ARMOR

A Tribute to the 745th Tank Battalion *See Page 8*

PB 17-00-2 ***March-April 2000***

Saddle Up... Tonight We Ride

"Words are, of course, the most powerful drug used by mankind." — Rudyard Kipling

For 112 years, spanning three centuries, mounted warriors have fired salvos across the printed pages of first *The Cavalry Journal,* later *The Armored Cavalry Journal,* and now *ARMOR.* Giants of our branch like Chaffee, Patton, Clark, Abrams, grace the pages of our professional journal. Look hard enough and you'll find an article penned by the "Duke" himself — John Wayne.

Of course, one does not have to be a giant of the branch or a Hollywood legend to contribute to *ARMOR.* In fact, when the giants and legends put thoughts to paper, they were relatively unknown. It's great to boast impressive names as authors, but we know it's the lesser-known tankers and cavalrymen with a passion for their calling who provide the words for *ARMOR* to run on. And it's those tankers and cavalrymen who will play a pivotal role in the evolution of the mounted force through their critical thinking and writing.

It's an exciting time for the mounted community, a time that demands a professional dialogue, a dialogue marked by critical thinking, creativity, and thought-provoking writing. Journals require a constant flow of insightful articles and reader critique, and given the current evolving state of mounted warfighting, there has never been a better time to join the fray.

Professional writing brings many rewards — but not necessarily monetary ones. In addition to the satisfaction of seeing your words in print, there is the accompanying prestige... and fodder for that sparse support form. I've also heard tales of young lieutenants securing the coveted scout platoon leader job and of company commanders leaping ahead of their peers based on their publication in the journal. But sharing your knowledge and experience with fellow troopers, making them better soldiers and helping them to accomplish their missions, is the most gratifying reward.

Speaking of professional writing, this issue boasts some fine examples. The following pages include: a compelling speech given by CPT S. Scott Sullivan at the final reunion of the 745th Tank Battalion; COL John Rosenberger gives us "Lessons from a Master of the Science and Art of Warfighting," drawn from Nathan Bedford Forrest's generalship at Brice's Crossroads; and COL Guy Swan III presents an interesting and timely argument for launching a true regimental system. Readers will find words and pictures from the Platform Performance Demonstration held recently at Fort Knox, and several responses to Jon Clemens' article in the Nov-Dec '99 issue, "Armor Movie Classics," which inspired many tank-movie buffs to respond.

On the back cover and inside back cover are the schedule and agenda of this year's Armor Conference, which is looming on the horizon. The theme of Armor Conference 2000 is: "Armor and Cavalry: Building Strategically Responsive Forces for the XXI Century Full Spectrum Army." And while the theme may not come off well emblazoned on a T-shirt or coffee mug, it rightly points out that Knox is shaping the future of mounted warfare. The Armor Center is fully engaged, having just completed the Platform Performance Demonstration and gearing up for an Armor Conference that includes a ribbon-cutting ceremony and demonstration of Knox's new Mounted Urban Combat Training Site. And as MG Bell points out in his column, Knox will remain engaged, developing and refining doctrine, techniques, force structure, et al., for the brigade combat team.

— D2

By Order of the Secretary of the Army:

ERIC K. SHINSEKI
General, United States Army
Chief of Staff

Official:

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

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Features

8 **Final Reunion: A Tribute to the Men of the 745th Tank Battalion**
by Captain S. Scott Sullivan

12 **Nathan Bedford Forrest:**
Lessons from a Master of the Science and Art of Warfighting
by Colonel John D. Rosenberger

20 **Abrams Fire Prevention Booklet Will Again Be Available**

21 **It's Time for a True Regimental System**
Colonel Guy C. Swan III

23 **Integrating "Doctrinal" Support Into Peacekeeping Operations:**
Supporting a Heavy Task Force in Kosovo
by First Lieutenant Brian Novoselich and First Lieutenant Chad Foster

26 **Reconnaissance and Security Forces in the New Heavy Division Structure**
by Major Michael C. Kasales

29 **Joint Force Quarterly Announces Essay Contest**

30 **Soldiers Try Out Medium Armor in Fort Knox Demonstrations**
by Jon Clemens, Managing Editor

33 **OPFOR Key Tasks in Security Zone Operations at the National Training Center**
by Captain Curtis A. Buzzard

38 **A Company/Team Guard Mission Technique**
Planning to defeat enemy recon elements
by Captain Chad Young

42 **Tank Proofing Teams: Key to a Successful Gunnery**
by Sergeant First Class Samuel K. Haines

44 **Keeping Our Options Open: Another Possibility for Heavy Force Deployments**
by Captain John S. Wilson

49 **Building a New Armor Force for the Marine Corps**
by Lieutenant Colonel Randy B. Carlton

53 **Translating Peacekeeping into Combat Readiness**
by Captain Rich Morales

55 **Armor Movie Classics: Readers Nominate Their Favorites**

57 **DOD Signs Corporate Contract With NAPA Auto Parts**

61 **2000 Armor Conference: "Armor and Cavalry: Building Strategically Responsive Forces for the 21st Century Full Spectrum Army"**

Back Cover: 2000 Armor Conference and Armor Trainer Update Agenda

Departments

2 **Contacts**
3 **Letters**
5 **Commander's Hatch**
7 **Driver's Seat**
58 **Reviews**

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LETTERS

In Search for "Lightness," Don't Forget Past Lessons Learned

Dear Sir:

The Chief of Staff has announced his intention to change the Army as we know it. It is going to happen. No amount of bickering or "turf-protecting" will stop this change to the force structure. General Shinseki has thrown down the gauntlet. How do we, the commissioned and noncommissioned officers in the armor and cavalry, respond? This letter is a sergeant's response.

The centerpiece of the new force structure will be a new "light platform." The requirements imposed on this new platform as published in the 22 Nov 99 edition of the *Army Times* listed the following requirements: it must be deployable by C-130; it must utilize "off-the-shelf" technology; it must enjoy high tactical mobility and agility; it must have a significantly shorter logistical "tail" than current platforms; it must be highly reliable; it must employ a direct rapid-fire gun to support infantry operations; and it must be able to "own the night." This vehicle is to replace our existing fleet of main battle tanks and Bradley Fighting Vehicles in the not-so-distant future.

The armor and cavalry community has always prided itself on having the best equipment and the best soldiers. Our M1A1 MBT and M2/M3A2 BFV are the most lethal instruments of ground warfare ever fielded by any army. Of the listed requirements, these two awesome platforms meet only three: high tactical mobility and agility, reliability, and the ability to "own the night." The best features of these two platforms go largely unmentioned by the list of requirements, mainly survivability and lethality.

The new "light" vehicle is a good idea because, quite simply, we are too heavy. However, the Abrams and Bradley are the way they are because of lessons learned on previous battlefields. These lessons were hammered home during Operation Desert Storm, when more than a few tank rounds and the odd guided missile strike were absorbed by the armor of our tanks. I shudder to consider the outcome of a similar conflict with a fleet of up-gunned "light platforms" as the vanguard of the main attack. We cannot count on seeing and killing every enemy outside his maximum effective range. Inevitably we will have to close with the enemy and finish him off. The ability to absorb a hit is one attribute we should pause to reconsider before phasing it out.

The firepower on our present systems is without equal. The M256 120mm main gun is, in my opinion, the best tank gun ever. It kills whatever it hits. Unfortunately, the Army doesn't buy any of the infantry-supporting ammunition that would make the M1A1 even more formidable. Unlike most other nations, our primary infantry and cavalry fighting vehicle has a serious anti-armor capability, the TOW missile. As it stands, the front-running design for the "light platform," a LAV-series design, doesn't include the one-two punch of TOW missiles and the Bushmaster cannon.

The new "light platform" will undoubtedly have a sensor array never before seen by ground forces. The general idea behind such a collection of technology would, of course, be target detection and destruction — he who is seen first, dies first. The "light platform" would stay safely out of harm's way and eliminate the enemy from afar using advanced detection, identification, and killing technologies. This is an ideal situation. We, as an army, cannot allow ourselves to believe we will always have the ideal battlefield with competing maximum ranges, a clear intelligence picture, an inferior opponent, and easily navigable and negotiable terrain. We should always "plan for the worst, hope for the best." The history of modern warfare is replete with errors made because of such thinking, that the good guys will always win.

There are successful examples of light armored vehicles faring well on the mechanized battlefield. The campaigns across North Africa during World War II made extensive use of light vehicles, especially in the recon/counterrecon role. The South Africans, with their fleet of light vehicles, proved quite successful against Cuban and Angolan tanks. And against light infantry, a light vehicle can be every bit as intimidating as the heaviest of tanks. An example of this would be the platoon of BTR-60s against our own Marines on the island of Grenada in 1983. In these instances, the "ideal" was enjoyed by the light vehicles. The BTRs on Grenada are an exception — they were quickly destroyed by close air support. Our fleet of "light platforms" should not be designed with only the ideal battlefield in mind.

The ideal battlefield rarely exists. When light vehicles form the vanguard of any army, defeat often follows because these light vehicles cannot withstand the unexpected. Many examples can be found during the Arab-Israeli wars, where so many BTRs and BRDMs were ravaged by overwhelming artillery strikes and hidden AT teams. Further examples can be found throughout the Soviet invasion of Afghanistan, where many a light vehicle — used because of their mobility and deployability — was lost to teams of RPG-wielding guerrillas at near point-blank range. A more recent battlefield example would be that of Chechnya, where, a few years ago, the Russian Army found themselves in a less-than-ideal situation and lost many soldiers and machines because their opponent wasn't as inferior as first thought.

During the recent action in the Balkans, the Marines demonstrated their abilities by conducting exercises in Greece and Albania. One of the most enduring images in my mind's eye is that of an LAV-25 trying to negotiate a muddy incline. All eight tires were spinning quite uselessly. If the wheeled vehicle can't get to a fight because it rains and bogs down if it goes off-road, what good is it? Do we want an all-wheeled force road-bound during the rainy seasons in a combat zone (Korea or China)?

The Chief of Staff is absolutely correct. We are too heavy. We need to redesign our force. I believe in what he is doing for the Army. I just wanted to highlight some points to remember before the new vehicle is determined early in the new year. I know General Shinseki has the most knowledgeable of experts at his side making his vision a reality, and he has us, the armor and cavalry community, to help keep in mind hard lessons learned from battles past. That is how I see it, from a sergeant's perspective.

SGT DWAYNE C. THACKER
Scout Platoon, 1-37 Armor
Friedberg, Germany

We Already Have Light Armor: It's Called an M113

Dear Sir:

The evening news on 14 January 2000 told of exercises taking place at Fort Knox, wherein numerous light armored vehicles from around the world were being tested to determine their suitability for equipping a rapidly-deployable mechanized brigade.

The Army's leadership is to be commended for recognizing and addressing the need for an armored force that possesses a high degree of strategic mobility. Some forward-thinking *ARMOR* authors have been advocating such capability for many years, so the development is welcome, if long overdue.

However, it is unclear why it is deemed necessary to test, select, and procure 800 new combat platforms, at a reported cost of more than two billion dollars, when one of the finest (if not *finest*) light armored vehicles ever built — the M113A3 armored personnel carrier — is already in the inventory.

M113 variants can accomplish the mission essential tasks that would be required of the high-mobility armored brigade, and do so without adding another vehicle type to the logistical equation or costing the taxpayer big bucks. Buying a new vehicle that would be unique to the proposed rapid deployment force would seem to be logistically unsound and fiscally irresponsible.

STANLEY C. CRIST
Lancaster, Calif.

M113's Versatility Meets Test For Lighter Force Initiative

Dear Sir:

Two articles of interest: The first from *National Defense,* Nov. '99, pp. 14-16, "Abrams Replacement May Not Be Tank; Army under pressure to make heavy armor lighter, more deployable;" the second in *ARMY Magazine,* Dec. '99, beginning on p. 33, is "Moving Toward High Performance Power Projection:

The Case For Medium-Weight Army Forces." I am not sure if the fact that all four of the vehicle photos shown in the second article were 'wheeled' displays a bias toward wheels, as compared to tracks, or if the authors despaired of finding anything else that is different from the current Army fleet.

