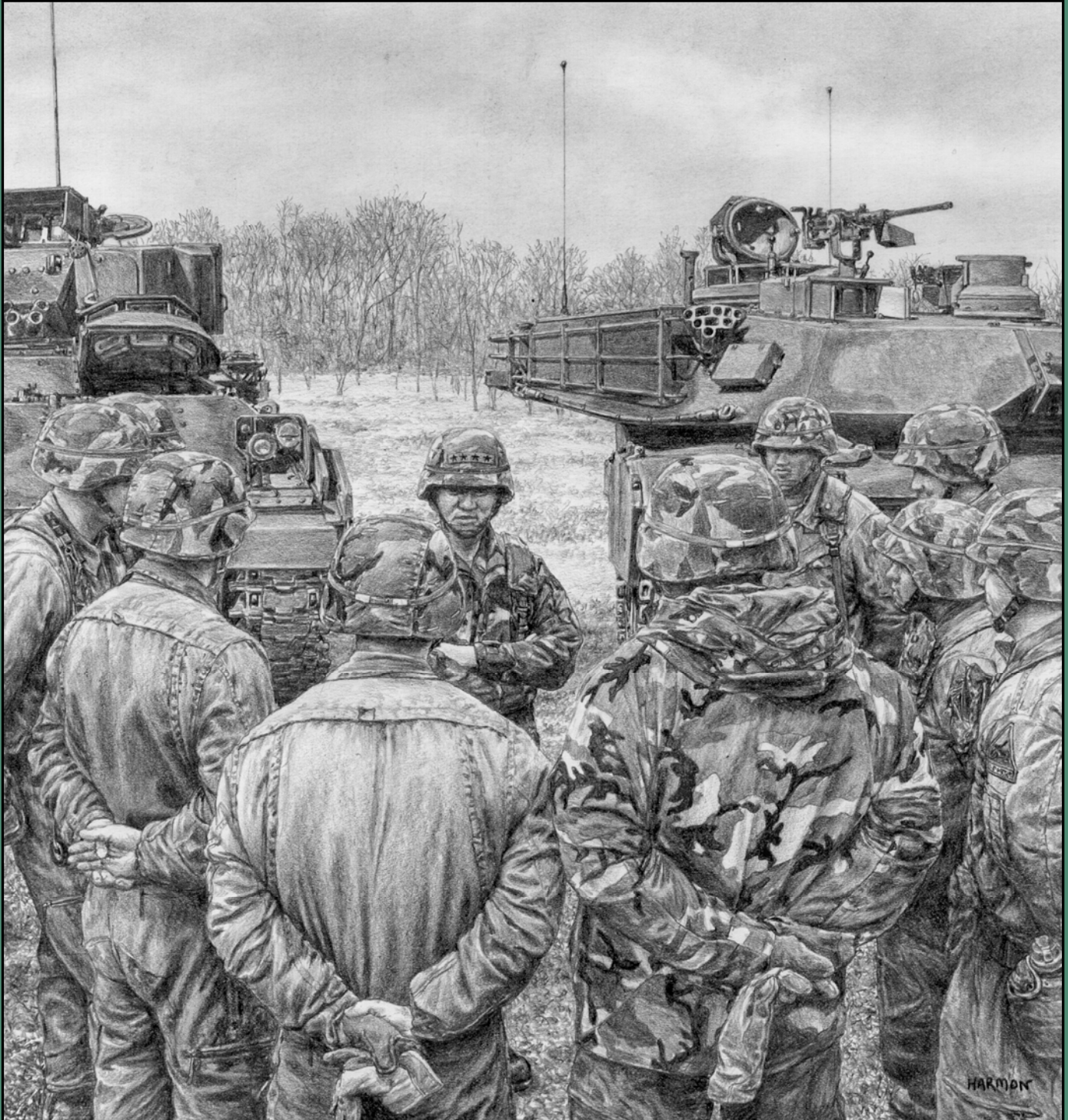


ARMOR



Transformation: Addressing Sustained Unit Readiness *See Page 7*

Time to Saddle Up...

Editor's Note: The author, Jon T. Clemens, retired in March after 18 years as managing editor of ARMOR.

The job of managing editor of *ARMOR* Magazine looked like an interesting prospect in 1983, when I drove over to the little house on Vine Grove Road for my interview. At that point, I had worked for newspapers for 16 years, had been managing editor of a magazine, had edited hundreds of stories, had written a weekly syndicated column on popular music, had published an underground newspaper, and had coached writers. I figured that the *ARMOR* job would be more of the same, and in any case, I wasn't committed to doing it for the rest of my life.

My interview with Colonel Steiner went well. When he asked for questions, I asked about the magazine's budget to pay writers for articles. He said there wasn't any. "They get a nice certificate and a couple of free copies, but that's it," he said. Then he showed me the drawer full of pending stories, more than 120 of them waiting for publication! This was my first big surprise, because at that point, I really had no idea what I had gotten myself into.

The magazine was almost 100 years old at the time, one of the oldest in America, yet they didn't pay their writers! The letters in each issue continued page after page, essentially a long, running dialogue about tactics and techniques, strategies and technologies, argued passionately. Soon after taking the job, I also discovered that while the copies that went out to units were free, there were ways to subscribe if you wanted your own copy. My next surprise was that there were more copies going out to paid



subscribers than were going to the addresses on the official mailing list. A lot of people obviously cared about this magazine I was inheriting. But I really had no idea the extent of it. As the weeks passed, I realized that I had stumbled into what any editor would consider a dream job, as the middleman in a love affair between writers, readers, and an institution with a history.

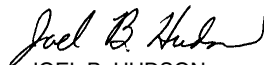
Ironies piled up. One of the smallest branches in the Army was sustaining a truly remarkable professional dialogue, and it wasn't like this was a new development. It had all begun in 1888 when cavalry officers on the frontier, separated from each other by at least a day's ride on horseback, used the medium of a journal to talk about their craft, to trade ideas, to argue the things that were important to them. Papers were submitted to the Cavalry Association's editorial board, and the good ones were published on a steam-driven press in a little town in Kansas. After I joined the staff, I discovered that you could read the results in the magazine's library,

Continued on Page 53

By Order of the Secretary of the Army:

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General, United States Army
Chief of Staff

Official:


JOEL B. HUDSON
Administrative Assistant to the
Secretary of the Army

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Training Lethal Sections and Crews: The Army Dilemma

Dear Sir:

LTC Mark Pires' article, "Training Lethal Tank Crews and Sections" (*ARMOR*, March-April 2002), has highlighted one of the many training shortfalls that the armor force experiences annually. I am sure that most, if not all, tank company commanders in the force would agree with LTC Pires' assessment that such training makes "a huge difference." However, in the same section, he also highlights why such training events do not happen: "The major requirements are time and training areas." These resources are, of course, the scarcest of all within the realm of a company or even a battalion training calendar. Although it may be different at a smaller post such as Fort Carson, here, at Fort Hood, training time is a luxury that few company commanders enjoy (or are given). I personally know tank company commanders who have been in command since June, 2001 who have yet to take their platoons to the field for anything other than gunnery. This is not their choice — rather they are held hostage to higher priorities: continuous force protection duties, NTC white-cell duty, augmentees to other units, O/C duty, and division and corps red-cycle taskings, to name just a few.

I understand paying the rent, but at the expense of training sections and crews? We are putting ourselves at risk. In today's army, the only time tank companies are afforded the opportunity to get out to the field is at the behest of a higher headquarters mission: OPFOR for another NTC train-up, or a brigade-run NTC train-up. Although I agree with LTC Pires that "trimming a few days of higher-level events" is worth the gain, it is my experience that senior-level commanders would not make such a sacrifice to their own training events; at least, I have never seen it happen. The same goes for adding days to a gunnery density: having to hold to a Gunnery Standardization Program torpedoed such an effort the vast majority of the time. The overcrowded ranges and training areas will rarely allow this.

Finally, the idea of a company green week would be a dream come true to most tank company commanders. In my 18 months as a tank company commander, I received this opportunity exactly once — and we did exactly as LTC Pires described because his training methodology is widely held to by many of my peers.

Something on the calendar has to give. The problem is that FORSCOM, corps, division, brigade, and even battalion all have their own taskings, training events, and contract-sponsored tests to execute.

What is truly tragic is that many platoon leaders are arriving at units during an off-cycle and are subjected to 6-12 months of a myriad of support taskings and are not given any opportunity to hone their own platoon

warfighting skills. Since their career timelines are shortened, this is often their only opportunity to lead a platoon before they must fill the empty company XO or specialty platoon slot. They can look back at their time as a platoon leader and sometimes only see one Level II gunnery and two iterations of tank services. No wonder this year's Armor Conference is concerned about training at the lieutenant and captain level... they can sit in the leadership seat for 12-18 months and maneuver their elements once or twice or not at all.

The FORSCOM commander once directed that each company commander be afforded one continuous week of his/her own training and that brigades and battalions assist in the resourcing and supporting of it. This does not happen at Fort Hood in any measure and I would wager that it does not happen regularly anywhere in the heavy community. Company, battalion, and even brigade commanders are held hostage to garrison taskings and exercises mandated by a higher echelon such as an IOT&E for the TUAV or the "Systems of Systems" test. Throw in "Quick Train" and the damage is irrevocable.

LTC Pires' article is well written and an excellent blueprint on how training should be done on a routine basis. The powers who can influence the calendar must now step up at all levels and do what is right: allow platoon leaders and company commanders the opportunity to train *on their own* or else run the risk of having a future cadre of leaders who have spent only 9-12 months as platoon leader and 12-18 months as company commander, with little or no experience in how to train soldiers, crews, or platoons.

CPT CHRIS L. CONNOLLY
Fort Hood, Texas

With the Right Equipment, We Could Truly "Own the Night"

Dear Sir:

CPT Mike McCullough wrote a great article ("Designating targets with 'God Guns,'" January-February 2002 *ARMOR*), which I happened to read immediately after a battle at my brigade's ARTEP exercise last month. I had just finished fighting a light-mechanized-heavy task force offense mission and "lived" the infantry-tank communication dilemma CPT McCullough discussed in his article. My tank company was cross-attached to 2-9 Infantry (Mech) for the ARTEP, along with an air assault infantry company from the 1st BN, 503d IN (AA).

During the mission, the light infantry company, superbly led by CPT Sean Cook, conducted a night infiltration and seized a critical hill overlooking my objective, while suffering minor losses to enemy artillery and direct fire. However, because my company team's tanks and Bradleys were not nearly as well equipped for night fighting as are most light infantry units, and because of real-world

safety concerns, higher headquarters did not even consider a night attack, so our momentum slowed to a crawl as we waited for the sun to rise. Throughout the early morning, I sat in my TC's hatch, frustrated, listening to CPT Cook's urgent SITREPs from the hill he was now defending under increasingly devastating mortar and small arms fire. Finally, at 0800, I was granted permission to cross the line of departure, and from that point on the battle unfolded in conventional fashion. Ultimately, the light infantry company's successful infiltration was helpful, but not decisive, to my attack, and I was not able to take advantage of the commanding position CPT Cook had seized, other than the obvious benefit of getting some great "cross talk" on the battalion command net as I entered the main battle area.

I understand the need for risk assessments and common sense judgment calls when it comes to safety. I went to my first NTC rotation shortly after an entire Bradley platoon drove off a cliff into the Colorado Wadi, and experienced a number of "close calls" myself. We never conducted combat missions under limited visibility, not even a perimeter defense. But our Army likes to claim to the world that we own the night. Either we need to (1) start training at night or (2) change our slogan, or at least add a disclaimer that "Only our light infantrymen own the night." Unfortunately, world events may not give us this luxury.

We urgently need to equip our tanks to fight at night on every potential battlefield we may face, i.e., places other than a wide open desert environment. While I'm glad that every one of my tank drivers has a VVS-2, and every TC and loader has a set of PVS-7s, that much equipment by itself doesn't help us fight any better. And a main gun that destroys targets 3000 meters away at night is really not very useful in cramped villages, or mountainous terrain — in Korea or anywhere else in the world — which easily overwhelms the main gun's maximum elevation. What we need is to equip our TC's and loader's machine guns with some of the same equipment that the light infantry community has been using for years: AN/PAQ-4 IR laser pointers, or AN/PEQ-2 combined IR floodlight and pointing devices. The good news is that it does not take a huge investment, just an MTOE change. PAQ-4s cost \$250 (PEQ-2s a little more), which is pennies compared to a tank that costs upwards of \$2 million. The kind of money that it would cost to upgrade my entire battalion, would barely register on a week's worth of ULLS-G exception reports.

How does this stuff work in reality? Fortunately, I have been able to find out, on a limited basis. Last November during Table XI, one of my tank platoons tested PAQ-4s on their TC's and loader's machine guns, and experienced immediate and decisive improvements in their ability to acquire, engage, and "hand off" targets to one another at ranges out to about 500 meters. There

was a brief learning curve, while crewmen got familiar with distinguishing between eight laser spots, but afterward they performed extremely well and were not confused by the "light show." Pretty soon, TC's started using the lasers to designate battle positions for their (or their wingman's) drivers, an unintended side benefit. This is similar to how paratroopers have perfected operating in drop zones that are cluttered with dozens of strobes, pointers, beams, and markers.

Imagine a future battlefield where a light company conducts an infiltration to seize a critical mountain pass at 0300, then is followed by a tank company team an hour later which attacks through the defile to seize a terrorist base camp. Tank commanders walk their .50 caliber machine guns' fires onto enemy trenches and cave openings by matching their laser designators' beams to the light infantry spotters' beams. (Oh by the way, our Apache helicopters have been grounded hours earlier after receiving murderous ground fire, and low cloud cover is frustrating our precision bombers... is this starting to sound familiar?) Meanwhile, tank loaders easily identify and destroy enemy personnel trying to ambush them from the flanks or rear. Finally a mechanized infantry platoon dismounts its two squads, which attack under a curtain of protective machine gun fire to enter the headquarters bunker and capture the enemy commander along with his personal staff.

How far out does that really sound?

CPT SHERMAN S. POWELL
C Co, 2/72 Armor

Blanket Accusation Disappointing; OPFOR Is Held to a High Standard

Dear Sir:

I am currently serving as commander of HHC/1-4 IN, the OPFOR at the Combat Maneuver Training Center (CMTC) in Hohenfels. As the HHC commander, I am dual-hatted as the chief of recon for the OPFOR, so I read with great interest the letter from CPT T.J. Johnson in the January-February 2002 issue. The first paragraph of CPT Johnson's letter has some great advice for the combined arms community with respect to employing the TOW in the looker role. I take issue, however, with his allegations in the next two paragraphs of his letter.

He alleges that "OPFOR scouts...are successful because they know how to 'play the game.'" He then goes on to describe how the OPFOR "cover[s] their MILES head halos with the front flap of the boonie caps... [and] uses Vaseline on their torso sensors." Remembering that all OPFOR soldiers are U.S. Army soldiers, I'm disappointed to see a leader make a blanket accusation against the OPFOR recon soldiers. I'm equally disappointed to see that your magazine published such an accusation. Like CPT Johnson, I too have observed the OPFOR scouts

from different perspectives, as I fought against them as a BLUFOR scout platoon leader and now command them. Having fought on both the red and blue sides of the fence, I can tell you that the standards of ROE enforcement and punishment for MILES violations are much tougher in the OPFOR than in most BLUFOR units.

CPT Johnson does highlight in his letter why the OPFOR scouts are good when he states that "[t]hey have the opportunity to create and hone field SOPs because they spend two weeks out of every month implementing them." Yes, it's called training, and the fact is that the OPFOR scouts have tremendous training opportunities. Rather than making bogus allegations against young soldiers, CPT Johnson should focus on the reasons the OPFOR scouts do well and what other units can learn from them. When a BLUFOR unit has successes against us, we seek to learn from their successes and employ some of those same techniques rather than simply claiming that our opponent had cheated. Your magazine should focus its attention in the same direction.

ALLEN PEPPER
CPT, IN
CMTC

Army Is the Real Loser In OPFOR "Play the Game" Myth

Dear Sir:

I read CPT T.J. Johnson's letter to the editor in the January-February 2002 issue with dismay. His accusing the OPFOR scouts of being successful only because they know how to "play the game" continues to perpetuate a myth that only does the Army harm.

We take cheating in the OPFOR very seriously. I have been in command of the 1st Squadron, 11th Armored Cavalry Regiment for 18 months, and during that time, we have had two cases of alleged cheating. Both cases were handled with a 15-6 investigation conducted by a field grade officer. These investigations are very thorough. The MILES II system is downloaded to identify each event. The investigating officer obtains a copy of the battle hyper during which the alleged cheating took place. Extensive interviews are conducted with anyone who could possibly shed light on the incident, to include any O/C who may have witnessed the alleged violation. If CPT Johnson really identified OPFOR soldiers cheating, then he let his organization, the OPFOR, and the Army down when he did not immediately report the incident.

CPT Johnson goes on to state that "the OPFOR are so good because they train on the same ground month after month and year after year." As a force projection Army, I would ask CPT Johnson to give me a realistic scenario where we will not be fighting an enemy on his own turf.

CPT Johnson's comments give the BLUFOR units an excuse to not train and to not develop better TTPs. There are many great soldiers out in the Army that would figure out how to accomplish the missions that we need them to conduct. But, as long as individuals like CPT Johnson provide them with excuses why they are failing, those great Americans will not spend the extra energy required to develop those TTPs, especially given the oppressive OPTEMPO of most units in the Army today. The only loser in this scenario is the Army.

Finally, what is perhaps the most negative element of CPT Johnson's letter is that he gives no credit to the soldiers who make up the OPFOR scout platoons. I fully agree that our scouts train more than BLUFOR scouts. The operative word is "train." They deploy to the field ten days every month and train themselves and the BLUFOR they oppose. Credit the platoon's work ethic; do not discredit the individual ethics of my soldiers.

TIMOTHY A. NORTON
LTC, AR
Cdr, 1/11 ACR

Bottom Line: Success of Unit Depends on Leadership and Training

Dear Sir:

I just read the response by CPT T.J. Johnson to CPT Shaw's article, "Breaking the Reconnaissance Code," in the January-February 2002 issue of *ARMOR*, and had to respond. The first half of CPT Johnson's response was well stated in using the TOW-equipped HMMWV as a method of gathering intelligence on enemy forces. What I do have an issue with is CPT Johnson's statement that the reason OPFOR scouts are successful is they know how to "play the game." As a former scout platoon leader at the Combat Maneuver Training Center in Hohenfels, Germany, I couldn't disagree more. CPT Johnson states that OPFOR "cheats" to be successful. OPFOR recon doesn't have to cheat to be successful. OPFOR scouts are successful because they apply the basics of scouting and execute them on a daily basis to standard. Because OPFOR recon is out-gunned and has less technological advantages than their BLUFOR counterparts, they are forced to return to the basics of scouting — using sight and, more importantly, sound to be successful in defeating their enemy.

The second tactic CPT Johnson attributes for the success of the OPFOR is that they "face the same scenarios month after month." This is only partially true; yes the missions are the same, but the opponent is different. The assertion that this is a basis for OPFOR success is ridiculous. Many times I had to change infiltration routes based on the enemy's disposition and composition of its screen line. This proves that when you

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



Picking the Best Team For the Army of Tomorrow

"Our military forces are one team — in the game to win regardless of who carries the ball. This is no time for 'fancy Dans' who won't hit the line with all they have on every play, unless they can call the signals. Each player on the team — whether he shines in the spotlight of the backfield or eats dirt in the line — must be All-American."

— General of the Army Omar N. Bradley
19 October 1949

When I was young, all the kids in the neighborhood would gather around to pick teams for a game. The exact game to be played depended on the season, but the process was the same: the two captains, usually the guys with the equipment, would vie to select the best talent in the neighborhood. On some days, a relative of one of the guys, or some kid from another neighborhood would wander in and the selection process really heated up — especially if we knew the new guy had talent. Today, the Army is choosing up a great team that is going to help field the force that will carry us onto the battlefields of the 21st century. We, the Army, are going to do the development work for the Objective Force Unit of Action and the Future Combat System (FCS) and our Army's leaders are picking the best guys from the best neighborhoods to do it. Recently, Fort Knox was tapped by TRADOC to lead this effort in concert with the other proponent schools, the Objective Force Task Force, and the Lead Systems Integrator (LSI).

The FCS, as each of you probably knows, will be totally revolutionary. From its inception, it is more than just

a new platform; it is a *system of systems*. FCS will be a collection of holistically integrated systems designed to function together seamlessly. It will serve as the core building block within all Units of Action, encompassing the brigade and below echelons in the Objective Force. The Units of Action will be manned by soldiers both mounted and dismounted, empowered to operate with information superiority gained from military and interagency resources. It will fight as a team of teams — tailored to dominate ground combat and to be overwhelmingly lethal at the point of contact against the threats on today's battlefield and in the operational environment we expect to encounter in the future. In order to design, develop, and field this kind of revolutionary force, the Army needed a revolutionary new process. Many of us from across the Army are now implementing this process.

The first step is the rechartering of our Maneuver Battle Lab by TRADOC to serve as a center for collaboration for the developmental work required to make the Units of Action a reality. The Battle Lab will be linked, in a "hub and spoke" manner, with other TRADOC Battle Labs, the proponents and their schools, and with needed expertise wherever it exists. The Battle Lab "hub" will maintain continuous contact with all of the designated "spokes" by using facilities designed to support intellectual sharing, personnel exchanges, and collaborative communications. This design represents an earnest effort to focus all of our collective skills and knowledge on developing a "product" that is integrated across all

branches and functional areas. Rather than producing a simple piece of equipment, this process will develop and deliver a system of systems in unit sets with the fighting doctrine, the force organizations, the training packages and devices, and the logistical support. Soldiers will remain at the very heart of process so that every fighter, supporter, and sustainer will have their needs and capabilities factored into the fielded force.

At Fort Knox, and at every other organization included in this process, the "team picking" has begun for the effort. Together, all of the teams will work to produce the requirements documents for each aspect of the Units of Action and the FCS. While Fort Knox, as the proponent for FCS and the Units of Action, may in some ways represent a "home court," it is never the playing field but rather the players that determine the quality of the game. We offered up the best and the brightest of the mounted force to provide expertise to this team process, and my fellow commandants at the schools and agencies are doing the same. The result, we believe, will be the capturing of great ideas and insights from across the Army rather than focusing on any single piece of it. Additionally, as various systems begin to emerge from our efforts, these soldiers will represent the soldiers of their branches and organizations as end system users during this development process. Collaboration and joint effort will mark every step from the initial ideas of today to the force fielding of tomorrow.

Continued on Page 37

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



Positive Attitude Is Your Key To Success

First, let me say it is a great honor to have been chosen as YOUR United States Army Armor Center and Fort Knox Command Sergeant Major. I can assure you I have not forgotten where I started and will do everything in my power to help you improve yourselves professionally. Together we will make the Armor Community a better place for all.

We are well into the many missions of the New Year and are performing all training tasks to the highest standard. As we continue to serve our great nation, we must continually reevaluate our attitude so we maintain the proper level of motivation, esprit de corps and 'drive on spirit' required to be successful. Our duties can be very demanding and may, at times, seem much to bear. Your attitude, though, will remain the key component in determining the way

you approach your duties and how you relate to those serving around you, good or bad.

Attitude is a reflection of the person inside. While the external circumstances in your life may seem hectic, you can always chart a path of excellence by assuming a positive mental attitude. There are many historical examples of how a strong positive attitude can be the difference between triumph and defeat.

Major General Joshua L. Chamberlain was a self-taught college professor from Maine who volunteered for service in the Union Army during the War Between the States (Civil War). During the Battle of Gettysburg, then-Colonel Chamberlain led the 20th Maine Infantry Regiment to the defense of Little Round Top and ultimately saved the day for the Army of the Potomac. For his action, he was awarded the Congressional Medal of Honor. In his career, he was wounded six times and contracted malaria, but always returned to lead his men in the most arduous of situations.

Later in life, Major General Chamberlain served as president of Bowdoin College and four-term governor of the state of Maine. Chamberlain's rich life can clearly be attributed to his attitude of tackling the toughest situations.

Another great example of how far a positive attitude can take you is the British Antarctic explorer, Lieutenant Ernest Shackleton. Although he failed

several attempts to reach the South Pole, Shackleton remained vigilant in his quest. Ultimately, a Norwegian explorer achieved the goal before him. However, the unfettered Shackleton challenged himself again with an even greater quest, to be the first to cross the Antarctic continent.

On the way to the coast to begin the trek, Lieutenant Shackleton's ship became frozen in the ice and sank. What followed was an epic story of survival that included exploits of sailing open lifeboats in winter seas, living off the land and enduring more than 18 months in subfreezing weather!

There have been numerous books written about the adventure, all crediting the crew's miraculous survival to Lieutenant Shackleton's leadership and positive attitude.

While I was in the Balkans, an individual shared this poem with me one afternoon. It reminded me of how important a positive attitude can be during any adverse situation. Read it carefully and reflect on how your perception of life may become easily tainted by not recognizing the goodness in the duties you perform.

I woke up early today, excited over all I get to do before the clock strikes midnight. I have responsibilities to fulfill today. I am important. My job is to choose what kind of day I am going to have.

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

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

Continued on Page 29

The Blind Men and the Elephant

The personnel turbulence that cripples our Army
Places the career progress of the individual
Above the unit's need for stability.
This needs to change...

by Lieutenant Colonel Tim Reese

"Despite the repeated assurances of senior Administration officials, the readiness of our armed forces is suffering."¹

This 1997 statement by Chairman Floyd Spence of the House Committee on National Security was merely a reiteration of a campaign he began some three years before. The General Accounting Office (GAO) supported the Chairman in 1999 with its own report on the ineffectiveness of the Combat Training Centers (CTC) at improving unit readiness.² The Joint Chiefs began in 1998 to tell Congress that the military suffered from serious readiness problems and began in 2000 to say that the nation is at high risk to execute the two-MTW (Major Theater of War) strategy.³ Whether one compares CTC data from the 1980s, early 1990s, or today, the tactical lessons learned are essentially the same.⁴ The level of training among Task Force Hawk units still haunts the Army in the current war on terrorism. What do all of these official and anecdotal bits of evidence tell us?

The bottom line is that the great majority of Army combat units are not ready for combat without significant additional training. This is not a new phenomenon. While recent readiness and tactical performance trend lines may be down from the alleged "heyday" of the late 1980s, the same question has been asked for decades. Why, despite all the hard work and time spent



Photo by Robert L. Stevenson

Tank crews need to train together to get the most from their superior equipment. But how long can they stay together?

training, don't Army units perform well at our best approximation of combat, the CTCs? Why, no matter what training "fixes" are attempted, do units continue to make the same mistakes over and over again in training? At all levels, we have the same problem — we don't do well on the test.⁵

The Army is unable to find out why its units cannot reach or sustain high levels of readiness, for it is "feeling" or looking at only part of the problem and missing the real reason. We are like the proverbial blind men attempting to describe an elephant by feeling its appendages and thus finding themselves unable to describe the huge beast in front of them for what it really is. The elephant of low unit readiness cannot be explained by feeling its appendages — such as battlefield operating systems, leadership, or doctrine. *Army tactical combat units are poorly trained*

in many of their wartime tasks primarily due to personnel turbulence caused by the Army personnel system because that system places a higher priority on the individual soldier's personal professional development than the mission or training needs of the tactical unit.

Let us first take a look at some of these other proposed solutions and why they have not — and indeed cannot — fix the problem of unit readiness. Then I will propose a way that the Army could transform its personnel system to raise unit effectiveness to new heights.

Part I: The Problem

The United States Army has probably the best professional education system in the world; the Army Officer Education System and Noncommissioned Officer Education System are the envy of many nations. But ironically, these two systems contribute to the turmoil that prevents units from reaching peak performance. Unit commanders struggle daily to balance the absence of key leaders and soldiers completing their professional development requirements with their unit's training needs. Any 1SG, CSM, CO, or BN CDR can provide dozens of examples of training conducted while the vehicle commander is at BNCOC, the PSG is at ANCOC, and the BMO at CAS3. The effect on unit readiness is devastating.

And no 1SG or CDR wants to damage the professional development of subordinates by denying them timely attendance at schools. The centralized schooling system at MACOM and DA levels is extraordinarily inflexible and totally removed from the needs of the units it purports to serve.

Yet another layer of schools that detract from our readiness includes the local or skill schools system, courses such as the armorer's course, PLL clerk certification courses, NBC officer, and a myriad of others. Even if a unit manages to work these kinds of schools around its training and CTC schedule, units cannot avoid having key personnel missing from the train-up. We constantly find ourselves retraining on the most basic tasks since, as a unit, we cannot get beyond the rudiments of our profession when individuals are constantly missing from training.⁶

Second, could it be that our training doctrine is wrong? The answer here is, I believe, an emphatic NO — our training doctrine works. Training gates, METLs, the tasks-conditions-standards triad, AARs, O/Cs, OPFOR, MILES and the CTCs, and the role of the NCO in training are now almost immutable truths. The Oracle at Delphi has never spoken more definitively. Our training doctrine resurrected the Army out of the ashes of Vietnam; it won the Cold War, and by 1991 had made it perhaps the greatest army in the history of the world — more about that later. Even *FM 25-101*, however, acknowledges the negative effect of personnel turnover on unit effectiveness, but it greatly understates its degrading effect on unit training proficiency.⁷ We have known the risks since the inception of our training doctrine, but we have been unable to avoid those rocky shoals.

Many have argued that the problem in recent years is that we do not follow our own training doctrine. Ask any leader at any level his opinion of the value of QTBs, training guidance, and training schedules and you will hear an unending tale of woe. Since 1991, the lack of resources, the burdens of peace support operations, and high OP-TEMPO all have made it more difficult to follow our training doctrine than it was during the Cold War era. We all talk about taking an "appetite suppressant" for good ideas, but we somehow just cannot quite manage to swallow the pill. Any unit leader can relate multiple horror stories about how our in-

ability to control our training calendars destroys what little personnel stability they may have been able to carve out in their unit. Given the international situation, our national interests and our national budget, there is little the Army or its leaders can do to alleviate the tempo and eliminate resource constraints.

Third, maybe our tactical and operational doctrine is wrong. Do our CTCs train the wrong tasks, missions, or focus on the wrong tactics? Gallons of ink and reams of paper have been consumed seeking an answer to this question. Frankly, we will never know the answer until the next war is fought. Who knew that AirLand Battle doctrine would work until February 1991? As the famous military historian Michael Howard once stated, "It is not the job of the military to get it right before the next war, only not to get it so wrong that it can't rapidly fix it before losing that war."⁸ Whether we "break the phalanx," "transform the force," or "maintain the legacy," our units must be well trained *as units*. Even if we have the future rightly understood, and yet can't field units that can carry it out because of the way we man them, it won't matter in the end.

Fourth, is the problem that we do not take our lessons learned to heart and focus our training to get better? Our training system and professional libraries are overflowing with CTC take-home packages, CALL newsletters, CTC quarterly training bulletins, the Chief of Staff's Trends Reversal Process, and CTC-focused rotations. Every year, some senior Army leader appears, like a prophet bearing witness to the burning bush, only to repeat what is already on the stone tablets of Mount Sinai — "We must train more, rehearse more, synchronize better, ..." ad nauseam. We know the tactical and doctrinal solutions. We repeat them over and over like a Tibetan monk reciting his mantra. Certainly all these efforts are helpful at the margins; things can always use a new gloss coat. But some of these "fixes" themselves contribute to the problem. Training units spend immense amounts of time trying to understand, manage, and implement the latest "silver bullet" at the expense of spending time fixing the very problem we are addressing!