Before we go about reinventing the wheel (no pun intended), I hope that the versatile M113A3 is not ignored in the Army's future plans.

DON LOUGHLIN

Story Correctly Reflected The FUBAR Factor

Dear Sir:

CPT Marshall Miles' article ("Armor Takes Flight," Jan-Feb 2000) is now on my mandatory reading and discussion list for my high school ROTC seniors. Seldom outside of novels have I seen recently how the "fog of war" and Murphy's Law can strike within a unit on a mission with such worldwide implications if other things had gone wrong. Credit was appropriately given to the unit's NCOs throughout the article. Sounds like a real good team effort.

Miles writes with an informal style that can retain the attention of future soldiers, and creates a clear picture of what goes on in the Army today at company/troop level. I want my graduates to have a little bit of foreknowledge about how FUBAR (Fouled Up Beyond All Recognition) things can get. I especially liked seeing the lessons learned, as in "Be ready."

As an aside, I for one appreciate the Coyotes protecting my son's Blackhawk Company at Rinas Airfield.

JOHN C. RUSSELL
LTC, AR (Ret.)
Owensboro High School
Owensboro, Ky.

Author Contests Review Of Book on Gulf Air War

Dear Sir:

I was very happy to receive a copy of CPT Scott Maxwell's review of my book, *Storm Over Iraq*, which you published in the September-October issue of *ARMOR* magazine.

Unfortunately, after reading the review, I was uncertain whether or not he had read someone else's book rather than my own. Further, as the former Harold Keith Johnson Visiting Professor at the U.S. Army Military History Institute (1987-88), and a frequent lecturer at the U.S. Army War College, I was particularly surprised and disappointed that he resorted to a largely *ad hominem* attack on my alleged "blatant parochialism." For the sake of your readers, I thought I'd correct a few of the misimpressions and misstatements that he has made.

Right at the beginning of his review, CPT Maxwell writes that *"he* [Hallion] *believes... navies and armies (to include their air power, to a great extent) are obsolete in the context of modern war."* In fact, **nowhere** in the text do I make any such sweeping claim. Rather, I state right up front that the Gulf War *"was not the victory of any one service, but rather the victory of coalition air power projection by armies, navies, and air forces."* (p. 1). Further, I discuss in some detail (and most favorably) the development of Army doctrine prior to the Gulf War, the Air Force-Army partnership on the so-called "31 Initiatives," Army attack and troop helicopter operations in the war, the technical development of key Army systems such as the Apache, Patriot, and MLRS/ATACMS, etc.

CPT Maxwell opines that *"Iraq was an open desert with a cooperative enemy* [whatever **that** means] *and relatively decent weather."* In fact, the weather at the time of the Gulf War was the worst since weather recording in that region has been undertaken. It had a profound impact on military operations as discussed in the book. I am puzzled by his comment on "finite ordnance resources," as this had little impact on air operations, and my understanding is that the vast bulk of ammunition taken into the theater was, in fact, transported out of it afterwards.

For the record, it is worth noting the difference between CPT Maxwell's comments, and those of your colleagues at *Military Review,* who judged the book to be *"Authoritative and absorbing.... Hallion's argument is provocative and challenges many current perceptions of military power projection. Well written, timely and incisive.... A rare find."* Finally, in defense of the editors at the Smithsonian Institution Press, I feel I should point out that they never would have consented to publish a book as one-sided as CPT Maxwell alleges.

I was appreciative of your editorial note at the beginning of the review that "This review was received before the Serbs agreed to withdraw from Kosovo." That really seemed to say it all, and, in fact, almost (but not quite) obviated the need for this letter. The third edition of *Storm Over Iraq* is soon to be released, and, judging by events in the Balkans and elsewhere, it is remarkable how the real lessons of the Gulf are more, not less, relevant as time goes by.

Thank you for your consideration in this matter.

RICHARD P. HALLION, SES
The Air Force Historian

Is Crew Gunnery Being Sacrificed In Drive to Save Money?

Dear Sir:

"Is there anyone down-range?!?"

"Is there anyone down-range?!?"

Such is my response after reading both the FORSCOM STRAC XXI and the Armor Center counter-proposal in the September-October issue of *ARMOR*. As an Armor officer, I am concerned that our quest to save money at the expense of individual and crew-level training has finally gone too far. This latest proposal represents only one more step in what has been a steady deterioration of main gun ammunition availability for tank gunnery throughout my 16-year career. How much farther will we go before we finally declare that simulation gunnery equals qualification?

We're "harvesting" rounds for all the wrong reasons — to save money and in the name of more robust TTXIs and XIIs… and worst of all, for CALFEXs. Doctrinally, this means we are sacrificing crew and individual training, which is supervised and executed by the platoon sergeant, platoon leader, company 1SG, commander, and company master gunner in favor of training that is the purview of the battalion and brigade commanders.

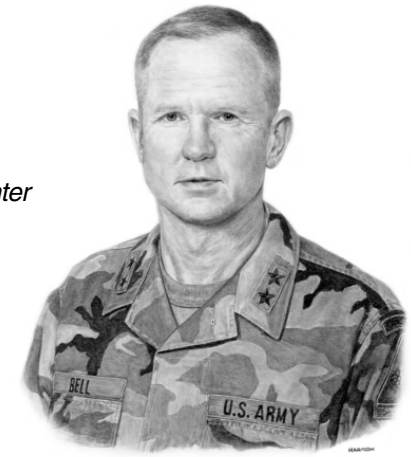
In the words of GEN(R) Cavazos, "Nothing ever got more efficient by moving it to a higher headquarters." While there's no discounting the importance of the brigade and battalion commanders' experience and guidance in the conduct of gunnery, the ultimate value of the training to the *entire crew* during platoon gunnery, and especially CALFEXs, pale when compared to that obtained during tank qualification gunnery.

Moreover, the U.S. Army quite simply does not have the gunnery ranges, nor as important, the targetry resources to conduct viable CALFEXs. At Ft. Hood, the largest post in the U.S., the ranges are substandard for TTVIII gunnery, mediocre at best for platoon gunnery, and no one single range supports live-fire CALFEXs. In fact, even after combining two range complexes (the only way to have space for a CALFEX), range and land restrictions limit the viability of that level of training exercise. Compounded with safety restrictions, CALFEXs often become little more than closely orchestrated, albeit dazzling fireworks demonstrations. But the value to the crews is marginal when compared to the value gained from crew gunnery. In addition, we don't have the AAR resources available during the company- and platoon-level gunnery that we have during crew gunnery, further degrading the training.

The proposals further fall apart when one considers the *real* PERSTEMPO in units and a no-kidding crew stability reality check. Commanders in the field face a nigh-on impossible challenge to *truly* maintain a majority of their crews stable even from one gunnery cycle to the next, much less one annual cycle to the next. Crew turbulence is a fact of life, and no amount of "on paper" accounting can prove otherwise. The STRAC XXI base assumption of saving rounds based on a crew-stability-formula is flawed from the outset.

The move to simulate crew qualification to "fund" live fires is contrary to the value units

Continued on Page 56



Major General B. B. Bell
Commanding General
U.S. Army Armor Center

Welcome to the Future at Fort Knox

These are enormously exciting and challenging times. They are exciting largely because the Army has decided to design, develop, and field a highly deployable and lethal mounted combat force. It is challenging because to meet a vital warfighting requirement, this effort will be accomplished more rapidly than any other major force structure initiative since the outset of World War II. Fort Knox and the Armor Center have a major role in this effort.

To insure we care for the existing heavy force while structuring Fort Knox for the future, the senior leadership at Fort Knox has crafted a strategic plan for the Armor Center. Talented, dedicated military and civilian professionals committed to the future of Fort Knox, the mounted force, and the Army have enabled us to do this. Over the last six months, we have conducted a number of strategic planning sessions. These sessions have reviewed where we have been and where we need to go. I would like to use this forum to report the results of our strategic planning sessions and tell you what it means for the future of Armor and Cavalry. The directions that we are going will be showcased in this year's Armor Conference, 20-25 May.

To begin a strategic planning process and look to the future, one must first consider the past. It is our intention to build upon the great work of past armor and cavalry leaders. We will not forget or abandon our heritage, our warfighting focus, our training emphasis, our aggressiveness, or our flexibility and commitment to excellence. We firmly believe the basic tenets of our armor and cavalry culture will sustain us in the 21st century.

The first step of any strategic planning process is to determine the mission of the organization. Simply stated, the recently refined mission of the U.S. Army Armor Center and Fort Knox is to:

- Prepare mounted force warriors for full spectrum combat operations.
- Forge the future mounted force.
- Provide an installation of excellence.
- Provide a power projection capability.

Let me expand. We, at Fort Knox, will continue to prepare the mounted force for full spectrum combat operations by providing the best trained armor and cavalry soldiers to the field from the 1st Armored Training Brigade's armor and cavalry crewman One Station Unit Training courses. We support our tankers and troopers by developing the best armor and cavalry leaders through our officer and noncommissioned officer education programs provided by the 16th Cavalry Regiment and our Noncommissioned Officer Academy. We will provide current, relevant and effective doctrine, tactics, techniques, and procedures that provide mounted units with guidelines for effective training and decisive maneuver that will lead to victory on future battlefields. Underpinning all of this is our commitment to embed the warfighting spirit required to close with and destroy the enemy into every soldier who trains at Fort Knox.

Fort Knox will continue to be the architect of the mounted force by being the innovators of mounted warfare for the 21st century. The TRADOC commander designated us as the integrators of both the armored force and the mounted combined arms team. We design the future mounted forces to include doctrine, technology, force structure, organizations, command and control, and training development. We actively balance that development with other Army initiatives while seeking to shorten concept-to-production cycle times. Collaterally, we exploit every technological opportunity to provide virtual, constructive, and live simulation capabilities for training, combat developments, and analysis.

In order to prepare the force for war and develop the future, we at Fort Knox must provide for an installation of excellence for those who work and live here. It is our mission to be the Army's leader in base operations, quality of life, and community relations. Given that resource constraints continue to challenge us, the productive contributions of every soldier, civilian and family member at Fort Knox must increase exponentially in value in order to accomplish our mission. It is our mission to sustain Fort Knox as a proud, vibrant organization with the high quality

of life our soldiers, civilians, and family members deserve.

Fort Knox possesses substantial capability to serve as a power projection platform. The infrastructure to support mobilization, training, and deployment operations remains from the old 194th Separate Armored Brigade days, and has even improved in many aspects. New housing, single soldier barracks, ranges and the best mounted urban combat center in the Army have all been added since the 194th inactivated. Fort Knox's central location, superb training areas and ranges, extensive rail yard, C130/C17-capable airfield and access to Ohio River ports clearly make Fort Knox an ideal power projection platform. In fact, last summer we mobilized, trained, and deployed the 8-229 Attack Helicopter Battalion (USAR) in preparation for a six-month rotation in Bosnia. We currently have a significant mission to support mobilization and deployment activities for a wide range of ARNG and USAR units. In the future, Fort Knox stands ready to serve as a substantial power projection platform for units across the Army, both active and reserve component.

After identifying the mission, the next step is to develop a vision of what the organization is to become while it continues to pursue mission accomplishment. A vision statement describes a future state of existence and must reflect both the organization's values and its mission. Fort Knox's values are the Army's values. Based on these values and the mission, The Fort Knox vision for the year 2010 is as follows:

The United States Army Armor Center

• Forging the world's elite mounted combat force capable of rapid deployment and full spectrum dominance.

• Supported by the Army's premier installation and power projection platform.

Armor is, and will continue to be, the world's elite mounted combat force. We make up less than 5 percent of the Army, yet we provide over 40 percent of the Army's combat power. We have the most respected and feared ground forces in the world because we have flexible, disciplined, and aggressive soldiers and leaders who are persuasive in peace, invincible in war. Building an elite mounted force starts at Fort Knox with Initial Entry Training and is sustained in our TO&E force and our Officer and Noncommissioned Officer Education System. Other than tanker boots, we don't have any accouterments like berets and badges to identify us to the uninformed as an elite force. We do, however, have our heritage; we have our recent accomplishments in both combat and stability and support operations; and we have the knowledge of what we bring to the battlefield to serve as our credentials as the elite force in the U.S. Army. We can also point to the future where our mounted forces will continue to dominate the battlespace. It is our plan to emphasize to our students the unique contributions that armor and cavalry provide to our force and to our Army.

It is our belief that in the foreseeable future technology breakthroughs will allow us to develop a combat platform with greater firepower and protection than the current M1A2 SEP tank. This platform will also be faster, more sustainable, and more lethal. Perhaps most important, it will be lighter and highly deployable, allowing us to remain the relevant combat arm of decision that we have always been. The effort to produce such a platform has been ongoing for some time, but has been accelerated recently by the Chief of Staff of the Army's decision to field an Initial Brigade Combat Team at Fort Lewis. Your Armor Center has a leading role in this effort. This past January, we hosted the Platform Performance Demonstration to survey the capabilities of "off-the-shelf" platforms and to gain insights into the potentials for near term technology insertions. The Army is going to procure vehicles in a rapid acquisition process to field the first of these new brigades as soon as possible. We are going to learn a great deal from this fielding and apply those lessons toward the development of the future combat platform that will have the characteristics already mentioned. We will work closely with the Army's Material Command in this effort. We will do the initial requirements determinations in our Mounted Maneuver Battle Lab. There we will build virtual prototypes and crew them with soldiers, sergeants, and officers and fight them on virtual terrain. We will gain valuable insights from this process that will drive developmental programs to insure we get the type of platforms required to dominate future battlefields.

We know that armored forces have an important role in all Army missions. At one time, it was felt that armor's role was primarily relevant to a major war along the Iron Curtain. That war, fortunately, never occurred, but the utility of the mounted force has been fully demonstrated in the conflicts in which we have participated since the fall of the Berlin Wall. We dominated every aspect of Desert Shield and Desert Storm. The nation sent an unforgettably powerful message when the first tanks crossed the Sava River into Bosnia. We have proven armor's essential role in stability operations in the Balkans. The mounted force has and will continue to have a major impact in the full spectrum of future combat.

We want the Armor and Cavalry force to be proud of its home at Fort Knox. Commitment to excellence and caring for soldiers, families, and the civilian work force is a way of life here. Fort Knox and the Armor Center are permanently tied together. New construction demonstrates that commitment, but we need to do more. We are going to aggressively work to improve our classrooms, barracks, motor pools, and workspace. This year, through a program we call the University of Mounted Warfare, we will spend $3 million upgrading our 72 small group classrooms. This effort will prepare us to teach digital warriors as we move from an analog to a digital force. We plan further upgrades to Initial Entry Training barracks, the Ground Mobility Division's motor pool, Boudinot Hall, and to finish renovating Skidgel Hall. In addition, we plan to build a multi-purpose digital range complex, a state of the art Basic Training Complex, a Physical Fitness Center, and finally upgrade the Home of Armor Headquarters. We are justifiably proud of our past, but frankly, when you come on Fort Knox for the first time, you can easily get the impression that we are living in the past. Soon you will see this change. When you drive on Fort Knox, you will be welcomed to the future, buttressed by our past heritage and successes.

Our mission at the Armor Center is clear. It is our belief that technological and doctrinal advances in the art and science of mounted warfare between now and 2015 will be revolutionary in nature. Our vision anticipates the upcoming revolution and charts a course to ensure that America's mounted combat arm remains persuasive in peace and invincible in war throughout the twenty-first century. All of us at Fort Knox look forward to serving you, the branch and the Army as we develop soldiers, materiel systems, and warfighting formations to leap ahead of any aggressor that could threaten our nation or our interests.

Forge the Thunderbolt and Strike First!

Some Final Words on Soldiers, Opportunities, and Teamwork

by CSM David L. Lady, Command Sergeant Major, U.S. Army Armor Center

As I prepare to move across the large pond again, the Armor Center has just finished conducting the Platform Performance Demonstration (PPD). This "market survey" brought 33 medium weight armored vehicles to Ft. Knox, manned them with fine soldiers drawn from the 16th Cavalry Regiment as well as Ft. Benning and Ft. Lewis, and put them through two months of harsh conditions and field/gunnery exercises.

Stand in the January weather, watch and listen to our soldiers exercising these vehicles, and to those soldiers involved in supporting the exercises, and you would have been inspired by their enthusiasm and pride as they accomplished all their missions.

Others will write at length about the analytic results of the demonstration. I simply want to point out in this, my final article from the driver's hatch, that our excellent soldiers are making it happen. Not the contractors, not the civilian data gatherers, not even the senior leaders. First sergeants, master gunners, scouts, mechanized infantrymen, and tankers are having decisive impact on the requirements for the medium weight platforms, and thus what the platforms will finally look like. I am proud of these men.

For two and one-half years, I have had the responsibility and honor of being the Armor Center CSM. This role has allowed me to visit much of the armored force, and to listen to the soldiers' issues and concerns, while communicating the vision of the Chief of Armor for professional and force development. Everywhere I have gone, I have met caring leaders and successful soldiers. No one has it easy; no one has enough resources, but everyone is wrestling with the problems and turning them into opportunities.

There are plenty of opportunities in the Army and the armored force today. GEN Shinseki's vision will expand the role of armor in every spectrum of warfare, up-armor and up-gun the 2d ACR, and ultimately return tankers to the 82d Airborne division. The transformation of units into medium brigade combat teams will actually increase the number of medium/heavy units in the Army. The heavy force will remain vitally important, for the M1 and M2/3 series platforms are still world-class war winners. The Armor Center is at the spearhead of the transformation of both heavy and medium forces. It has never been busier and has never been more engaged in force development and doctrinal development issues.

The armor enlisted professional development program stands as a model for the entire Army. As the enlisted personnel management system XXI task force met in December 1999, only one center was invited to present their development/assignment program: it was the Armor Center. I am proud of the teamwork that now exists between armor assignments branch, the armor proponency office (OCOA) on Fort Knox, and the headquarters, Armor Center. One vision guides assignments and promotions, and one document, *The Armor Enlisted Professional Development Guide*, captures the vision for all soldiers to read and heed. No other branch states so clearly how to prepare for greater responsibility and earn promotion.

My successor and his team will have many problems to wrestle: developing programs of instruction to prepare crewmen and leaders for new systems and new organizations; supporting an ever-changing fielding plan for modernized and digitized vehicles; developing a sustainment training process to keep scouts and tankers competent on their vehicles as they go from specialty to operational assignments; creating enough scouts to man the new systems while absorbing the excess tankers from the division redesign; sustaining the high quality of training on Fort Knox with a severely reduced enlisted cadre to conduct an increased training load.

They will solve these problems if they continue to consult the operational force, and draw on the collective wisdom of our armored leaders. We have greatly benefited by talking and listening: the new gunnery manual, the division redesign, NCOES and OES curricula redesign, the PPD, all have been better for the input of the total armored force.

I am grateful that two Chiefs of Armor, MG George Harmeyer and MG B.B. Bell, have given me so broad a range fan and enabled me to contribute in so many areas for the installation and the force. I am grateful for the teamwork among the senior NCOs of Fort Knox as we have worked to improve training and quality of life at the Armor Center. I am grateful for the drill sergeants, instructors, and support personnel (military and civilian) who build the end-strength of the Army and provide armored units with competent commissioned and noncommissioned leaders. I am grateful to be part of America's armored force and to share in our heritage of victory.

The Army goes rolling along. I'm rolling to USAREUR. I look forward to serving with you there.

"This is Thunderbolt Seven. Mission complete. Departing the net. Out."

Final Reunion:

A Tribute to the Men Of the 745th Tank Battalion

Editor's Note: Captain S. Scott Sullivan delivered the following speech at the final reunion of the 745th Tank Battalion at Fort Knox this past September. The 745th was the original color-bearing unit of the 63rd Armor Regiment and subsequent 1-63 and 2-63 Armor. In many ways, the story of the 745th Tank Battalion is the story of the battle for Fortress Europe. Captain Sullivan based his address on the 745th unit records and AARs, as well as the accounts of the men themselves.

It truly is a tremendous honor to be here with such a distinguished group and at such an important occasion.... What I want to do here tonight is take a few minutes and tell a story, a very, very important story. A story that needs to be told again and again so we'll never forget it. It's the story of how these men, the very ones seated in this room — along with many others not able to be with us here tonight — how these men created a famous organization. An organization which fought in the greatest, largest, and most destructive war of all time. An organization which answered America's call to arms, traveled across the globe, stormed the beaches of France, fought its way across the entire length of Europe — sometimes only yards at a time. An organization which smashed into and crushed the most powerful military force the world had ever seen to date — the Nazi war machine. Tonight — I want to tell the story of the 745th Tank Battalion.

To fully appreciate the accomplishments of the 745th, we have to take a moment and think back to the days leading up to the war. Your fathers had just fought the war to end all wars — World War I. Against U.S. protests, however, the losers were saddled with enormous and unrealistic restrictions and sanctions designed specifically to punish and cripple the nations who had been beaten. Our country accurately predicted this was a recipe for disaster, but we let the Allied powers have their say since they had suffered so much. The years passed, and the countries of the former Central Powers became poorer and poorer, with less and less economic development. The Great Depression hit these countries even harder, and fathers in Austria and Germany started to watch their families starve; conditions became desperate for the common man. Other countries like Italy and Japan, who had been on the winning side of World War I, felt that they had somehow been cheated and didn't have the international status they deserved for their efforts fighting for the Allies.

Adolf Hitler promised a new beginning for Germany — no more humiliation or starvation. He offered the people hope from repression, but kept his future dark, horrible plans a secret. In 1933, he openly defied the Versailles Treaty and began to massively rearm the country. Germany built the most technologically advanced and powerful force the world had ever seen. She developed top-notch tanks, planes, weapons, and tactics.

German military leaders developed ways of integrating infantry, armor, artillery, and air support, which completely revolutionized modern warfare. Up to this point, countries were still training and using tactics which were not too far from those used in our Civil War — and in many European countries, the troops were still primarily on foot and horseback. With this new war machine, Hitler quickly retook the portions of Germany lost in World War I. In 1936, he sent troops back into the Rhineland, and annexed Austria in 1938. Parts of the former Czechoslovakia were seized in 1938 and '39, which dismembered that country. In 1939, Germany seized Poland, followed by France in 1940. The Nazi war machine began constructing "Fortress Europe."

As the war spread, the United States realized that if Nazi Germany conquered all of Europe, it would seriously threaten our national security and the world balance of power. Our policy of isolationism began to decline in popularity and Americans started to worry. In 1940, our government enacted the first peacetime draft in our history, which applied to over 17 million young men — the very men seated in this room tonight. After

"Their landing craft carried the M4A1 Shermans as close to the shore as possible, but eventually hit bottom and had to let them out in eight-foot deep water."

the attack on Pearl Harbor, there was no turning back. America plunged headlong into the war, mobilizing the full might of our industry and national will. Thus the 745th Tank Battalion was born. The Army took experienced leadership cadre from a unit called the 191st Tank Battalion and other National Guard tank units in Virginia, Connecticut, Massachusetts, and New York. They sent these cadre to Camp Bowie, Texas, to stand up the 745th — officially — on August 15th, 1942. On October 14th, over 700 raw recruits from the Chicago area arrived to fill the ranks, and the great journey began.

For the next six months, the men of the 745th completed their transformation from civilians to soldiers. They did what we all expect new soldiers to do in basic training — physical fitness exercises, basic infantry skills training, and lots and lots of obstacle courses. They also learned how to drive, maintain, and shoot tanks. By April of 1943, they were more than ready for the next step. They loaded the unit's vehicles on flat cars and moved out to participate in the famous Louisiana Maneuvers. They spent six weeks of intense time in the field, practicing maneuver formations and firing every possible kind of gun they might see in combat. On June 6th, exactly one year before D-Day, the men loaded up the equipment on rail cars again and returned to Camp Bowie, Texas.