Very few platoons, battalions, or divisions can progress in skill, intensity, or complexity from one exercise to the next because, in the interval between

training events, 5 or 10 percent (over a summer it may reach 33 percent) of the unit's personnel have changed. In a battalion, those percentages usually include the TF CDR, XO and/or S3, one or two company commanders, and handfuls of platoon sergeants and leaders and squad/vehicle commanders. It is near impossible to train a task force to conduct a deliberate breach of a complex obstacle belt against a well-prepared defender when part of the task force is still not proficient at terrain driving, part is not skilled at fire and maneuver, and part is still learning how to operate the tank plow. What good does it do to talk about using CTC take home packages (THP) or inspection results to focus a unit's post-FTX or post-CTC training when the unit is not the same unit it was only six months ago?⁹ THPs are at best another source of "good ideas" and the solutions recommended are generally applicable to any unit in the Army. At worst, they are doorstops, dust ball collectors, or personal souvenirs. We are awash in attempts to fix what's broke — but again, we're just not getting there.

Most of the officer and NCO corps, like whirling dervishes, work themselves into a frenzy, training harder, but merely spinning in place. In some cases, it is the personnel system that *dictates* the training schedule. Battle Command Training Program exercises and CTC rotations are scheduled so as to "fit" the command tenure of the commander, and the training calendar cascades downward from there. The logic is that every commander must "get a rotation under his belt" before he leaves command.¹⁰ The adage about putting the cart before the horse has never been more applicable. Perversely, the result has been no tactical improvement but a great decrease in morale and quality of life and an increase in officer attrition and command declinations. As individual leaders, we simply do not have the practice time to get good at our wartime tasks.

The CSA's recent initiative to fully man the divisions has greatly alleviated the chronic undermanning problem, though only in part of the Army. It will not, however, fix the problem of turbulence. Our units will at least be close to fully manned, but they won't be better trained as units because turbulence remains the same. Perhaps OPMS XXI will improve officer competency in tactical units by increasing time on

station and in critical positions, perhaps not. If so, leaders may over time become *individually* more experienced and competent. When a highly competent leader takes a unit through a major training event or CTC rotation, however, it will be likely that he will be leading and will be part of an ad hoc team that was put together for the event only a short while before. Often the commander will be brand new, having taken command after the train up and before the execution.

When forced, or allowed, to speak openly, we admit the problem. In the 1999 GAO study, 49 percent of the responders stated that personnel turnover had the most negative impact on readiness at the battalion level; 54 percent said the same thing about readiness at the company and platoon levels.¹¹ Officers are routinely pulled out of units to serve in allegedly key positions, such as aide-de-camp to general officers, without regard to the unit's needs.¹² Our soldiers and leaders at the battalion level and below know well the reality of personnel turnover.

In 1995, Colonel John Rosenberger boldly asserted "... We, the officer corps, particularly battalion and brigade commanders and our staffs, are incompetent."¹³ The key reason behind his assertion is that officers spend insufficient time practicing the nuts and bolts of their profession. He also concluded that given the conditions that exist in the Army today, particularly the personnel system that does not train officers well at combined arms operations and which inhibits repetitive practice by key leaders, officers simply *cannot* become tactically skilled.

All these systems that are designed to improve readiness have, at best, a marginally positive effect; some even have negative effects. Like an incurable infection, we take the personnel system as a given and merely apply different types of salve to the wound. None of them can cure the glaring problems caused by the turbulence of the personnel system. History, practical experience, common sense, and even our doctrine tell us that soldiers and leaders must train together as a unit, over long periods of time, to perform well in training or in combat. But we don't follow through. In fact, we can't follow through because our manning system won't let us. Intuitively we know it.

When it really "counts," we do all we can to limit the damage of our personnel system. Since 1990, it has really "counted" quite a number of times. Both the Persian Gulf War and our deployments to various regions of the Balkans are great case studies.

Part II: Points of Light

The United States Army is still the best in the world. Some leaders and units manage to perform amazingly well despite these many shortcomings. Whatever our current challenges in recruiting may portend for the future, the Army still attracts and retains large numbers of superb leaders and soldiers. Evidence of outstanding warfighting skill and combat readiness, using our

One of the NTC's OPFOR battalion commanders summarized his secret: "Rigorous and repetitive training is the core of our training program."

very own soldiers, leaders, personnel system and training doctrine, is staring us in the face. We could learn some critical lessons by examining them and applying them on a broader, Army-wide scale.

One can find evidence of readiness excellence at the CTCs in the form of the various OPFOR units who routinely embarrass BLUFOR on the laser battlefield. Moreover, they do it with antiquated weapons systems.¹⁴ BLUFOR leaders bemoan the advantages of the OPFOR — they know the terrain like the backs of their hands,¹⁵ they fight missions over and over, they are experts at MILES gunnery, etc. Constant repetition, as a unit, makes them masters of the battlefield. The complaints are true and interestingly enough contain the answer to our training dilemma. One of the NTC's OPFOR battalion commanders summarized his secret: "Rigorous and repetitive training is the core of our training program."¹⁶ The key word above is repetitive. An OPFOR company probably fights ten times the number of battles its BLUFOR equivalent fights in the same period. Even the CTC OPFOR, however, must live within the Army's

personnel management system. Their unique set of tasks and conditions enables them to overcome its most damaging effects.

Another less obvious example of what happens when units and their leaders train together, without major personnel turnover, can be found within BLUFOR units while at the CTC. All soldiers, leaders, and O/Cs can attest to the improvement in their unit's skill over time at the CTC. The problem remains that they enter the CTCs at a low level of readiness, make solid gains, and then return home only to lose whatever was gained due to personnel turnover. Every battalion commander drools at the prospect of keeping a captain in command of his company long enough to take him to two CTC rotations as a company commander. Every task force S3 relishes the prospect of the scout platoon sergeant who knows the terrain at the CMTC and can focus on his mission — not land navigation and cold weather survival.

How many commanders have at the final AAR said to themselves, and perhaps to their units, "Boy, if we could only come back here in two months and do this again, we could really kick some OPFOR a*!" Instead, BLUFOR units redeploy home and the PCS diaspora begins. Within weeks, PCS moves and intra-unit moves render it a wilted, pale shadow of what it so recently became. Most of our tactical units remain mired at a rather low level of combined arms proficiency, unable to get better due to personnel turnover and lack of experience.

Occasionally, a unit does manage to conduct two or more CTC rotations, with large parts of its leadership and soldiers remaining in place, and shows great improvements. Anyone who has been through a CTC rotation with a unit whose key leaders and the majority of its soldiers have remained together as a team has seen this first hand. COL Dan Bolger's *Battle for Hunger Hill* chronicles the experiences of an air assault battalion with two JRTC rotations in 12 months. He clearly lays out the lessons learned at his first rotation, 94-10, the changes he and his leadership made in the intervening year, and the much improved performance they achieved in Rotation 95-07. There are many other less-heralded examples that illustrate the same point. The personnel

system does not allow much more than nibbling around the edges of the problem.¹⁷ One can occasionally delay a key leader's PCS move or school date to take him to a major training event or CTC, but not often.

To a similar degree one can see the same thing in units that deploy for peace operations. Personnel stability policies are put into effect months before the deployment to enable the unit to reach peak performance before the mission begins. Units usually undergo an intense mission rehearsal exercise at home-station or a CTC that prepares them for the unique tasks of the mission. Extensive right-seat ride programs with units in theater further increase the unit's proficiency before that magical milestone, the transfer of authority, is allowed to occur. Then, during the six months of deployment to the Balkans or other exotic locales, the unit reaps huge dividends in unit cohesion, morale, esprit, and effectiveness (albeit effectiveness at non-combat tasks, in most cases). Again, personnel stability is the key — it can't be achieved in normal times, but the Army strives to put it in place for our "real-world" deployments. The system has worked, however, only because the "real world" has given us time to get ready for it.

The most obvious example of how good Army tactical units can be, if given the time to train with one set of leaders and soldiers in the unit, is the Persian Gulf War of 1991. Whatever one's opinion of the operational and strategic aspects of the campaign, at the tactical level Army units performed brilliantly. It is important to note, however, that the Army had several months to ready its units for combat. We did not deploy and fight within *FM 25-100's* mystical "band of excellence." We deployed, trained extensively, then fought at a time and place of our choosing against an incompetent foe.¹⁸ We were able to overcome the limitations of our personnel system and peak for the war.

To get there, many aspects of the current personnel system were put into abeyance — stop-loss, PCS moves, NCO and officer professional schooling, retirement, and command tours. Why? Was it because we knew they would hobble our ability to field units that could fight and win? Was it because the prospect of a "real war" enabled us for a moment to see through the fog of our own mistakes? The months of unit training in the U.S.,

Germany, or at the NTC were the most intense training and team-building experience most had ever experienced. What would have been the result if Saddam Hussein and his incompetent generals had continued their attack in August 1990, or if our units had to fight only hours or days after unloading at the ports in Saudi Arabia? What would have happened if NCOs and officers continued to go to schools and left their units days or weeks before we attacked?

The biggest obstacle blocking our path to fielding effective combat units is the Army's personnel system. Our personnel management system trains individuals in a wide variety of tasks over their professional lifetimes. We train individuals who belong temporarily to a unit. They move in and out of those units based on their personal professional development timeline. What the unit is doing is of little or no consequence.¹⁹ We count on having time for these individuals to coalesce into effective combat units when needed. Those individuals learn, perhaps counter-intuitively, to correct the system's own faults when lives are on the line. This requires large amounts of time, extensive retraining, last-minute changes in our personnel system, and luck. We got all four of these in 1990/91 in the Gulf. Our foes in the Balkans have not really put us to the test. Will any foe be that stupid again?

Part III: A Modest Proposal

If the Army wants units trained to a high level of proficiency and ready to fight on very short notice, then we MUST change the personnel system to support our training system and ensure our readiness. The Army's transformation process — to create new types of forces and make them rapidly deployable to anywhere in the world — is a recognition that the world has changed. Unfortunately, there seems to be no recognition that to generate these kinds of units the Army must change the way it mans and trains those units.²⁰ The transformation must reach down into our readiness-eroding personnel system. We must be able to win the first battles of the next conflict without the need for "peaking" before the first round is fired.

The Army should adopt a system somewhat akin to the naval battle groups fielded by the Navy, the amphibious ready groups deployed by the Marines, and the air expeditionary

forces (AEF) now being used by the Air Force. Naval battle groups rotate through an 18-month cycle of training, maintenance, and operations, with 25 to 33 percent of the fleet in operations. The Air Force has created ten AEFs which rotate through a 15-month cycle of training, deployment readiness, and recovery, with two of the ten being at peak readiness at any given time and the rest able to rapidly train and deploy in a time of crisis. The Navy and Marine Corps have done this for generations; the Air Force has recently adopted it for both readiness and quality of life reasons.

In the same way, Army tactical units could have a "life cycle" between 24 and 36 months — longer than the other services due to our unique training requirements. In the first or "activation phase," units should be filled with soldiers (filled to 110 percent of required manning levels to account for attrition) and trained to a high state of individual and collective readiness. Soldiers would report and remain assigned to the unit throughout its entire life cycle.

After perhaps 12 months of training, these units would then be certified and made available for deployment to unforeseen missions or deployed to ongoing missions as needed. These units would have a stable population of soldiers and would conduct sustainment training when/if not actually deployed. Repetitive training would sustain and hone their warfighting skills. Due to a stable base of soldiers, these units would not be in the maddening personnel manning vs. readiness predicaments faced by our units today. Training together as combined arms teams would further increase their battlefield prowess. These probably ought to be brigade-sized battle groups, à la Colonel McGregor's ideas, though size and task organization would perhaps vary by theater and mission.²¹ Some would be forward deployed and some based in CONUS. This portion of a unit's life cycle could be called the "deployable phase."

This would require a massive change of our individual-based promotions, particularly for senior NCOs and officers. While assigned to a unit, leader promotions should be limited to those that would not require moving the leader to a new position. For example, 2LTs would be promoted to 1LT, but 1LTs would not make CPT until they leave the unit. A PVT could be promoted to SPC, but a SFC would not

make 1SG. An alternative would be to have leaders selected and promoted but not reassigned in order to provide stability in key positions. Tank companies might end their life cycle with two CPTs — the original commander and a newly promoted CPT serving as the XO. It is essential that promotions not be allowed to undo key leader stability, unit cohesiveness, and warfighting readiness.

At the end of a unit's deployable phase, it would be "deactivated" and the cycle started over again. Some soldiers in those units might be staying on as a cadre for a repeat tour with the unit in a position of greater rank and responsibility. Others would be headed off to school, TDA assignments, and eventual reassignment back to the same or other deployable units.²² Leaders should attend all NCOES and OES schooling during PCS moves or between tours in a unit if staying for a repeat tour at a post. Unlike the COHORT system of the 1980s, many families could remain in place for long stretches of time while soldiers participated in 36-month unit tours. Perhaps we could even make a true regimental system a reality.

At any given point in time, some portion of the Army would be fully trained and deployable for whatever missions arise, some would be in their activation phase and some would have just deactivated. If a crisis arose that required more of the Army than that part of it which was in their deployment phase, training for other units could be intensified and sped up. Essentially, this is what we have been doing for decades on an *ad hoc* basis. It is what the Navy has always done, and what the Air Force now does. A critical aspect of this mix would be to determine how much and what portions of the force need to be in the deployment phase at any given time so that they could respond to a crisis and await the arrival of the rest of the Army should that crisis expand.

The above notion is admittedly simplistic and would need far more work to implement. Probably not all of the Army could adopt such a system. The part of the Army that deploys and fights as units, however, must do so. The personnel system must be stood on its head. The training, education, and promotion of individual soldiers must become tied to the "life cycle" and needs of the unit to which they are assigned. In particular, leaders would join

a unit at its "activation" and remain in the duty position until the "deactivation" of the unit. Individual career progression would serve the unit. Units would cease to be (or perceived to be) promotion platforms for individuals, especially officers. It would require a massive shift in priorities — from training individuals at the expense of unit readiness, to training and fielding combat ready units with soldiers whose primary purpose is to support that unit's readiness. The Army will also realize huge benefits in morale and retention as its training and deployment pace becomes more predictable.

Conclusion

The evidence is clear, overwhelming, and available for anyone who wants to look at it (including our potential enemies). It is not new — in different guises we have been dealing with the problem for at least 50 years.²³ Our current personnel system does not support combat readiness and, in fact, indirectly works against it. The elephant of low unit readiness is in our living room, but we can't see the whole beast at once because each of us feels only that part of it that is immediately in front of us. Our attempts to improve unit readiness have at best limited utility because they address only its appendages. We've become so used to its corrosive effects on readiness that we have developed work-arounds to try to overcome the problem.

If we are indeed transforming ourselves for a new era — an era in which a force projection Army must be ready to fight across the entire spectrum of conflict on very short notice against asymmetric threats, and so on — then this old problem is intensely more acute than at any time since the end of WWII. It is time to take unit readiness to a higher and sustainable level. It is time to take bold measures before the future is visited rudely upon us.

Notes

¹Chairman Floyd D. Spence, "Military Readiness 1997: Rhetoric & Reality," (Washington, D.C.: U.S. Congress, House Committee on National Security, April 9, 1997), p. 1

²Mark E. Gibicke, Ed. "Military Readiness: Full Training Benefits From Army's Combat Training Centers Are Not Being Recognized," (GAO/T-NSIAD-99-2, Feb. 2, 1999).

³Rick Maze, "Congress Hears Readiness Woes," *Army Times*, 12 October 1998, p. 4.

⁴Each CALL publication is a veritable gold mine of good ideas. They are, however, old ideas

that have been mined many times, over and over again.

⁵Spence, "Military Readiness: 1997," p. 14. See also GAO, "Military Readiness: 1999," pp. 2-3

⁶Spence, "Military Readiness: 1997," p. 5

⁷U.S. Army *Field Manual 25-101, Battle Focused Training*, (Washington, D.C.: U.S. Government Printing Office), pp. 1-6 to 1-7, and figure 1-3.

⁸Michael Howard, oral remarks made at the United States Military Academy to the Department of History, 1992.

⁹GAO, "Military Readiness: 1999," pp. 21-22, also Table 2.

¹⁰Author, personal notes. Information about the BCTP comes from observing, via VTC, the Combat Training Center Quarterly Training Briefs to the CSA. Information about MACOM CTC scheduling comes from personal experience as joint readiness officer, a battalion commander, and a CMTC Observer-Controller in USAREUR from 1996 to 2001.

¹¹GAO "Military Readiness," p. 12.

¹²Author, personal notes. One USAREUR armor task force executed its CMTC rotation in 2001 without a battalion executive officer because he was selected to serve as an aide-de-camp two weeks prior to deployment and a replacement was not available. Another task force had its battalion executive officer replaced one week prior to a real-world deployment in 2000 when he was "pulled up" to become the brigade S3 when that officer was selected to serve as an aide-de-camp.

¹³COL John D. Rosenberger, "The Burden our Soldiers Bear: Observations of a Senior Trainer O/C," *Combat Training Center Quarterly Bulletin*, (Ft. Leavenworth, Kan.: Center for Army Lessons Learned, 4th QTR, FY 95), Part I, pp. 1-2, and Part IV, pp. 1-2. See also his article, "Reaching Our Army's Full Combat Potential in the 21st Century," *ARMOR*, (Ft. Knox, Ky.: U.S. Army Armor Center, May-June 1999), pp. 8-14.

¹⁴History is replete with examples of forces using less effective equipment defeating technologically superior foes.

¹⁵We'd better get used to it. In any future conflict outside of Korea, this will be true of our real enemies.

¹⁶LTC Jim Zanol, "Training to Achieve an OPFOR Level of Proficiency," *The Combat Training Center Quarterly Bulletin*, (Ft. Leavenworth, Kan.: Center for Army Lessons Learned, 1st Qtr FY98, No. 97-2), p. 1.

¹⁷Dan Bolger, *The Battle for Hunger Hill* (Novato, Calif.: Presidio Press, 1997), pp. 58-60.

¹⁸GEN Fred Franks, Jr., *Into the Storm*, (New York: Berkley Books, 1998), Chapters 7 & 8. This is just one of many books and articles that stress this point.



Photo by Robert L. Stevenson

The Bugle Calls:

Armor on the Modern Battlefield

by Major James K. Morningstar

Is there a role for armor on the new modern battlefield? This article examines that question and finds there is a role for armor, a vital role, but one that will require a change in armor structure and thought.

For many years, the United States Army was organized and trained to act in concert with the other services to meet and defeat the forces of the Soviet Union in battle on the fields of Europe.

In large part this strategic mission translated into a requirement to have a robust armored force that could defeat masses of Soviet tanks. Through nuclear deterrence and massive retaliation, through flexible response on a deep battlefield, to high maneuver Air-Land Battle doctrine, America's armored force prepared to stop a Soviet attack and then seize the initiative. The fact that the Soviets had a well defined and publicized tactical doctrine, evolved from linear methods employed since Napoleon, enabled American planners to fine-tune strategy and tactics to meet the threat.

With the collapse of the Soviets, this specific threat also collapsed. Still, the

nation faced challenges from proxies who employed Soviet equipment and tactics. On battlefields like Iraq in 1991, the Army proved supremely prepared to meet such challenges. The armor force, fielding unmatched 70-ton M1 Abrams main battle tanks, demonstrated surprising dominance in combat.

In the ten years since, the world has sought to evolve in adaptation to the performance of America's arms. The United States military has, in turn, searched to identify the characteristics of the next threat so as to redesign itself to maintain the ability to win. As former Soviet clients fell away and others lost faith in the doctrine and weapons employed by the Iraqis, new varieties and asymmetric methods appeared on the threat horizon. For the American military, especially during fiscally tight times, the new environment posed a very difficult question: how does one build a force to win possible simultaneous engagements in places as diverse as Korea, the Middle East, and unforeseeable Third World locations? The range of possible engagements stood in stark contrast to the previously expected

fields of battle for America's armor force.

The changing post-Cold War strategic environment met the austere military budget that typically follows whenever America overcomes a major threat. This combination led the U.S. military establishment to agree on one point: America's armed forces would have to be deployable. Forward positions in Europe were of little help if the threat was elsewhere, and no money was available to build forces everywhere. For the armor community, this task was daunting in many ways. The U.S. Air Force's largest transport aircraft, the C-5, can only carry one 70-ton M1 main battle tank and then only at a high cost to its operational capability. On a given day, the Air Force has about 120 available C-5s, the Army has purchased 7,880 M1s since 1981, and the two systems are usually located far apart.

By 1994, armor doctrine confirmed that, "The land warfare strategy of the U.S. military has changed,"¹ and noted "large, forward-deployed forces" were being replaced by "rapidly projecting combat power from CONUS." Armor

“Operations against small bands of guerrilla forces in Africa, Afghanistan, or the Asian periphery are becoming the norm. In such operations, a tank can be very persuasive, and the absence of a tank can be downright tragic...”

leaders prepared doctrine to employ a lighter than 25-ton M8 ‘light tank’ (the Armored Gun System) that could deploy and “operate with light infantry-based contingency forces worldwide.” Armed with the low-recoil 105mm M35 main gun and reconfigurable armor, M8 crews were expected to provide “...security, reconnaissance, and anti-armor firepower to the light infantry division (LID)...” and “...engage and destroy enemy forces using mobility, firepower, and shock effect in coordination with other combat arms.”² In 1993, the Army requested 237 M8s for \$1.3 billion, but fiscal austerity reduced those figures to 26 vehicles for \$142.8 million in 1996 and then altogether eliminated the program in 1997 as a money-saving measure.³

The M8 was touted as a means to support operations other than war, to include: counterinsurgency, anti-terrorism, relief operations, shows of force, noncombatant evacuation, and peace-keeping operations. In war, it could support the infantry during close assaults, reduction of bunkers and roadblocks, urban operations, defense, mobile reserve, and rear area operations. Light armor was anticipated to provide exceptional security and reconnaissance support. When enemy anti-tank capability was not present, the M8 could conduct standard armor missions of movement to contact, hasty attack, deliberate attack, exploitation, and pursuit.

The problem with the M8, and the rationale for its cancellation, was that there already existed a weapon system that could perform these missions: the M2/3 Bradley Fighting Vehicle. In essence the M8 was a Bradley with a larger main gun, no TOW launcher, and less infantry carrying capability. If you were an infantry commander, which vehicle would you prefer to support you?

The short life cycle of the M8 left an important lesson. It was born out of a need to have an armored vehicle light enough to deploy quickly to meet the threat wherever it may appear. It died because it could not offer significant ability to meet the threat in comparison to existing systems. Simply put, it was designed to meet operational limitations (lift capability), not operational needs (specific threat abilities).

Now the strategic environment once again seems to change. In the current war against terrorism, we see the outlines of the modern battlefield. Operations against small bands of guerrilla forces in Africa, Afghanistan, or the Asian periphery are becoming the norm. In such operations, a tank can be very persuasive, and the absence of a tank can be downright tragic.

These threats cannot be considered disabled by the mere presence of an armored vehicle. Equipped with recoilless rifles, rocket-propelled grenades, and anti-tank mines, small enemy bands in Mogadishu and Kabul do not fear light armored vehicles. Some reports claim a Soviet-built RPG-7V shaped charge round can penetrate the equivalent of 12 inches of cold-rolled steel. The proliferation of future fire-and-forget anti-tank weapons will decrease the effectiveness of light armored vehicles in such environments. In field tests and the Gulf War, however, the M1 tank demonstrated near invulnerability to these threats.

On the battlefields in Afghanistan, the combination of Special Forces teams supported by indigenous militia and combined with air-delivered precision munitions proved more than adequate to turn the tide against a once respectable Taliban ground force. And they did it with almost no armor support. The Special Forces teams hunted down enemy positions, sometimes containing single tanks, and guided devastating airpower against them. Allied tribesmen provided manpower for hasty defenses and attacks when needed. Against such a force, Taliban armor proved little more than a target for the United States Air Force.

What role would American armor play on this modern battlefield? Maybe none, in a place like Afghanistan. If, however, we look at what happened in recent fights in places like Somalia, and what could have happened in Kosovo, a role for armor becomes clear and necessary. In Somalia, clan militias caused havoc with heavy machine guns mounted on the back of pick-up trucks. In Kosovo, a well-equipped modern army modified its operations to mitigate the effect of American airpower.

In his letter to Congressman Murtha following the Battle of Mogadishu, Task Force Ranger Com-

mander MG William F. Garrison wrote, “Armor reaction would have helped but casualty figures may or may not have been different.”⁴ It is hard to believe the disastrous outcome could not have been alleviated by support from a single Abrams tank platoon. Parting mobs, suppressing militia positions, and breaking through ad hoc roadblocks, tanks would have protected the force, enabled quicker operational tempo, and drawn fire away from more vulnerable personnel and equipment. Although the entire operation seemed vexed, it seems assured that tanks there would have saved lives — American and Somali.

In Kosovo, the ability of airpower to nullify enemy armor appears open to debate. Although NATO claimed to have destroyed 93 Serb tanks and nearly 500 other military vehicles,⁵ the Munitions Effectiveness Assessment Teams found only 26 tank hulks (also reported by some as 14 tanks and 12 self-propelled artillery vehicles) and 18 armored personnel carriers and assumed the other 500-plus kills had been removed by the Serbs.⁶ Air Force Colonel Ed Boyle of the Combined Air Operations Center said civilian traffic and bad weather allowed the Serbs “...periods during this entire campaign when they could freely move around the battlefield, move equipment, and reposition it.”⁷

In later testimony before the House of Commons regarding the BDA tallies, Vice Admiral Sir Alan West, the British Chief of Defense Intelligence said, “I think probably they were optimistic.”⁸ Photos appeared of plastic bridges and tanks used to effectively decoy bombers away from actual targets. On 15 May 2000, *Newsweek* magazine openly challenged the validity of the BDA claims and reported actual results were far lower.⁹

I must confess that I am a true believer in airpower. As a tank company commander in the Gulf War, I passed too many smoking Iraqi hulks to doubt the power of the United States Air Force. That said, one must allow for the limitations of airpower. Weather can turn bad. Decoys can be effective. Enemies can develop anti-aircraft capabilities. Close air support aircraft are

not always available.¹⁰ Even when they are, the need for targeting support from systems ranging from ground-based radar to reconnaissance satellites might require too large a footprint to be feasible in certain operational environments. In these situations, the accurate and heavy firepower of tanks would be a highly desirable presence supporting forces engaged.

Does the infantry community think tanks can play a part in modern combat? Their doctrine says: "Heavy forces help infantry by leading them in open terrain and providing them a protected, fast-moving assault weapons system. They suppress and destroy enemy weapons, bunkers, and tanks by fire and maneuver. They also provide transport when the enemy situation permits."¹¹ My company team (and three others) provided all this support and more to the infantry units of the 1st Infantry Division during the attack into Iraq.

Infantry doctrine also points out (and this is key): "However, tanks and infantry must work closely. In most operations where they work together, infantrymen must establish direct contact with individual tanks. They will not have time to designate target or direct fires through the platoon chain of command. Infantrymen and tankers must know how to communicate by radio, phone, and visual signals."¹² I never worked with the infantry platoon assigned to my unit prior to our arrival in the Gulf. In the small unit operations on today's battlefields, platoon and section leaders must be able to work closely with infantry and Special Forces teams on the ground. That kind of cooperation requires a high degree of training and familiarity with specific tactical missions.

What kind of tactical missions would armor have to perform on the modern battlefield? The same kind foot soldiers currently face. Out of the broad spectrum of current American armor missions, today's fights focus on relatively small, light, and fast-moving operations. With the threat breaking free of the rigid Soviet tactical doctrinal model, and most likely not capable of massed armor attacks, modern combat is reduced to raids, ambushes, and movements to contact. Of course any conflict with countries like Iran, Iraq, North Korea, and China would probably require massed armor engagement, but these countries would most likely first test American strength in smaller proxy conflicts.

Raids, ambushes, and movements to contact are not unknown to the cavalry; they are the tactics of the western frontier. To win in them, one requires speed, firepower, protection, and maneuverability — the very characteristics of armor. One must also be able to operate with relatively slower, lighter, and more vulnerable infantry. In the scale of battle found in Somalia and Afghanistan, these operations do not require large formations of tanks. The requirement is not lighter *tanks*, but lighter *formations*. Most importantly, it requires teams highly trained for movement to contact operations.

Armor can make a vital contribution in today's combat environment if tankers are properly trained to conduct raids, ambushes, and movement to contact as part of a small team with Special Forces, infantry, and indigenous allies. They must be able to operate in an uncertain environment without doctrinal templates of enemy formations and situational templates of enemy positions. The tankers in such an operation must be able to contribute planning considerations for armor and teach others how to work with tanks. Currently, at the small unit level, armor does not train for raids, does not emphasize ambushes, and does not adequately conduct movement to contact with allied dismounted infantry.

Infantry doctrine defines an ambush as "a surprise attack from a concealed position on a moving or temporarily halted target."¹³ The armor definition deletes the reference to a concealed position.¹⁴ How many armor lieutenants have trained with infantry in constructing a hasty or deliberate, point or area, linear or L-shaped ambush? How many infantry lieutenants would like to have a tank section to assist them in an anti-armor ambush? Constructing a well-covered kill zone with obstacles, employing assault, support and security elements, and executing a well-timed operation are skills requiring training.

A raid is defined as "a combat operation to attack a position or installation followed by a planned withdrawal."¹⁵ Infantry does not conduct squad-level raids; they are rather highly choreographed platoon- and higher-level operations. Is there a role for tanks in a raid? The initial operation to seize warlords in Somalia was a raid, and clearly tanks could have gotten the convoys through, helped secure the buildings and crash sites, and broke through to the crashed helicopters.

Armor leaders are familiar with movement to contact, but we do not do it well at the small unit level. Junior officers and NCOs need to read the terrain and anticipate how an enemy, free of the constraints of "threat doctrine," would use it — and how friendly dismounts would use it. They must understand how concentrating fires differs from massing troops. Finally they must have the confidence in their independent decision-making required to maneuver on the enemy and get every gun into the fight. They need these abilities and more, without a company or battalion commander spoon-feeding them instructions.

This last point cannot be emphasized enough. When I was a tank battalion S3, I sat down with nearly every lieutenant from our unit who had decided to leave the Army. I would ask them why they were leaving and, inevitably, they would say they were given little opportunity to lead their platoons. Training schedules were full of sergeant's time, command maintenance, family time, consideration of others training, and other command-directed events. There were so few opportunities to go to the field that most of these events were dominated by company commanders anxious to exercise their chance to command. Even PT was dictated by three-star policy on when to begin, when to end, what exercises to perform, and how far to run. On the rare occasion when a lieutenant could decide his own course of action, many felt discouraged from taking a chance for fear of failing and earning a lower rating. Some said they knew a 'three block' on a platoon leader OER meant never getting a chance to command a battalion. Who wanted to stick around in that kind of Army?

Now we need those guys. The threat environment demands the presence of Armor, not battalions but platoons. We need independent thinking lieutenants who can take command, take a risk, and take the fight to the enemy. We need to develop men everyday who can perform that role under the conditions faced in places like Afghanistan. To build such tank commanders, leaders and trainers just have to keep in mind the original motto of the United States Armor Corps: "Treat 'Em Rough!"

Some say we need a new light armor system to get to the modern battlefield. Maybe, but probably not. Because the small scale and tactical composition of current operations requires fewer tanks

Blind Men...

Continued from Page 11

in support of infantry, and the enemy is able to face up to light armor systems, we can and should use our existing main battle tank. We may only be able to fly one Abrams tank per C-5 or C-17, but the requirement for fewer tanks means we can get by with current means. That is not to say a future 30-ton tank is not desirable, but it is not absolutely necessary. As Patton said, "The best is the enemy of the good. By this I mean that a good plan violently executed now is better than a perfect plan next week." The M1 is plenty good.

If we do operate with a few forward-deployed platoons, we must make some changes in their support network. Large forward-deployed maintenance depots will not be feasible for forward-deployed platoons. Forward-deployed spare tanks are feasible. A small maintenance team may go forward and rotate the crew to a fresh tank when necessary and extract broken tanks out of theater for repairs.

Fuel and POL will also have to be delivered and packaged in new ways. Armor can borrow Forward Air Refuel Point (FARP) techniques from aviators. Envision a blivet C-47 flying to a forward rendezvous point when necessary to refuel M1s on the move. We did something similar when I was an S4 for 1/4 Cavalry in 1988. It can still be done.