There they continued training in preparation for overseas deployment and, on August 14th, got the word to move. The battalion traveled immediately by rail to Camp Shanks, New York, for medical exams and final processing. On the way, they passed through Chicago — some within sight of their own homes. The 745th boarded the *Queen Elizabeth* and departed New York on 20 August. Baker Company was detailed to man the 6-inch guns in defense of the ship. The *Queen Elizabeth* made the crossing alone because she was far too fast for any military escort. It only took five days to get to Greenock, Scotland, where the battalion unloaded and boarded trains for their next home, Camp Ogbourne St. George in Swindon, England. Here the 745th continued training for the invasion of Europe. Baker Company spent the next three months practicing amphibious assaults and finding the best way to mix infantry with armor during landings. The rest of the battalion fired gunnery, especially emphasizing antiaircraft techniques using .50 caliber machine guns, basically the same model that's on my tank today. In December 1943, the battalion's size was expanded to include another tank company, Dog Company, consisting of 37mm, 17-ton light tanks. This continued until January, when the men of the 745th were chosen to train new replacements arriving from the states. From then until March, they instructed somewhere in the neighborhood of 3,000 recruits on amphibious operations and gunnery. In April, however, everything changed.

On April 3rd, 1944, the 745th moved into a place called Parnham Tent Camp to make final preparations for D-Day. There they learned how to waterproof the tanks by using thick putty to seal all the cracks and holes. The tanks were also equipped with a tall shroud, or snorkel-device as we refer to it today, which allowed the tank to travel in water deeper than the height of the tank. The troops were moved into staging areas and issued French and Belgian money. On June 2nd, Able, Baker and Charlie Companies, with other parts of the battalion, loaded the boats. The original landing date of 5 June was delayed 24 hours because of bad weather — really bad weather.

At 3:00 in the afternoon on D-Day, Baker Company hit the beach. Their landing craft carried the M4A1 Shermans as close to the shore as possible, but eventually hit bottom and had to let them out in eight-foot deep water. The first tanks of the 745th plowed through the waves to the Easy Red portion of Omaha Beach. Able and Charlie Companies would not be able to follow until about the next day. If you've seen the movie "Saving Private Ryan," then you may have some idea, I'm told, of the chaos and carnage on the beach. Vehicles and tanks were everywhere — overturned, submerged in the surf, burning. Bodies and equipment lay everywhere, and the beach was becoming clogged because the troops had not yet been able to break out through the enemy's defenses.

Of all the beaches assaulted that day, this one was the toughest. For four years, the Germans had been building the defenses encountered by the 745th that day. They had built concrete bunkers in the side of the 90-foot high cliff — angled so their fires raked the beach sideways for miles. There were numerous machine gun and fighting positions dug in at the base of the high ground, all interconnected with trenches that allowed the Germans to shift positions without exposing themselves. Mines were everywhere — floating, mounted on wooden poles in the surf, and buried in the sand. The entire area was sighted in by the German artillery, which rained constant accurate and deadly fires. This was the very beach that COL George Taylor, commander of the 16th Infantry Regiment, referred to when he made his now famous quote: "There are two kinds of men on this beach — the dead and those who are about to die. Now let's get the hell out of here!" Baker Company's tanks were practically the only ones which had successfully landed. Two sister battalions — the 741st and 743rd — had only been able to land a handful of tanks each, due to the ineffective pontoons they had instead of snorkels, and due to the rough seas. Baker Company pushed ahead through the minefields and obstacles, losing three tanks in the process, but creating the first breakthrough off the Easy Red part of Omaha Beach.

Baker Company left the beach and pushed inland. They attacked enemy positions in the town of Coleville-sur-Mer and spent the night holding their ground. The next morning, they continued the attack, taking Le Grand Hameau, and arriving at their objective at about 2:00 in the afternoon. Charlie Company landed at about 10:00 on the 7th, and immediately assisted the infantry in clearing out enemy strongpoints. They continued to attack through the night, eventually reaching St. Anne. There, they successfully withstood and repelled an enemy counterattack more than 300 strong, inflicting heavy losses on the Germans but losing only two tanks in the fight. Able Company also landed the morning of the 7th and moved inland. The next day, they fought their way deep into the enemy's lines — catching up with their sister companies. The battalion then conducted a series of several attacks, fighting hedgerow to hedgerow, destroying or dispersing the enemy with their tanks, allowing the infantry to seize ground. By June 13th, the 745th had penetrated deeper into enemy territory than any other Allied unit, helping secure the Army's precarious foothold on Fortress Europe.

For about a month, the Allies expanded the beachhead while the 745th continued to fight its way through the hedgerows. By now, supplies and reinforcements were pouring over the beaches as preparations were made to break out and continue the attack into France. In mid-July 1944, the 745th assembled

together, for the very first time in Europe, near Mestry. Here, the battalion's tanks were outfitted with large steel prongs sticking out from the front. These steel teeth were used to punch through the hedgerows and cut a path for follow-on vehicles. The tanks also had one dozer blade per company, used to bury enemy soldiers alive in the fighting positions behind the hedgerows. This technique had an enormous psychological effect on the Germans and convinced many of them to surrender. By the way, I should mention here that my Abrams company used the very same technique in the Gulf War with an identical effect on the Iraqi infantry.

The 745th prepared for the breakout, known today as Operation Cobra. Essentially the Allies would carpet-bomb an area three miles wide — theoretically pulverizing everything below — and then push seven divisions (that is roughly about 100,000 troops total) through to turn the Battle of Normandy into the Battle for France. The 745th's tank companies were attached out to the three infantry regiments of the Big Red One. On 25 July, the bombing began with spectacular effects. Although the men of the 745th were some miles from the impact area, the earth still trembled and windows rattled in nearby buildings. The 745th fought alongside — or more often — in the lead of the infantry regiments, providing the essential support and responsive firepower that only tanks can give. The battalion fought against enemy tanks in fortified positions, cleared towns, outmaneuvered dug-in German 88s, and protected the flanks so that Patton could push his 3rd Army south to begin the drive across France. Until mid-August, the 745th continued to push the enemy counterattacks back, withstood bombing and strafing by enemy planes, and endured near constant artillery shelling.

The great thing about telling the story of the 745th Tank Battalion is that it is the same as telling the story of the whole war in Europe. The men of the 745th fought in every major American battle there was to mention. After the successful breakout from Normandy they helped close the Falaise Gap — basically annihilating the entire German 7th Army and eliminating organized resistance in Northern France. The Germans were fleeing to the Siegfried Line to defend the border — and the 745th was right on their heels. In September, the battalion slammed into the German 15th Army, which was also in the process of retreating to the Siegfried Line to defend the Fatherland. In this collision of moving forces, now known as the Battle of Mons, the 745th, as part of the Big Red One, helped complete the destruction of five top-notch German divisions in three days with minimal losses. That same month the battalion, led by Baker and Dog Companies, attacked and successfully breached the Siegfried Line, which had been declared impenetrable by the Nazis.

The 745th didn't stop and rest on its achievements — it continued to advance. In October, they entered the Battle of Aachen. Defended by fanatical SS troops, this ancient fortress-city, dating back to Charlemagne, was a nightmare to attack and clear. Every house — each made of stone and brick — held a machine gun nest or heavy weapon of some kind. The fighting was house to house, pillbox to pillbox. The tankers of the 745th bravely supported the infantry by firing directly into the openings of the bunkers or using the dozer tanks to pile up dirt in front of them. Although very vulnerable in the city, the tankers of the 745th aggressively attacked and helped turn Aachen to rubble. On October 21st, the defeated garrison surrendered — outmatched, outmaneuvered, and outgunned.

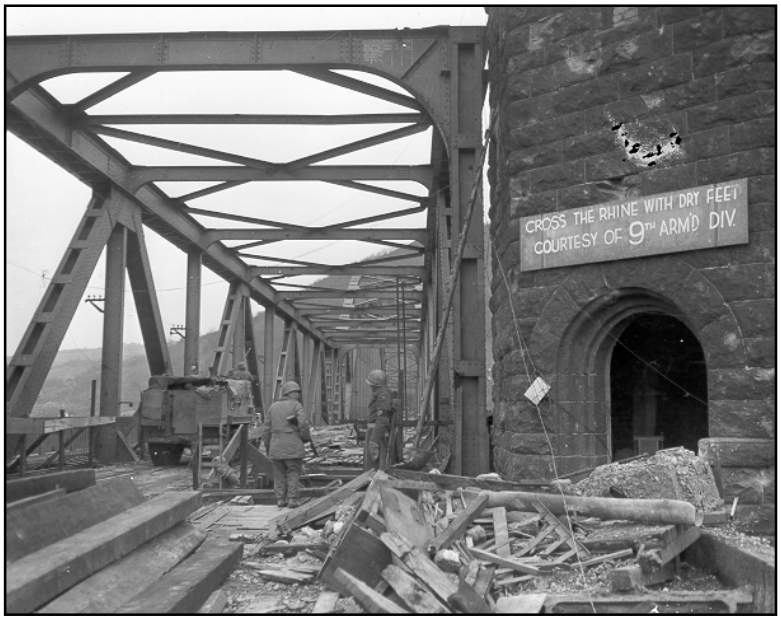
The battalion prepared for the next task — the Huertgen Forest. Essentially a man-made obstacle, the Germans had planted trees in a belt to give cover and concealment to the defending infantry. The trees were just close enough so that a tank couldn't quite fit between them. The soggy ground and constant snow and rain made maneuver off the roads nearly impossible. The cold and wind were incredibly bitter, hard, and painful. Into this hell went the 745th on November 16th. In this battle, these men faced a seemingly impossible task. The Germans defended to the last man, artillery and mortar shells fell like rain, and the poor weather prevented effective air support. Enemy soldiers were everywhere, behind every tree and every rock. The men here tonight will remember desperate smaller battles like the fight for Hamich, Hill 232, Heistern, Luchem, and the old castle at Point 104, where SGT William Tucker earned his Distinguished Service Cross by repelling an enemy counterattack of two hundred men and several tanks, using only well-aimed artillery fire. In all of these smaller battles — each an impressive victory by itself — these men here tonight proved their worth.

The battalion thought it might get a rest break when the Germans, in their last big gamble of the War, counterattacked through the Ardennes Forest with 24 divisions — 10 of them tank divisions. The 745th rushed to set up defensive lines stretching east to west from Butgenbach to Weismes, Belgium, as part of the Big Red One. The German high command was betting on being able to capture our huge supply base to our rear in Liege, Belgium, and drive on to Antwerp, splitting the Allied effort in two. The stubborn and remarkable defense put up by the vastly outnumbered 745th, along with the infantry regiments of the Big Red One, was key in stopping the entire German onslaught. By mid-January 1945, the battalion had stubbornly held its ground and began destroying the remaining, retreating enemy forces. This battle was clearly the turning point in the war. The Battle for Germany proper was now underway. The Nazis had gambled on surprise, better equipment, bad weather as cover, and superior numbers to throw the Allies back into France and possibly even off the continent. They had risked everything but had not counted on the fighting spirit of the Americans. Germany's military leaders began to realize all was lost, and it was now merely a matter of time.

Mid-February 1945 found the battalion halted, performing much-needed maintenance, and getting ready for a massive attack against the defenses in the Roer River area. The 745th launched the drive to the Rhine River with Able Company being the first to cross the Roer River. The battalion moved across the Cologne plain and encountered stiff resistance. The Germans had laid thousands of mines and hid numerous antitank guns to ambush the Americans. As a result, the 745th began to conduct more and more night attacks. The fighting was so severe that, by the end of February, Able and Dog Companies were down to two tanks total — due to the enemy's guns and the deep, muddy sugar beet fields.

The battalion fought its way from one small village to another — always moving toward their objective, the city of Bonn and its bridge across the Rhine River. In early March, the battalion conducted a night attack to capture this critical bridge. Able Company moved in with the elements of the 16th Infantry Regiment and sneaked quietly into the city. They found the bridge and began to secure the area but not before the Germans unfortunately blew it up right in front of them. The battalion continued to clear the city, even destroying a tank and antitank gun on the university campus. The ancient city of Bonn was now in the hands of the American Army — thanks largely in part to the 745th Tank Battalion.