A possible immediate solution to the challenges of providing armor to the global hotspots today would be the creation of two companies of deployable platoons. Locating one at Fort Lewis and one at Fort Bragg would enable cross training with Special Forces and co-location with air transportation assets. They could be manned with highly qualified volunteers, cross-trained for special skills like FARP fuel handling, and outfitted with satellite communications gear. I'm certain many old commanders like me would gladly take a reduction in rank to be a part of such a unit.

Armor can play a role on the modern battlefield. After watching the depiction of *Black Hawk Down* in the theaters, most Americans are realizing armor must play a role on the modern battlefield. The benefits tanks offer to our soldiers in combat is immense. Support and technical challenges can be overcome with a little brainpower and administrative muscle as long as forward-deployed armor elements are small but effective. The bigger challenge is in breaking the mindset that platoon and section leaders cannot op-

erate without company and battalion commanders. This can only be solved by instilling in the Armor Corps a little of the old cavalry and tanker mindset.

Notes

¹See introduction *FM 17-18, Light Armor Operations*, 8 March 1994.

²Ibid.

³See Military Analysis Network at <http://www.fas.org/man/dod-101/sys/land/m8-ags.htm>.

⁴MG Garrison letter "Operation on 3/4 Oct. '93 in Mog" addressed to the House National Security Committee to be shown to President Clinton and Secretary of Defense Aspin.

⁵NATO's Supreme Allied Commander Europe briefing 16 September 1999. Based on an assessment made by 35 experts, under USAF BG John D. W. Corley, examining 429 bombing sites on the ground.

⁶See Stephen T. Hosmer, *The Conflict Over Kosovo: Why Milosevic Decided to Settle When He Did*, Chapter 7, "Damage to Military Forces and KLA 'Resurgence' Generated Little Pressure," the Rand Corporation, p. 83.

⁷Quoted by John Tirpak in "Survey Shows NATO Close on Serb Damage Estimates" in *Air Force Magazine*, November 1999, Volume 82, Number 11.

⁸House of Commons Select Committee of Defence Testimony Minutes of Evidence, 29 March 2000.

⁹John Barry and Evan Thomas, "The Kosovo Cover-Up," *Newsweek*, May 15, 2000, pp. 23-26.

¹⁰For example, Task Force Hawk's AH-64 Apache attack helicopters in Kosovo never got into the fight.

¹¹*FM 7-8, Infantry Rifle Platoon and Squad*, section 2-44.

¹²*FM 7-8*, section 2-45.

¹³*FM 7-8*, section 3-17 through 3-22.

¹⁴*FM 71-1, Tank and Mechanized Infantry Company Team*, section 6.

¹⁵*FM 7-8*, section 3-23.

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¹⁹MAJ Donald E. Vandergriff, "Truth@Readiness.com," *U.S. Naval Institute: Proceedings*, Vol. 125, Issue 6, June 1995), p. 56. MAJ Vandergriff attributes our current readiness problems to a wider problem of officer leadership, culture, passivity, and reluctance to speak the truth. While I do not subscribe to the more nefarious tone of his article, I believe he has correctly identified our personnel system as the culprit. He is one of many authors addressing the same issue.

²⁰The recently released results of one of the CSA's "Blue Ribbon Panels" on officer training and development acknowledges that, "many [officers] do not know or understand what right looks like" and "units cannot conduct home station training according to Army doctrine ..." Unfortunately, the panel's recommendations are that officers must adopt the so-called "enduring meta-competencies" of self-awareness and adaptability. How these new buzzwords will improve officer skill and unit effectiveness is left as an exercise to the reader. It does not directly address personnel or officer turnover nor call for any significant changes to the personnel system. "The Army Training and Leader Development Panel Officer Study, Report to the Army," May 2001, pp. OS-2, 3, and 14.

²¹COL Douglas McGregor, *Breaking the Phalanx*, (Westport, Conn.: Praeger, 1997), pp. 56-86.

²²The German Bundeswehr used a similar system for many years during the Cold War. Their system worked within battalions and brigades instead of across the entire Bundeswehr.

²³It is by now axiomatic that unit cohesion, esprit, trust, and pride, among other intangibles, gained through long periods of training men together under tough conditions, are the key to small unit battlefield success and individual survival. The U.S. Army's individual replacement system of WWII and the individual rotation system of Korea and Vietnam all violated this principle. See for example, Richard Holmes, *Acts of War: The Behavior of Men in Battle*, (New York: The Free Press, 1985), pp. 31-73 and 261-63.

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How to Defeat the Motorized Rifle Company At the National Training Center:

Observations from an MRC Commander

by First Lieutenant Sean P. Hazlett

Over the past decade, the National Training Center's Opposing Force (OPFOR) has served as one of the toughest opponents that its Blue Force (BLUFOR) opponents will ever face. The OPFOR's track record has been so consistent that one of its former colonels has described it as "the anvil upon which we have hammered and forged the combat power of our Army."¹

In his article, "Reaching Our Army's Full Combat Potential in the 21st Century," Colonel John D. Rosenberger pointed out the many reasons why the OPFOR is successful against its adversaries. This essay aims to support and to refine those arguments from the level of the motorized rifle company (MRC). It will provide a brief background about how the individual MRC is composed, who leads it, and how it fights. Finally, this essay will discuss the relative advantages and disadvantages of the OPFOR and the BLUFOR in the areas of tactics, experience, weapons systems, numerical superiority, and unit cohesion. From an assessment of these five core areas, this essay will conclude that the BLUFOR company team can defeat the OPFOR MRC provided it takes full advantage of its relative strengths and the OPFOR's weaknesses.

The OPFOR Motorized Rifle Company

Before examining the relative strengths and weaknesses of the BLUFOR and the OPFOR, it is essential that one discuss the nature of the OPFOR motorized rifle company. It typically consists of three T-80s and eight BMP-1s or BMP-2s. During each rotation, each armor troop from 1st Squad-

ron, 11th Armored Cavalry Regiment combines with its counterpart infantry troop from 2nd Squadron to form a motorized rifle battalion (MRB). Each 1st Squadron troop provides 9 to 10 tanks and 3 BMP-1s, and each 2nd Squadron troop provides 24 to 26 BMP-1s or BMP-2s. The MRB is typi-



cally divided into three MRCs. An MRC commander commands each MRC with the aid of his deputy, his counterpart platoon leader from a sister troop. In the OPFOR, every leader controls a unit one increment larger than its equivalent in BLUFOR. Thus, a lieutenant typically commands an MRC, while a captain commands an MRB.

Prior to contact, the MRC moves out in column. During a tactical road march, an MRC commander typically sends one or two BMPs forward of the MRC as forward patrols (FPs). These FPs provide "security forward of an attacking FSE or MRB on the primary route of advance."² Additionally, the FPs can serve to link the MRC with the next forward MRC. If a particular MRC is first in the order of march, its FPs can tie in that MRC with the combat reconnaissance patrols (CRPs). These patrols normally consist of three

BMPs and one or two BRDMs, which conduct reconnaissance for the MRB five to ten kilometers "in front of the forward patrol on the primary route of advance."³

When enemy contact is likely, the MRC transitions from an MRC column to a platoon column formation. Some MRCs prefer to put three T-80s at the front of their columns so that the tanks can deploy laterally while the trailing BMPs fall into their respective motorized rifle platoons (MRPs). Other MRC commanders allow their MRPs to travel together in column in a T-80...BMP...BMP... T-80...BMP...BMP sequence. Both techniques have their respective advantages and disadvantages. Once enemy contact is imminent, the MRC deploys into a single line of three MRPs using terrain to mask their maneuver. Figures 1, 2, and 3 demonstrate each of these formations respectively.

OPFOR vs. BLUFOR: Advantages and Disadvantages

While fighting at the National Training Center, both the BLUFOR and the OPFOR have relative advantages and disadvantages. In order for BLUFOR commanders to defeat the OPFOR MRC, it is essential that they understand their relative advantages over the OPFOR and how they can exploit these advantages. There are five major areas that can serve as a basis for comparison between the OPFOR and the BLUFOR. These areas include tactics, experience, weapons systems, numerical strength, and unit cohesion.

The first basis for comparison is tactics. Most rotational units rely heavily on material found in *FM 17-15*, *FM 7-7J* and *FM 71-1*. For a tank-pure com-

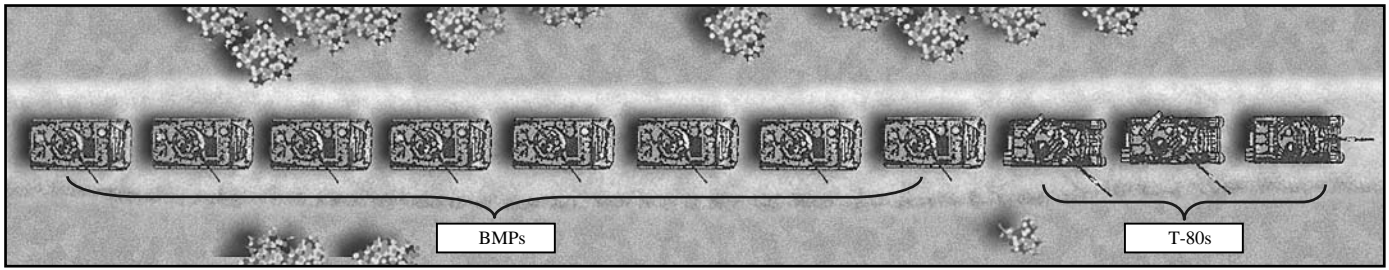


Fig. 1. OPFOR MRC in Column Formation

pany team, the BLUFOR fights with three platoons of four tanks each. This company team is integrated into a task force of at least two other tank or mechanized company teams. In turn, this task force and one or more others constitute a brigade. During a fight, the smallest maneuver unit is a tank or a mechanized infantry platoon, each of which consists of four vehicles. One of the reasons why the BLUFOR is organized in this manner is to enable the smallest unit possible — the platoon — to act independently while in contact to ensure that it meets the commander’s intent. In fact, *FM 71-1* explicitly addresses this issue:

“When soldiers expect the commander to make every decision or initiate every action, they may become reluctant to act. To counter this tendency, the com-

mander must plan and direct operations in a manner that requires a minimum of intervention. He operates on the principle that some loss of precision is better than inactivity.”⁴

In theory, this doctrine operates upon the implicit assumption that the unit in contact with the enemy is in the best position to make a timely and aggressive decision. It requires units at the lowest level (platoons) to make and execute these decisions. Ideally, a commander should ensure that all his subordinates understand his intent and are prepared to execute it in his absence.

Although a focus on local initiative and independent decision-making is part and parcel of American mechanized doctrine, small units rarely exercise this flexibility at the National Training Center. The failure of American mechanized doctrine, small units rarely exercise this flexibility at the National Training Center. The failure of American mechanized doctrine, small units rarely exercise this flexibility at the National Training Center.

pendent decisions because they fear the consequences of making a mistake. More often than not, a BLUFOR platoon will come to an abrupt halt once they report contact and await further instructions from higher units. Instead of seeking cover and beginning to develop the situation on their own, they sit and wait for instructions from higher echelons to engage the enemy. In the inevitable delay that follows, their OPFOR counterparts engage them and pound their stationary vehicles with artillery. It seems that the tendency of many commanders to insist upon “precision” rather than local initiative results in the frequent stagnation of some BLUFOR units on the NTC battlefield.

In stark contrast, the OPFOR operates with a doctrinal derivative of the Soviet military command system. This system operates on a rigid command structure in which units move in lockstep and in precise formations toward preordained points on the battlefield. “The Soviets emphasize swift, efficient movement, or transfer, of combat power from one point on the battlefield to another. Units frequently rehearse the march, and its conduct is strictly controlled.”⁵ The advantage of Soviet doctrine, therefore, is speed. Additionally, the OPFOR MRC successfully couples this speed with the local initiative so characteristic of American military doc-

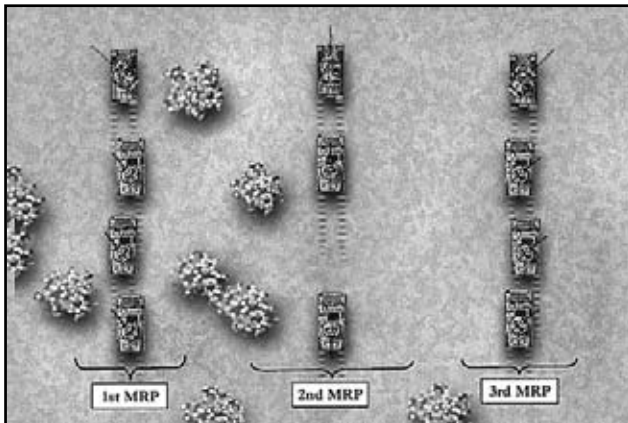


Fig. 2. OPFOR MRC in Platoon Column Formation

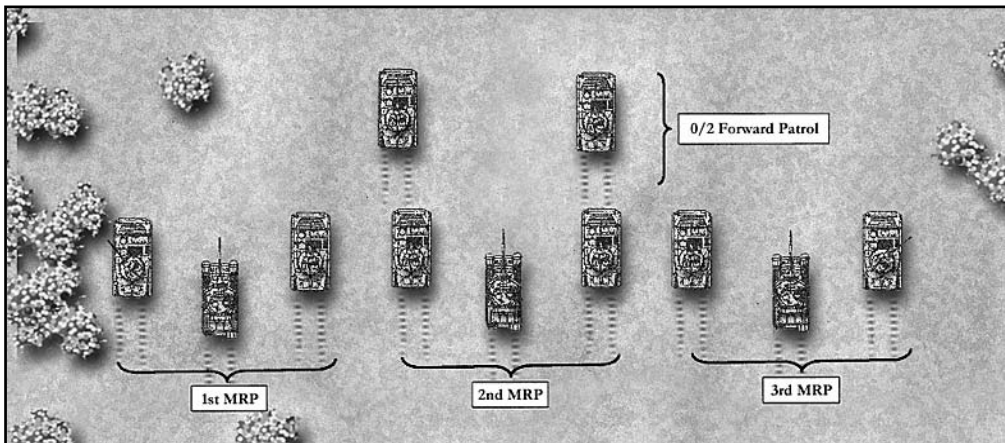


Fig. 3. OPFOR MRC On Line

trine. The result of the amalgamation of these two disparate doctrines is a fast and flexible MRC. A prime example of this system in practice is the MRC radio net.

Although the lowest unit in an MRC is the MRP, the lowest level at which information is conveyed is at the MRC. To enable the MRC commander to maintain strict control over every vehicle in his MRC in accordance with Soviet doctrine, all vehicles in the MRC are on one radio net. Although this makes it difficult for the MRC commander to process information from his subordinates, it reduces one layer of delay in the dissemination process. Any information passed down from the MRB commander is instantaneously passed on to every vehicle in the MRB by each MRC commander. Since all MRP subordinate vehicles are monitoring on the MRC net, there is no need for each MRP commander to repeat, and possibly to distort, each situation report. Because all vehicles in the MRC are on the same net, each vehicle has access to nearly perfect situational awareness. With this knowledge, MRC commanders can trust their senior NCO MRP leaders to react to the enemy independently while simultaneously following the MRC commander's intent.

A second major advantage to the OPFOR command system is the operations order. Its simplicity gives every vehicle in the regiment a clear idea of the regiment's objectives. Colonel Rosenberger's article describes the effectiveness inherent in the simplicity of the OPFOR orders process:

"Take the operations order. Only one written operations order is published for the regimental combined-arms team, which addresses multiple courses of action. Tasks to subordinate units are always expressed in the form of task and purpose. Only one set of graphics is produced and every leader in the regiment, from top to bottom, uses this one set of graphics. Subordinate units do not develop their own, unique graphics. In other words, every member of the combined-arms team is looking at the same sheet of music. Subordinate commanders issue their oral operations orders, based on a clear understanding of what they have to do, when they have to do it, and where they have to do it."⁶

It is interesting to note that Colonel Rosenberger clearly mentions that subordinate commanders base their orders



BLUFOR units fought the way American doctrine intended, they would be far more successful on the NTC battlefield.

The second area of comparison is experience. At NTC, there are three areas where experience comes into play. These areas are leadership experience, experience fighting on particular terrain, and individual experience. On two out of three of these areas, the OPFOR has a clear advantage. However, if BLUFOR were to capitalize on a third, they would be much more successful on the NTC battlefield.

At the NTC, BLUFOR company commanders have a tremendous advantage over their OPFOR MRC commander counterparts. First, all BLUFOR commanders have a minimum of four years of tactical and leadership experience. Second, all of them have been educated at the Captain's Career Course for several months prior to assuming command. Put simply, they have more leadership experience and training than their OPFOR counterparts to accomplish their mission.

In contrast, all MRC commanders are lieutenants — many of them second lieutenants — with little to no tactical experience. After learning how to direct platoons in combat situations at the basic course, they are required to command a company-sized element upon arrival at the NTC. This step is not difficult to take conceptually, but is very challenging in practice. MRC commanders are also given fewer resources to accomplish the mission than their BLUFOR counterparts. Instead of three four-vehicle platoons, they must accomplish similar missions with three platoons of three vehicles apiece and a two-vehicle FP element.

While BLUFOR commanders may have a clear advantage in leadership experience, the OPFOR MRC has two tremendous experiential advantages of terrain knowledge and battle experience. The majority of troopers at the NTC have fought over the same ground repeatedly. They have fought with their units for long periods of time and frequently fight in similar tactical situations over the same ground. Because of these two factors, a unit can be successful in battle regardless of whether or not it has an inexperienced commander. In contrast, the soldiers of many BLUFOR units are fighting on unfamiliar

on "a clear understanding of what they have to do, when they have to do it, and where they have to do it." He makes no mention of "how they have to do it." He does this ostensibly because the OPFOR's success lies in its ability to maximize initiative at the lowest unit level. Thus, although the original intent of using one single published order may have been to replicate the Soviet command style of rigid leadership, it has since enhanced the ability of the OPFOR MRC to maximize local initiative and decision-making in nearly every battle it fights. Although OPFOR doctrine is designed to maintain strict control over all subordinate units, the OPFOR MRC fights in a manner that is much more oriented toward the fundamental intent of American doctrine — a focus on independent initiative and decision-making at the lowest possible level.

The irony of these two doctrinal systems is that neither the BLUFOR nor the OPFOR uses them as they were intended. BLUFOR tends to operate under a very rigid command structure where leaders at the lowest level seem to be discouraged from taking local initiative. Of course, American doctrine is not designed to operate this way. In contrast, the OPFOR's doctrinal system is intended for use in a very rigid command structure where strict orders are passed from higher to subordinate units. Doctrinally, individual units are strongly discouraged from taking independent initiative and operating outside of command directives. In practice, OPFOR battalion commanders allow their subordinates to take more risks and to exercise more initiative in combat. They allow their MRC commanders to make their own decisions based on the local situation in their sector. MRB commanders use mistakes as learning points for future battles and are willing to accept them so long as their subordinates strive to better themselves in the process. In essence, the OPFOR is successful because they practice the true intent of American doctrine — that of the importance of local initiative — despite the fact that their own Soviet-based doctrine strongly discourages such independent action from subordinate units. If more

terrain. They are also fighting in a series of unusual tactical situations that are difficult to replicate at their home stations.

Therefore, although the OPFOR MRC has a relative advantage in regard to an intimate knowledge of the terrain at NTC and more experience per crew than their BLUFOR counterparts, the BLUFOR has more experienced leadership. To be successful, BLUFOR commanders should take advantage of this experience whenever they face an OPFOR MRC.

The third basis for comparison is the difference between the weapons systems of the BLUFOR and the OPFOR. At the NTC, the BLUFOR weapons systems are technologically superior to their OPFOR analogues.

The greatest differential between weapons systems exists between the M1A1/A2 and the visually modified T-80. Because the M1A1/A2 has stabilization, it can fire on the move. In contrast, a visually modified T-80 lacks stabilization and must stop before it fires its MILES laser. The M1A1/A2 also has a tremendous advantage with its range. According to the SAWE/MILES II Handbook, the range of the 120mm main gun of an M1A1/A2 is 3750m, whereas the range of the T-80's 125mm main gun is 2500m. In practice, most T-80 lasers cannot kill targets beyond 2000m. As a result, the M1A1/A2 has nearly twice the range of a T-80 on the MILES battlefield. While the T-80 does have a complement of five AT-8 missiles with a similar range to that of the M1A1/A2 main gun, the limited number of missiles fails to establish range parity during longer engagements and the T-80 must expose itself for ten seconds to guide its missile toward a target.

The M1A1/A2 system is also vastly superior to the OPFOR T-80 at night. While every M1A1/A2 has a functional TIS or TTS, only a select number of T-80s have functional TTS systems. In the past, most MRBs have had four or fewer T-80s with functional TTS systems. While these numbers have been increased over the past few months, the Sheridan TTS system's quality is vastly inferior to that of a typical M1A1 TIS and an M1A2

TTS. The Sheridan TTS quality is inferior because it has been degraded through years of use and there are very few resources at the NTC to maintain these TTSs adequately. Therefore, the M1A1/A2 possesses a tremendous advantage against the T-80 at night.

According to NTC standards, the M1A1/A2 also possesses greater lethality and survivability than the T-80. From a comparison of the probabilities in Figures 4 and 5, it is clear that the M1A1/A2 has a significant lethality advantage over the T-80 on three out of four sides of the vehicle. The only side that the T-80 weapons systems have a higher probability of kill is the rear of the M1A1/A2.

In a one-on-one fight with an M1A1/A2 firing at the front slope of a T-80, and the T-80 firing at the front slope of an M1A1/A2 with its main gun (the most common engagement), the M1A1/A2 is three times more likely to kill the T-80 than the T-80 is to kill the M1A1/A2. Even if a T-80 uses a missile against an M1A1/A2, the M1A1/A2 is still more lethal than the AT-8 is against the front slope of M1A1/A2. Against the flanks, the AT-8 has an equivalent probability kill to the M1A1/A2's 120mm.

Not only is the M1A1/A2 more lethal than the T-80, but it is more survivable. Figures 4 and 5 demonstrate that on three out of four sides, the M1A1/A2 is more survivable than the T-80.

In contrast, the BMP-1 and the BMP-2 have a slight edge on the M2A2/A3, as demonstrated by the kill probabilities in Figures 4 and 5. On the MILES

II battlefield, the BMP-1 and BMP-2 are both more survivable and possess greater lethality than the M2A2/A3 Bradley. However, the M2A2/A3 Bradley possesses an advantage over the BMP-1 in regard to stabilization and night fighting. Like the T-80, the BMP-1 must stop movement in order to fire its main gun and rarely possesses a TTS. The fielding of the BMP-2/OSV has begun to remedy both of these problems.

The BLUFOR also possesses a significant advantage with the use of artillery. The NTC Rules of Engagement prohibit the OPFOR from killing over 50 percent of BLUFOR combat vehicles with artillery. The BLUFOR possesses no similar restriction. Theoretically, the BLUFOR can kill 100 percent of the OPFOR by artillery alone. From the MRC commander's perspective, BLUFOR frequently starts its attack with impressive momentum. However, the moment many BLUFOR company teams transition from movement to maneuver and initiate contact with an OPFOR MRC, the BLUFOR company-team stops. When a BLUFOR company team stops, it becomes highly vulnerable to artillery. It seems that some units in the United States Army have forgotten a bitter lesson that goes back to World War I. In *Achtung-Panzer!*, Major-General Heinz Guderian pointed to a lesson the French learned when they attempted to capture the Chemin-des-Dames on 23 October 1917. He wrote that the French discovered that "the tanks were liable to heavy losses whenever they were standing still within sight of the enemy, and in

	T-80			BMP-1			BMP-2		
	Front	Side	Rear	Front	Side	Rear	Front	Side	Rear
120mm	30%	40%	45%	70%	80%	90%	70%	80%	80%
25mm	0.5%	0.5%	1%	10%	15%	20%	10%	15%	15%
TOW	25%	35%	30%	70%	90%	100%	70%	90%	90%

Figure 4: OPFOR MILES II Kill Probabilities¹¹

	M1A1/A2			M2/M3		
	Front	Side	Rear	Front	Side	Rear
T-80 125mm	10%	40%	80%	80%	90%	100%
AT-3 (BMP-1)	10%	40%	90%	60%	80%	90%
AT-5 (BMP-2), AT-8 (T-80)	10%	40%	100%	70%	90%	100%
BMP-1 73mm	0.5%	10%	30%	10%	20%	30%
BMP-2 30mm	0.5%	0.5%	1%	5%	10%	15%

Figure 5: BLUFOR MILES II Kill Probabilities¹²

the future this should be demanded only in case of emergency;⁷⁷ More than eighty years later, many BLUFOR units consistently make this same mistake.

Neither side possesses a significant advantage with the employment of smoke in both the offense and the defense, but the OPFOR MRC tends to utilize the effects of smoke more effectively than their BLUFOR opponents do. *FM 90-3* states that the “lack of cover and concealment in flat desert terrain makes the use of smoke more vital to survival.”⁷⁸ Without smoke, it is very easy for enemy forward observers to call fire missions on an attacking or defending unit. Effectively employed smoke can be extremely frustrating for an OPFOR MRC commander. Despite the well-known effectiveness of smoke, most BLUFOR units fail to use it. Only two units effectively employed smoke between Rotations 99-10 and 00-08, most notably when an attacking BLUFOR unit inundated the Central Corridor with smoke in Rotation 00-04. Where smoke was effectively employed, the results were devastating for the defending OPFOR MRCs.

Therefore, if a BLUFOR company team takes full advantage of the M1A1/A2’s ability to fire on the move, superior range, firepower, survivability, and night-fighting capabilities; uses the TOW system of the M2 Bradley to provide long-range overwatch for the M1A1/A2; maximizes the company team’s ability to call for fire; and judiciously uses smoke to cover the company team’s movement, a BLUFOR company team will be successful against a smaller OPFOR MRC.

The fourth basis for comparison between the BLUFOR company team and the OPFOR MRC is numerical strength. In the early nineties, the OPFOR did frequently outnumber the BLUFOR by as much as two to one. In recent years, the situation has changed drastically. In a standard rotation, an MRB defends with 7 tanks and 17 BMPs, while the standard BLUFOR task organization consists of 44 M1A1s and 44 Bradleys. These numbers present an attack to defend ratio of 3.67:1, greater than the standard requirement of 3:1. Although these numbers are quite typical, there have been cases where one MRC has defended against light brigades. In a Rotation 00-05 defense, 11 vehicles from an MRC defended against 22 tanks and 40 Bradleys — an attack-to-defend ratio of almost 6:1. In another defense during Rotation 00-04, an MRB with 9 tanks

and 28 BMPs defended against 116 tanks and 90 Bradleys — again, an attack-to-defend ratio of nearly 6:1. In the latter case, assuming that all tanks targeted only tanks and all Bradleys targeted BMPs with their main guns with only frontal shots, simple statistics dictates that the expected value of BLUFOR kills on the first shot fired would be 34.8 T-80s and 9 BMPs. On the other hand, the OPFOR’s expected value of first shot kills would theoretically destroy .9 M1A1/A2s and 2.8 Bradleys using the BMP-1 or 1.4 Bradleys using the main gun of the BMP-2. Keep in mind that these calculations assume that every vehicle on both sides scores a hit on its first shot and BMPs and Bradleys do not use their AT or TOW systems. From an analysis of this raw data, it is clear that when the BLUFOR attacks the OPFOR, BLUFOR units have an overwhelming advantage, not only in numerical strength, but also in simple statistical probability. Consequently, the laws of probability overwhelmingly favor the BLUFOR in the attack.

In the regimental attack against a BLUFOR defense, the regiment is never afforded similar odds. A BLUFOR package defends with 44 tanks and 44 Bradleys. Although the OPFOR may be allowed to operate with more vehicles than the BLUFOR, it rarely ever exceeds a 2:1 ratio.

At the company level, the BLUFOR armored company team has an overwhelming statistical advantage over the OPFOR MRC. If an armored company team were to face an OPFOR MRC in a frontal engagement for one round, two M1A1/A2s fired on each T-80, all BMPs attacked with their AT-5 missiles, and every vehicle hit another on its first shot, 1.1 M1A1/A2s, 5.6 BMP-2s, and 1.8 T-80s would be destroyed. Rounding, after one round of the engagement, the armored company team would have 13 tanks left, while the OPFOR MRC would have 1 T-80 and 2 BMP-2s. In short, if an OPFOR MRC is pitted against a BLUFOR armored company team, it has little chance of survival if it stands its ground. Of course, OPFOR MRC commanders mitigate these almost assured chances of destruction by maneuvering their MRPs against an armored company team’s flanks and rear to maximize the MRC’s kill probabilities.

To add to these numerical imbalances, the OPFOR frequently does not even have enough crewmembers to ade-

quately man every vehicle at the MRC level. There have been several rotations where four or five vehicles in some MRCs will operate with two-man crews — a driver and a tank commander. In such an arrangement, the tank commander of a visually modified T-80 does not have the luxury of his own independent sight. Instead, he must acquire the target as a tank commander and then drop down into the gunner’s station to aim and fire at the target. The sheer inefficiency of such a system should put the vehicles at a tremendous disadvantage against their BLUFOR counterparts. In contrast, many BLUFOR crews seem to be much slower on the draw because they either have more difficulty in identifying targets in desert terrain, are unfamiliar with their equipment, or simply do not take action until they are ordered to do so from higher for fear of committing fratricide. It is probably safe to conclude that the last of these three explanations is probably the most plausible explanation.

If the BLUFOR has overwhelming superiority in both numerical strength and a much greater theoretical chance of killing the OPFOR, why do they encounter so much difficulty? Although the BLUFOR typically has numerical superiority and has a higher mathematical expected value of winning, the OPFOR MRC is usually more successful because it masses its forces at the critical point in battle. As Clausewitz attested, “the superiority at the decisive point is a matter of critical importance, and that this subject, in the generality of cases, is decidedly the most important of all.” Success depends not on the absolute number of a force but rather the relative number applied at the decisive point in battle. The size of a force is critical, but so is the skill to which that force is utilized.⁹

If the typical company team has a good situational awareness and is aggressive, they can use their superior numbers to overwhelm one MRC. A BLUFOR platoon of M1A1/A2s is more than capable of destroying a typical OPFOR MRP of one T-80 and two BMPs. If one tank section focused on the T-80, and the other focused on the two BMPs, they would simply overwhelm them. If two platoons worked in concert, they could annihilate them in detail with one platoon fixing them and the other enveloping them. As long as the company team maintained its momentum and established rolling support-by-fire and attack-by-fire posi-

tions, they would never have to contend with artillery. While one platoon fixes and another platoon envelops, the third platoon could advance to the next rolling support-by-fire where they fix the next OPFOR platoon. If the typical BLUFOR company team commander were to give his subordinates more local autonomy and forced them to fight fluidly (i.e., maintain their momentum), that company team could easily overwhelm echelons of MRCs pitted against it. It seems that many BLUFOR company commanders are never able to capitalize on the numerical superiority of their formations because they waste too much time awaiting orders, adhere rigidly to a plan that no longer matches the current tactical situation, and piecemeal themselves into battle. If the lowest unit — the platoon, were empowered to take more independent action, the BLUFOR company team would be a force to be reckoned with.

The fifth basis for comparison is unit cohesion. At NTC, it is critical that units coordinate with one another and fight well together. Frequently, many BLUFOR units come together for the first time at NTC. A company team is sometimes pieced together with a random mix of M1A1/A2s and Bradleys, from different units that have never trained together. Because they have not fought together for very long, some company teams tend to fight in a random and haphazard manner. For instance, a company team mix of Bradleys and M1A1/A2s will frequently attack an MRC with the Bradleys forward of the tanks. Because the next intervisibility line has not been cleared, the Bradleys frequently get surprised and destroyed by OPFOR vehicles, leaving the M1A1/A2s without infantry support. Had some of these units been together longer, they would discover in practice, that the Bradley's strength prior to enemy contact is its TOW system. If, prior to contact, Bradleys used their TOW systems to overwatch the movement of the M1A1/A2s as the M1A1/A2s cleared intervisibility lines, they could instantly engage any OPFOR vehicles that surprise the M1A1/A2s. Once the enemy had been identified, the M1A1s could close within coax distance and then the Bradleys could move forward to dismount infantry on restrictive terrain. Too often, BLUFOR company team commanders rush to get their dismounts to the high ground before the intervening distance is secured. More often than not, they pay dearly for their mistake.

On the other hand, the OPFOR has much better unit cohesion, because individual MRC commanders fight only as a combined arms team and they train only as a combined arms team. Perhaps Colonel Rosenberger said it best:

“Fundamentally, the warfighting ability of the OPFOR stems from how it is organized. It is organized as a combined-arms team. It lives together as a combined-arms team, and it fights as a combined-arms team — all the time. It is not a collection of units, thrown together on an *ad hoc* basis from various divisions and installations, who have never trained together, or a collection of units within a division which task organize and train infrequently as a brigade combat team.”¹⁰

To counter this notable advantage, BLUFOR commanders should make every available effort to train as much as possible with their sister units. If this is not possible, they should focus every available amount of time they have on joint rehearsals to mitigate potential problem areas on the NTC battlefield.

While the OPFOR MRC can be a daunting foe and may possess major advantages in its use of tactics, soldier experience, and unit cohesion, a BLUFOR commander can frequently best his MRC counterpart by taking advantage of his superior tactics, leadership experience, weapons systems, numerical superiority, and unit cohesion. To improve his use of tactics, a BLUFOR commander must provide his leaders with a profound situational awareness of the battlefield, empower them to take initiative in his absence, and encourage his subordinates to take risks during training prior to arrival at the NTC. A BLUFOR commander can maximize his superior leadership experience by isolating individual MRCs on the battlefield. In doing so, he forces the opposing MRC commander to make decisions in a vacuum. Ultimately, in such a situation, the BLUFOR commander's superior experience will prevail. A BLUFOR commander can capitalize on his superior range, mobile firepower, and night-fighting capability by emphasizing these advantages during training at his home station. Doing so will force his subordinates to use these advantages instinctively against their technologically inferior foe. As noted above, the typical BLUFOR commander possesses numerical superiority both in sheer numbers and in kill probabilities. Consequently, a BLUFOR commander can afford to be, and should be, aggressive

at the NTC. Finally, a BLUFOR commander should make every conceivable effort to train with attachments at his home station. If he is unable to conduct joint training with these units, he should make every effort to coordinate and train with them during joint rehearsals. If a BLUFOR commander maximizes these advantages, success will be a certainty at the NTC.

Notes

¹Colonel John D. Rosenberger, “Reaching Our Army's Full Combat Potential in the 21st Century,” *ARMOR*, May-June 1999, p. 8.

²11th Armored Cavalry Regiment, *MRC Handbook*, 24 March 1999, p. 9-4.

³Ibid.

⁴Department of the Army, *FM 71-1, Tank and Mechanized Infantry Company Team*, 26 January 1998, p. 2-2.

⁵Department of the Army, *FM 100-2-1, The Soviet Army: Operations and Tactics*, 16 July 1984, p. 5-1.

⁶Rosenberger, p. 12.

⁷Major-General Heinz Guderian, *Actung-Panzer!*, trans. by Christopher Duffy, (London: Arms and Armour Press, 1995), p. 71

⁸Department of the Army, *FM 90-3, Desert Operations*, p. D-5.

⁹Carl von Clausewitz, *On War*, (London: Penguin Books, 1982), p. 266.

¹⁰Rosenberger, p. 8.

¹¹11th Armored Cavalry Regiment, *SAWE/MILES II: Simulated Area Weapon Effects/Multiple Integrated Laser Engagement System II*.

¹²11th Armored Cavalry Regiment, Annex D, *Miles Handbook*, May 1998.

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The Four-Tank Platoon: Maximizing Combat Power and Leader Development

by Major John B. Richardson IV

The organization of the four-tank M1-series tank platoon provides the ultimate in combat power (maneuver, protection, leadership, firepower, information) and leader development. I take serious issue with the alternative outlined in the article by MAJ Stringer and MAJ Hall (*ARMOR*, March-April 2001) advocating a three-tank platoon in the heavy division of the 21st century. Though I agree that a three-tank platoon would be more cost-effective to maintain (obviously 10 tanks are cheaper to maintain than 14) and collective training would be more efficient, I disagree that a three-tank platoon enhances leader development and is as effective at accomplishing its mission as a four-tank platoon, due to advances in technology and digital communication.

I disagree with anyone who is charged with our nation's defense and responsible for the lives of our soldiers, who would be bold enough to state, "Current and future threats...do not appear to offer the kind of Cold War challenge that required fielding massed armored formations on the battlefield."¹ If that were the case, we could scrap the Legacy Force right now. How many TF Smiths or Kasserine Passes do we have to endure to learn our lesson? *Lest we forget*. Luckily for us all, our Chief of Staff's vision is multi-dimensional and much more realistic than that. His vision provides unbeatable security for today and the assurance we will be ready to dominate the battlefield twenty years from now.

I left my last tank battalion in 1999. On my way out the door, the S3 was putting together the tank battalion's plan to transition from a four-tank company MTOE to a three-tank company MTOE. The authors advocating the three-tank platoon use a number of similar arguments for transitioning to a three-tank platoon that were used to justify the reduction in the number of companies in a tank battalion. The problem is, the arguments are not doctrinally parallel in nature and cannot be



Photo by Robert L. Stevenson

shared. I always considered the fourth company in our tank battalion structure a luxury, extra combat power for the battalion S3 and commander to use in mission analysis. Taking a tank company from a tank battalion still leaves the battalion commander an overwatch element, a maneuver element, and a reserve.² There is no shift in doctrine, and if you accept the premise that the technological advances in the M1A2 provide the M1A2 tank battalion equivalent firepower with the three-company structure as a four-company M1A1 tank battalion, then there is no loss in **combat power**. But this is not the case in a three- versus four-tank platoon.

Maneuver and Protection

Maneuver and protection are drastically affected when converting a tank platoon from a four-vehicle to a three-vehicle structure. *FM 3-20.15* (formerly *FM 17-15*), *Tank Platoon* is based on the wingman concept. "Under battlefield conditions, the wingman concept facilitates control of the platoon when it operates in sections. The concept requires that one tank orient on another tank on either its left or right side. In the absence of specific instructions, wingmen move, stop, and shoot when their leaders do. In the tank platoon, Tank 2 orients on the platoon leader's (PL) tank, while Tank 3 orients on the platoon sergeant's (PSG) tank. The platoon sergeant orients on the platoon leader's tank."³ Doctrinally the tank platoon is not designed to fight alone,

rather as part of a CO/TM. However, in many instances, it is expected to provide its own fire and movement (maneuver and protection). The CO/TM commander expects the platoon to have the following capabilities outlined in *FM 71-1 (Tank and Mechanized Infantry Company/Team)*: That "it has the necessary manpower and equipment to effectively develop the situation. It can conduct operations requiring firepower, mobility, armor protection, and shock effect, and it can employ maneuver (a combination of fire and movement) to destroy enemy tanks, fighting vehicles, anti-armor systems, and emplacements."⁴ *FM 71-1* also states, "The tank platoon is the smallest maneuver element within a tank company."⁵ The platoon leader must have the capability to "employ his forces on the battlefield through movement of combat forces in relation to the enemy, supported by fire, to gain potential advantage from which to destroy the enemy" in support of the company's mission.⁶

To do that, the platoon leader must have the flexibility to use his sections to perform fire and movement independent of the company. He *maneuvers* his platoon to place it at an advantage over the enemy in support of the company mission and commander's intent.

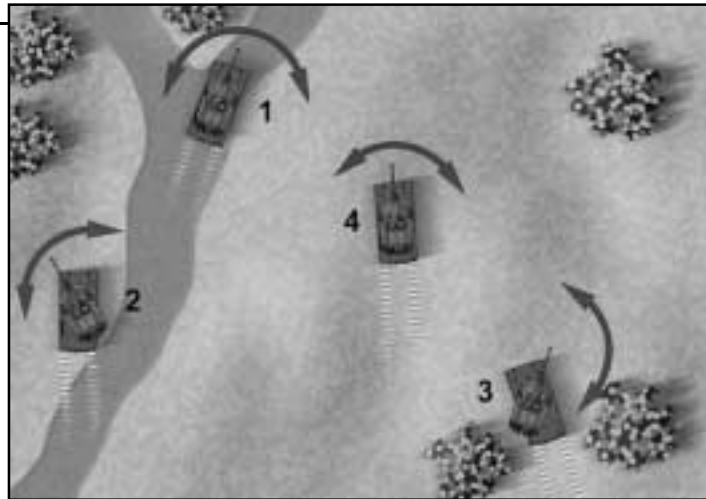
The three-tank platoon cannot maneuver independent of the company without violating force protection at the most basic level. The opening sentence of *FM 3-20.15* states, "By itself, any

tank can be vulnerable in the face of diverse battlefield hazards... and situations; these vulnerabilities are significantly reduced when tanks are employed as units.⁷⁷ Sure, the three-tank platoon in bounding overwatch could set the PSG in overwatch, and the PL and his other tank could bound forward, but who is watching the PSG's back, and can one tank provide the necessary support as the PL's section bounds forward in contact? Who is covering the PL and his wing tank when the PSG seeks an alternate position?

What the three-tank platoon structure does is it strips the PSG or PL of his wingman. The tank platoon is now nothing more than a three-tank section, requiring another three-tank section (platoon) to overwatch it as it moves. The tank platoon can no longer maneuver independently; it will require another platoon to provide its cover. This severely hamstring the CO/TM commander who now has to be personally involved in moving his platoons. No longer can the commander tell 1st Platoon to, "Move to SBF 1 and report set," he will have to personally escort him to the SBF using the assets of another platoon. Are commander's required to do that at times? Absolutely, based on METT-T, but now there is no option. A commander, unless completely sure there is no enemy in the AO, can never send a tank platoon anywhere alone. The only way the three-tank platoon structure would work, while allowing the commander freedom to think two-up instead of focusing one-down, would be to make a CO/TM an organization of four three-tank platoons, with two sets of two platoons serving in a habitual maneuver relationship. This would negate the only two valid arguments made for the three-tank platoon in the article advocating this "revolutionary transition," cost effectiveness and training efficiency.

Leadership

"The most essential dynamic of combat power is *competent and confident officer and noncommissioned officer leadership*. Leaders integrate maneuver, firepower, and protection capabilities in a variety of combinations appropriate to the situation."⁷⁸



The worst argument for the three-tank platoon is that it would, "offer the Army the opportunity to concentrate on the development of junior armor leaders."⁹ As company XO, I remember my commander sitting the platoon leaders down and telling them, "I'm not training you to be platoon leaders, I'm training you to be company commanders."¹⁰

This enlightened approach to leader development is supported by the four-tank (or even the old five-tank) platoon. We learn the most by *doing*. Our training doctrine and supporting CTCs are based on this developmental approach to learning our profession, the management of violence. The three-tank platoon reduces the platoon leader to a glorified section leader. He is a section leader who is unable to maneuver his unit, unable to DO. Even a five-tank platoon paradigm would be more in the spirit of leader development, where a platoon leader in his own tank maneuvers his two sections while maintaining complete situational awareness of the higher unit's mission, just as a CO/TM commander maneuvers his platoons in support of the BN/TF mission.

The four-tank platoon is truly the premier leader development organizational structure in close combat. The tank platoon leader is not only required to maneuver his platoon as part of a CO/TM, oftentimes using fire and movement at the platoon level, but he is fighting his own tank as an integral member of his platoon. The four-tank platoon PL is a platoon leader, section leader, and tank commander simultaneously while maintaining situational awareness of higher units two levels up. Though the advocates of a three-tank platoon point to the fact that a "three-vehicle concept places the platoon leader at the spearhead of his pla-

toon..." accentuating the leadership principle "set the example," anyone who has served as a tank platoon leader or platoon sergeant knows that there is a great deal more to mounted combat leadership than charging at the front of your platoon formation.¹¹ I argue that there is no greater challenge, and therefore developmental experience, on the battlefield than that of a four-tank, tank platoon leader or four-BFV mech infantry platoon leader in close, high-intensity combat.

Firepower

In close combat, the tank and mech platoon is where the battle is won or lost. The platoons are the killers. Keeping that at the forefront, we must remember, "the fundamental mission of the tank platoon is to close with and destroy the enemy."¹² We've discussed the fact that the three-tank platoon's ability to *close* with the enemy is severely reduced compared to the four-tank platoon. I submit that, despite the target acquisition advancements in the M1A2, the firepower of a three-tank M1A2 platoon cannot match the firepower of a four-tank M1A1 platoon using the wingman concept. The advantage of the four-tank platoon providing mutual supporting fire within the section and platoon allows the platoon to mass fires more effectively and continuously. Clearly, massed volley fire from four tanks is more devastating than massed volley fire from three tanks. The wingman concept also allows the platoon to keep two tanks up at all times, providing continuous firepower on the enemy while maintaining sufficient protection to the platoon as wingmen seek alternate positions. The three-tank platoon will often only have one tank at any one time up and firing. Fire control and distribution will become increasingly difficult to control. Loss of this control will ultimately result in less efficient killing.

Ultimately, the four-tank M1A2 platoon would provide the maximum firepower to destroy the enemy. Coupling the M1A2 advances with the teamwork of the wingman concept doctrine in *FM 3-20.15*, will increase the volume of fire by over 25 percent in the platoon's sector. The argument that four M1A1s

or three M1A2s can both kill X number of enemy vehicles between TRPs A and B is great. But if *four* M1A2s can kill X+10, then that's the firepower I want in the platoons I employ as a company or battalion commander.

Information

The recent addition of information as an element of combat power really doesn't effect the tank platoon structure either way. As the Army transitions to the Objective Force, the size and structure of a maneuver platoon *should be revisited* based on the capabilities of the FCS. However, this is a Legacy Force organizational structure debate and, as such, the elements of combat power used to design the Legacy Force equipment and its supporting doctrine should focus on the elements of combat power that were used to design them.

Quick Fixes: Personnel, Maintenance, and Training Time

The article espousing the three-tank platoon referenced arguments that the new structure would solve many of our personnel shortage problems and alleviate maintenance and logistical problems of the fourth tank motor pool burden. It states that, because of personnel shortages, "the reality of current manning levels often shows that this [fourth] crew is already missing from many platoons..." and that "the three-tank platoon actually increases the chance that armor platoons will be fully manned, despite reduced personnel intake, because fewer spaces will need to be filled."¹³ This argument is weak at best. It is all relative, as is the issue of parts and maintenance of a four- versus three-tank platoon. If we argue, due to personnel shortages, a typical tank platoon of 16 tankers is usually manned at 12-14, then yes, often the platoon is reduced to a three or three and a half tank platoon. But this platoon, if called, could deploy, fight, and win as a three-tank platoon if necessary. We've all been around long enough to realize that if we reduce a tank platoon to a 12-tanker organization, we will still be short personnel. Considering the nature of the U.S. Army, we will always have 10 percent coming, 10 percent going, and 10 percent missing. Now what do we have in our three-tank platoon? Two, maybe two and a half, tanks manned. Now, if called, could that tank platoon accomplish its mission? I say it cannot. As for training efficiency, MAJ Stringer provides unique insight into the Swiss Army based on his first-hand

experience with their force structure changes since the end of the Cold War. The Swiss recently transitioned to a three-tank platoon, and it is working very well for them. The fact that "the Swiss Army is essentially a militia army based on universal conscription with a very small cadre of professional instructors" provides the very argument why we, the U.S. Army, should not model our heavy forces in the same light.¹⁴ I agree, if we only trained together "three to four weeks a year" as a unit, we should consider a tank platoon where we don't expect too much from our platoon leaders and NCOs at the platoon level; however, that is not the case in our Army. The American Army is a full-time, all-volunteer Army. It is a professional Army that not only expects more from junior leaders, but is obligated to develop them for greater responsibility. I applaud the Swiss Army leadership for maximizing their time by structuring their force based on METT-T. We must do the same, and for the tank platoon of the Legacy Force, that is the four-tank platoon.

Conclusion

Our Army is in the midst of a major transformation. For the first time in our Army's history, instead of reacting to the next adversary, our senior leadership is proactively thinking deep, looking forward at our future security issues and tailoring our forces to fight our future adversaries instead of preparing to fight our last battle, again and again. General Shinseki's vision will ensure our national security is maintained for our watch, while setting the conditions for the next generation to maintain it on their watch. His plan to transform the Army over the next 15 years while maintaining the forces necessary to protect tomorrow is genius. Part of that plan is maintaining a creditable and unbeatable Legacy Force, unmatched in the world. That Legacy Force's smallest maneuver element on the heavy battlefield is the four-vehicle platoons of M1 tanks and BFs.

If we choose to change the tank platoon structure and go to a three-tank platoon, make no mistake of it, it will be for MAJ Stringer and MAJ Hall's main point thread throughout their article: cost-saving efficiency.¹⁵ Let's not hide behind personnel issues, technological advances, or the Swiss Army. If we go to a three-tank platoon it will be because we want to save money to apply it to other programs in the Transformation. If our senior leaders believe

the world security issues will allow us to accept that risk, then we accept it on that basis. But let's all be clear, the four-tank M1-series tank platoon provides the maximum combat power and ultimate leader development platoon structure in the world.

Notes

¹Major Kevin D. Stringer and Major D. Andre Hall, "The Three Tank Platoon, A Consideration For Army XXI," *ARMOR*, March-April 2001, Vol. CX, No. 2, p. 24.

²*FM 71-2, The Tank and Mechanized Infantry Battalion Task Force*, 17 August 1994, Chp. 3.

³*FM 3-20.15, Tank Platoon*, 1 November 2001, Chp. 1.

⁴*FM 71-1, Tank and Mechanized Infantry Company/Team*, 26 January 1998, Chp. 1.

⁵*Ibid.*

⁶*FM 101-5-1, Operational Terms and Graphics*, 30 September 1997.

⁷*FM 3-20.15*, Chp. 1.

⁸*FM 100-5, Operations*, 14 June 1993, Chp. 2.

⁹Stringer and Hall, p. 23.

¹⁰CPT (MAJ) Keitron Todd, "Platoon Leader OPD," Commander, C Company, 4-67 Armor, July 1993.

¹¹Stringer and Hall, p. 23.

¹²*FM 71-1*, Chp. 1.

¹³Stringer and Hall, p. 24.

¹⁴*Ibid.*

¹⁵*Ibid.*

MAJ John Richardson is a 1991 graduate of the U.S. Military Academy with a BS in Military History. He holds a MA in Counseling and Leader Development from Long Island University. His first assignment was with 1AD, 4-67 Armor in Friedberg, Germany, where he served as a tank platoon leader, tank company XO, and BMO. In his next assignment with the 11D, he served as battalion S1 for 1-34 Armor, division LNO from TF Eagle to the Nordic-Polish Brigade in Bosnia (IFOR) in combined operations, and then commanded C Company, 1-34 Armor and HHC, 1-34 Armor at Fort Riley. He is currently serving as a company tactical officer at West Point. He is a graduate of AOB, AOAC, CAS3, Maintenance Officer Course, Airborne, and the MFT course.

Armor Against the Huertgen Forest:

The Kall Trail and the Battle of Kommerscheidt

by Captain Mike Sullivan

“The mission of Armor is to close with and destroy the enemy by means of fire, maneuver and shock effect.”

*FM 17-15, Tank Platoon,
3 April 1996*

Today’s armor force is based on a highly flexible, mobile, and lethal armor doctrine. Terms such as maneuver and shock effect are the keynote phrases of the modern United States armor community. Steeped in tradition, the U.S. armor forces have long sought to fight a war of maneuver where speed and cunning mimicked the cavalry battles of old. But in late 1944, when U.S. mechanized forces entered the Huertgen Forest, they lost their ability to fight as a maneuver force. On terrain both unfamiliar and unsuitable for maneuver warfare, and denied the elements of speed and maneuver, U.S. armor was no longer a highly flexible arm of the combined arms team. On the Kall Trail in November 1944, both the restrictive terrain of the Huertgen Forest and the stubborn resistance of the German defenders seriously challenged U.S. armor doctrine.

The lessons learned from the Kall Trail battle are highly applicable to today’s armor force as we find our tanks in increasingly restrictive terrain, whether in the streets of Somalia or the rugged hills of Kosovo,

Approach to the Huertgen

On 21 July 1944, the *New York Herald-Tribune* headlines had screamed, “Allies in France Bogged Down on Entire Front,”¹ but by September, the tide had changed and the Allies were literally at Germany’s doorstep. After the successful breakout from Normandy in Operation Cobra, and the defeat of the Germany counterattack at Mortain, armor spearheads drove deep into the heart of the German army. Thousands of Allied tanks charged across the open fields of France and

into the plains of Belgium. Limited by fuel shortages and Allied air superiority, German armored units were rapidly depleted. As the Americans approached Aachen, birthplace of Charlemagne and the first German city threatened with capture, it seemed clear nothing could stop the weight of the Allied armor onslaught.

As the Allies neared Germany, Lieutenant General Courtney Hodges’ First Army approached Aachen. First Army had moved north of the Ardennes to support Field Marshal Bernard Law Montgomery’s 21st Army Group, on his left. General Hodges’ three corps reached the German border with enough combat power to attempt a breach into the enemy homeland,² but as the battle for Aachen began, Hodges felt it was important to protect his right flank from a potential attack. A veteran of the First World War, Hodges recalled the devastating attack launched from the Argonne Forest against American forces in 1918.³ With the Huertgen, another massive forest, on his flank, Hodges ordered units to protect his right.

The Germans were surprised he took this approach. As they noted in an after-action report of the fighting in the Huertgen:

“The German command could not understand the reason for the strong American attacks in the Huertgen Forest, after the effectiveness of the German resistance had been ascertained. There was hardly a danger of a large-scale German operation pushing through the wooded area into the region south of Aachen, as there were no forces available for the purpose and because tanks could not be employed in the territory. In fact, such an operation was never planned by us.”⁴

An Uphill Battle Ahead

The 9th Infantry Division, supported by elements of the 3d Armored Divi-

sion, moved towards the Huertgen Forest. Unbeknownst to Allied intelligence, on the other side of the forest lay key strategic dams that controlled the level of the Roer River, a major obstacle on the drive to the Rhine.⁵

Named for a nearby village, the Huertgen Forest was a 70-square-mile region that actually encompassed three major state forests, the Roetgen, the Wenau, and the Huertgen. The forest is an extension of a large wooded region stretching across the German border into Belgium. A ridge system runs through the area from southwest to northeast. The highest parts are over 2,100 feet in elevation west of Monschau and the lowest area (600 feet above sea level) near Duren. The ridge divides the areas into three separate compartments. Numerous cold, fast-moving streams cut through the area with steep banks. The Weisser Weh creek and Kall River are two of the major water obstacles in the area. The east-west road networks were limited and the only major north-south routes ran along the edges of the forests. No roads in the Huertgen area could support heavy volumes of traffic.⁶

The forest provided almost perfect terrain for a defense. Pine trees often grew over a hundred feet tall and blocked out light. The steep ridges and slopes coupled with the lack of sun penetrating through the trees, kept the ground constantly moist and cold. Fog permeated the area. The water table was within a few feet of the surface. An attacker fighting from west to east faced increasing higher ridgelines, thereby nearly always attacking uphill.

The forest was originally cultivated as an obstacle to prevent an invasion into Germany from Belgium, and the West Wall tied perfectly into its confines.⁷ German engineers sited over three thousand pillboxes, dugouts, and observation posts to exploit the natural terrain features. The pillboxes, many of

“The Mark V, better known as the Panther, was one of the best tanks of the war. With sloped, thick armor, and a top speed of 46 kph, the Panther was highly survivable.”

them circular, were made of steel eight to ten inches thick covered by a layer of concrete a foot deep. Tank obstacles included ditches covered by pillboxes and hundreds of miles of “dragon’s teeth.” Passable roads were blocked with cratering charges. The Germans realized the defenses could only delay an attack into Germany, not prevent an invasion.

Critical to the forest’s defenders was Hitler’s need for time to build up forces for his impending Ardennes counteroffensive.⁸ The Huertgen Forest was the perfect place to delay the Allies while preparing for his grand assault. Tech Sergeant George Morgan, 1st Battalion, 22nd Infantry, said of the Huertgen:

“The forest up there is a helluva eerie place to fight... Show me a man who went through the battle... and who says he never had a feeling of fear and I’ll show you a liar. You can’t get protection. You can’t see. You can’t get fields of fire. Artillery slashed the trees like a scythe. Everything is tangled. You can scarcely walk. Everybody is cold and wet, and the mixture of cold rain and sleet keeps falling.”⁹

It was in this terrain that American armored forces would face their toughest fight.

The Armor Balance

After battling their way from Normandy to the German border, American tankers developed battle drills and standard operating procedures (SOPs) to defeat the superior German armor. Although outnumbered nearly 10 to 1 in tank production, the principal German tanks were as good as, if not better than, the Allied tanks. The most common tank in the German army was the Mark IV. Equipped with a high-velocity 75mm cannon, it had a top speed of 38 kph (21 mph) and was used throughout the war. Easily produced and modernized, the Mark IV was the backbone of the German panzer force.¹⁰ The Mark V, better known as the Panther, was one of the best tanks of the war. With sloped, thick armor, and a top speed of 46 kph, the Panther was highly survivable. It could destroy any enemy tank in existence during 1944 at a combat range of two thousand meters

with its high-velocity 75mm cannon and top speed of 46 kph (29 mph). The high muzzle velocity of the Panther’s cannon (1,120 meters per second) allowed it to penetrate 170mm of vertical armor, equal to that of the Tiger tank’s larger 88mm cannon.¹¹ The other major tank facing the Allied armor forces was the well-known Tiger (Mark VI) tank. Not nearly as numerous as GIs reported, the Tiger was a squat, angular, yet highly armored tank with a very deadly 88mm cannon. The heavy firepower and armor protection, however, sacrificed the mobility on which German armor relied for survivability.¹² Well suited for the defense, Tigers would often delay entire companies of Allied armor. In the Huertgen Forest, Tigers were rarely seen but highly effective when used.

The Allies relied on their mass-produced M4 Sherman tank and its numerous variants. Over forty thousand Sherman tanks and associated variants were produced during the years of 1942-1946, compared with less than fifteen hundred German Tigers produced. The later models of the M4 were mechanically reliable and highly maneuverable, but the high maneuverability resulted from the tank’s lack of armor protection. Armor thickness varied from 25mm to 50mm at the frontal slope. The M4 reached a maximum speed of 38 kph (24 mph) and most models had a 75mm main gun. Later models had an upgraded 76mm gun with improved muzzle velocity.¹³ However, the majority of the Shermans were under-gunned and under-protected when confronting better German tanks. Shermans relied on their maneuverability and superior numbers to defeat enemy tanks. Mobility was key to the survival of Allied tanks. Hedgerow fighting demonstrated the severe weaknesses of Allied tanks when fighting against both German armor or antitank weapons one-on-one.

In addition, tank destroyers based on the M4 Sherman chassis were used extensively in an assault role. Many were equipped with a larger gun than the tanks, but the turrets of Allied tank destroyers were open and highly vulnerable to artillery fire and airburst ammunition.¹⁴ Tree bursts, so common



in the Huertgen Forest, were extremely devastating to both the vehicles and crews of these combat vehicles.

The Attack Begins

American armor, so reliant on mobility to survive against superior German tanks, entered the forest initially with the 9th Infantry Division. Immediately, the difficult terrain and stubborn resistance of German forces became obvious. The Normandy hedgerow and later bunker fighting had lent experience to U.S. tankers, but nothing prepared them for the defensive terrain of the Huertgen. The tankers, when teamed up with infantry, became highly skilled at taking out fixed positions. “On the dawn of the third day, the enemy developed a counterattack against I Company (3d Battalion, 39th Infantry Regiment). The Americans drove off the Germans and fought forward along two trails while under fire from pillboxes. Tanks and tank destroyers forced the bunkers to button up until the infantry could envelop them.”¹⁵ However, the obstacles, coupled with an incredible number of mines, often hindered any attempted armored advance. “Soldiers from L Company, hidden by a smoke screen, cleared a minefield through a gap in the dragon’s teeth. But when a tank unit started through the opening, a mine blew up the first one. During the night,



German engineers had re-mined the passageway.¹⁶ Obviously, fighting in the Huertgen promised to be difficult for infantry and armor alike.

The 9th Infantry Division was stopped far short of its objective, the key cross-road town of Schmidt. Two regiments of the 9th ID gained about three thousand yards in the Huertgen Forest, but at the cost of forty-five hundred men. General Hodges set a target date of 5 November for the renewal of the First Army's big push to the Roer and the Rhine. However, before launching his main effort, Hodges knew he still had to secure his right flank. Schmidt was the key, and V Corps would have to take the town while clearing the forest.

The entire main effort fell to one division, the 28th ID. For the first two weeks of November, it would be the only division attacking across the entire First Army front, affording the German defenders the opportunity to concentrate all their resources. The 28th would forever be known as the "Bloody Bucket" after emerging from the horrific fighting in the Huertgen Forest.¹⁷

Sadly, no key leader realized that the vitally important Roer River dams lay just beyond the town of Schmidt. The only officer to note their importance was the 9th Division G-2, Major Jack Houston. Houston knew the dams could

control a downstream flood should the Allies cross the Roer: "Bank overflow and destructive flood waves can be produced by regulating the discharge from the various dams."¹⁸

The attack on Schmidt by the 28th Infantry Division initially seemed successful. After negotiating the harrowingly narrow Kall Trail, elements of the 112th Infantry Regiment secured the towns of Kommerscheidt and Schmidt. The Kall Trail was merely a cart track that supposedly was to serve as the main supply route for the attacking division. Open and exposed at its entrance by the town of Vossenack, the Kall Trail snakes sharply downward, crosses the Kall River, then continues up some very steep ground into the town of Kommerscheidt. On 3 November, two officers from the 20th Engineer Combat Battalion reconnoitered the Kall Trail and reported it capable of supporting tanks.¹⁹ The 707th Tank Battalion, commanded by Lieutenant Colonel Ripple, was attached to the 28th Infantry Division. Captain Hostrup of A Company supported the 112th Regiment and attempted to move down the Kall Trail.²⁰

Members of the 112th Infantry Regiment in Schmidt awaited both resupply and armor support when Captain Hostrup led his first platoon down the trail.

As the trail descends towards the river, a large rock outcropping juts out in the path. Opposite the rocky outcropping is a sharp drop of approximately fifty feet. As Captain Hostrup's tank moved down the narrow, muddy trail, it slipped off the edge while trying to maneuver around the rock. Hostrup's driver managed to keep the tank from careening over the cliff and backed the tank up the trail. Hostrup reported the trail was not passable and no armor would reinforce the soldiers at Schmidt until the trail was improved.²¹

As dawn approached on 4 November, engineer efforts to improve the trail yielded little. The rock outcropping remained despite numerous attempts at demolition. Weary U.S. infantrymen in Schmidt were still asleep with little thought given to the defenses of their main objective. Only a few antitank mines were surface laid on the road leading into Schmidt. Captain Hostrup attempted to move his company again around the outcropping on the morning of 4 November. The 1st Platoon, commanded by First Lieutenant Raymond Fleig, led the movement. Just as he managed to maneuver around the outcropping, Fleig's tank struck a mine. The mine blew the track off and partially blocked the trail. Fleig's platoon sergeant, Staff Sergeant Anthony Spooner, suggested winning the other

tanks around Fleig's disabled tank. Using tow cables from the immobilized Sherman, Spooner winched his tank around Fleig's and back onto the Kall Trail. Fleig hopped onto Spooner's tank and ordered his platoon sergeant to repeat the winching process with his three remaining tanks. Fleig continued down the narrow trail towards the Kall River.²²

The German counterattack against Schmidt started just as Fleig and his tank platoon began their move down the Kall Trail. Led by ten Mark IV and Panther tanks of the 16th Panzer Regiment (116th Panzer Division) and elements of the 1055 Infantry Regiment,²³ the German assault smashed into the defenders of Schmidt. The battalion headquarters was quickly overrun with much of the battalion staff and its commander surrendering. Panic-stricken GIs watched as bazooka rounds ricocheted into the air off the thick German armor. Immediately a stream of GIs headed from Schmidt back to Kommerscheidt. Without tank support, the infantry of the 28th Division had little chance to stop the German assault.