While the 745th secured the city and conducted resupply and rearming, twenty miles down the river, the 9th Armored Division was luckily able to capture a railroad bridge in the city of Remagen. This allowed the Allies to continue the attack into the



"While the 745th secured the city and conducted resupply and rearming, twenty miles down the river, the 9th Armored Division was luckily able to capture a railroad bridge in the city of Remagen. This allowed the Allies to continue the attack into the very heart of Germany. The 745th moved down to support the expansion of the bridgehead and crossing. They crossed the Rhine and continued the fight..."

very heart of Germany. The 745th moved down to support the expansion of the bridgehead and crossing. They crossed the Rhine and continued the fight. The Germans were putting up a heavy fight, attempting to push us back over the Rhine. Artillery and mortar fire was continuous. As the 745th pushed deeper into Germany, the Wehrmacht threw everything they had at them. The 745th took town after town and repulsed multiple counterattacks, all of these actions directly contributed to the American Army keeping the bridgehead and building enough combat power to break out into the Ruhr Valley and link up with the American 9th Army. As the 745th moved through following the breakout, their job was to eliminate tough pockets of resistance — always a tough job — which were bypassed earlier.

The battalion then pushed on to assist the Big Red One in seizing and clearing the Harz Mountain area. Here the Germans were well-organized and the mountainous terrain kept tanks mostly on the roads. The 745th met the challenge, and from April 12th through 21st fought bravely and scored record numbers of kills and prisoners. Incidents like 1st Platoon, Able Company's performance on 18 April were an example of how formidable and experienced the 745th had become. The platoon alone captured 50 enemy vehicles near Rubeland and, if that wasn't good enough, went on to ambush an enemy column the same day to destroy 30 more vehicles and capture a thousand prisoners. The combined effects of actions like these broke the German will and mass surrenders began. The German Army was crumbling and the war in Europe nearly over.

The 745th, however, wasn't done yet. They went on to relieve elements of the 97th Infantry Division on the Czech border. It was now the beginning of May and all indications were than the Germans were about to quit. The 745th didn't quit — although given the mission to defend — they kept attacking and edging deeper in Czechoslovakia. They pushed so far that the division had to give them orders to stop on May 6th, but not before Dog Company had made the historic linkup with Russian Forces at Karlsbad. The German High Command surrendered two days later — the Allies had taken Fortress Europe.

Time did not stop for you there, however. Even though you returned home — victorious — and started to rebuild your lives, your battalion's legacy continued, and continues on today. It lives on in the actions of the present-day 745th Tank Battalion — now called the 1st and 2nd Battalions of the 63rd Armor Regiment. Every soldier in these units today wears your crest — this crest right here on my uniform. It has the seven tracks, the four-sided square, and the five-pointed star — all standing for the 745th Tank Battalion and the star representing Texas were it was born.

We've even updated it to reflect your great accomplishments. We added a Belgian Lion for your deeds in that country and the decorations you won, and a French fleur-de-lis for your bravery in France and the awards they gave you. A diagonal yellow stripe represents the Rhine River and the bitter fighting through the heart of Germany.

We did all of this so you'd know we hadn't forgotten. We treasure the legacy you left to us and judge our own actions by it. We've trained hard and fought our own battles hoping you will judge *us* worthy to carry on your traditions. The 745th Tank Battalion indeed still lives. It lives on in the memory of the people of France and Belgium where they still fly our flag on VE day and welcome Americans with tears in their eyes. It lives on in the gratitude of a modern-day democratic Germany, which due to your courage in battle and humane treatment afterwards, convinced them to willingly embrace our ideals and work harder than any other defeated nation ever, to become one of our strongest Allies and supporters. It lives on in the people of the Czech Republic — who come and hug our troops in uniform when they see them wearing the Big Red One patch. It also lives on in the hearts and minds of its present day soldiers who, even as we speak, prepare to deploy to Kosovo to guarantee that the peace and stability you bought for Europe, with your sweat, blood, tears, and lives, is not lost during our watch.

I stand here tonight — on behalf of those troops — and officially thank you…

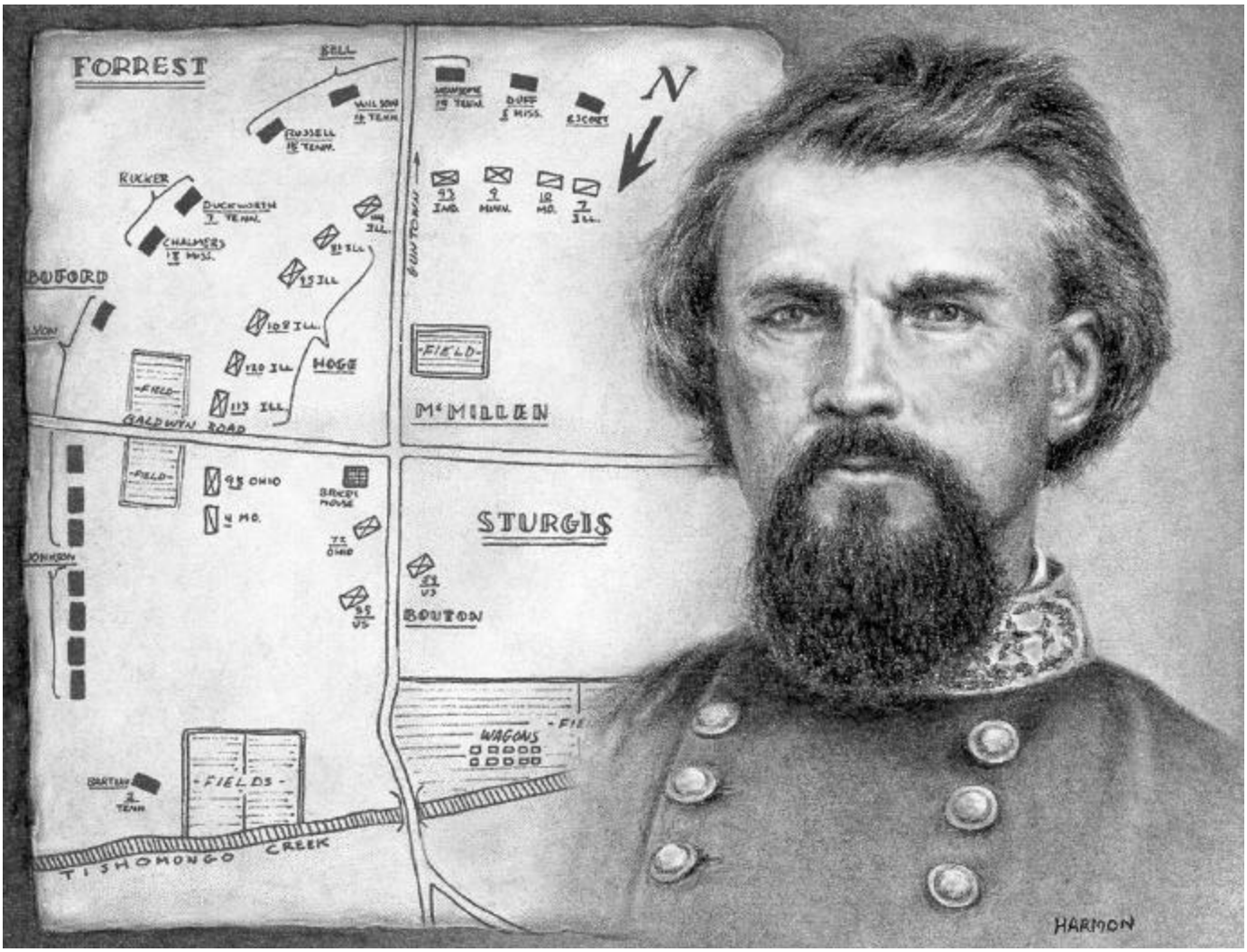
I thank you for your service…

for your courage…

and for your example you left for us to follow.

God bless you all.

CPT S. Scott Sullivan is an Armor officer, currently in command of HHC, 2/2 Infantry Bn., Camp Monteith in Gnjilane, Kosovo Province.



Nathan Bedford Forrest:

Lessons from a Master Of the Science and Art of Warfighting

by Colonel John D. Rosenberger

Introduction

After observing, studying, practicing, and reflecting on the subject for years, the essence of the *art* of command at the tactical level of war, in my judgment, can be crystallized into one immutable phrase — *the ability to win your battles before you fight them.*

This ability is the acme of tactical and operational art. It is the thing we see embodied in the greatest of commanders throughout history, illuminated in the battles and campaigns they conceived and won: Scipio's victory against Hasdrubal at Ilipa, General Dan Morgan's defeat of General Tarleton at the Battle of Cowpens, General Lee's defeat of General Hooker at Chancellorsville, Field Marshall Slim's victorious campaign against the Japanese in Burma — to name a few. All won brilliant and decisive victories against their opponents despite being significantly outnumbered, with minimal loss to the soldiers they loved and led. But the truly astounding fact, overlooked by scholars and historians, is that their battles and campaigns varied little from how these commanders *envisioned* they would unfold *prior* to battle. In the hands of these extraordinary commanders, their battles were essentially won *before* they were fought.

Of course, my notion is anything but a revelation. I was preempted some 2500

years ago by the illustrious and indomitable Chinese general, Sun Tzu, whose experience and wisdom not only encapsulated the science and art of command, but the knowledge, skills, and abilities that underpin it. For instance, he wrote:

> "The general who wins a battle makes many calculations in his temple before the battle is fought. The general who loses a battle makes but few calculations beforehand. Thus do many calculations lead to victory, and few calculations to defeat; how much more no calculation at all! It is attention to this point that I can foresee who is likely to win or lose…. If you know the enemy and know yourself, you need not fear the result of a hundred battles. If you know yourself but not the enemy, for every victory gained you will suffer a defeat. If you know neither the enemy nor yourself, you will succumb in every battle…. The natural formation of the country is the soldier's best ally; but a power of estimating the adversary, of controlling the forces of victory, and of shrewdly calculating difficulties, dangers, and distances, constitutes the test of a great general. *He who knows these things, and in fighting puts his knowledge into practice, will win his battles. He who knows them not, nor practices them, will surely be defeated.*"[1]

Said in a more contemporary fashion, if you want to be an incomparable combined-arms commander at the tactical or operational level of war, you must first possess the knowledge and the ability to *see the terrain, in combination with the weather*, and appreciate their *effects* on the enemy's ability, as well as your own ability, to employ every capability of the combined-arms team. You must be able to see the effects of terrain and discern how to use the ground to win your battles. This tactical ability is preeminent and essential to the art of command. No victory can be or ever has been achieved without it.

Second, you must be able to *see the enemy*. You must know how he is led, organized, equipped, and trained to fight, and appreciate his patterns of operations — they are always there. Accordingly, you must be able to perceive your enemy's actual capabilities, his limitations, and his inherent vulnerabilities. Moreover, you must clearly perceive what your enemy commanders must do to win and achieve their desired end state, the critical tasks they must accomplish, and how they will tactically employ their forces to accomplish those tasks. Last, you must know your opposing commanders, their professional abilities and character, their inclinations to be bold or cautious, their methods of controlling forces in battle, and the strength of their will to win — to name a few traits.

Third, you must be able to *see yourself*. You must know the state of training and proficiency of your force from top to bottom, the readiness of your equipment, the ability to sustain your forces in combat, the confidence of your soldiers in themselves, their equipment, and their leaders, and the will of your leaders and soldiers to fight. Furthermore, you must know the actual capabilities, limitations, and inherent vulnerabilities of your own forces, not to mention the character, courage, and competence of your subordinate commanders. Equally important, you must have the ability to see yourself from your enemy's perspective, and his perceptions of your strengths, weaknesses, and vulnerabilities.