Lieutenant Fleig's remaining three tanks successfully bypassed the outcropping, but one threw a track climbing up the far side of the Kall Trail. Fleig and his two tanks took up positions in a shallow draw in an open field just northwest of Kommerscheidt near the Kall wood line. After driving the Americans out of Schmidt, the German attack spilled towards Kommerscheidt. The Germans did not immediately pursue the fleeing Americans. Instead, German tanks stood out of bazooka range and fired main gun and machine gun rounds into the foxholes of the Kommerscheidt defenders. The Germans then launched an attack against Kommerscheidt with at least eight Mark IV tanks, three Mark V tanks and approximately two hundred infantry.²⁴

Fleig immediately maneuvered his tank platoon against the approaching enemy armor. Using the intervisibility line provided by the lower field they were sitting in, Fleig's platoon immediately knocked out three enemy Mark IVs. Fleig noticed GIs retreating from the left side of the town and maneuvered his tank to shore up the now-exposed flank. Fleig entered an orchard just in time to see a Panther tank approaching. Fleig fired at a range of three hundred yards, hitting the German twice but with no effect. The Panther crew, frightened by the shell hits, im-

mediately bailed out of their tank and sought cover. Fleig then realized he had fired high-explosive ammunition, not armor piercing. Worse, Fleig discovered that he had no armor-piercing ammunition inside the tank; all of it was stored outside in the sponson box. Fleig ceased firing and rotated his turret to get at his armor-piercing ammunition. The Panther crew saw Fleig was no longer firing and that their tank was undamaged. They rapidly reboarded their Panther and fired at Fleig, missing high. Fleig and his crew managed to get an AP round into the breach and fired. Luckily for the Americans, their first shot sliced the Panther's main gun barrel in two. Fleig fired three more AP rounds into the side of the Panther before it caught fire and killed the crew.²⁵ Fleig and two other tanks would act as roving linebackers throughout the battle, destroying a total of five German tanks and stopping the enemy assault. Their ability to maneuver to the hardest hit parts of the town prevented the Germans from overrunning it. By noon on 5 November, an additional Sherman platoon joined Fleig and two platoons of M10 tank destroyers from the 893d Tank Destroyer Battalion reinforced the defenders of Kommerscheidt.²⁶

Hampered by the Kall Trail, resupply and reinforcing efforts into Kommerscheidt were extremely limited. The Germans prepared for another assault on 6 November, led by nine Panthers. The Germans left their assembly area at 0500, hoping a limited-visibility attack would drive out the defending Americans. Without infantry support, nine Panthers, three Mark IVs and two Mark V antitank guns (Jagdpanthers) began their assault at 0630. The assaulting German company commander reported: "At a distance of 150 to 200 meters, the advancing platoon was attacked by enemy tanks, which were well concealed but hampered in their movements between houses and in gardens. Owing to poor visibility and the restricted line of fire, the enemy tanks now attempted to retire from their positions. In doing so, they were destroyed by German tanks, which had taken up ambush positions in the gardens outside the town."²⁷ The defenders uncoordinated efforts resulted in the loss of eight M10s and eight Shermans. The loss of Kommerscheidt eliminated the chance to recapture the key town of Schmidt. The town would remain in German hands until elements of the 505th Parachute Infantry Regiment captured it in February 1945.

The after-action report of the attacking German company commander at Kommerscheidt highlighted the need for "antitank combat by two integrated groups cleverly combines the exploitation of friendly firepower and the reactions of the enemy." In addition, he stated, "A good interplay of movement and fire must be maintained until the moment of penetration."²⁸ Although severely limited by the horrible Kall Trail, the American armor that initially reached Kommerscheidt fought a battle of maneuver and defeated the first enemy attack. However, the uncoordinated efforts of the M4s and M10s conducting a static defense against a well-coordinated maneuver element in the second attack resulted in defeat for the Americans.

Conclusion

The fighting in the Huertgen Forest was both tragic and unnecessary for U.S. forces. The terrain was not suited for armor operations and the infantry paid the ultimate price, over twenty-eight thousand casualties. An often forgotten and neglected area of study, the Huertgen Forest still provides lessons on how to use armor in battle and what the results are when it is not used correctly. Denied the chance to fight a maneuver battle, U.S. armor in the Huertgen suffered heavy casualties.

In terms of the development of U.S. armor doctrine, the fighting in the Huertgen was a step backward from the significant gains made earlier in the war. Committed piecemeal in the Huertgen's highly unfavorable terrain, American tankers faced the same difficulties experienced by British tankers in their early World War I battles. As U.S. armor forces today conduct peacekeeping operations in unfavorable "tank country," doctrine writers and armor operators should reexamine the lessons learned from the battle of the Huertgen Forest. Tanks will continue to fight on difficult terrain as long as enemy forces defend that ground. Essential to the combined arms team, tankers must learn how to overcome a harsh battlefield environment to ensure future success.

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¹²Ibid., 120-121.

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¹⁶Ibid.

¹⁷Peter Herrly, "Battle of the Huertgen Forest Battlefield Staff Ride Workbook" (REEP, Inc. 1999) 45.

¹⁸Miller, *Dark and Bloody Ground*, 32.

¹⁹Ibid., 67.

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²⁴Miller, *Dark and Bloody Ground*, 71.

²⁵Vannoy, *Against the Panzers*, 111.

²⁶Ibid., 73.

²⁷Siegfried von Waldenburg, "Report on 116th Panzer Division (1-9 Nov. 44)," (Historical Division Headquarters United States Army, Europe, 1954), 58.

²⁸Ibid., 61.

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CPT Mike Sullivan was commissioned in the infantry from West Point in 1994. He served as an anti-tank platoon leader, XO, and rifle platoon leader with 3-505 PIR. After Armor Officer's Advance Course, he branch transferred to armor, then served as a Combat Arms Ground Employment controller at the Warrior Preparation Center in Kaiserslautern and deployed to Kosovo for 7 months as the S3 Air with 1-63 Armor, then as company commander, A/1-63 Armor. Currently, he commands HHC, 1-63 Armor. CPT Sullivan conducts Military Heritage Tours on behalf of the USO to both the Huertgen Forest and Bastogne.

Today I can complain because the weather is rainy or I can be thankful that the grass is getting watered.

Today I can feel sad that I don't have more money or I can be glad that my finances encourage me to plan my purchases wisely and guide me away from waste.

Today I can grumble about my health or I can rejoice that I am alive.

Today I can lament over all that my parents didn't give me when I was growing up or I can feel grateful that they allowed me to be born.

Today I can mourn my lack of friends or I can excitedly embark upon a quest to discover new relationships.

Today I can whine because I have to go to work or I can shout for joy because I have a job to do.

Today stretches ahead of me, waiting to be shaped. And here I am, the sculptor who gets to do the shaping.

What today will be like is up to me. I get to choose what kind of day I will have!

– Author unknown

As you reflect on these words, I hope you see that your attitudes truly shape the life you lead. Having a great attitude is not the result of having a great life; instead, having a great life is the result of a great attitude! I challenge everyone to maintain a positive attitude and lasting 'drive on spirit' to ensure a secure and stable environment for all of our soldiers and families.

PRIDE IS CONTAGIOUS!!!

CSM William J. Gainey assumed the position of Armor Center Command Sergeant Major on 20 February 2002. He has served as the Command Sergeant Major for several units, including 2-68 Armor and 1-35 Armor, 2d BCT, 1st AD, in Baumholder, Germany; 1st Squadron, 2d ACR, Fort Polk, La.; 2d Bde, 3d ID, Fort Stewart, Ga.; 2d ACR, Fort Polk, La.; and for Eagle Base, Bosnia and Herzegovina. Additionally, he was the Commandant of the Fort Polk and JRTC NCO Academy. CSM Gainey served in Operations Joint Endeavor (IFOR), Joint Guard (SFOR 3), and Joint Forge (SFOR 8) in Bosnia and Herzegovina.

“Ilich’s Eyebrows”:

Soviet BDD Tank Armor and Its Impact on the Battlefield

by James M. Warford

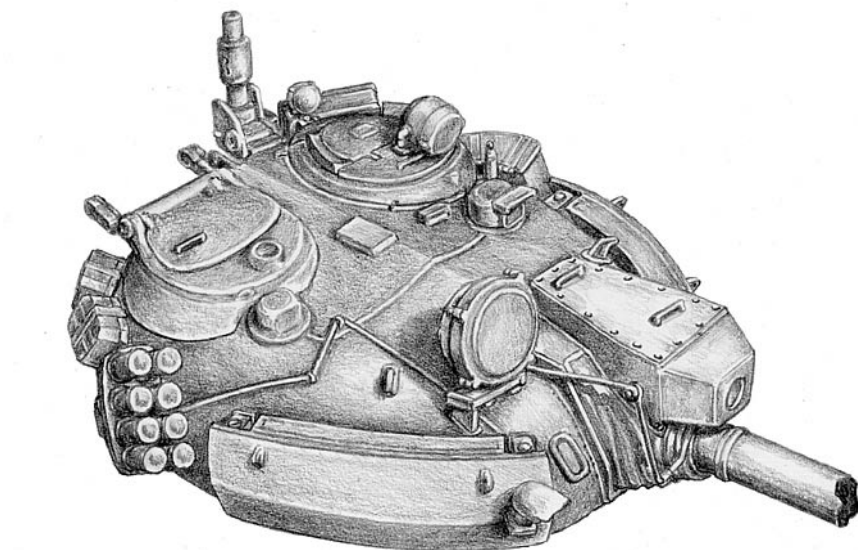
The practice of adding additional or add-on armor protection to older tanks to increase their effectiveness and lengthen their service life has been around almost as long as tanks themselves. Add-on materials ranged from a mixture of quartz gravel, asphalt, and wood flour to more sophisticated non-explosive and explosive reactive armor designs.

A classic example of successful add-on armor is the Soviet-developed BDD armor. Nicknamed “Brow” armor because of its resemblance to Vladimir Ilich Lenin’s thick eyebrows, BDD armor has had a significant impact throughout its service life, most recently in the fighting in Afghanistan.

In 1983, the Soviets initiated an upgrade program for the T-55 main battle tank (MBT) intended to lengthen its service life. This rather extensive upgrade program included the addition of the new Volna fire control system with a laser rangefinder mounted externally in an armored box above the tank’s 100mm main gun, and a new, stabilized primary sight for the tank gunner. The upgrade program also allowed the optional incorporation of the new 9K116 “Bastion” gun-launched anti-tank guided missile (which in NATO was known as the AT-10 Stabber). The T-55s that were equipped with this missile capability could be identified by the new and larger 1K13 turret roof-mounted gunner’s primary sight.

In addition to these significant fire-power improvements, the upgraded T-55s were also fitted with the new V-55U up-rated diesel engine that provided a power increase to 620 hp. These upgraded T-55s were known by a variety of designations depending on where they were produced: T-55M and T-55AM (Soviet/Russian produced); T-55AM2P (Polish produced); and T-55AM2B (Czechoslovakian produced).

While these and other less significant upgrades and modifications greatly improved the capabilities of the T-55, the most significant part of the upgrade program was the addition of the BDD or “Brow” add-on armor. The applica-



The T-55 upgrade includes additional armor, a laser rangefinder above the main gun, a new fire control system, and an improved gunner’s primary sight.

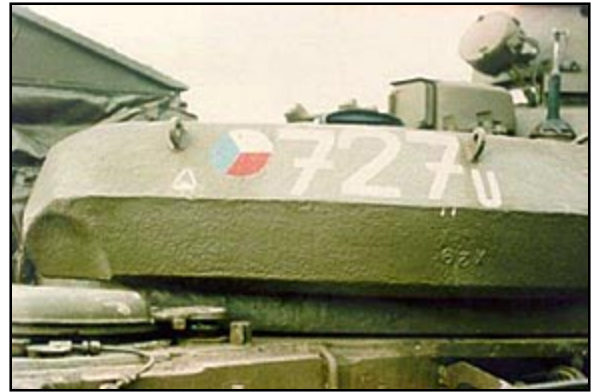
- Jody Harmon drawing

tion of the BDD armor involved the addition of three external steel boxes; one large box on the glacis, and two smaller curved boxes on the turret (one on either side of the tank’s main gun). The glacis box was made of steel plates 30mm thick and covered most of the original glacis. The box was filled with solid polyurethane. Encased within the beer-colored polyurethane were six angled and evenly spaced 5mm thick steel plates. These internal steel plates were held in-place within the polyurethane by what appear to be structural brackets.

When viewed in profile, the BDD armor provides an impressive multi-layered array of alternating layers of steel and polyurethane. The BDD glacis box was a total of 150mm thick. The curved turret boxes, on the other hand, each had an outer layer of 60mm thick steel plates and include a larger number of the internal 5mm plates encased within the polyurethane. Additionally, these 5mm plates are apparently vertical (not angled like those used in the glacis box) and are configured in such a way to ensure an attacking projectile

would be forced to penetrate several of the alternating layers before reaching the turret base armor. The complete application of BDD armor adds about 2 metric tons to the weight of the tank.

BDD armor is classified as non-energetic reactive armor (NERA) since the reaction it produces (the defeat mechanism) is not caused by an explosive material, but by the impact of an attacking projectile on the polyurethane in each box. This reaction can have a huge impact on an attacking projectile or the molten “jet” from a shaped-charge warhead. When the projectile strikes and penetrates the outer layer of the BDD steel box, it sends an intense shock wave into the polyurethane, which compresses within the steel box. Since the compressed polyurethane (and the energy transferred to it from the projectile impact) has nowhere to go due to its confinement in the steel box, it is forced to move back into the path of the projectile. The effect is like compressing a powerful spring and suddenly releasing it towards the projectile. While the cause and effect of this reaction within the BDD box is well under-



At left, Russian T-62s with the added turret armor are seen on a road in Chechnya. The close-up above shows the added armor on one side of a Czech T-55AM2B turret. Also seen on the turret roof is the larger gunner's primary sight "doghouse" that can control the AT-10 "Stabber" guided missiles.

stood, the role played by the 5mm steel plates and the structural brackets holding them in place is not as clear-cut. While some sources report that the 5mm plates are in-fact "bulging plates" (designed to be set in motion by the reaction of the polyurethane to actually "attack" the projectile), a more likely explanation is that the 5mm plates and the structural brackets are intended to further confine the polyurethane in each BDD box. By increasing the surface area beyond that provided by the box itself, the additional confinement of the polyurethane (between and around the 5mm steel plates) equates to a larger reaction working against the attacking projectile.

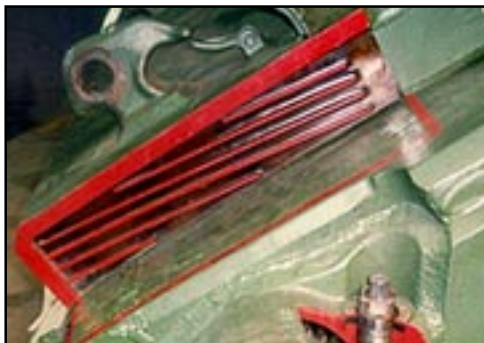
In recent years, *NII Stali* (Russia's primary tank armor research and development organization), has become much more forthcoming with information regarding its armor developments. In a product pamphlet called "Suggestions on Modernization of MBTs and IFVs" distributed at a recent arms exhibition, *NII Stali* provided a few impor-

tant details concerning BDD armor. In a section called Armor Protection Upgrading – Variant 1, BDD armor (described as "metal-polymer block"), is credited with adding 120mm of protection against APDS and 200-250mm of protection against HEAT or shaped-charge ammunition. In effect, the 60-degree frontal arc of a T-55 fitted with BDD armor was suddenly immune to tank-fired 105mm APDS and HEAT, as well as Rocket Propelled Grenade (RPG) ammunition. This new information confirms that this additional capability was a huge step forward at the time, and easily extended the service life of these upgraded T-55s for several years. In addition to the upgraded T-55s, BDD armor was also added to upgraded T-62 MBTs starting in 1983. These upgraded T-62s were designated T-62M and T-62M1. A number of these T-62Ms were recently used in combat in Chechnya. Finally, a few years ago, a surprising single photo was published of a T-72 MBT fitted with BDD armor. Virtually nothing is known about this particular T-72 or where the photo was taken. It could have been part of a test project or it may have been (based on the terrain in the photo) one of the small number of T-72s that were reportedly deployed to Afghanistan during the Soviet-Afghan War. Interestingly enough, no confirmed photos of those Soviet T-72s have ever been published.

The value and impact offered by BDD add-on armor have once again made themselves known; this time, by the deployment of upgraded T-55AMs in Afghanistan. As part of a \$45 million weapons transfer package from Russia, the Afghan United Front

(also known as the Northern Alliance) was supplied with 40 T-55AM2 MBTs. These tanks offer a variety of advantages to the forces of the United Front. In addition to being simple, reliable, and well understood (ideally suited for Afghan tank crews), the "new" T-55AM2s include capabilities beyond those of tanks previously used in Afghanistan. In a manner reminiscent of the Cold War years, the BDD armor protecting these T-55AM2s provides complete frontal protection against key opposing anti-tank weapons. In Afghanistan, the weapon at the top of this list is certainly the ubiquitous RPG. Whether deployed in Afghanistan in 2001 or serving with the Soviet and Warsaw Pact forces during the Cold War years, BDD add-on armor has been an unqualified success. Perhaps the most important thing to keep in mind when evaluating the success of BDD armor is to remember that it was not developed in a vacuum. The relationship between it and other more recently developed Soviet/Russian add-on and composite tank armors is still to be determined.

James M. Warford was commissioned in Armor in 1979 as a Distinguished Military Graduate from the University of Santa Clara, Santa Clara, California. A frequent contributor to *ARMOR*, Mr. Warford has held a variety of Armor and Cavalry assignments, ranging from tank platoon leader to brigade S3, and has served as a tactics instructor both at Fort Knox, Ky. for AOAC and at Fort Leavenworth, Kan. for CGSC. He is currently a training developer in the Kansas City area.



Close-up of 5mm steel plates embedded in polyurethane blocks, a form of non-explosive reactive armor, added to the glacis.

The First Tanks and Fate

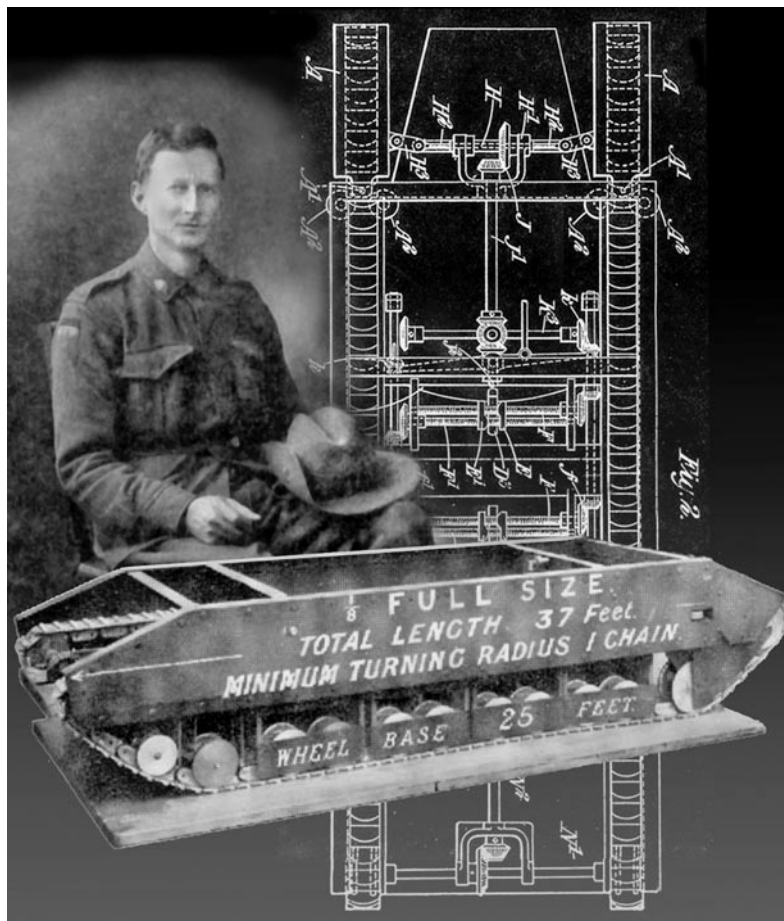
“The failure to exploit the potential of an original idea is a recurring problem throughout history...”

by Ken Wright

(Editor's Note: There are several claims to the development of the tank. In our January-February issue, Major Dennis Gaare explored the claim of the American inventor, Edwin Wheelock, and his "Skeleton Tank." The following story comes from an Australian author, describing the unsuccessful attempts by a countryman, Lancelot Eldin de Mole, to interest the British in what was, for its time, a revolutionary approach.)

The failure to exploit the potential of an original idea is a recurring problem throughout history. Take, for example, the development of the tank during WWI. By early 1915, the war on the Western Front had stalemated into static trench warfare, both sides wasting men and material to gain an advantage. Soldiers faced an impossible task, considering the way the generals of the time thought war should be conducted. Artillery barrages would be followed by long lines of men leaving the comparative safety of their trenches to charge across a strip of land to attack enemy trenches. They struggled into the murderous hail of machine gun and artillery fire, slowed by miles of barbed wire entanglements. The result was usually mass slaughter on a grand scale.

Then, a few days later, the opposition would carry out the same insane tactic with the same result, over a no man's land covered with shell holes and littered with corpses. No wonder Allied



A period photograph of Lancelot Eldin de Mole in his Australian Army uniform, the model of his tracked vehicle, and its blueprint are included in this montage by Jody Harmon.

Although a full size prototype was never built, de Mole came up with an unusual method of steering by curving the track path. His concept pre-dated the beginning of the First World War by two years and the first employment of the tank by four years.

General Headquarters in France was demanding a solution to trench warfare.

An accomplished writer for the British Army, Lieutenant Colonel Ernest Swinton, observed these early battles firsthand and wrote to his superiors that a gasoline-powered tractor on the caterpillar principle, with hardened steel plates, would be able to counter the effects of the machine gun. But General Sir John French and his scientific advisors rejected his proposal.

Fortunately, someone in power had a little more imagination, and that person was Winston Churchill, The First Sea Lord. In February 1915, he set up a "Landship Committee" to look into the possibility of developing the new war

machine Swinton had proposed. The committee commissioned Lieutenant W. E. Wilson of the Naval Air Service and William Tritton of William Foster and Company of Lincoln to construct a small "landship," their name for the concept. The work was carried out in great secrecy and the new war machine was code-named 'tank,' implying that it was a device for carrying fresh water. The first prototype was demonstrated to the Landship Committee on September 11, 1915, but its performance was disappointing: it could not cross broad

trenches. Wilson and Tritton immediately went back to work to design a better model. It was Wilson who came up with the idea of taking the tracks right around a body of rhomboid shape, pointed at the top and sloping down at the back. From that point, all work was concentrated on Wilson's design.

After much trial and error, the first crude British tanks were shipped to the Western Front and spearheaded the attack on the Somme on September 15, 1916. Historical records vary, but approximately 47 tanks were brought up for the attack, and only 11 actually got into battle. The long hoped-for decisive victory was not achieved despite the surprise and terror the new weapon caused the Germans, because the tanks were underpowered, unreliable, and too few in number.

The result may have been different if the ideas of an Australian inventor had been used when offered. Lancelot Eldin de Mole was born in Kent Town, South Australia, and by 1908 was a draftsman and inventor working on surveying and mining projects in several Australian states. (One of his early inventions was an automatic telephone system designed three years before a similar type was introduced in the United States. In a typical example of the failure to exploit a potentially good idea, the Australian Postal Department declined to even test it.)

De Mole, while working in the very rugged countryside of Western Australia, had the idea for a chain rail system of traction for use in heavy haulage. This idea led him to work on a design for a chain rail armored vehicle. He sent his sketches to the British War Office in 1912, two years before World War I broke out. Perhaps the design was too complicated for the British War Office. Or perhaps they saw no need for the invention at the time. They returned some of his sketches in 1913 with a letter rejecting his idea and the comment that they were no longer experimenting with chain rails.

For the technically minded, de Mole's design called for the front end of the tracks to be capable of pivoting left and right so that, as the machine proceeds, the links of the chain rail will be laid to the right or left of the path that the vehicle had been traveling. This forces the tracks to form a curve which, as the vehicle proceeds, will alter the direction of travel. As Richard Ogorkiewicz describes it in his *Technology of Tanks*,

“Curved track steering...involves bowing the tracks in the horizontal plane by pivoting some or all of the road wheels about vertical axes, or by displacing them sideways relative to each other. Curved track steering was proposed as early as 1912 by L.E. de Mole, although his ideas were not put into effect...”

After his rejection by the British, de Mole's friends urged him to try to sell his idea to the German consul in Western Australia, but he declined with the comment that they might one day be an enemy. The outbreak of WWI, in August 1914, proved him right. Along with many of his fellow countrymen, he answered the call to war, but his first attempt to enlist in the Australian Imperial Forces wasn't successful; the Army rejected him as too tall and delicate.

The war moved on, and the tanks took to the field of battle on the Somme in September, 1916. The Landship Committee and the development of the tank were, of course, unknown to de Mole. The new secret weapon only became common knowledge after the Somme battle.

De Mole had actually made a second, unsuccessful attempt to interest the British. Personal papers and official documents differ slightly about the exact date, but it is generally accepted that de Mole resubmitted his plans, based on the original ones from 1912, to the British Munitions Inventions Office around July or August, 1915. Even if he sent the plans early in 1916, the British authorities failed to pass his design on to the Landship Committee.

One can only speculate why the plans were not made available to the people who were working on the tank. It's quite possible the Munitions Inventions Office knew nothing of the Landship Committee because of the great secrecy that surrounded what they were doing, or perhaps there was some form of inter-departmental rivalry. Whatever the reason, an opportunity to explore a new perspective was wasted. De Mole received a letter suggesting that a working model must be provided to have any chance of consideration.

Not being the type to give up easily, de Mole tried to get the local South Australian Inventions Board interested in his idea. The official in charge could not understand the plans. The idea was rejected with the very poor excuse that the vehicle might fall into a hole on the battlefield.

De Mole had been thinking of a fleet of 500-1,000 armored vehicles with mounted guns that could be used to attack the enemy in overwhelming force, but the official could only think in ones. So much for imagination!

When the bitter fighting in the Somme was over and the secret of the tank common knowledge, de Mole realized his design was superior and had been ignored by the British authorities. By this time, in order to enlist, de Mole had gone on a special diet to improve his health and was finally allowed to join the Army in 1917. With financial backing from a friend, Lieutenant Harold Boyce, (later to become Sir Harold Boyce and Lord Mayor of London), de Mole had a one-eighth scale metal model constructed by the mechanical and electrical engineering firm of Williams and Benwell in Melbourne. Lieutenant Boyce managed to get Private de Mole assigned to him, and as they sailed from Melbourne on a troop ship, the model tank remained locked in the ship's orderly room under constant guard. As soon as they arrived in England, de Mole managed to get leave to take his model to the Munitions Inventions Office.

By now it was January 1918. His model passed the first test and he was asked to demonstrate it to a second committee. But just when it seemed he was actually getting somewhere, he became sick and was unable to follow up the second demonstration. When he returned in March to the Munitions Inventions Office, he found his model had been left in a basement. The letter from the first committee recommending his model to the Tank Board had not been passed on to the second committee.

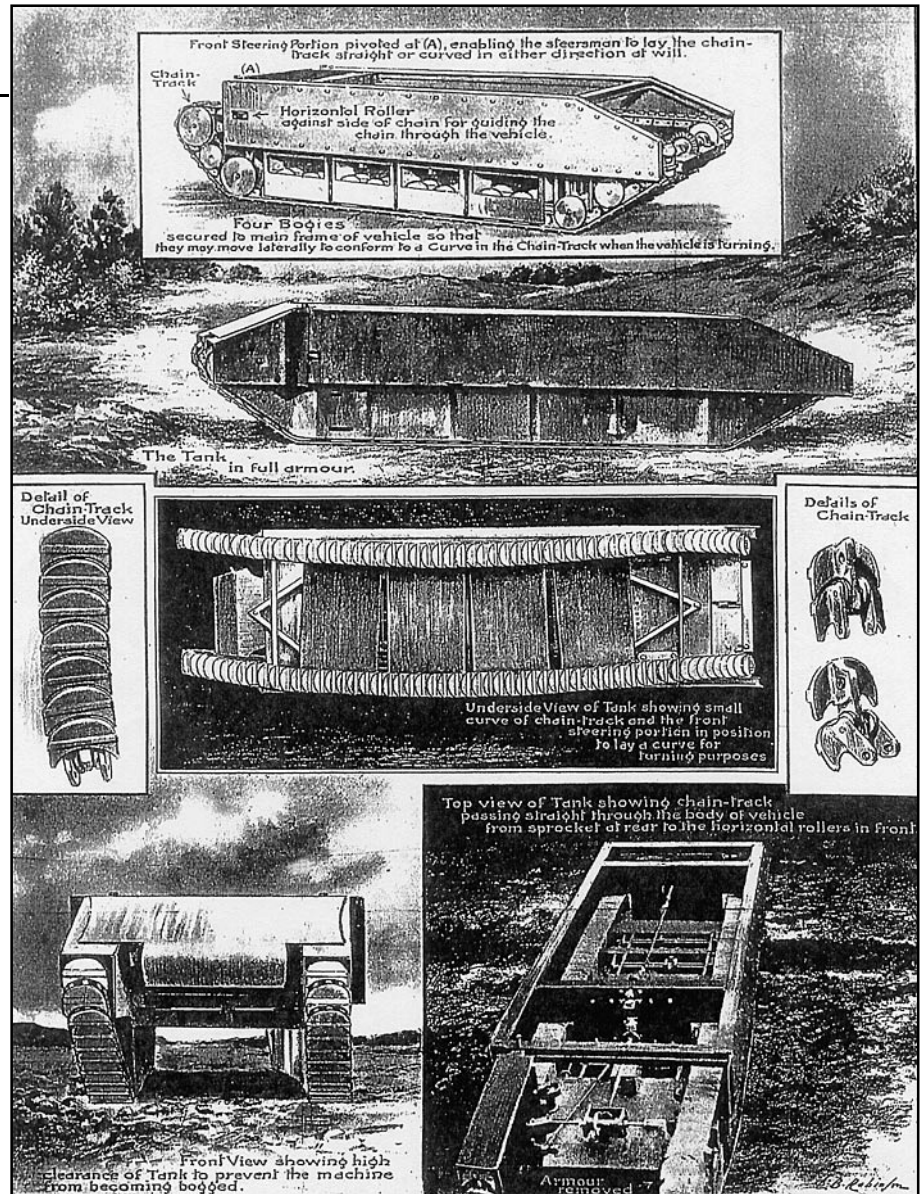
Before he could arrange a second demonstration, fate dealt him another body blow. At 9:40 a.m. on March the 21st, the Germans launched their spring offensive after a five-hour bombardment, striking a massive blow against the weak divisions of the British Third and Fifth Armies. De Mole was called back to active duty with the 10th Battalion and fought at Merris, Meteren, and Villers-Bretonneux.

He was to remain in France until the armistice, then returned to London to be demobilized. It was here that he heard about a Royal Commission being established to reward inventors for their contribution to the war effort. With regard to the area of tank development, de Mole, along with a few others, lodged his claim. In November 1919,

the Royal Commission handed down their findings. The credit for designing the tank actually used went to Wilson and Tritton, and they were jointly awarded 15,000 pounds — a nice little sum in those days. As to Lancelot Eldin de Mole's claim, the commissioners considered he was entitled to the greatest credit for having made and reduced to practical shape as far back as 1912, a brilliant invention, which anticipated, and, in some respects, surpassed that which was actually put into use in the year 1916. The commissioners went on to say that it was the claimant's misfortune, and not his fault, that his invention was in advance of its time, failed to be appreciated, and was put aside because the occasion for its use had not yet arisen. They regretted they were unable to recommend any award for him. A claimant must show casual connection between the making of his invention and the use of any similar invention by the Government. De Mole was, however, awarded 965 pounds for out-of-pocket expenses by the British Government.

De Mole's tank was more maneuverable than the early British variety, incorporating a mechanism that simplified its handling and enabled it to be steered in a comparatively sharp turn. It also had a climbing face at both the front and back, which enabled the tank to back out of trouble, something the early British tanks could not do. De Mole's invention looked good on paper and worked out what Wilson and Tritton had to work out the hard way. His plans did not include an engine or any form of armaments as he was convinced those things were better left up to the experts in those fields. Unfortunately, his ideas were never actually built and tested in a full-scale vehicle, so one can only speculate about what contribution, if any, his design would have had on the development of the early tanks.

After the war, the recently established Australian War Memorial sent de Mole a letter asking him if he would donate his model to the museum, which would include trophies and relics captured or acquired by Australian troops. It would also include a tank section, and the model would be a tribute to the inventive genius of Australians. The War Memorial, located in the Australian capital of Canberra, is one of the best in the world and de Mole's model is currently in the museum's Treloar Centre for Conservation.



In 1919, as debate developed over the credit for the invention of the tank, de Mole's claim made news in this London publication, which noted that his design "would have made a better tank" than the first tanks used at the Somme.

The Royal Commission decided that the award of £15,000 should go to Wilson and Tritton, who developed the Somme tank, but de Mole was awarded £965 to cover his expenses.

— Drawing by W.B. Robinson, *Illustrated London News*

Fate still deals de Mole a bad hand. Because his ideas were never put to the test in a full-sized vehicle, historians, past and present, tend to ignore him either out of ignorance or by selectively presenting their subject matter. Because of this deplorable treatment, his name and what he tried to achieve have been all but forgotten.

On the July 28, 1921, a grateful Australian Government placed him on the New Year's Honor List and awarded him with the C.B.E. After a long illness, Lancelot Eldin de Mole died in 1950.

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- Personal Papers; Stephanie Hart, Anthea Fleming.
- De Mole Papers; Australian War Memorial Canberra.
- Archives; Australian War Memorial Canberra.

Ken Wright was a representative for a book publisher for 15 years, spent 13 years as a correctional officer, and 5 years in the Australian Army reserve, 4/19th Prince of Wales Light Horse, an armored recon regiment.

A New Personal Defense Weapon?

Actually, we already have one...
And it's in the inventory

by Captain John S. Wilson

Editor's Note: Captain Wilson wrote this article to answer the Stanley C. Crist article in the November-December 2001 issue of *ARMOR*, entitled, "Do Armor Crewmen Need a More Effective Personal Defense Weapon?"

With all the changes and compromises being forced down the throats of the armor community by well-intentioned defense consultants, one thing we should not compromise on is the Personal Defense Weapon (PDW) our armored vehicle crewmen will carry in the future. Mr. Crist proposes we "develop" some new hybrid pistol/carbine based on the M9 Beretta pistol.¹ While a better, more accurate, more lethal replacement is necessary, Mr. Crist neglects to point out that we already have a suitable PDW in the DOD system, the Heckler & Koch MP5 Submachine Gun. Also in the system is a more powerful compact weapon, the G3KA4, a shortened derivative of the HK G3 7.62mm rifle that provides the penetration and range of the 7.62 NATO round in a compact carbine.

Heckler & Koch USA pitches the MP5K as "the ultimate close quarters weapon."² The MP5 family is renowned as the most accurate, most reliable submachine gun system in the world. It is the most widely selected submachine gun used by military and police special units worldwide. When the U.S. Navy SEALs fielded their first counterterror unit, SEAL Team 6, they selected and fought for the MP5 as their primary weapon.³ Thus began the

long tradition of the MP5 with the U.S. Military's Special Operations Command (SOCOM).

The MP5 is derived from the highly successful H&K series (HK G3, PSG-9, etc.) common around the world. They all use the same roller-locked delayed blowback system and share a number of components (such as the pistol grip and trigger unit) with the firm's bigger main battle rifles. The MP5's closed bolt, roller-locking, delayed blowback system provides the accuracy of a bolt action rifle (such as the M24 sniper system) with the rapid self-loading function of any other automatic weapon. This type of action, coupled with a free-floating barrel (nothing touches the barrel beyond the action) makes the MP5 far more accurate than the average submachine gun.

The MP5 is constructed mostly of stamped metal with plastic grips. It is a solid, well-built, and reliable weapon. I have had occasion to fire several variants of the MP5. They are simple, accurate, and easy to manage.

H&K offers three K-versions (the "K" stands for "Kurz," the German word for "short") all of which are suitable for

use as PDWs: the standard MP5K, the MP5KA4 and the MP5K-PDW. These are all classified as "machine pistols."

MP5K/MP5KA4. The MP5K is H&K's smallest sub-gun offering. The MP5K was originally developed in 1976 at request of an HK South American sales representative who saw a market for its use in protecting dignitaries.⁴ It weighs 4.4 pounds⁵ and is less than 13 inches long.⁶ The MP5K is easy for armored crewmen to carry



The Heckler & Koch MP5KA4

tucked out of the way. Using any of a myriad of after-market holsters or slings, a vehicle crewmen could wear this lethal package almost anywhere on his person, ready to fire in seconds, yet out of the way of their primary duty to crew and fight their tank or IFV. An optional folding buttstock fits ALL MP5Ks, allowing soldiers to increase their accuracy at extended ranges.⁷

MP5K-PDW. According to Heckler & Koch USA, the MP5K-PDW is a compact submachine gun designed specifically for vehicle crewmen who require a small, but powerful weapon.⁸ It is comparable in performance to full-size MP5s. The MP5K-PDW would be an ideal choice where a rifle or full-sized submachine gun is unmanageable and a handgun is a poor compromise.⁹ With its sturdy folding buttstock and

MP5K Specifications				
	Caliber	Weight	Barrel Length	Overall Length stock in/out
MP5KA4	9mmx19	4.40 lb	4.50 in.	12.80 in.
MP5K	9mmx19	4.40 lb	4.50 in.	12.80 in.
MP5K-PDW	9mmx19	6.14 lb	5.50 in.	14.50/23.75 in.
Magazine	15- or 30-shot detachable box			
Cyclic Rate	900 rds/min			

threaded barrel, the MP5K-PDW is an exceptionally flexible weapon.¹⁰ While both the MP5KA4 and the MP5K-PDW are suitable, the MP5K-PDW is the weapon best suited to replace the M9 as the Armor community's new PDW.

Development and Acquisition. Mr. Crist mentioned the Beretta M93R, a larger framed version of the M9 capable of firing three-round bursts and feeding from M9-style magazines.¹¹ This may provide a more valuable basis from which to "develop" a new PDW than the current M9. However, the MP5 is a proven design currently in the DOD system. There is NO need for the excessive cost and time required to "develop" Mr. Crist's brainchild. The inordinate cost to develop and field his new design would easily pay for the rapid implementation of the HK5K-PDW.

Compatibility. Mr. Crist claims that the M9 should be the basis for the new PDW based on "commonality and interchangeability."¹² Invariably, his design would require reverse engineering to meet the demands he requires (not mentioning further demands made by others along the acquisition food chain). Such changes would adversely affect compatibility with components of the current M9 pistol desired by Mr. Crist and nullify the purpose of using the M9 chassis in the first place. If close compatibility is such a grave issue, it would be better to completely replace the M9 on unit MTOEs. If MP5Ks are made standard to armor and cavalry MTOEs (replacing the M9 altogether) there is no problem with logistical compatibility. The cost to replace the M9s is offset by the savings realized by not pursuing the Crist PDW design.

Increased Firepower, Accuracy and Penetration. The robust pattern of the MP5 also allows for "hotter" 9mm submachine gun ammunition (which caused premature maintenance problems in the M9 resulting in service member deaths). Such ammunition would increase the possibility of penetrating body armor. The MP5 would even handle experimental "sabot" submachine gun ammunition to increase its sting. The MP5K-PDW has a 5.5-inch free-floating barrel. This meets the intent of Mr. Crist's requirement for a 6-

inch barrel on any new PDW.¹³ The inherent accuracy of the free-floated barrel would likely overcome any performance lost by the missing half-inch. A "Grenade" grip and finger guard prevents the soldier's hand from straying in front of the muzzle (another concern expressed by Mr. Crist). Further, his PDW is based on an already admittedly inaccurate design¹⁴ (indeed, match shooters I have spoken with state



The H&K MP5K-PDW

that the M9 is all but impossible to "accurize" compared to its predecessor, the M1911A1). Adding to the length of a barrel in the new PDW would do little to fix this. Why build a new weapon from a less accurate design?

Full-Auto Versus Semi-Auto and the Issue of Controllability. Mr. Crist's dream PDW is a semiautomatic-only model because he is concerned with ammunition consumption and controllability.¹⁵ The 30-round magazines available for the MP5K-PDW would allow for full-automatic or three-round burst fire that a crewman bailing out of a burning LAV might need to suppress the foe while moving to safety. The shoulder stock and/or the "grenade" grip of the MP5K-PDW would allow the crewman to fire the weapon single or double handed with infinitely greater accuracy, even when fired fully automatic. MP5Ks possess a threaded barrel. This allows for the addition of a flash compensator or muzzle brake to reduce the signature of the weapon and increase controllability. The MP5K-PDW comes standard with a folding stock rather than the older, less comfortable HK telescoping stock. Full auto is also more desirable in a MOUT environment.

Target Acquisition Hardware. Mr. Crist mentions no additional Target Acquisition Hardware aside from the standard iron sights present on the M9. A new PDW based on the M9, as Mr. Crist proposes, would require a great deal of

reverse engineering to allow such devices. The top of the MP5, however, allows for a "claw" mount system that allows the soldier to quickly attach or detach a wide array of sights that improve target acquisition and accuracy.

Double-Action Versus Single-Action. Mr. Crist seems enamored with the idea that the PDW be double-action for rapid target engagement.¹⁶ The MP5K is a single-action with a function selector switch similar to (if not easier than) the selector switch on the M16A2/M4.

Holsters Versus Slings. An after-market shoulder sling allows soldiers to strap the weapon, draped under the armpit, out of the way. Such a rig would forgo the necessity of a cumbersome holster. The soldier can rapidly "grab" the weapon and put it into action and then "drop" the weapon without losing accessibility to it later on. This is extremely important for a crew entering/exiting or climbing onto an armored vehicle.

Training. Mr. Crist placed some importance on compatibility with the M9 to ease "transitional" training.¹⁷ Again, the changes necessary to convert the M9 into the PDW he proposes would still require "transitional" training due to the extreme amount of reengineering required. His shoulder stock and forearm grip alone changes the whole scheme of training away from traditional M9 marksmanship training. The MP5K-PDW, especially when complemented by the M68 Reflex Sight, operates in much the same way as the M16 Rifle/M4 Carbine that all soldiers qualify with at basic training. From personal experience with the MP5 family, I can safely say that the transition would be remarkably easy.

The G3KA4. The G3KA4 is a select-fire, short-barreled (12.4-inch) 7.62 NATO rifle with retractable stock.¹⁸ The G3 rifle was the first HK firearm developed with the delayed blowback roller-locked operation common to most current Heckler and Koch submachine guns, rifles, and machine guns.¹⁹ This would make an excellent companion to the MP5K-PDW. While certainly not quite as accurate as the G3, the G3KA4 would have far greater range and penetrating power than the M16A2 or M4. Because it chambers the 7.62

NATO cartridge, the G3KA4 would be far more compatible logistically than they are with the current issue M16A2. Some components and accessories that fit the MP5K will also fit the G3KA4. Common throughout each weapon group is the ability to use many interchangeable assembly groups and components. This allows the unit to train personnel within one weapons group and have them competent with both weapons.²⁰ If forced to dismount, the crew could unlink belted ammunition taken from the M240 Machine Gun and feed it into the G3KA4. This increases the crew's dismounted firepower. A dismounted armored crew with four MP5Ks, one or two M240s (with dismount kits) and one G3KA4 would prove a dangerous fire team. At the very least, if armored and cavalry units are further called upon to provide dismounted patrols (either in combat or as peacekeepers), they will possess the appropriate means to defend themselves.

Mr. Crist is correct in calling for a better PDW for our armored crewmen, but his approach will prove too costly in terms of time, energy, treasure and, ultimately, blood. It is a neat concept sketch drawn in a Fantasyland future when a far superior PDW exists in the real world right now. We should not delay fielding the HK MP5K-PDW and G3KA4 and giving our transitional Armor Force a personal defense weapon that works.



The H&K G3KA4 7.62mm Carbine

Notes

¹Crist, Stanley C., "Do Armor Crewmen Need a More Effective Personal Defense Weapon?" *ARMOR*, Nov-Dec 2001, pp. 27-28.

²www.hecklerkoch-usa.com

³Marcinko, Richard and Weisman, John (Contributor), *Rogue Warrior*, Simon and Schuster, 1992, pp. 221, 228.

⁴www.hkpro.com

⁵www.hecklerkoch-usa.com

⁶Ibid.

⁷Ibid.

⁸Ibid.

⁹Ibid.

¹⁰Ibid.

¹¹Crist, pp. 27-28.

¹²Ibid.

¹³Ibid.

¹⁴Ibid.

¹⁵Ibid.

¹⁶Ibid.

¹⁷Ibid.

¹⁸www.hkweaponsystems.com

¹⁹www.hecklerkoch-usa.com

²⁰Ibid.

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Commander's Hatch from Page 5

The Battle Labs and Army teams will have the support of two other key players: the Lead System Integrator (LSI) and a Project Manager (PM).

The LSI will serve as the Army's key industrial partner in developing and integrating the FCS. Responsible for the traditional job of turning thoughts and requirements into products, they have the additional missions of lending scientific and technological support to the concept design process and helping us with the experimentation and analysis process. The LSI possesses the needed corporate horsepower to work with other members of industry and technology in order to find innovative solutions for military problems. From the beginning of the process, right down to force fielding, the LSI is partnered with the Army to give the Unit of Action the required integrated systems they need.

The Program Manager will be the final partner in the process, responsible

for insuring compliance with cost/performance measures and schedules. The PM will help develop, produce, field, and sustain the full range of systems envisioned for the Units of Action. The PM will be in charge of developing the acquisition and program management framework as we transform the Army to the Objective Force. This will be an immense process when you consider the numbers of systems to be fielded and the synchronization that will be required to field them together. Obviously, very close coordination will be a necessity between the PM, the LSI, and the coordinating Battle Labs.

We are involved in a whole new ball game. The process of designing, developing, building, testing, and fielding an entire force in less than a decade is a task of amazing enormity and complexity. We are moving into uncharted territory and writing history with every step in this process. Just as GEN Brad-

ley stated in the opening quote, we will need everyone hitting the line with all they have on every play. Fortunately, we have a great team of schools, Battle Labs, and organizations involved in this effort. Your Armor Branch and the Armor Center will be involved hand-in-hand alongside the other members of the combined arms team to bring Units of Action and the FCS to the field. We have an important role to play in the creation of the force that will one day soon bear the responsibility for our Nation's security, and we will gladly play our position to the best of our ability. We are honored to host the "new" Maneuver Battle Lab at Fort Knox that will have such a key impact on Objective Force design. But, we are equally honored that Armor Branch is a member of the overall effort to bring FCS enabled Units of Action to the field.

FORGE THE THUNDERBOLT!

The Seven Breaching Habits Of Highly Effective Units

by Lieutenant Colonel Thomas H. Magness

Mobility is Job One. Without it, our forces will go nowhere.

Throughout history, combatants have found numerous methods of blocking roads, creating barriers, and limiting the movement of advancing forces, and in turn, great armies have conducted combined arms breaching operations to overcome these various obstacles and barriers in an effort to breach the obstacle, press the fight, and destroy the enemy. The orchestration and execution of this task may be the toughest one a maneuver commander will ever face. The purpose of this article is to provide an assessment of breaching operations at the National Training Center (NTC) while also revealing “The Seven Breaching Habits of Highly Effective Units.”¹

In 1999, TRADOC developed a trends reversal program to review unit execution of numerous mission essential tasks and develop ways to improve in areas where units are traditionally weak. One task, combined arms breaching, was high on the list for review and assessment. TRADOC designated NTC Rotation 00-10 as a combined arms breach-focused rotation and began efforts in coordination with the Engineer School to assess negative trends seen in breaching operations. This onerous task, executed by some tremendous maneuver and engineer leaders, validated one thing — the trend was not reversing. Combined arms breaching operations are hard, and they remain a negative trend. This is no surprise to warfighters anywhere and is echoed by the Sidewinder (Combat Engineer) Observer Controller Team at the NTC. Opposed combined arms breaching, under fire, against a capable opponent like the NTC Opposing Force (OPFOR) is tough...but not impossible.

FM 3-34.2, Combined Arms Breaching Operations (formerly FM 90-13-1)

says, “Breaching is perhaps the single most difficult combat task a force can encounter.” *Engineer* magazine dated May 2001 indicates that it took the Marines 2.5 to 9.5 hours to clear two lanes through an Iraqi obstacle belt during Desert Storm.²

It took another 24 to 48 hours for friendly elements to pass through the obstacle and continue their movement toward the enemy. This was an unopposed breach with the best available equipment, personnel, and planning, and had been rehearsed for weeks.

We can and must reverse this trend. Many rotational units — with great leaders, adequate equipment, and strong motivation — are stymied at the breach and cannot push their combat power across to destroy the enemy. Some units *never even get to the breach* or cannot identify where or how to breach, despite the fact that breaching is a top priority for combat engineers and Brigade Combat Teams (BCTs) in mid- to high-intensity operations.

Combined arms breaching may be the ultimate team sport; success relies on the skill, techniques, and training of all the players — not just the engineers.

Trends – What We See

First, let me offer a quick review of the combined arms breaching trends seen at the NTC, based on observations during the planning, preparation, and execution of combined arms breaching



operations. The list reflects continued failures in these areas:

- Planning.
 - Unfocused R&S planning/unfocused intelligence requirements.
 - Poor terrain analysis that fails to answer the “so what?” question.
 - No reverse breach planning.
 - No detailed plans to set the conditions for breaching.
- Preparation.
 - Observers fail to provide detailed obstacle intelligence.
 - Units fail to interdict enemy engineer defensive preparations.
 - Inadequate rehearsals (engineer and combined arms).
- Execution.
 - Breach execution is unsynchronized.
 - Maneuver forces lack mass and piecemeal forces into the breach.
 - Maneuver forces “stumble” into obstacles.
 - Engineers not in position when conditions are set.
 - No consideration for traffic control or expansion of lanes.

The Seven Breaching Habits of Highly Effective Units

- **Habit No.1 – Mass kicks a**!**
- **Habit No. 2 – Focus on the enemy engineers.**
- **Habit No. 3 – The “Orchestrated Ballet of Farm Implements” doesn’t just happen.**
- **Habit No. 4 – Don’t call them farm implements.**
- **Habit No. 5 – Obstacles are like rivers – learn to breach or...learn to swim.**
- **Habit No. 6 – Use all available smoke assets – someone is always watching!**
- **Habit No. 7 – Breaching operations in restricted terrain are not “business as usual.”**

“I approve of all methods of attacking provided they are directed at the point where the enemy’s army is weakest and where the terrain favors them the least.”

– Frederick the Great

Habit No.1 – Mass Kicks A**!

Quite simply, most units lack sufficient mass to be successful in penetrating prepared enemy positions. Success or failure can often be predicted at the line of departure (LD) based on this fact alone. In fact, most BCT attacks will effectively mass no more than one CO/TM at the point of penetration — clearly not enough to penetrate the prepared fortifications of an enemy who conducts this defensive mission three times for every regimental attack.

The OPFOR is good. We should expect no less from our next enemy, wherever we may meet him. We should expect complex obstacle fortifications with antitank and anti-personnel (AP) mines, ditches, wire, booby traps, anti-handling devices, and whatever else the enemy can muster. Behind this line of obstacles we can expect prepared fighting positions for both vehicles and personnel with interlocking fires, interior repositioning lines, and the massed effects of as many forms of contact as possible.

This is not, nor will it be, a scenario against which we should expect to be successful without the massed effects of fire, maneuver, and every battlefield operating system (BOS) in the unit.

The standard for mass is articulated pretty clearly in *FM 3-34.2, Combined Arms Obstacle Breaching*:

● Breaching is conducted by rapidly applying *concentrated efforts* at a point to reduce the obstacle and penetrate the defense.

● Massed combat power is *directed against the enemy’s weakness*.

● The location selected for breaching depends largely on the weakness in the enemy’s defense, *where its covering fires are minimized*.

● If friendly forces cannot find a natural weakness, they *create one* by fixing the majority of the enemy force and isolating a small portion of it for attack.

TTP: Conduct detailed terrain analysis — answer the “so what?” question. We are beginning to see units leveraging the technological advances of terrain visualization tools. The products from Terrabase, DTSS, and other visualization tools are just that — products. But with *analysis* comes answers to the “so what?” question that maneuver commanders must demand — namely where can we concentrate efforts against an enemy weakness and where are the enemy’s covering fires minimized? If one is not identified, where must we create one? Where does the terrain facilitate the positioning of support forces? Where is the enemy’s “red zone” and how can we stay out of it? The scheme of maneuver, scheme of fires, task organization, and BOS focus await the answer to these questions.

TTP: Plant the BFT (Big Fat Tack)! **Mass on the point of penetration.** We coach the use of a BFT (an extraordinarily bigheaded pushpin!) to help focus the planning and execution on the point of penetration. It is a great tool to help ensure focus at the point where we must have massed effects. Take a look

at your plan — how many maneuver units are focused at that point? Is every BOS focused at that point to ensure success? Is that an enemy weakness? If not, how are we creating one there?

● When do we place the BFT? Early enough to ensure the massed effects of maneuver, fires, and every other BOS. In other words, before we finalize the friendly course of action (COA).

● Who (BOS) is focused at the BFT? Who isn’t!

● Can we adjust the BFT location? Absolutely. As information changes our understanding of the enemy we will adjust the BFT location. Use these to trigger a re-synchronization of the plan ...are we still focused? TOC battle captains and XOs must ensure we have a battle drill to confirm focus at the BFT through execution.

TTP: Isolate the point of penetration. Wherever we penetrate the enemy, we must ensure that the remainder of the opposing force remains fixed. We do this with fires, CAS, maneuver, and scatterable mines. We must do this, however, without violating the principle of mass. The OPFOR has great success in the offense fixing enemy (BLUFOR) forces using MRCs and FASCAM and does so without significantly reducing his ability to mass at the point of penetration. All too often, BLUFOR units commit BN/TFs to this task — often one-third to two-thirds of their total BCT combat power.

TTP: Mass engineers at the breach. Breaching doctrine basically requires one engineer platoon (with attachments) to execute one lane. Additionally, there is a requirement for redundancy — typically 50 percent. You do the math! In a maneuver TF supported by an engineer company, most of that company is required at the breach. Develop a scheme of maneuver and a task organization that masses engineers at this critical point. Identify triggers to change task organization as required to mass engineers at the breach and incorporate them into the decision support matrix (DSM).

Habit No. 2 – Focus on the Enemy Engineers.

In post mission summaries at the NTC, we often quote from *FM 3-34.2*: “An unverified enemy template can lead to disaster because the force may

aim an attack at the wrong place. Units may deploy to reduce expected obstacles early, wasting mission time to feel their way into nonexistent obstacles; or they may blunder into an unexpected obstacle or an enemy engagement area (EA).” Attacking units routinely have little or no knowledge of how the defending enemy is shaping terrain with obstacles, and engineers are usually committed to breaching operations with very little information on the obstacles they are tasked to breach. It is this shaping of the terrain that will tell the story of how the enemy is defending — and where. Engineers (yes...even enemy engineers) don’t lie. They cannot — it simply goes against their very nature! An obstacle on the ground means something. It probably means that, were you to back up to two-thirds of maximum effective enemy weapons range (typically 1200-2000 meters), there will probably be an enemy position. Terrain visualization tools can help confirm or deny these locations (more “so what?” questions).

All too often, however, we do very little to find these enemy obstacles... and yet they are the one component of the enemy defense that can most easily be detected. They can be detected during the day or night and are most easily detected during the actual construction of the obstacle — men and machines are working, vehicles with supplies are forward, and the terrain is changing shape. Finding precise enemy positions, however, is very difficult. Most OPFOR positions are occupied for only a brief period during defensive prep (position proofing, rehearsals, security operations), and then not again until just prior to contact. Most R&S efforts focused on finding the enemy in those positions are unsuccessful — the enemy is simply not there.

TTP: Kill the enemy engineers! Enemy engineers will die. Kill them. Position observers (early) to detect and disrupt the enemy’s defensive preparations. Target bulldozers, Class IV/V caches, engineer soldiers and equipment, and all obstacle emplacement activity. The enemy’s ability to disrupt our attacking formations and reduce our momentum is directly related to his ability to successfully emplace his obstacles. He knows he cannot defeat the BLUFOR in a direct fire battle without his battlefield shapers — deny him this advantage. Currently, mine emplacement is low risk and high payoff. We must reverse this. We must make it a

high-risk mission for enemy soldiers to employ mines. When an enemy soldier gets the mission to emplace mines, he must tremble with the thought of his impending destruction!

TTP: Find the Obstacles! This cannot be just an engineer reconnaissance task. This is something that must involve COLTS/Strikers, brigade and task force scouts, UAV, JSTARS, and any other available “lookers.” Find the obstacles to confirm/deny the enemy course of action. Confirm the proposed point of breach/penetration. Consider layering reconnaissance assets by sending in initial forces to identify obstacle locations with subsequent forces (perhaps engineer reconnaissance forces — focused on the BFT!) to obtain the precise information required prior to the commitment of breaching forces such as:

- Obstacle location and type
- Gaps and bypasses
- Specific minefield composition (may dictate what breach assets to use and in what sequence)
- Soil conditions (may indicate suitability for plowing)

Even in the very best of circumstances, we do not have the technology to detect buried mines as well as many other low-cost, low-technology explosive devices. Therefore we must compensate for this with TTPs, task organization, and focused reconnaissance. To be successful, we must focus all available “lookers” to enable us to detect mining activity and enemy obstacles — before they are emplaced (see “Kill the enemy engineers” above).

Habit No. 3: The “Orchestrated Ballet of Farm Implements” Doesn’t Just Happen.

FM 3-34.2 indicates that the “Commander ensures synchronization through proper planning and force preparation. Fundamentals to achieve synchronization are:

- Detailed reverse breach planning.
- Clear sub-unit instructions.
- Effective command and control.
- A well-rehearsed force.”

The first two are fairly straightforward and are articulated very well in our breaching doctrine. Reverse breach planning works — do it! Determine the force ratios required on the objective

and work backward through the breach to the LD. Assign clear tasks and purposes to all sub-units with graphic and fire control measures and triggers that take the unit from LD through the objective.

TTP: Command and Control. Ensure, as a minimum, that the following are clearly addressed in the plan and rehearsed during the rehearsal (see below):

- Who determines that conditions are set?
- Who initiates the smoke (artillery and mechanical)?
- Who adjusts and controls the smoke?
- Who chooses the specific breach location?
- Who controls the breach assets?
- Who shifts suppressive fires?
- Who guides assault forces to the breach?
- How and when do we communicate this information...and on what nets? How do we do this digitally?
- Who is the breach force commander and have we resourced him (without exceeding span of control considerations) to be successful?

TTP: Conduct Combined Arms, mounted SOSA rehearsals. You may be surprised to see the R (reduction) missing from the breach fundamentals acronym (SOSR-A). This is the one component that least needs rehearsal — it is the bread and butter battle drill for the engineers but is the one that, when units indicate that they have conducted rehearsals, has received the most attention. Where synchronization most often fails, and where rehearsals need most focus, is in setting the conditions (suppress, obscure, secure) and in rapidly projecting combat power (assault) through the breach and onto the objective. Make this the focus of mounted rehearsals. Work through timing, triggers, positioning, and the C2 issues identified above. Get the engineers to the breach — they’ll do fine!

Habit No. 4 – Don’t Call Them Farm Implements!

We all (engineers, maneuver leaders, Army leadership) recognize that our breaching assets are slow, old, and often inadequate for the assigned breaching tasks. But they’re the best the Army

gives us — make them work! As a generalization, engineer and maneuver leaders both fail to understand the capabilities and limitations of our breaching systems, do not identify appropriate commitment criteria for specific systems, and generally underestimate/undersell the capabilities of the most powerful breaching force on the combined arms battlefield — the sapper!

TTP: Fire the MICLIC! The lethality of the MICLIC (Mine Clearing Line Charge) should not be understated. It consists of 1950 pounds of composition A4 and is capable of defeating most pressure-activated mines, clearing a 14m x 100m lane. Unfortunately, until sappers come to the NTC (or are deployed to a combat theater), they generally have not fired a live MICLIC. CONUS-based units are authorized (STRAC) only inert line charges, and even then not enough for one per MICLIC crew. This would be the equivalent of tank crews achieving “Qualification” having fired only TP (practice) rounds — or, not having fired one themselves, reaching qualification by watching their buddy fire one. Needless to say, there are a host of issues associated with the firing of 1950 lbs. of explosive attached to 550 feet of cabling and electrical wiring. Work through them. Consider the following:

- Bullet No. 5 of 144 in the safety summary section of the MICLIC TM (*TM 9-1375-215-13&P*) indicates that when the MICLIC trailer is towed by a vehicle...restrict operations (in rough broken terrain) to 0-5 MPH. Slow down. Additionally, the launch angle must be $47^\circ \pm 2^\circ$. Elevations outside this window may prevent successful arming of the charge. Put the MICLIC on a good road or pick a point of breach that is suitable for the speeds and launch angle that you require (again — more “so what?” questions for your terrain analysis).

- The MICLIC will destroy most all pressure-activated mines in the 100m x 14m lane. Some mines may remain in the lane unaffected by the blast effect of the charge. That is why we proof, using either rollers, sappers, or mine plows.

- Until the Army fields a more capable system, the MICLIC is still the most capable breaching asset in the inventory that allows breaching without exposing soldiers to the risks associated with dismounted breaching operations. Know and understand its capabilities

and limitations and find opportunities to increase the tactical and technical proficiency of the soldiers who use it.

TTP: Never underestimate the breaching capability of a single sapper! There is absolutely no obstacle known to man (and certainly none seen on the NTC battlefield) that cannot be breached by an engineer soldier. We use mounted systems (MICLIC, tank plow/roller, ACE) to provide speed or mitigate the risk to dismounted soldiers. There may be cases where the sapper is the best available breaching option (rough, restricted terrain for example). And while there are certainly implications on timing, if the sapper is the only available breaching option, we should all be prepared to wait...the alternative (mission failure), of course, being much worse! All of which relates back to the importance of gaining specific intelligence about the obstacle at the point of breach (BFT) — prior to the arrival of the sappers. The ability to configure an appropriate breaching package without losing momentum depends on the timely and precise nature of this information. Your sappers demand it.

Habit No. 5 – Obstacles Are Like Rivers...Learn to Breach or Learn to Swim!

Our breaching tenets, while all appropriate, probably need to borrow a few bullets from our river-crossing doctrine (*FM 90-13*):

- Surprise
- Extensive Preparation
- Flexible Plan
- Traffic Control
- Organization
- Speed

If units viewed the obstacle as a river that requires the passage of not just the lead maneuver formation but perhaps the entire BCT/division/corps on one or two narrow lanes, then perhaps we would be less inclined to “hand wave” the details of the breach or to push the requirement to “execute the breach” down to the lead TF or CO/TM. There is little margin for error. If successful, we might have one to two — 14-meter-wide lanes through which to project combat power. Smoke, dust, direct and indirect fires, scatterable mines, and chemicals all further narrow this margin for error.