Combining this knowledge, tempered by your experience, you must develop the ability to mentally simulate the battle in your mind. You must be able to see it unfold from beginning to end in all its feasible permutations, then clearly envision how, when, and where to employ your forces — the *tactics* required to produce the *effects* on the battlefield necessary to achieve the outcome or end state you desire. You've got to get the tactics right. To do that, you must be able to recognize the critical tasks you must accomplish — sequentially and/or simultaneously — to defeat your opponent and discern the best means of employing your forces to produce the battlefield *effects* necessary to accomplish those critical tasks.

Finally, and equally important, you must clearly communicate through plans and orders what you want your leaders and soldiers to do and work tirelessly throughout your command to ensure by personal observation that conditions for victory are set. Then, direct your forces and impose your will on both your soldiers and the enemy from positions well forward, where you can personally see the battle unfold, sense the presence or absence of the initiative, and exploit opportunities for decisive action as they emerge. *Nothing in battle is as important as gaining and retaining the initiative over your opponent*. Your tactics, above all, must be devised to achieve that outcome.

Enough of my interpretation of Sun Tzu. There is nothing like an example, and I have found no better example of the art of command — *defined as the ability to win your battles before you fight them* — than Confederate Major General Nathan Bedford Forrest and his masterful orchestration of the Battle of Brice's Crossroads in June 1864. As Shelby Foote, the eminent Civil war historian, stated in the recent television documentary, *The Civil War*, "The Civil War illuminated only two men of military genius. One was Abraham Lincoln. The other was Nathan Bedford Forrest." No better or appropriate accolade could be made. Here's why.

Winning 'Em Before You Fight 'Em

The perfect example, an embodiment if you will, of the *enduring* elements of the science and art of tactical command is Confederate Major General Nathan Bedford Forrest's victory against Union General Samuel Sturgis in a battle known as the Battle of Brice's Crossroads. The battle occurred in northeast Mississippi on 10 June 1864. No better example or documentation of *the ability to fight and win your battles before you fight them* exists in the American historical record.

As related by John Allen Wyeth in his benchmark book, *That Devil Forrest*, "It was evident then to the mind of Forrest, from the situation of the two forces, that a conflict was almost inevitable, and it is a fact that that he had foreseen this collision at the point where it did take place, *two days* before it occurred…. On June 8th, two days before the battle, Forrest requested him [Colonel D.C Kelley bearing a dispatch from Forrest] to hasten as quickly as possible to meet Colonel Johnson [Colonel W.A. Johnson of Roddey's division] and tell him to press forward with all possible speed in the direction of Baldwyn and Brice's Crossroads, that from the direction the enemy were moving, and from their present position and his own, he expected to be obliged to fight them there about the 10th of June."[2]

Wyeth goes on to relate, "Between seven and eight o'clock in the morning [8 June], while riding at the head of his column, Colonel Rucker says that General Forrest rode by his side. He told Rucker that he intended to attack the Federals at Brice's Crossroads.

> "I know they greatly outnumber the troops I have at hand, but the road along which they will march is narrow and muddy; they will make slow progress. The country is densely wooded and the undergrowth so heavy that when we strike them they will not know how few men we have. Their cavalry will move out ahead of the infantry, and

should reach the crossroads three hours in advance. We can whip their cavalry at that time. As soon as the fight opens, they will send back to have the infantry hurried up. It is going to be as hot as hell, and coming on a run for five or six miles over such roads, their infantry will be so tired out we will ride right over them."[3]

Envisioned by Forrest two days before the battle, that is exactly what happened when the battle was fought on the 10th of June. A Federal expeditionary force of two divisions, composed of 3,200 cavalry, 4,500 infantry, supported by 22 pieces of artillery under the command of BG Samuel Sturgis, were not only defeated, but routed. Not only routed, they were pursued to utter destruction by one division of 4,800 cavalrymen and 8 pieces of artillery of Buford's Division under the command of Major General N.B. Forrest. Forrest won the Battle of Brice's Crossroads before he fought it. He envisioned its conduct and outcome almost perfectly.

How did he do it? What knowledge, skills, and abilities empowered Forrest to foretell the conduct and outcome of battle with such uncanny accuracy? Even more enticing, did he do this intuitively? And if so, how did he develop this intuition not having one minute of military education and training prior to joining the Confederate Army as a private in 1861? Finally, was it simply enough to possess this intuitive feel and visualization of the battle, or were other critical elements of command, inherent in the orchestration of the battle, equally essential to its outcome? These are pregnant questions, and the subject of this article, but let me back up a bit and set the stage.

The Strategic Setting

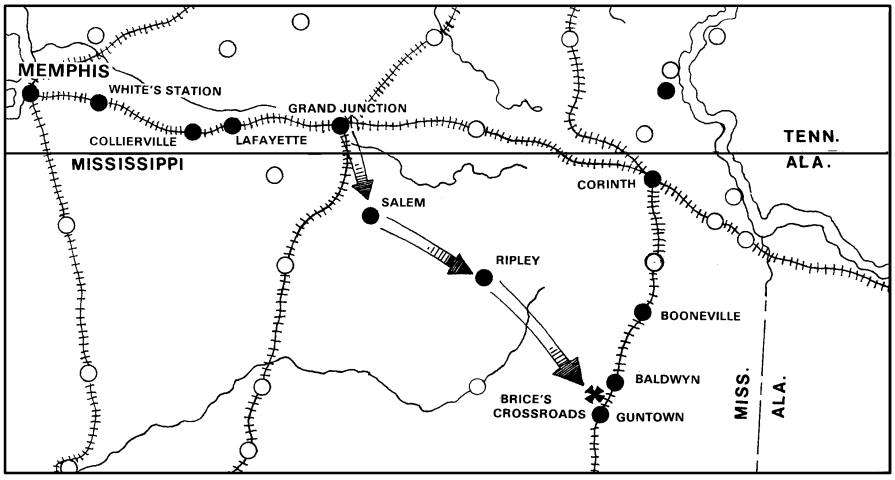
To put this battle in the context of the Union and Confederate campaigns — the operational level of war — LTG Ulysses S. Grant's grand strategy was unfolding at the time. While he accompanied MG Meade's Army of the Potomac, aimed at the destruction of Lee's Army of Northern Virginia, MG William Tecumseh Sherman was attacking into the heart of the Confederacy along a line from Chattanooga, Tennessee, to Atlanta, Georgia, to destroy the Confederate Army under MG Joe Johnston. Sherman's single line of communications to transport necessary supplies, equipment, and reinforcements to his Army extended along the rail network south from Nashville, Tennessee, into northern Georgia. Successful interdiction of this long, vulnerable lifeline had the potential of not simply disrupting Sherman's efforts, but setting conditions for his decisive defeat.

Forrest appreciated this vulnerability and so did Sherman. In early June, both were moving to defeat each other's tactical attempts to gain the upper hand at the operational level. Forrest was advancing north-northeast from central Mississippi into northeastern Tennessee with the mission of destroying Sherman's means of supplying and sustaining his army. Sherman dispatched Sturgis from Memphis, Tennesssee, southeast to gain contact with Confederate forces under Forrest, fix them in position within Mississippi, and destroy them, thereby eliminating any further threat to his endeavors (Map 1). Sherman's deep concern and fear of Forrest's ability to achieve his objective could not be misunderstood as he wrote Sturgis, "It must be done, if it costs ten thousand lives and breaks the Treasury." Now, let's pick up the action.

Before the Battle

On 9 June, Forrest's scouts, who ranged far and wide throughout the region, had been shadowing the Union advance from Memphis, reported that Union forces had bivouacked at Stubb's plantation, about 10 miles from Brice's Crossroads. The brigades of BG Abraham Buford's 2d Division, under the command of MG Forrest, were widely scattered, having stopped mid-stride in their northward advance to attack MG Sherman's lines of communications extending through middle Tennessee into Georgia. Colonel William A. Johnson's 500-man brigade was at Baldwyn, about 12 miles east of the chosen battlefield; Colonel Hylan B. Lyon's and Colonel Edmund W. Rucker's brigades, along with Captain John W. Morton's two batteries of artillery — about 1,600 men — were at Booneville, 18 miles north; and Colonel Tyree H. Bell's large brigade of 2,800 men, more than half the available force, was at Rienzi, 25 miles north of the crossroads.

Given this appreciation, Forrest issued orders on the evening of 9 June for all brigades to march towards Brice's Crossroads at 0400 the next morning. Lyon's brigade would take the lead, followed by Rucker, Johnson, and Bell. It is in this simple order that the tactical brilliance of Forrest first emerges — the transition from how he envisioned the battle to its culmination in a rout. Clear in this order, is a masterful appreciation of the situation and Forrest's intuitive perception of the tactical requirements necessary to accomplish the first critical task necessary to win the battle. Given an appreciation of the location of his forces relative to Sturgis, their distance from his chosen battlefield at Brice's Crossroads, and an appreciation of each force's expected rate of march, Forrest immediately perceived he had to move *earlier* than Sturgis to reach the battlefield *first* to seize the initiative and set conditions for success. Anytime later than 0400 would have been too late, given his rapid assessment of the situation. Additionally in this order, Forrest also clearly perceived, given the disposition of his forces relative to his chosen battlefield and the available routes of march, it would take him *time* to concentrate his forces where he intended to fight. Moreover, he would inevitably have to employ his brigades *sequentially* into the fight. However, before proceed-



Map 1

Sturgis was ordered to proceed into northern Mississippi to fix and destroy Forrest's force, which had been attacking the Union logistical lifeline.

ing to Forrest's orchestration of the battle, and confirming these assertions, there are a couple of additional insights to consider at this point.

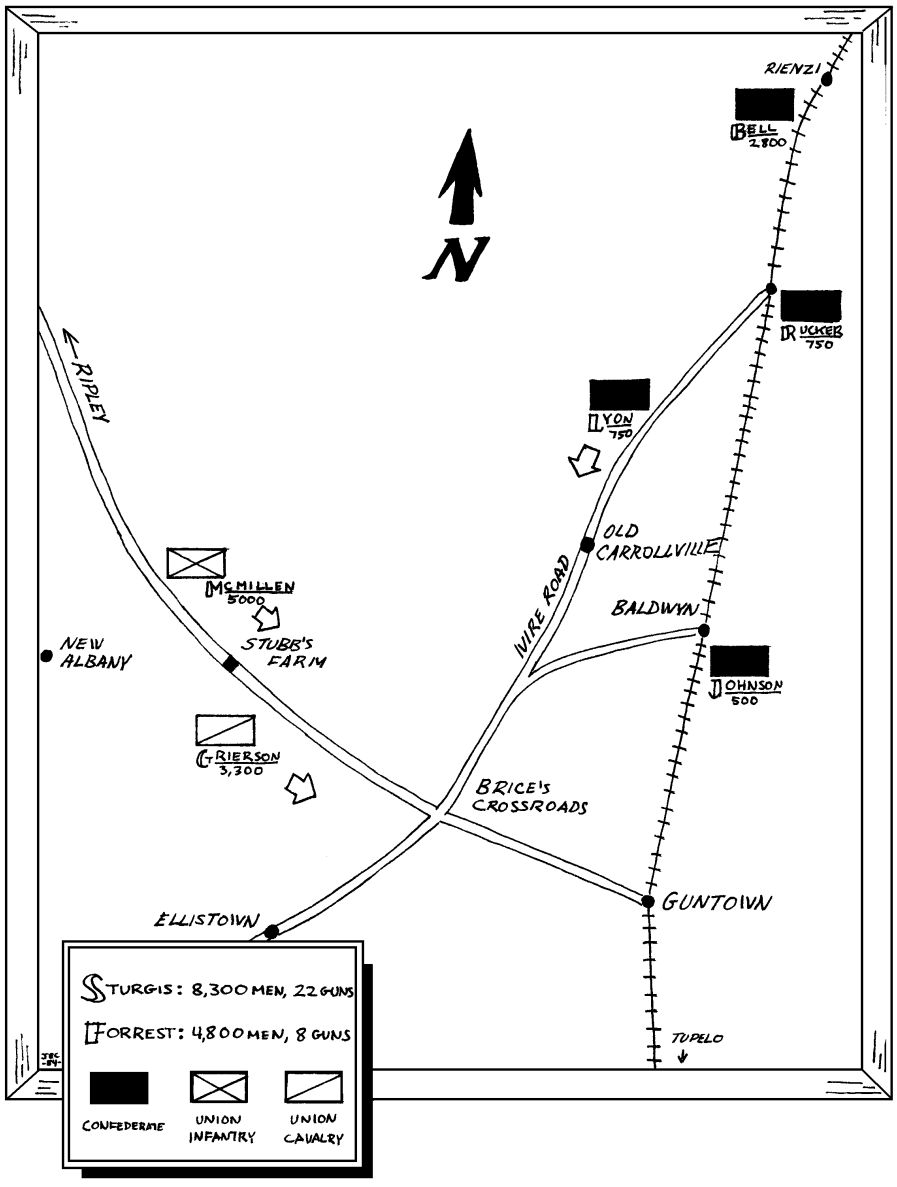
As depicted in the vision of the battle he related to Colonel Rucker on the 8th, Forrest understood that *deception* would have to be the foremost, essential tactic — essential to convince Grierson and Sturgis that his force was much larger than its actual size. He had to convince BG Benjamin Grierson, leading the advance, that he was stronger than Grierson, forcing Grierson's cavalry quickly to ground, thereby buying him *time* to concentrate the rest of his force and seize the initiative, while preserving his freedom to maneuver. Furthermore, Forrest clearly perceived how the limited visibility, created by thick stands of blackjack and scrub oak in full leaf around Brice's Crossroads, could aid him in creation of this belief in Grierson's mind. In short, Forrest chose his battlefield at Brice's Crossroads on the 8th because, among other things, the terrain and vegetation satisfied his first tactical requirement — deception — and supported accomplishment of his first critical task, fix Grierson's force in place and preclude his freedom to maneuver.