TTP: Avoid the frontal attack. While our doctrine indicates that the frontal attack is the least desirable form of maneuver, it is the one most frequently seen at the NTC. Find a flank — and mass on it. Exploit a weakness or create one. Isolate the point of penetration. BLUFOR units rarely, if ever, surprise the enemy but rather “telegraph” their intentions long before LD. Find a way to tell a deception story without losing the ability to mass effects at the BFT — no easy task but one which the OPFOR routinely executes. Use obscurity during preparatory activities and movement to, through, and beyond the LD to make it difficult for the enemy to determine friendly intentions.

TTP: Plan for traffic control. Get the MPs into the fight. Traffic control is a traditional task for military police but one that they rarely execute at the NTC. There must be a trigger to hand over the cleared lane from the breaching unit’s engineers to follow-on MPs and/or engineers. BCTs should plan for a forward passage of lines if more than one unit is passing through the lane. Consider detailed march tables with graphic control measures, much like for a river crossing, that will facilitate the passage without losing momentum.

TTP: Shifts happen. Build flexibility into the plan. Most plans do not survive first contact with the enemy, let alone make it very far beyond the LD. Most units identify branch plans for alternate courses of action but generally fail to include BOS implications as they develop these alternate plans. This is also where the TOC battle drill that refocuses all BOS at the revised BFT location must be in place. Regardless of where we breach, to be successful all team members must be refocused at the new breach location if it is to be successful.

Habit No. 6 – Use All Available Smoke Assets — Someone Is Always Watching!

Of the breach fundamentals (SOSRA) the most challenging may be obscurity. Mechanical smokers (wheeled or tracked smoke generators) rarely create the conditions necessary to allow maneuver formations to get into position to breach. Units rarely identify triggers to transition from artillery-delivered smoke to mechanical smoke and even to hand-emplaced smoke (smoke pots). This is one of the most critical components of the breaching operation that

“Most units identify appropriate targets and triggers for artillery-delivered smoke. Fewer use mechanical smokers during the approach to the obstacle or at the breach....”



needs synchronization...and needs rehearsal.

TTP: Give a clear task and purpose to mechanical smokers. Generally orders to smoke units read like this... Task: smoke; Purpose: to provide smoke. Chemical units need a specific *target* (AT systems, MRP- or MRC-sized formations), *location* (north wall of the valley, NV123456), and desired *effect* (haze, blanket, curtain, etc.) to better leverage their capabilities. Rehearse their positioning within the formation as well as the triggers for employment and transition from one task to the next (and yes, there is often more than one; i.e., one to facilitate the movement of support forces into position, another to facilitate breaching operations, and perhaps a third to facilitate assaulting forces moving through the breach and onto the objective).

TTP: Expend all ammo! Most units identify appropriate targets and triggers for artillery-delivered smoke. Fewer use mechanical smokers during the approach to the obstacle or at the breach. Very rarely do units employ smoke pots and smoke grenades at the breach — perhaps because it adds to what already is a complicated menu of tasks. Units do so often at their own peril. Assume someone is watching and leverage every available asset to create the necessary conditions for committing soldiers to and through the breach.

Habit No. 7 – Breaching Operations in Restricted Terrain Are Not “Business As Usual.”

Too many units fail to account for the implications of restricted terrain in the planning, preparation, and execution of breaching operations. Units cannot approach breaching operations in a defile as if it were an open valley floor. The implications for breach timing, maneuver unit positioning, observer positioning, and breach assets are too critical to overlook. For those who have trained in “Mojavia,” visualize breaching operations in Alpha or Bravo Pass — and

think about the implications for breaching in Korea, Kosovo, or Afghanistan. *FM 3-34.2* (Appendix D) is a pretty good start to examine the implications of restricted terrain and develop unit TTPs and SOPs.

TTP: Restricted terrain operations are slow — plan accordingly. The implications on the time required for maintaining suppression, obscuration, etc., while we work through a defile are tremendous and must be planned and rehearsed in detail. These are often dismounted operations to clear high ground and, quite possibly, to set support forces on the far side of the obstacle. The terrain may restrict the ability to execute mounted breaching operations, further adding to the timing challenges. All of these details point to a slow, deliberate process.

TTP: Traffic control is critical. Not only is the river long, it’s wide...and deep! Because defiles may not allow for two-way traffic and may extend for hundreds of meters, even kilometers, there is even less a margin for error as units move to and through the breach. March tables are critical as are deliberate controls for entering and exiting the breach area.

Conclusion – Making the Seven Habits...Habits.

The challenge for most units is how to translate these habits into executable tasks. The answer, in a word, is repetition. Units that practice these TTPs, incorporating them into battle drills, SOPs, and mission plans, will develop these breaching habits. Multiple repetitions with all members of the combined arms team will make the successful execution of this extraordinarily complex combined arms task more possible.

These habits are designed to facilitate success in the most complicated possible scenario — breaching in contact. The goal must be to set the conditions, in accordance with these “Seven Habits,” to breach out of contact with the enemy! Destroy every enemy in and

around the point of breach and every enemy that can influence the point of breach — and then breach. Is this scenario possible? Yes. Is it possible without multiple repetitions and the total focus of absolutely every team member? Maybe...but not likely!

Ultimately, however, these habits are the responsibility of the breach orchestrator — the unit commander. Translate these TTPs and breach habits into clear guidance and intent that focuses the entire unit on the penetration of the enemy and his obstacles. And while the use of the “Seven Habits” will not *guarantee* success at the NTC or on any other future battlefield, their application, coupled with the warrior spirit that our soldiers consistently display, may help units begin to reverse this negative trend and give our force the mobility it requires.

Notes

¹Apologies to Stephen Covey, author of *The 7 Habits of Highly Effective People*, Simon and Schuster, New York, N.Y., 1989. Combined arms obstacle breaching likely requires effective people as well as effective units!

²Colonel Michael K. Asada, et al, “The Grizzly: A System of One,” *Engineer*, May 2001, p. 41.

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KNOW THE ENEMY:

A New Type of OPFOR Reflects Current Realities

by Major Kenneth C. Cary

*"If you know the enemy, and you know yourself, you need not fear the results of a hundred battles."*¹

A tanker's worst enemy might very well be a single dismounted enemy soldier equipped with a rocket-propelled grenade (RPG). Or perhaps it's a sniper positioned more than two kilometers away who can put a bullet through one of your tank commanders. At the operational level, your initial contact might occur when you lead your armored column into a sophisticated ambush that consists of 15 anti-tank guided missile (ATGM) teams, all firing at the same time and at selected targets. Maybe tanks aren't the target, but as you escort the battalion trains to resupply a sister unit, the vehicle carrying ammunition erupts into a ball of fire as it passes over a command-detonated mine. These are just a few capabilities of the "new" enemy, an enemy that we are just now beginning to understand and respond to.

Military operations in Afghanistan have many of us recognizing, some for the very first time, that there are some fundamental differences in how we deal with an enemy in the Contemporary Operational Environment (COE). Unfortunately, just as many fail to accept that there is any difference at all. We can attribute that particular mindset to the fact that the United States is the lead actor on the global stage. We're also the best trained, best equipped fighting force in the world. We're a world power, *the* world power, unstoppable and dominant. In addition, we have the most refined and robust intelligence apparatus at our disposal. Our various intelligence resources are in place to give us critical information on every potential and existing threat on the planet, whenever and wherever we need it. As long as we know everything there is to know about a specific threat country's forces, namely their equipment, tactics, techniques and procedures, we will know what they are capable of and can easily defeat them. We are also great students of war and we study the writings of numerous great

and ancient war philosophers, the most notable of whom is Sun Tzu. We regularly quote Sun Tzu's sayings to the point of axiom. Not to deny the relevance, or reverence, of any of his great works, but there's a big difference between "knowing the path, and walking the path."

A Catalyst for Change

It has been more than 13 years since the 1989 collapse of the Berlin Wall, and we're just now getting a look at a new Opposing Forces (OPFOR) doctrine. The new OPFOR may represent a world-class opponent, but it's a living

"The key and critical difference for us, especially in terms of training, is that the enemy doesn't follow the rules as we know them. This is a fundamental element of asymmetric or adaptive warfare...."

enemy, an enemy we face today. This new OPFOR is an excellent match to any number of potential threat countries that exist in the COE. The TRADOC Threat Support Directorate (TSD) web site at Fort Leavenworth, Kansas, recently released copies of the *FM 7-100, OPFOR Doctrinal Framework and Strategy, FM-700.1, OPFOR Operations*, and *FM-700.2, OPFOR Tactics* manuals. TSD can also provide a copy of the OPFOR Interim Training Support Package to all qualified instructors who wish to begin implementing the new OPFOR doctrine into training. However, many soldiers, even before reading the new manuals, are already saying, "We don't need a new OPFOR," and others will do just as much harm by adding the new manuals to their FM library without even cracking a cover. If you fall into either of

those two categories, don't be alarmed, because you're not alone. Change almost always meets with resistance, especially when those facing it have to do some changing of their own to keep up, but it's not change for the sake of change. What this OPFOR changes most is the "predictable conditions for victory." We all like the "old" OPFOR because we know it and can defeat it. But one thing's for certain: the new enemy isn't predictable, and neither will be our OPFOR.

Out With the Old, And In With the New

The conventional "Krasnovian" OPFOR doctrine has served our CTCs and battle labs for generations of officers across all branches. It was a fightable opposition that tested our Army's systems, functions, and services to their fullest. We even got a chance to validate our training against Iraq during the Gulf War. Desert Storm proved to everyone that we trained the right way to defeat the right kind of enemy. However, some still argue that we were a very fortunate coalition force. It's interesting to consider a very different outcome had Saddam Hussein been given a chance to read our new OPFOR manuals prior to the Gulf War. For many, the Gulf War only solidified the opinion that the United States war machine is the supreme military fighting force of the world. Our notion of battlefield superiority, especially in terms of technology and intelligence, has resulted in some very painful and costly operational lessons learned. Yet despite those lessons learned, many warfighters continue to hold fast to the belief that fighting an adaptive enemy is no different than fighting an enemy that marches to a timetable, has distinctive organizations and structures, and relies on numerical superiority to achieve victory.

The new OPFOR is the new enemy, but what's so new about it? To be sure, the new, adaptive enemy is older than the Former Soviet Union (FSU), which makes it older than our conventional "Krasnovian" doctrine. The key and critical difference for us, especially in

terms of training, is that the enemy doesn't follow the rules as we know them. This is a fundamental element of asymmetric or adaptive warfare. History is full of examples of military forces adapting their operations to overcome disadvantages and then defeat a numerically superior, better equipped, or better trained opposing force. This is no gross oversimplification of the facts; adaptive warfare is more a cause for victory than for defeat. Plainly put, the key to understanding adaptive or asymmetric warfare is in the ability to identify and exploit the weaknesses of your opponent while at the same time protecting your own assets.

The New Enemy and His Objectives

The road to better situational awareness begins with a look at how the *enemy* is described in the new OPFOR manuals. "*The military and non-military force of the 'State', a powerful, regionally dominant, nondemocratic nation that seeks hegemony within its region. The State views the U.S. as a potential threat to its regional and global aspirations. It seeks to undermine U.S. relations with other regional nations in order to increase its own. It seeks regional expansion. The State's goals are long-term. The State is aggressive yet patient.*"² and its "...*infrastructure and policy are representative of nations that may threaten U.S. interests.*"³ This template fits many former and current countries we have been involved with militarily, but it does not represent any one particular country, or state. It represents the *potential* of any number of states. This OPFOR model serves as a basis for developing the training conditions that match our current global environment. We call this enemy an OPFOR for training purposes, but we call them "threat countries" when we identify the state by name.

The primary operational objective of the *enemy* is the destruction of key U.S. systems. This "systems approach to combat" is a method employed by the enemy to target critical systems that we need to perform or accomplish our mission. For example, we would be extremely degraded in our response to enemy artillery fires if the enemy attacks and destroys our Q-36/37 radar systems. It's highly probable that we will have to take the fight to the enemy, and because of this it is imperative that



Photo by Robert L. Stevenson

Infantrymen move ahead to clear a street at the Fort Knox urban warfare complex.

we protect our critical non-combat systems. When comparing our capabilities as an extra-regional force to any number of regionally dominant states from around the world, one thing is clear from the beginning: the enemy will have the home-field advantage. When it comes to the close fight, a home-field advantage is a *big* advantage.

If the state cannot prevent us from entering the region, it will work to protect its key weapons systems while targeting ours. The *enemy* will accomplish this by placing his critical units and systems in sanctuaries, by mixing his special purpose forces in among the civilian populations, and by attempting to control the restricted terrain and urban environments.

The enemy's biggest advantage is time. He will attempt to control time completely and will use it to manipulate our actions by attacking us according to his schedule. His goal will be to create "windows of opportunity" where he can successfully destroy our key systems, even if it means accepting a reasonable degree of loss with the accomplishment of his mission. At a strategic level, his goal may be to force our early exit from the region by creating unacceptable casualties in an attempt to influence our national will, or more simply, he can just wait us out. The enemy knows the terrain in detail. He will work to draw us into the "close fight" in an attempt to negate our standoff capabilities. Standoff does not only refer to range, it also means spoofing our reconnaissance, intelligence, surveillance and target acquisition (RISTA) systems and sensors in an attempt to lull us into a false sense of security. Last, but equally important, the enemy will fight using rules of en-

gagement (ROE) he finds appropriate for the moment and will use our strict adherence to the ROE against us. For obvious reasons, operations under these conditions put us at a distinct disadvantage. Here are the additional enemy objectives:

No Force on Force - "*The enemy understands that "force-on-force" maneuvers may not be the best way to win wars and achieve one's goals.*"⁴ You will probably not see as many tank-vs-tank engagements develop on the COE battlefield, but that doesn't mean you won't see enemy tank formations either. What's important to study is how armor will be used in the close fight, namely in urban and restricted terrain. There is a high probability that some enemy armor may even be equipped with niche technologies that will either equal or exceed our capabilities.

Systems Approach to Combat - "*The enemy believes that a "systems approach to combat" is the most effective means of achieving success.*"⁵ With the emergence of digitization, we are becoming more and more reliant on systems that represent "single points of failure." Our biggest challenge on the COE battlefield will be protecting key systems that are mission-enabling or mission-enhancing.

Our National Will - "*The enemy believes that if it can disable our economy, capabilities, or even political stability by use of precision weapons and information warfare, it can cause our armed forces to lose its effectiveness....at the strategic level, the enemy may choose to target our political will and determination to continue the conflict.*"⁶ The events of September 11, 2001 serve as a perfect example of this

“We are the enemy of our enemy, and as simple as that sounds, our awareness of that perception is often fleeting. The enemy knows and studies us, so let us know and study him....”

attempt, and there's a strong likelihood that we will experience this type of attack again. In regards to information warfare, it can range from false or uncomplimentary coverage of civilian casualties, to direct attacks on our computer systems.

Sanctuary - “The *enemy* has determined that it is able to use sanctuaries — both physical and moral — to protect itself from the effects of *our* stand-off RISTA and precision weapons.”⁷ This can take the form of “hugging” friendly units, to dispersion in urban environments, and the relocation of expensive and critical platforms and equipment into a friendly nation-state.

Deny Entry - “At the operational level, the *enemy* may focus combat and engineers on destroying all airstrips to prevent enemy forces from rapidly gaining a toehold in the region.”⁸ The enemy will seek to deny points of entry to combat forces. He can achieve this through the relocation of his forces and mining operations, to the use of chemicals and weapons of mass destruction targeted on air or sea points of debarkation. The enemy will do anything that may deny our entry into his region.

Adaptive - “At the tactical level, the *enemy* may decide to emphasize small unit and terrorist tactics rather than directly confronting a technologically and militarily superior force.”⁹ Working in three- or four-man teams, small units equipped with machine guns, sniper rifles, and ATGMs can significantly influence our actions, as well as our resolve. These enemy teams can easily blend in with local civilian populations and will enjoy extensive freedom of movement. These small units will pose the greatest risk to our force protection effort, both in terms of direct action, and in the targeting of our key systems.

The Close Fight

The two significant factors that characterize the COE are location and technology. In terms of location, “Complex terrain and urban environments with civilian populations and infrastructures are increasingly becoming centers of gravity and therefore required areas of operations.”¹⁰ Operations in these environments will involve close-combat operations that are resource-intensive, time-consuming, and costly. Compound-

ing the problem further is the increased presence of civilians, non-governmental organizations, and multinational corporations on the battlefield. Suffice it to say, “...in vast parts of the world, no man, woman, and child alive today will be spared the consequences of the newly-emerging form of war.”¹¹ As mentioned earlier, technical surprise will play a significant role in COE operations. “Technological advances, diversity, and access are generating changes in force structure and methods of operation as well as creating conditions for technological surprise. This situation has begun an erosion process that is slowly eating away at the technological overmatch the U.S. has enjoyed over the last decade.”¹² Access means availability, and availability, especially in terms of weapons like the RPG, provide serious bang-for-the-buck and lead to the proliferation of cheap but effective weapons. This will have a severe impact on COE operations, as many States are taking steps to, “...move away from today's large, expensive, powerful machines toward small, cheap gadgets capable of being manufactured in large numbers and used almost everywhere.”¹³

The enemy knows we lack a desire to engage in the close fight. He will attempt to draw us into restricted environments, will engage us with cheap but highly effective weapons, and will target key systems in an attempt to influence our abilities in the region.

The real challenge, and a responsibility for all soldiers, is to try and, “get into the head of the enemy.” Not an easy task, especially when we can't even pin down a specific threat country as our model, but in this case the need to accept the change is undeniable. It's true that the former Soviet Union trained military fighting forces from around the world, and that a lot of their doctrine is still in practice today, mainly because much of that doctrine makes sense. So don't be surprised to find some similarities. This is not change for the sake of change. This effort provides our OPFOR with a clean break in a mindset of detailed execution in exchange for a realistic COE enemy. This freedom to act outside of traditional guidelines is not intended to stimulate the growth of the OPFOR; it is designed to provide us a

training opportunity that will aid us in the development of leaders who are imaginative, innovative, and adaptive. We must train to fight the enemy on our terms, not his. “The goal of this kind of warfare will encompass more than merely “using means that involve the force of arms to force the enemy to **accept** one's own will.” Rather, the goal should be “to use all means whatsoever — means that involve the force of arms and a means that do not involve the force of arms, means that involve military power and means that do not involve military power, means that entail casualties and means that do not entail casualties — to force the enemy to **serve** one's own interests.”¹⁴ We must train to fight the enemy when, where, and how we choose.

The Armor School, “Actions on Contact”

At the Armor School, the 16th Cavalry Regiment began introducing adaptive and asymmetric warfare to its officers more than a year ago. The introduction ranges from independent study to classroom presentation and discussion, and finally to practical application in a field environment. Every student who attends the Armor Officers Basic Lieutenants Course and the Armor Captains Course is given supplementary study materials like our “Know Your Enemy” compact disk, which contains an extensive library of articles and information relating to asymmetric warfare. The disk is one of five in a comprehensive CD library provided to each Armor student. We use classroom and small-group instruction to facilitate discussions and to establish a consistent understanding of the enemy in the COE.

The most productive training experiences we provide our students are called “gauntlets.” Gauntlets are “multi-echelon, multi-grade, battle-focused leadership experiences conducted in constructive (TACOPS), virtual (simulation), and live (FTX) training environments.” We use “gauntlets” to bring together students from the NCO Academy, the Armor Officer Basic Lieutenants Course, and the Armor Captains Course, to function together to defeat an adaptive enemy.

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Recent Merkava Attacks Highlight Growing Command Detonated Mine Threat

by Adam Geibel

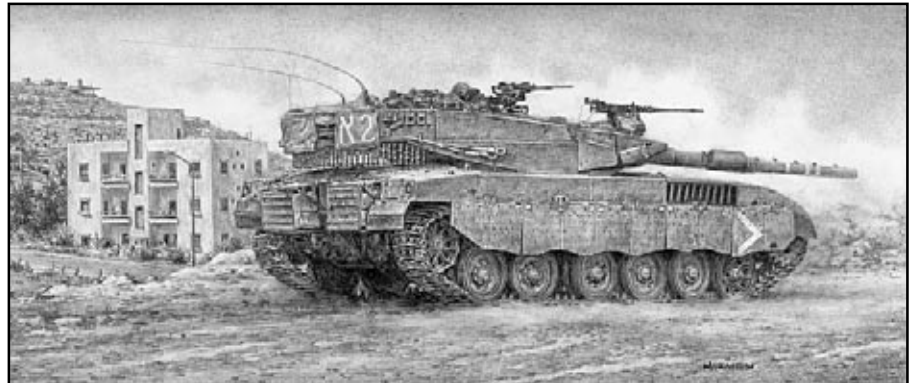
The Command Detonated Mine (CDM) is quickly becoming a staple of Asymmetrical Warfare. It has been used with deadly effect in both the First and Second Chechen Wars, as well as in Sri Lanka, Lebanon, and the fighting in India's Kargil region. Also known as an Improvised Explosive Device (IED), the standard device is often a 152mm HE artillery shell or its equivalent with a C-4 wad and detonator linked to a cell phone, pager, or radio initiator. Variations on this theme, to include wire-controlled detonation, are as widespread as the conflicts in which they can be found.

The Israeli Defense Forces recently suffered two identical attacks in the same area of the Gaza Strip and yet showed no perceived ability to respond to this threat. Prior to February 2002, the IDF's \$3 million, 60-ton Merkava Main Battle Tanks were considered fairly invulnerable assets, since the Palestinians had no real antitank weapons. So Tel Aviv deployed their armored Goliaths to deal with the Intifada, in the assumption that their tankers were safe, that the tanks' mere presence would dampen any crisis, and that they'd suffer no embarrassing losses.

Wrong assumption. Three Israeli soldiers were killed and one suffered moderate to serious wounds when a bomb went off underneath their Merkava 3 tank on the night of February 14, 2002. This was the first time a roadside CDM managed to seriously penetrate an Israeli tank's armor in the territories. Even roadside CDM and ATGM attacks in Lebanon over the past decade did not hurt an entire tank crew.

The attack occurred at about 2100 hours along the single lane asphalted settlers' road to Netzarim, a main north-south Gaza road at a junction constituting a no man's land. Palestinian orange groves had been leveled on either side of the road because the Israelis claim that snipers were hiding in them, leaving sandy soil that IDF tanks used as shortcuts.

About 30 minutes before the blast, suspected Palestinian fighters had deto-



nated a smaller bomb on a convoy route in front of a civilian bus traveling with army jeeps and opened fire towards the bus from several positions. The convoy was moving along a road between the Netzarim settlement and the Karni checkpoint in the Gaza Strip.

Although this particular road was patrolled every 30 minutes, it was clearly a trap. The 188th Brigade tank was called in to provide fire support and as it was moving to contact on a parallel track, the second charge was detonated when the tank passed on it. The tank was about 50 meters south of the settler's road when it was blown up. The convoy bus driver (identified only as Itzik) remarked that he heard an explosion and saw a blue flash in the orchard area. He continued in the bus toward Karni, while the jeep behind stopped to open fire at the spot where the terrorists were apparently hiding.

A group including the military wings of Hamas and Palestinian Authority Chairman Yasser Arafat's Fatah faction claimed joint responsibility for the attack.

"In response to the killing of five soldiers of the national security forces and in response to the raid on our cities and villages ... Salahudin Brigade detonated two roadside bombs against a Zionist convoy ... then sprayed the convoy with machine gun fire."

The tank was toppled on its side and its 22-ton turret blown off, landing 10 meters away. The front-mounted engine was blown upward by the force of the blast, smashed into the gun barrel and flipped the turret off like a bottle top. Two crewmen were killed immedi-

ately, one died later. The only surviving member of the tank crew was evacuated by helicopter to Beersheba's Soroka Hospital.

The Israeli newspaper *Ha'aretz* quoted an unnamed top security official (involved in both the Merkava's development and the use of the protective plates) who opined that tank operations on field assignments without the plates was "totally stupid." He explained that the plates could have saved lives at the Netzarim junction, but other security officials never unanimously backed the 100 percent use of the protective plates. In muddy conditions, the plates limit the tank's maneuverability.

According to an initial inquiry headed by IDF Chief Armor Officer Brigadier General Avigdor Klein, no amount of armor could have withstood the massive explosion. Klein believed the life of the gunner was saved because the explosion did not detonate the tank's ammunition or ignite its fuel.

The CDM apparently consisted of more than 50 kilograms of the highly explosive CTP, which is made in the Czech Republic and is a favorite of terrorist groups. It was placed inside an empty water boiler. The inquiry concluded that "no additional armor to the underbelly could have prevented the loss of life from the large bomb."

Brigadier General Ze'ev Bargil (former head of the Defense Ministry's Merkava tank project team) told the media that "the tank wasn't developed to operate against terror; it is designed to take part in war. A tank is designed to move forward in an open field, to move quickly and attack the target

swiftly ... Were we to provide a solution to every contingency and threat, the tank would weigh 100 tons, not 60; and that would hamper its speed.”

Apparently, Hamas had executed a similar CDM attack along the Karni-Netzarim road in the Gaza Strip almost one year prior. In February 2001, as a tank-led foot patrol scoured the route for bombs, Hamas guerrillas, lying in wait, set off the charge when the tank halted. Hamas later distributed a video recording of the attack, which moderately wounded one IDF soldier.

Hamas bombers, who triggered four smaller CDMs in 2000, also favor the Netzarim junction. As a convoy of three civilian vehicles escorted by two military vehicles reached the Netzarim junction on the night in September 2000, three roadside bombs were detonated in rapid succession. As the two soldiers stepped out of their vehicle to check whether anyone was hurt, the attackers activated a second roadside CDM loaded with a larger quantity of explosives. The two wounded soldiers were flown by helicopter to Beersheba's Soroka Hospital. One soldier died later. The IDF and the Israel Security Agency believed that Hamas masterminded the attack, but did not rule out the possibility that Palestinian Authority police were involved.

Merkava Vulnerabilities

Even Hezbollah guerrillas (considered much better trained and equipped than Palestinian militants) using roadside CDMs, mines, and ATGMs were unable to destroy a Merkava during 18 years of fighting against Israeli forces in southern Lebanon.

By the end of 1997, Hezbollah had acquired AT-4 “Spigot” ATGMs which significantly strengthened their anti-armor capability. While there were several incidents in Lebanon where tanks were hit with ATGMs, the IDF tanks were never completely destroyed.

In September, 1997, Iranian-backed Hezbollah units had launched a broad offensive, firing mortars and missiles at dozens of Israeli Army and South Lebanon Army militia bases. When LT Eyal Shimoni's Merkava, deployed in the heart of Israel's Southern Lebanon security zone, moved out to provide cover for troops, it took a direct hit from a “Faggot” ATGM. Hezbollah claimed that a Tank Sniper Unit group targeted a Merkava at the Kassaret Al-Oroush post, killing one Israeli officer and wounding two others. Two more

Merkavas were lost in October to ATGM hits.

In another attack in the Mount Dov region on the Israeli-Lebanese border, another soldier was killed in April 2001 when a Hezbollah “Sagger” ATGM damaged a Merkava turret. The driver had warned of the incoming missile, but the soldier in the turret had no time to duck before it impacted on the tank's front.

Another Mekava Mined!

Shortly before 0700 hours, March 14, 2002, Palestinian terrorists triggered a Command Detonated Mine under a Merkava 3 MBT that had been escorting a civilian convoy on the Karni-Netzarim road in the central Gaza Strip. The force of the explosion from the 50-kilogram (110 pound) radio-controlled mine blew the turret off the tank. The terrorists were apparently hiding in or behind a nearby mosque near the settlement of Netzarim.

Three soldiers were killed and two more were wounded. Rescue forces had difficulty freeing the crew's bodies from the tank, while an IDF helicopter evacuated the wounded to Beersheba's Soroka Hospital. One of the two wounded had been standing outside of the vehicle.

Reuters reported that a coalition of Palestinian militant groups (including the Al-Aqsa Martyrs Brigades, the Salahudin Brigade, and the Islamic movement Hamas) took responsibility for the attack. The attack took place one month to the day after the first Merkava was destroyed, on the same road.

The area was closed to traffic when a giant crane was brought in to tow away the Merkava's remains. Some Palestinian witnesses said that IDF troops had searched nearby fields for suspects, while other tanks drove several hundred meters into Palestinian territory during the search. Palestinian Authority security officials and witnesses also insinuated that the IDF had retaliated by sending 15 armored fighting vehicles and three bulldozers towards the nearby Nuseirat refugee camp. There they demolished eight houses and a security post, as well as crops and irrigation systems in the area.

CDMs, Speculation and Bad Habits

On February 15, 2001, the Israeli-based Internet wire service *DEBKAF*le reported that their military sources the-

orized that a hollow, multi-stage (probably magnetic) charge was used, possibly in combination with a powerful magnetic mine or mines. They also advanced that it was a form of sabotage never before seen before in the Middle East. This turned out to be an inflated estimate, as both CDMs were large but apparently not spectacularly sophisticated.

Recent history indicated that Hamas was capable of serial-deployment of CDMs in the Netzarim area, turning each operation into a learning event and improving their tactics for the next attack. What is perhaps most troubling about the two Gaza attacks was that the IDF had fairly recent experience with CDMs and yet seemed to be ignoring their own “lessons learned” from Lebanon. Due to OPSEC considerations, we'll probably never know how often or vigorously the IDF conducted route reconnaissance, but apparently, it wasn't enough.

Could any armored behemoth withstand a 50-kilogram CDM? Not likely, unless one wanted to invest in some waddling 100-ton monster. So what should the U.S. Army do when deploying to a potential CDM arena?

The more useful responses are operational in nature, but expensive and time-consuming. Varied convoy scheduling is the simplest countermeasure. Intelligence operations can use IPB to predict suitable ambush sights and chalk them up as NAIs, as well as track the movement of enemy sappers who can build and deploy these mines. Aggressive countermining engineering reconnaissance can focus on these NAIs, while other reconnaissance efforts are sensitized to search for caches of explosives and/or artillery shells. Furthermore (and topic for a future article), the use of electronic countermeasures should be exploited far more than we're currently doing.

Footnotes

The Israelis should be familiar with how to quickly and stealthily emplace charges. On the night of June 17, 1946, the Jewish resistance blew up 11 bridges linking Palestine to the neighboring countries. Supposedly, they placed close to 300 kg of explosives and were gone in less than 30 minutes, all under the British guards' nose. This operation became known as “The Night of the Bridges” and was the largest the Hagannah launched.

Know the Enemy

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These shared learning experiences result in officers and NCOs who are, "self-confident, adaptive leaders who motivate teams to solve complex problems while operating in a full-spectrum environment in an Army transforming to an Interim and an Objective Force."¹⁵ The Armor School continues to refine and enhance leadership development that trains our future leaders to, "Lead teams that are lethal at the point of contact."

When discussing the new enemy, there are two words we should drop from our vocabulary — "always" and "never." Those two words quickly sum up our understanding of the enemy in the COE. The authors of the new OPFOR manuals fully understand the importance of their mission to bring us this information; now it's up to us to use it to our advantage. "Thus we know that there are five essentials for victory:

- He will win who knows when to fight and when not to fight.
- He will win who knows how to handle both superior and inferior forces.
- He will win whose army is animated by the same spirit throughout all the ranks.
- He will win who prepared himself, and waits to take the enemy unprepared.
- He will win who has military capability and is not interfered with by his sovereign.

Victory lies in the knowledge of these five points."¹⁶

We are literally standing on the doorstep of a new age of warfare, and we must embrace the fact that we are a principal actor in the COE. We are the enemy of our enemy, and as simple as that sounds, our awareness of that perception is often fleeting. The enemy knows and studies us, so let us know and study him.

Notes

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⁴Ibid.

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¹⁶Sun Tzu.

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face a free-thinking opponent, you can have different outcomes from the same scenario.