Furthermore, as Forrest's orders and actions bear out, Forrest thought through how he would have to employ his arriving brigades in such a way to achieve the effect of *fixing and containing* the remainder of Grierson's cavalry in the restricted terrain just east of Tishomingo Creek. He had to achieve this effect until he concentrated sufficient force to defeat not only Sturgis's cavalry division, but the trailing infantry division under Colonel McMillen as well. Moreover, if he did this, Forrest knew he would have the *tactical initiative*, or the "bulge" as he called it, the precursor to ultimate success in any engagement or battle. This was his second critical task and he saw it clearly, based on his visualization of the fight on the 8th, the orders he issued on the 9th, and the subsequent employment of his force on the 10th. Here's the evidence.

The Battle Unfolds

As Forrest predicted, on the morning of 10 June, the cavalry of BG Benjamin Grierson's division marched at a walk from Stubb's plantation around 0530, slogging along the muddy road. The infantry division did not march until 0700 after a leisurely breakfast. Prior to breakfast, BG Sturgis and Colonel McMillen had a stiff drink of whiskey to fortify their spirits. The June day was hot and sultry. Sweat streamed beneath their heavy wool jackets. The Union infantry lugged themselves southeast up steep hillsides along the narrow, muddy roads churned into a quagmire in many places by the cavalry about nine miles ahead of them. Under full pack, with rations and full pouches of ammunition, they made slow progress; one to two miles an hour or about 4-5 hours behind the cavalry force that preceded them. Forrest's brigades moved promptly at 0400 from their respective locations at a trot (Map 2).

At about 0730, 10 June, near Old Carrollville, seven miles northeast of Brice's Crossroads, General Forrest rode in advance with his escort. Scouts intercepted him and reported that lead elements of Grierson's cavalry division were four miles west of the crossroads. Forrest acted quickly, immediately appreciating, given his mental picture of the relative position of forces, that Grierson's lead elements were closer than he had expected and would be well east of Brice's Crossroads before Forrest's lead brigade could reach the battlefield and set conditions for success. In other words, he needed to slow Grierson's advance, control the tempo of the operation, and buy time for Lyon's brigade to reach the battlefield and deploy. Within seconds of receiving the report, he turned to Lieutenant Robert Black, and ordered him to take a small element with him, move quickly, gain contact with Grierson's lead elements and delay them. They met at Dry



Map 2

Confederate and Union forces converge on Brice's Crossroads. Grierson's Union cavalry preceded the Union infantry, giving Forrest time to defeat them before the Union infantry could reach the battlefield.

Creek, about 2 miles northwest of Brice's Crossroads. The intrepid Lieutenant Black and his men did their best to delay, ripping planks off the Tishomingo Creek bridge, and stopping to ambush successively as they withdrew to the east.

What Forrest did immediately after dispatching Black's small force to delay Grierson further illuminates Forrest's genius. As related by Edwin Bearss,

> "Word that Lieutenant Black had encountered the Federals in force and was retreating reached Forrest at Old Carrollville. Colonel Lyon having arrived, Forrest ordered him "to move forward and develop the enemy." Johnson and Rucker were told to rest their brigades and draw ammunition, and a staff officer rode up the Wire Road with orders for General Buford to push ahead with the artillery and Bell's brigade, as rapidly as the cut-up road and the exhausted horses would permit. Upon reaching Old Carrollville, Buford was to detach one regiment to follow a farm road that converged into the Ripley-Fulton road near the Tishomingo Creek bridge. Such a route would enable this unit to gain the enemy's rear. With the rest of the force, Buford was to continue on to Brice's Crossroads."[4]

Clear in these orders are Forrest's rapid assessment ability, mental simulation ability, and battlefield intuition at work — or *fingerspitzengefuel*, as the Germans call it. His order to Colonel Lyon would achieve his first critical task, *fixing* the lead elements of Grierson's cavalry division. His orders to Johnson and Rucker provided these commanders the time and opportunity to prepare for immediate and effective employment into the fight, an essential tactical pause. Ordering Buford to detach one regiment from Bell's brigade and attack the northern flank of a Union disposition that would not develop for hours, is simply testament to Forrest's masterful ability to see the battle develop and estimate how long it would take to unfold. Furthermore, Forrest's choice of tactic, a powerful and unexpected flank attack, highlights his intuitive appreciation of the *effect* he had to produce to strike the decisive blow, when and where that effect had to be produced, and how he would create that effect, given his existing capabilities.

The order also reveals that Forrest quickly recognized that the only force available to deliver the blow at the time it would be required, given the way Buford's brigades were flowing into the fight, would be a regiment of Bell's brigade. Equally important, he recognized where Bell's regiment would have to be detached (Old Carrollville) and the route it would have to take to strike the enemy where it would have its greatest effect.

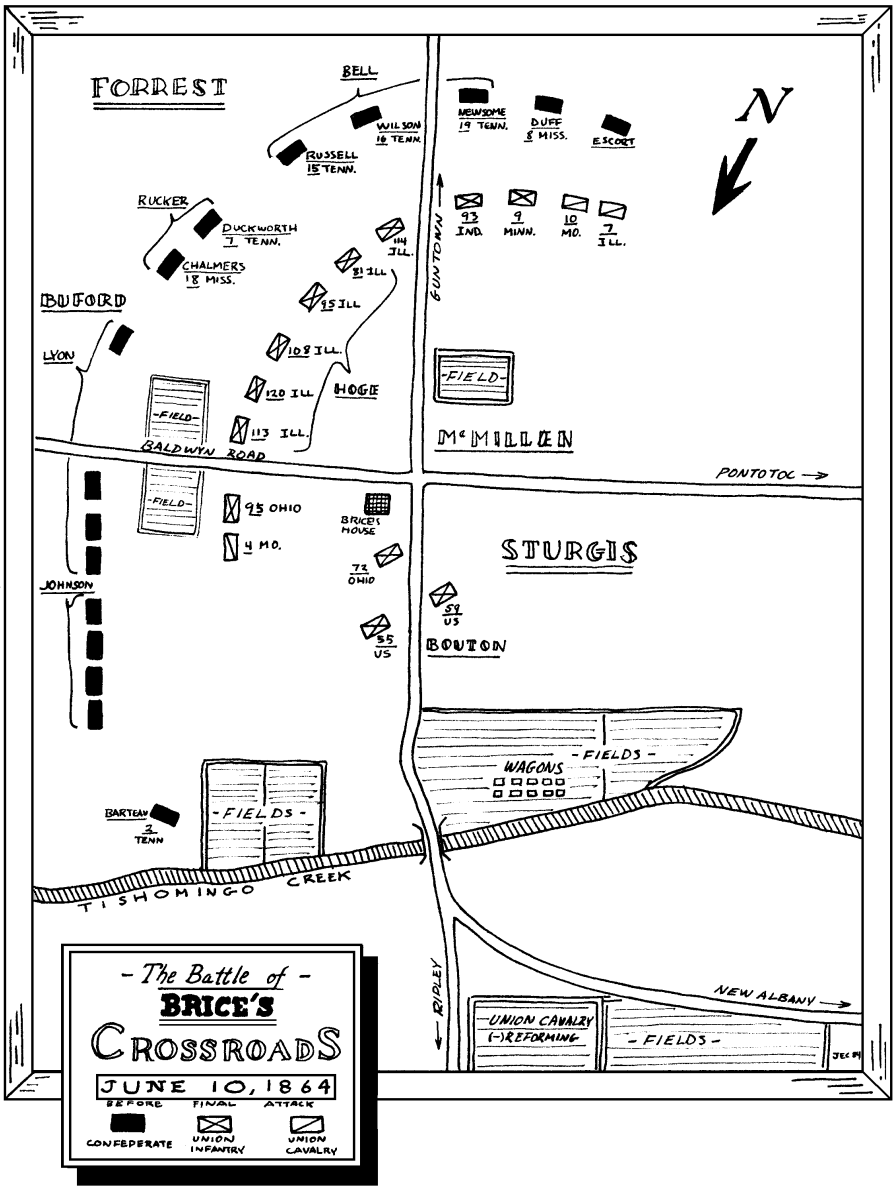
In other words, Forrest quickly perceived that the opportunity to strike a decisive blow would be hours away, and he picked a force that would be uncommitted and able to strike a decisive blow at the place and time he expected this future opportunity to emerge. All of these appreciations by Forrest were made in a few minutes, mind you. He used no staff or staff estimate process or recommendation to make these decisions. He knew what had to be done, what was capable of being done, and how to do it *intuitively*. There is no other explanation. Back to the battle.

It was about 10 a.m., and Lyon's brigade of four regiments pounded down the road towards Grierson's lead brigade. As the two forces collided about a half mile east of Brice's Crossroads, Lyon's Kentucky regiments dismounted and quickly extended into line opposite Grierson's lead brigade under Colonel Waring, who had also dismounted his cavalrymen astride the Baldwyn Road. General Forrest, positioned well forward where he could see both Lyon's and Waring's forces, ordered Lyon to quickly extend his regiments abreast and conduct a forced reconnaissance, creating a visual impression that his force was much larger than Waring's, although outnumbered three to one. In other words, Forrest used the tactic of deception. He used the limited visibility created by the thick foliage and the smoke-filled battlefield, combined with an aggressive advance, to conceal his weakness. In combination, these effects would convince Grierson that Forrest's force was larger than it was (as he had envisioned on the 8th), and buy him an hour of time until Rucker and Johnson's brigades could reach the battlefield. This was a calculated risk, to say the least, but Forrest knew Grierson, a tentative and cautious cavalry commander, and therefore accurately anticipated how he would respond to what he could see and hear.

Lyon's regiments executed their task, pressed the fight against Waring for about an hour, then withdrew back into the woods, continuing a galling fire at long range. Grierson, as Forrest anticipated, concluded the Confederate force was indeed much larger than his and immediately assumed a defensive posture. Grierson dismounted Winslow's brigade, his only remaining maneuver force, and deployed his two brigades abreast in hasty defensive positions. In one bold hour, with skillful tactical employment of one brigade, Forrest had fixed Grierson's entire division in place, precluded his freedom to maneuver, and seized the tactical initiative. Grierson and Sturgis were now dancing to Forrest's tune and he controlled the tempo of operations. The "bulge" was on. But more needed to be done to set Sturgis up for defeat in accordance with Forrest's vision and plan.