In closing, I would like to caution CPT Johnson in making broad statements that attribute the success or failure of particular units on how much field time the unit has or how they defeat the MILES equipment. The success or failure of a unit is a direct reflection on how the unit leaders train their soldiers and the attitude that the leaders instill in those soldiers.

ROBERT W. PHILLIPS
CPT, IN
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Torsion Bar Suspension Claim Falls Short on Documentation

Dear Sir:

Mr. D.P. Dyer's criticism of the Ordnance Department for not having a torsion bar development program is fascinating but by no means persuasive. (See "The Origins of Torsion Bar Tank Suspensions," March-April 2002 issue.) It is ludicrous. First, and most important, is a definition of "development"; a word the author uses acrimoniously to launch his misleading thesis. According to English dictionaries, development means "to evolve to a more complete complex." The word also means, "advance, amplify, and promote." The Ordnance Department followed this process during World War II. Furthermore, his article falls short on historical substance because of a lack of important primary sources to support his argument and subjective conclusions. Apparently, Mr. Dyer did not take the time to look at the important Andrew D. Bruce Papers at the U.S. Army Military History Institute, Headquarters Army Ground Forces (Record Group 339, NA), the Ordnance Historical Files (OHF) and the Ordnance Committee Minutes (OCM) Items (Record Group 156, NA), and the Barnes Files to mention a few. If so, he would have had a better understanding of the organizational process in weapon acquisition decisions in the U.S. Army during World War II. These sources provide important information on Ordnance Department initiatives regarding the development of equipment for the using services, including the torsion bar suspension system.

One example displaying development initiatives was in late December 1942 during a meeting with representatives from the Tank Destroyer Board, manufacturing representatives, and the Ordnance Department's Subcommittee on Automobile Equipment. At this meeting, it was proposed and recommended to develop the torsion bar for the T70 (the T stands for development), which became the M18. The key member from Ordnance at this meeting was the chairman, BG Gladeon M. Barnes, who in 1934-35 had submitted with Warren E. Preston torsion bar suspension patent letters. (See *Reference Material: History, Ordnance Department, WW II*, Vol. II, Chapter 6, Office of the Chief of Ordnance, Record Group 156, NA.) Dyer, in his article, is not at all clear nor does he offer proof if

the original torsion bar design was based on Barnes and Preston's designs or upon German ideas. He should have examined the G-2, Military Intelligence Division (MID, Record Group 165, NA) files from the U.S. Army military attaché in Germany during the mid 1930s. Other key ordnance members in attendance on the torsion bar decision were BG John Christmas, an engineer and tank designer, and LTC Joseph Colby, a protégé of General Barnes.

In addition, a few additional examples will service to contradict Dyer's thesis.

In *The Tank Destroyer History*, Historical Section, Army Ground Forces, Study No. 29 (1946), page 62, it was noted that the "greatest single accomplishment of the Tank Destroyer Board was the development of the M18." In its development, however, special mention was noted regarding the cooperation of General Motor's officials with the Ordnance Department. Another example of the Ordnance Department's initiative in developing the torsion bar can be found in *The Role of the Army Ground Forces in the Development of Equipment*, Historical Section, Army Ground Forces, Study No. 34, (1946), page 38 in reference to OCM Item No. 19775, 18 February 1943, subject: Medium Tank T20E3. It stated, "At the request of the Armored Board, it was decided to provide one model of the T20 series with torsion bar suspension, which had been developed by the Ordnance Department...[it] appeared to give greater promise than the conventional volute suspension." Later when the T23 pilot model was being evaluated (OCM Item No. 20182, 15 April 1943, subject: Medium tank T23E3), the Ordnance Department suggested the torsion bar suspension be substituted for the volute suspension system. Eventually the torsion bar system was used in the M24 Chaffee and M26 Pershing tanks. The developmental history of the torsion bar suspension is indicative that it would not have become a proven system without the proposal, recommendation, and approval of the Ordnance Department.

What is even more disingenuous in Mr. Dyer's article was when he wrote (page 45) that General Colby stated, "he was never in a position to get funds for its [torsion bar] development until the winter of 1942-43." Dyer listed no source regarding Colby's comment. However, in *ARMOR*, November-December 1991 (page 18), the author of an article on tank destroyers quoted Colby from a personal letter he had received from the general stating, "I was never in the position to get funds for its development until the winter of 1942-43." In this case, the author did list his source (page 19, fn 20). General Colby wrote the letter to the author regarding his early involvement over the torsion bar debate. It is courteous among professional military historians to quote accordingly and not engage in plagiarism. This adventurism questions the validity of Mr. Dyer's article.

For Mr. Dyer to say that the Ordnance Department did not approve and was not involved in the development of a torsion bar program is shortsighted and demonstrates a

lack of research. Furthermore, his article is obscured by his lack of understanding the organizational turmoil experience by the Ordnance Department due to huge demands of developing new weapons under wartime pressures and rapidly changing requirements insisted on by the using services. Nevertheless, the torsion bar system would never have been approved without the driving force of the Ordnance Department.

It is a pity that Mr. Dyer created another myth. He has, over the years, contributed many excellent technical drawings for various technical and buff magazines, many of which appealed to "nuts and bolts" historians.

GEORGE F. HOFMANN, PH.D.
History Professor
University of Cincinnati

Battalion Master Gunner Disagrees With Civilian Replacement Concept

Dear Sir:

I am writing in regards to SFC McIntosh's letter in the March-April 2002 *ARMOR*. I would like to start with this statement. I completely disagree with his assessment!

I have served as a master gunner on both Active Duty and as a member of the National Guard. I have served in positions at the company, battalion, and brigade level. I will not say that I am the best there ever was or the best there ever will be, but I will say that I am a leader and a soldier no matter what position I hold. Regarding SFC McIntosh's questions: "Do we really want or need that high speed NCO in the tower, the MILES warehouse, or making tracking charts? Wouldn't we rather have him leading his men?" — if he feels that he is not needed in the tower, in determining those discreet CCFs, in making sure that the MILES and LTIDs the battalion's 44 crews are about to use are operational, in tracking gunnery results for historical data, fixing broke fire control systems, etc., and isn't leading men or training them to be warriors, maybe he needs to evaluate exactly how high speed he is.

I am currently serving as the battalion master gunner for M1A1-equipped 2-123 AR, of the Kentucky Army National Guard. We do not have the luxury of self-diagnosing equipment, on-board diagnostics, in-line replaceable LRUs, or air conditioners. Our master gunners are instrumental in keeping our tanks operational on ranges and during maneuver exercises. The use of the STE-M1 and the BOB are still daily occurrences for us and, most times, we are the trainers for our turret mechanics in their use. I use them often to ensure the OPTEMPO on firing ranges continues at the highest possible rate. They work hand-in-hand with my maintenance sections. They provide the majority of the input for the commander as we/he develops yearly training plans.

I will agree, to a point, that a lot of what is taught at Master Gunner School is not al-

ways used at the unit level. However, I would submit that what they teach gives the Master Gunner a decent understanding of how the Fire Control System and the subsystems work and at least provide a starting point for diagnostics.

Replacing these dedicated and knowledgeable leaders with civilian contractors would be a mistake. Are the civilian replacements going to come out to the range in subzero temperatures, climb through the mud at Graf or Hohenfels, show up at 0200 to trouble-shoot a tank, or deploy to war with us? The master gunner must be in the same uniform and face the same hardships as the soldiers.

He makes the argument that being the master gunner keeps leaders from leading soldiers. The master gunner position is an additional slot on the TOE/MTOE of armor units. Replacing them with a civilian would eliminate a senior NCO position, of which there are already not enough.

The master gunner is a very valuable asset to the commander, at any level he is assigned. His knowledge of the Abrams capabilities and that of our possible enemy's equipment can and should be a consideration of commanders, not only on gunnery ranges but in the preparation for war. Our input can and should help the commander develop training scenarios that will help the Armor force prevail on the modern battlefield. The master gunner's input during staff exercises, Warfighters, and even during a basic MDMP process can help mold the way commanders think and act. The key is to know when and how to present this valuable data.

ROBERT W. KYLOR
MSG, KYARNG
2-123 AR BN Master Gunner

Prepositioned Floating Heavy Brigade Could Act as Armor RDF

Dear Sir:

I have been an avid reader of *ARMOR* magazine for many years, but have never written to you before. As a former NCO and officer in both 3/185 AR and 1/184 IN, CA ARNG, I retain both my interest in the goings-on of the Armor Community and its future. The invitation issued by MG Whitcomb in the Nov-Dec 2001 issue, and the ongoing discussion within your pages over the formation and equipping of the IBCT brigades, has inspired me to offer my own opinion about this new force structure and, more importantly, the role of the Legacy Force and the Objective Force.

The decision to equip the IBCT with the LAV III has been hotly debated by many of your authors, most noticeably Mr. Stanley Crist, and I do not believe that I can contribute significantly to it here except to say that I LIKED the M113A3. It is handy, quick, and reliable. In the hands of a skilled driver, it can overcome most types of terrain and, key point, it can swim. This is a capability sadly lacking in today's Legacy Force. As to its protection and firepower, these can be up-

graded just like those of the basic LAV III. In fact, when I was associated with United Defense Technologies, the makers of both the Bradley and M113, I encountered numerous examples of upgunned M113s equipped with 20mm or greater caliber cannons and TOW missile launchers. These modified M113s were, and are, used by Saudi Arabia, the Netherlands, and others. Although to the purist these are not tanks, they don't carry infantry and they function as light armor. As such, the Armor Community has a strong interest in their development and employment. It occurs to me that the Army could purchase these off-the-shelf items for the IBCTs at far less cost than developing a completely new 105mm cannon armed LAV variant, which, as Mr. Crist notes in the March-April edition, may not be technically feasible. Light armor, M113 or LAV based, equipped with missiles and light cannon, may be all the IBCTs get.

That being said, where the rapidly air-deployable infantry divisions are "light" forces and the Abrams/Bradley divisions are "heavy" forces, the IBCTs are "medium" forces falling somewhere in between. As such, the IBCTs can be air deployed where an Abrams/Bradley brigade cannot and, once on the ground, they provide the desperately needed stiffener to the light infantry forces likely to be deployed with them. However, if an IBCT encounters a local force of heavy armor — think Iraq, Iran, or North Korea — they may survive the encounter, but they will suffer for it. The key to surviving the next medium- to high-intensity conflict remains with the "heavy" forces that this nation used so successfully in WWII and Desert Storm. Following on the letter by MAJ Stollenwerk, also in the March-April 2002 edition of *ARMOR*, which advocated the elimination of various levels of intermediate headquarters between battalion and corps, I suggest that the "heavy" brigade be the core combat element of any future American Expeditionary Force.

A suitably reinforced heavy brigade with battalions of armor, mechanized infantry, aviation, artillery, and engineers, as well as a beefed up support battalion, could serve as a mini-division at the beck and call of the in-theater corps commander. Supplemented by the IBCT and infantry brigades deployed in front of it, the heavy brigade, especially digitized, would act as the wide ranging armored fist of the corps commander. I suspect that a corps with one heavy brigade, a pair or more of IBCTs, and an infantry division could, and would, demolish just about anything our foes could throw at it — certainly long enough for follow-on forces to arrive if needed.

To make this concept a reality, however, requires the cooperation of the Navy and the support of the senior Department of Defense leadership. As has been stated many times, and is the final justification for the IBCTs, the Abrams/Bradley forces are just too heavy to get anywhere very quickly if deployed directly from CONUS. Transporting from home station by rail to a suitable port and then combat loading onto ships takes weeks. The answer to this dilemma is pre-loaded, fast sea lift. If the Navy can be prevailed upon to

build and maintain two sets of fast sea lift ships with two sets of proposed heavy brigades aboard, it would be only a matter of days before a heavy brigade-sized force could be deployed wherever it was needed. Having two sets of floating reserves would allow one set to be in port at any given time for maintenance and overhaul leaving the other to patrol in the vicinity of potential hot spots. If it became necessary to deploy the floating heavy brigade, after an air/beachhead has been established, its soldiers could be airlifted out to meet their equipment at the dock. The second brigade could follow shortly thereafter. In effect, these two brigades would be the Armor Community's version of the Rapid Deployment Force. Note that this concept is recommended for both the Legacy and the Objective Forces as I have a very hard time believing that even the future armored vehicles of the Objective Force will be light enough to be air deployed in great numbers.

Obviously, this is just an idea. I offer it in the hopes that it will spark discussion beyond what kind of Objective Force vehicle will eventually be developed to the debate on how that vehicle will get where it is needed.

TIMOTHY S. SMYTH
Los Angeles, Calif.

Look To Div Cav for Basic Concept Needed to Empower Company CO

Dear Sir:

I am responding to MAJ Stollenwerk's letter, "Empowering Company Commanders: Now It's Time; Here's a Way," in the March-April 2002 issue.

One need look no further for this basic concept than the divisional cavalry unit. The only difference with this concept versus MAJ Stollenwerk's is that the brigade HQ is eliminated, instead of the the division. Just coming from such a unit in Germany, and now being assigned to an armor battalion in CONUS, I find myself missing the added support of having organic mortars, scouts, maintenance, and air support, as well as having the added benefit of direct engineer and medic assets sliced to you at troop level instead of at battalion.

The current armor battalion, as MAJ Stollenwerk points out, has too many echelons directing training and training support, without the convenience of having any of the above-mentioned assets, and the number of soldiers to train with directly. Making the companies larger by assigning CSS and combined combat arms together and empowering the company commander to be able to train his soldiers as a combined arms team not only gives leaders at all levels the experience to work with every BOS, but establishes an esprit de corps among the troops creating a more cohesive combat team.

SFC JASON R. MCMURRY
Platoon Sergeant
2-70 AR, 1AD

REVIEWS

Toward a Revolution in Military Affairs? Defense and Security at the Dawn of the Twenty-First Century, Thierry Gongora and Harald von Riekhoff, eds., Greenwood Press, Westport, Conn., 2000, 206 pp. with index, \$62.50.

Since this is a professional journal catering to a professional audience, let me put the bottom line up front: This book costs more than \$60. That one factor alone effectively places it in the "Gee, I'd buy it if I could but..." category. In effect, the only members of our community with enough disposable income to readily purchase this book are those least likely to do so, the lieutenants. Yet in the specialist market of military theory, especially in the even rarer realm of "Academic Military Theory," a high price is the cost of business since the number of books printed is generally fairly small.

The reason for that should be fairly obvious; this is not a book created for popular consumption. The manuscript is based upon revised versions of academic papers presented at a conference held by the *Institut Québécois des Hautes Études Internationales* in Quebec City, Canada, in 1997. In addition to the editors (who wrote a 20-page introduction), the book contains essays from nine other international authors, none of whom will be immediately recognized by most readers. Depending upon your point of view, that may be either the book's greatest selling point or its most distracting element. In either case, it should be noted that reading even one of the short selections that makes up the book is heavy going. This is not the work of intellectual featherweights.

While the book is interesting overall, three of the chapters are particularly fascinating. The first, "Military Revolutions and Revolutions in Military Affairs: A Historian's Perspective," written by West Point Professor of History Clifford J. Rogers, is far and away the easiest to read. Rogers explains how various historians have postulated the existence of various "Military Revolutions" in history since the mid-1950s. Effectively, he has written the "History of the History of Military Revolutions," but in addition to that he adds another element. Rogers makes clear that all "RMAs" are not "MRs." That is to say that unless the Military Revolution causes large collateral effects in society, it remains just that and does not qualify as a full Military Revolution.

The next chapter, and perhaps the most useful from a conceptual standpoint, is Martin C. Libicki's "What is Information Warfare?" This chapter is condensed from a longer work and Libicki does an admirable job of hiding the scars; the chapter stands alone very well. Although not all readers will agree with his proposed intellectual framework for organizing the various forms of "Information Warfare," the mere fact that this is the only work we have seen in recent years that clearly and plainly lists all the different types makes it stand out.

Jianxiang Bi, "The PLA's Revolution in Operational Art: Retrospects and Prospects" brings to light another fascinating aspect of the current era. While many of the other chapters address the RMA from an international standpoint, few do so with such clear writing and relevance to the serving American leader. (Admittedly, that was not the declared intent of the book, but the editors must have taken into account that the vast majority of their sales would be to Americans.) Bi explains in clear and forceful language a phenomenon that passed (or is still occurring, depending upon your perspective) within the People's Liberation Army of China as they struggle through the problems of picking a rational route through the minefield of available technology.

The other chapters in this work are significantly weaker than the three discussed above. Chapters on French perceptions of the American RMA and Russian inability to do anything without money are, effectively, useless to the tactical-level leader. (Some might argue to the operational level as well.) While it is notoriously difficult to weave together the papers presented at an academic conference, one gets the impression that these editors had decided beforehand that they were going to do so. And once they were saddled with lumping disparate discussions into some sort of common group, their efforts were not all that successful. Thus, while the essays listed above are certainly worth reading, the overall thematic cohesion of the book is loose, and the book as a whole does not justify the cost. Ask your local library to buy a copy instead.

MAJ ROBERT BATEMAN
Military Fellow, Center for Strategic
and International Studies
Washington, D.C.

Morals Under the Gun by James H. Toner, University Press of Kentucky, Lexington, 2000, 256 pages, \$29.95.

James Toner's *Morals Under the Gun* provides an example of a conservative religious movement affecting the American military. People in and out of the military should read this book if only to get a glimpse of the insinuation into our military culture of a non-secular agenda that challenges the professional military ethic.

Toner's thesis is that morality "flows from religious principle," and that, since the military needs morality, its ethic should also flow from religious values. Anyone concerned about the separation of church and state should have at least some initial misgivings. And military professionals concerned about unit cohesion, morale, and esprit de corps should be especially alert to the threat posed by the author's agenda. The danger is in the divisiveness of superimposing a religious value system on a secular institution composed of people from diverse cultural and religious backgrounds.

The author appears to have strong conviction and commitment. Yet in his enthusiasm, he has lost objectivity; moreover, the book's numerous inaccuracies and misrepresentations further detract from its credibility.

Toner tackles important issues and does so with zeal and passion. But his proposed cure for any perceived problems with ethics in the military might be worse than the disease. Furthermore, in spite of its outward trappings to the contrary, this work does not represent serious scholarship and hence cannot offer plausible, reasoned guidance to military professionals seeking solutions to problems in the area of military ethics.

LTC DANIEL S. ZUPAN
U.S. Military Academy
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Marines Under Armor: The Marine Corps and the Armored Fighting Vehicle, 1916-2000 by Kenneth W. Estes, Naval Institute Press, Annapolis, Maryland, 2000, 267 pages, \$32.95 (hardcover).

This book is the first compressive history on the development of an armor doctrine in the Marine Corps. It is not a book on combat operations. The author, a graduate of the U.S. Naval Academy, mainly served as a tank officer interspersed with military academic tours of duty. He received a Ph.D. from the University of Maryland. His thesis is that attempts at modernization of the Marine Corps in the 20th century underwent a frustrating history that was driven by an obsession over deployable light forces rather than developing a heavy seaborne combined arms mechanized force.

Drawing on untouched archival resources, numerous interviews, and supported by an excellent listing of Marine Corps armored fighting vehicles and units, Estes provides new information and analysis on the development of mechanization and how it affected amphibious warfare doctrine. Estes' history begins with the first wheeled armored car for constabulary duty to the experimental light tank platoon of M1917 Six-Toners deployed to China in 1928 as Marine accompanying weapons. Soon it became apparent that ship-to-shore transportation of armored vehicles would become a problem. As a result, Marines preferred an amphibious tank and light tank capable of being transported in a lighter to the beach. This led the Marines in the 1930s to pursue sporadic efforts to develop a tankette, the unsuccessful Marmon-Herrington. These developments on the eve of war with Japan, the author argues, were the beginnings of the Corps' obsession with lightness that for low-intensity beach assault depended on cargo afloat and M3 Army light tanks to support the landing force.

After the Tarawa blood bath in November 1943, doctrine changed because innovating Marines, such as Louis Metzger, Lemuel C.

Shepherd, Jr., and Arthur J. Stuart were strong proponents for more powerful armored fighting vehicles for advanced amphibious assault. Marine Corps leadership was forced to recognize that high-intensity assault operations now depended more on improvements in air and naval fire to support a combined arms landing force that required M4 mediums tanks, flamethrower tanks, and improved armored amtracs, the work horses of the Pacific. By the war's end, the Corps had effectually demonstrated its ability to employ armor as part of a combined arms force.

When the Korean War broke out, the Marine Corps like the Army had to improvise from a weak interwar posture. The author weaves very effectually through the problems the Marines experienced in using refurbished tanks in small numbers for security and as antitank weapons. As before, the Corps depended on a limited number of acquired Army tanks, the M26s, to replace the World War II Sherman series. One of the most interesting parts of the book is the author's discussion of the postwar Marine Corps infantry leadership that adopted a new dogma of lightness. This doctrine depended on the Ontos M50 antitank vehicle referred to as the "Thing," which represented a reversion to the Army's failed tank destroyer doctrine abolished after World War II. This antitank doctrine degraded the size and health of the Corps' tank force.

The author also gives special attention to the "ugly duckling," the Army's rejected M103 heavy tank. Only the Marine Corps introduced it to active service. Tank crews, according to Estes, preferred its weight and the enormous firepower of its 120mm gun. However, it was mainly the M48A3 that effectually supported the Marines in Vietnam. Yet after the war, little thought was given to the value of armor in large-scale operations. Instead, Estes argues, tankers became wedded to the M48s in the postwar period, while the amtractors looked for an improved amphibious vehicle, the LVTP-7 series, for employing the infantry as a mechanized war-fighting force. In the 1980s, the Marine Corps introduced the surrogate light armored vehicle (LAV), a new weapon that represented the acceptable vogue of lightness. With the acquiring of the LAVs, Estes argues, there was failure of developing a doctrine on mounted operations suitable to the Fleet Marine Force advance amphibious operations.

The Gulf War confronted the Corps with the problems of fighting a mobile campaign in the desert. The Marines went to war with their LAV-25s and outdated Army tanks, the M60A1s, and the hurriedly issued new M1 Abrams. Purchase of the Abrams tank, the author maintains, was shrouded by the antitank mentality that believed current equipment was suitable and that TOW missiles would defeat Iraqi armor. Concluding, Estes maintains the Marine Corps is still beset with an emphasis on lightness and a doctrinal

weakness regarding the lethality a mobile mechanized force could provide in advanced amphibious warfare. The Marine Corps, he argues, has yet to come to grips with the value of armor in large-scale mobile operations in high-intensity landing operations.

The most scathing portions of the book are the author criticisms of Marine Corps commandants. He argues they could not grasp more modern concepts of combined arms where tanks and mounted infantry would play key roles in future advanced assault operations. Estes accuses the commandants of too much personalization of budget decisions. He criticized General Robert H. Barrow for refusing to buy tanks and equivocations of Generals Alfred M. Gray and Carl E. Mundy, Jr. He is also critical of General Charles C. Krulak as wanting to eliminate the Marine Corps tank fleet.

No doubt Estes' armor history will raise considerable concerns, both positive and negative, about the inability of Marine Corps leadership to accept an enlightened mechanized doctrine that takes in consideration maximum organizational combat effectiveness with the Fleet Marine Force. Estes' controversial book fills a void on Marine Corps armor and amphibious doctrine. It is highly recommended, especially since the Army is currently confronted with the issue of light versus heavy and rapid deployment. The Marine Corps' dilemma over an armor doctrine is a lesson Army leaders need to look at as they attempt to build the Objective Brigade Combat Team. This reviewer feels that Estes' book also brings to light that, in today's military, there seems to be again a problem in learning lessons from the past and the might have been. Military history and its analysis is excellent mental PT. As such, it can provide a reservoir of knowledge for the decision-making process necessary to anticipate and adapt.

GEORGE F. HOFMANN, PH.D.
University of Cincinnati

Bloody Ridge: The Battle that Saved Guadalcanal by Michael S. Smith, Presidio Press, Novato, Calif., 2000, 264 pages, \$27.95 hardcover.

Guadalcanal, in the Solomon Islands, was the site of the first major American offensive against the Japanese in the Pacific War. From August 1942 to February 1943, American and Japanese forces battled on land, sea, and in the air for control of that steaming tropical island. None of those battles, however, had the ferocity or decisive impact of the Battle of Bloody Ridge.

Author Michael Smith's first book is the story of "the battle that saved Guadalcanal," and denied the Japanese their best opportunity to drive the Americans into the sea. Smith is an active duty naval officer with a gift for vivid narrative that brings this tale to life. Although the entire Guadalcanal cam-

paigned covered months of operations, Smith's book focuses on August and September of 1942 when the issue of victory or defeat was truly in doubt.

Smith provides an excellent overview of the early naval and ground portions of the Guadalcanal campaign, highlighting the surprise amphibious assault by the 1st Marine Division and the rapid capture of Henderson Field, the airfield that was the operation's principal objective. Defending the airfield, however, was a difficult challenge for the Marines. The Japanese wanted it back, and they reacted with fury.

Although numerous other books have been written about Guadalcanal, Smith's effort showcases the leadership, tenacity, and exemplary battlefield conduct of the Marines who were outnumbered, sick, tired, short of supplies and ammunition, and who were starving on half rations. Living in squalid, disease-ridden tropical conditions, and fighting in rugged, jungle terrain, the Marines defeated numerous Japanese attacks. Guadalcanal turned out to be the Imperial Japanese Army's first major defeat of the Pacific War.

As Smith carefully relates, the inland side of the Marine perimeter around Henderson Field was not as heavily defended as the beaches. The inland perimeter was defended by the 1st Marine Raider Battalion and the 1st Parachute Battalion. Colonel Merritt A. "Red Mike" Edson commanded the Raiders. Strung out along an elevated terrain feature later dubbed Bloody Ridge, Edson's Raiders and elements of the Parachute Battalion met a vicious night attack by 3,000 Japanese soldiers on September 13, 1942. Outnumbered four to one, the Marines somehow held despite turned flanks, penetrations, and violent hand-to-hand combat.

With gripping description, Smith tells of the confusion, miscommunication, heroism, cowardice, and overall chaos on both sides during a frenetic nighttime battle. He also drives home the lessons of patrolling, reconnaissance, simple plans, terrain appreciation, and small unit leadership. The Marines won, and Henderson Field was saved, but at great cost in blood and reputation. Smith's battle analysis is right on target and he skillfully lays out the good and bad points of both sides' conduct in the fight.

To get a more complete picture of the overall Guadalcanal campaign, read Richard B. Frank's *Guadalcanal: The Definitive Account of the Landmark Battle* (1990). To read more about the legendary "Red Mike" Edson, read Jon T. Hoffman's *Once a Legend* (1994). Smith's book fits in nicely with other historical works on Guadalcanal, and is a well-balanced portrayal of the pivotal action in that campaign.

COL WILLIAM D. BUSHNELL
USMC, Retired
Sebascodegan Island, Maine

Time To Saddle Up... *continued*

where all the past issues, bound in tattered buckram, were available.

I paged through the old books on my lunch hours, tracing the branch's progress from boots and saddles to tracks and turrets as the business of mobile warfare evolved. And after a while, it became obvious that while the tools of the trade might have changed, the purpose of the magazine had not.

What made this even more fascinating to a professional civilian like myself was the degree to which writers felt free to express unofficial opinions and dissents. This value is rare in any kind of hierarchal institution, and hardly expected in the armed services, which are hierarchal for a pretty good reason, this being a life and death business. In any case, there was dissent aplenty. And even more surprising was that it was tolerated in good will by a lot of guys with stars on their shoulders. They depended on a field grade military editor to make the decisions — no committees or editorial boards to knock off the sharp corners, no political correctness concerns — and this down-the-middle independence clearly had a lot to do with the strong loyalty of *ARMOR's* readers. As a former enlisted person, this did a lot to change my opinion of generals, too. It takes guts to listen to someone who disagrees with you, especially when you don't have to. This delicate balance, this editorial *laissez faire*, continued during my years at *ARMOR*, violated only twice that I remember. That has been another surprise.

Indeed, General Donn A. Starry noted this quality in his essay on the occasion of the magazine's 100th birthday in 1988:

"The great names of our branch have, almost without exception, been contributors; it has been their interest, concern, and willingness to contribute to the debate, to share their experience and knowledge with others, that have enabled our journal and our branch to survive, grow, and be the strength we are today."

When these great soldiers wrote for their journal, it was often not to agree, but to challenge. Lieutenant John J. Pershing's letter to the editor in 1889 took issue with the cavalry pistol in use

at the time. George Patton's frequent dissents covered everything from the employment of tanks with infantry to the shape of a saber blade. He contributed 25 articles during his career! This tradition continues today: see LTC Steve Eden's dissent on maneuver warfare in our last issue, or LTC Tim Reese's article in this one.

Another tradition has been the sharing of critical information, how-to articles that fill in the gaps between field manual optimism and on-the-ground reality... "I tried this and it didn't work, but then we tried this and it did"-type stories. Sometimes an author lays out the problem from the ground up: MAJ David Lemelin's "Crisis in Battle: The Conduct of the Assault," in January-February 1995 is a classic story of this type, powerfully-written, about the core task of this branch.

The magazine's pages have also been the launching pad for the discussion of issues well beyond our branch. MAJ Don Vandergriff's detailed dissection of the Army's up-or-out personnel system is an example. Perhaps too easy a target — the system seems a dull-minded, hideous waste of good people — Vandergriff extended his fight to the web, gathered allies, and most recently edited a collection of essays on the subject. Publication of this book led to briefings with high-level people who might actually have the power to change this atrocious system.

Another type of story parallels the civilian travelogue. These are the stories coming from the sharp edge, describing what it's like in Somalia, or Bosnia, or Haiti, advisories to those who come after. An unusual candidate in this category was CPT Doug Huber's humorous account of his tour in Bosnia and his battle against the Social Security Administration to get a check delivered to a Serbian widow — in peacekeeping today, these missions may come with the territory.

Each day, when we opened the mail, we would be surprised. These incoming stories were testament to the vibrancy of this branch and its traditions.

My instinct is that it will all continue without me. But it's been an honor to be involved. Drive on!

Army Names New IAV “Stryker”

The Army, in a ceremony on February 27 at Fort Lauderdale, Fla., formally named the Interim Armored Vehicle (IAV) “Stryker” in honor of Private First Class Stuart S. Stryker and Specialist Fourth Class Robert F. Stryker, Medal of Honor recipients who served in two different wars.

On March 24, 1945, near Wesel, Germany, PFC Stuart S. Stryker of Company E, 513th Parachute Infantry, 17th Airborne Division, inspired his fellow soldiers to follow him through intense German machine gun fire, ultimately enabling other elements of his company to capture more than 200 enemy soldiers and free three American prisoners.

SPC Robert F. Stryker (a grenadier with Company C, 1st Battalion, 26th Infantry, 1st ID) during an enemy attempt to encircle his company near Loc Ninh, Republic of Vietnam, November 7, 1967, threw himself on a mine as it was detonated, saving the lives of several of his wounded comrades.

Both men, killed in these selfless acts, were posthumously awarded the Medal of Honor.

Sergeant Major of the Army Jack L. Tilley, who presided at the naming ceremony, said, “This is a tremendous combat vehicle, and it is totally appropriate that we name it after two great soldiers who gave their last full measure of devotion on the battlefield in defense of our nation.”

The Stryker will equip the new Interim Brigade Combat Teams (IBCTs), the first two of which are located



at Fort Lewis, Wash. The units, 3d Brigade, 2d Infantry Division and 1st Brigade, 25th Infantry Division, are expected to be equipped and ready for deployment in Fiscal Years 2003 and 2004, respectively. There are plans for four additional IBCTs.

The Stryker family of vehicles will include 10 configurations: Infantry Carrier Vehicle, Mobile Gun System, Anti-Tank Guided Missile Vehicle, Mortar Carrier, Reconnaissance Vehicle, Fire Support Vehicle, Engineer Support Vehicle, Command Vehicle, Medical Evacuation Vehicle, and Nuclear, Biological and Chemical (NBC) Reconnaissance Vehicle.

This article was prepared by the ARMOR staff from Army new releases and information from the U.S. Army Center for Military History website.

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