Just after ordering Lyon's brigade into the fight, during that hour that he was waiting for Johnson and Rucker's brigades to arrive, Forrest dispatched Major Charles Anderson, a member of his staff, towards Booneville. He said, "Tell Bell to move up fast and fetch all he's got and tell Morton to bring on the artillery at a gallop." Clear in this order, *particularly when given at this time*, is Forrest's immediate appreciation of the narrow margin of time he would have to concentrate Buford's division and whip Grierson's cavalry before Sturgis could close with his remaining infantry division. To issue an order like this, Forrest had to have an accurate mental picture in his mind of the disposition of Buford's brigades as they approached the battlefield. Furthermore, he had to appreciate the time required for each brigade to reach it, and, therefore, the time it would take to concentrate his entire force *relative* to the time Sturgis could close with his infantry. This order also shows the pressing need he felt to get the shock effects of massed artillery into the fight. Artillery was obviously going to be an essential means of imposing his will on Sturgis and producing the effect of shock that he needed to break Sturgis's soldiers' will to fight.

Just as Lyon's regiments withdrew, within the hour Forrest anticipated, Rucker's 700-man brigade arrived. Forrest ordered Rucker to move his regiments quickly into position on the left of Lyon, detach a battalion, and position it astride the Guntown Road, thereby securing his left flank — his most vulnerable flank given the terrain — against counterattack. Rucker's men rushed into battle line. When ready, Forrest, riding along the line, ordered Rucker and Lyon to attack, an order the men of both brigades promptly obeyed. They slammed into the Union cavalry regiments, kept the pressure on Grierson's brigades, continued to fix them in place, then slowly pulled back. Just as they returned to their starting line, Johnson arrived with his 500-man Alabama brigade. Forrest quickly ordered them to dismount and occupy the ground on Lyon's right flank, thereby *containing* Grierson's force, pinning it



Map 3

Forrest's plan forced the Union infantry to fight with their backs to Tishomingo Creek, leaving only a narrow bridge for maneuver or escape.

against Tishomingo Creek, and eliminating any opportunity for Grierson to remount and conduct an envelopment of his flanks. At the same time, he created only one means, a piecemeal means at that, for Sturgis to commit his infantry — across one narrow road and the single bridge spanning Tishomingo Creek. All Forrest had to do now, and he knew it, was break the cavalry's will to fight. The Union infantry was closing.

Vicious fighting ensued with General Forrest in the thick of it, riding fearlessly among his three brigades, urging and encouraging his troopers, driving and pressing the fight, exerting his iron will and determination upon both his troopers and his enemy. The battle raged with fury, charge and counter-charge. At about 12:30 p.m., after a series of fierce, unrelenting Confederate assaults, compounded by the fear of envelopment, the Union cavalry collapsed. They began to flee the field just as their infantry comrades reached the battlefield about 1300, 3 hours after the initial collision with Sturgis's cavalry. This, by the way, was *exactly* as Forrest had envisioned it on the 8th of June.

At about the same time McMillen's lead infantry brigade began filing over the Tishomingo Creek bridge, shouldering their way past the retreating cavalrymen, Colonel Tyree Bell's brigade of 2,800 troopers arrived on the scene, completing the concentration of force Forrest knew he had to have to accomplish his aim.

For about an hour, between 1:00 and 2:00 p.m., there was a lull on the battlefield as Forrest's men caught their breath, quenched their desperate thirst, redistributed ammunition, and reorganized for the next assault. Meanwhile, dehydrated and exhausted by their strenuous march, the last three miles at a shuffling trot and at a dead run at the last, the Union infantry under the command of COL McMillen marched in ragged column across the Tishomingo Creek bridge and deployed into line of battle. Many of them had collapsed beside the road with heat stroke, straggling was prolific, and those who could endure the pace and heat arrived physically exhausted — just as Forrest envisioned they would two days prior. The weather was stifling hot, not a cloud in the sky, and not a breeze of any kind. Smoke choked the battlefield. Sturgis's sweat-soaked infantry shuffled their way through Grierson's retreating cavalry, frightened horses, ambulances, and artillery and deployed into line of battle east of Tishomingo Creek (Map 3). Once in their initial positions, many more collapsed under the terrible heat and humidity. Across the way, Forrest rode to the lead of Bell's brigade and directed the employment of his regiments to the left of Rucker's brigade astride Sturgis's right flank, and Captain Morton's battery to a position where it could mass its fire against the Union center.

It was about 2:00 p.m., and Forrest, knowing that every minute he waited forfeited the initiative to Sturgis, shifted his efforts to setting conditions for the final assault and defeat of his opponent. For the next two hours, Forrest issued orders, personally and through his aides, for a coordinated attack by every element of his force against the Union infantry. While issuing orders and coordinating this attack from a position near Bell's brigade, elements of the Union infantry counterattacked at the juncture between Rucker's and Bell's brigades. The Confederate infantry began to falter and began to withdraw from this torrent of lead. Seeing this, Forrest quickly dismounted and called on his two escort companies to follow him. Pistol in hand, Forrest led them into the thickest part of the fray in the front rank with his men. Encouraged by this inspiring display of courage and determination, Bell and Rucker's men quickly rallied and drove the enemy back. Assuring himself that the situation was well in hand and the initiative restored for the moment, Forrest remounted his big sorrel and rode north along his lines to personally issue orders to his subordinate commanders.

"Although Forrest never heard of the great Carthaginian commander — or thought about what he was doing as a "tactic" for that matter — he decided to employ the same scheme of maneuvering his forces as Hannibal chose to defeat the Romans at Cannae some 2000 years before."

Using a volley of cannon fire and a bugle call as the signal for the final assault, he ordered BG Buford to attack with Johnson's and Lyon's brigades into the center of the Union position to fix the enemy's attention to their front. Bell's brigade would attack the enemy's right. COL Barteau's 2d Tennessee Regiment, previously detached from Bell's brigade, would attack the enemy's left flank and rear. During this ride to coordinate the assault, Forrest noticed that Morton's artillery was dispersed by sections and not positioned where he wanted it. He ordered all sections, a total of eight guns of various types, massed and loaded with double-canister. At the sound of the bugle, when the brigades would advance, he told Morton to race forward within 50-60 yards of the enemy line, unlimber, and mass his fires against the infantry center. Having set conditions for effective employment of his artillery, Forrest continued his ride back to re-join Bell.

En route, he encountered Captain Tyler and his squadron of Kentucky cavalry, yet uncommitted. Seizing the opportunity, he ordered Tyler, supported by Forrest's escort, to sweep around the Union right and get into the Yankees' rear as the final assault began. Forrest intuitively chose a classic tactic to finish Sturgis off, a familiar pattern he had employed several times in battle over the past three years against linear-arrayed formations. While fixing the enemy's center, conduct a double envelopment, striking the enemy simultaneously and unexpectedly on his relatively weak, unprotected flanks — or even better, on his rear.

Although Forrest never heard of the great Carthaginian commander — or thought about what he was doing as a "tactic" for that matter — he decided to employ the same scheme of maneuvering his forces as Hannibal chose to defeat the Romans at Cannae some 2000 years before. What is clear in Forrest's orders is his pattern of thinking. He understood what *effects* he had to produce to defeat Sturgis's infantry. He had to break their will to fight, and the only way to do that, being outnumbered, was to induce an overwhelming fear of destruction in the minds of those exhausted infantry leaders and soldiers. "Get 'em skeered" as Forrest so often put it. A violent assault across the front, magnified by the effects of surprise attack on the flank or rear, as Forrest had learned in previous battles, was the quickest way to do it under these battlefield conditions that he had skillfully orchestrated.

It was now 4:00 p.m. Forrest sensed the initiative hung in the balance. He remounted and rode the length of his line from south to north yelling, "Get up, men. I have ordered Bell to charge on the left. When you hear his guns, and the bugle sounds, every man must charge, and we will give them hell."[5] Near his artillery, where he could see the enemy and the advance of his brigades, Forrest ordered Bugler Gaus to sound the charge. The Confederates rose up as one, pistols and carbines blazing, and charged the enemy.

Amazingly at this time, but just as Forrest had estimated some six hours before, COL Barteau's 2d Tennessee Regiment of Bell's Brigade, detached at Old Carrollville, arrived at a position investing the far left flank and rear of the Union position. Sturgis's reserve brigade and trains were in plain view near the Tishomingo Creek bridge. Hearing the explosion of firing to his southwest, the orientation of the enemy before him, and understanding Forrest's intent, Barteau wasted no time and charged into the flank of the unsuspecting enemy.

Buford, seeing this, immediately notified Forrest of Barteau's presence and his ongoing attack. Mounted on his big sorrell, "saber in hand, sleeves rolled up, his coat lying on the pommel of his saddle,"[6] Forrest immediately rode along the rear of his lines shouting encouragement to his men, and urging one final assault to break the will of the enemy.

To induce even greater shock, to induce overwhelming fear and make them break, Forrest ordered Morton's artillery battery forward within 60 yards of the enemy line and ordered the gunners to pour continuous blasts of double-canister into the ranks of the enemy infantry. Men could not stand and live against the storm of shot unleashed by these cannoneers, and coupled with the ferocious attack of Lyon's and Johnson's brigades and the unnerving scream of the Rebel yell, the Union infantry in the center of the line collapsed in panic and disorder.

Simultaneously, Bell and Tyler struck McMillen's right flank. Barteau struck his left flank and rear. The combination of the devastating effects produced by the artillery, the ferocious attack across the entire line of battle, coupled with the surprise attack on Sturgis's reserve brigade and trains achieved exactly what Forrest expected. The effect of these simultaneous attacks, coming when and where they did, was so overwhelming, Sturgis's forces disintegrated into a panic-stricken mass just as Forrest had foreseen. But Forrest wasn't finished. Sensing the collapse of the Federal line, Forrest exhorted his exhausted men to exploit the attack, and drive the Federal infantry before them, which they did. As General Forrest always advocated, "Get 'em skeered, and then keep the skeer on 'em." Consequently, as the Union soldiers rushed in fright and panic to the rear, Forrest immediately organized and launched a mounted pursuit which he personally led throughout the night, and did not stop until Forrest, completely exhausted, fainted and fell from his horse at nightfall, the 11th of June.

The extent of Forrest's victory, which he had fought and won in his mind two days prior, is best summarized by a witness, William H. H. Barker, who encountered the routed Federals as they streamed back towards Memphis. "They were practically without ration, and had to march night and day. In order to escape at all, they were compelled to throw away arms and equipment of all kinds — strip themselves of all clothing — save shirts and drawers… I saw them by the hundreds — with not a vestige of clothing on but their drawers, and these worn to rags to their knees. They were bare-headed and many, too, shoeless. Of all the scenes I witnessed in my long Army service, this was the most heartrending."[7]

How Did Forrest Do It?

And to what should we attribute the victory? Brave, well-led, disciplined soldiers? Soldiers inspired by a cause who

had absolute confidence and trust in their leadership? Intrepid leaders who had absolute faith and confidence in their men? The presence of commanders up front where they could see the battle and their men could see them, drawing courage and inspiration from their example? Fearless commanders who would not ask their soldiers to do anything they would not do themselves? Brilliant tactics executed by experienced teams? An inept opponent? Luck? An argument could be made for each of these factors, no doubt. But they were not the deciding factor. Major General Nathan Bedford Forrest won this battle before he fought it — the acme of the art of battle command as we attempt to define it today.

The question for any aspiring combined-arms commander today is — how was he able to do it? How could he foresee things so clearly in his mind and employ his forces so consistently with that vision? What knowledge, skills, and abilities were required to do it?

First, Forrest could *see the terrain*. He knew the country. He knew its features so well, his maps must have talked to him. He knew the road network, the surface condition of the roads, and the relief of the country they traversed. In his mind, given the enemy's position, he could see the only route suitable to move the size and type of forces Sturgis possessed and the densely forested hills, muddy creek bottoms, and steep slopes the route traversed. They had to come down the Ripley Road to Brice's Crossroads. Moreover, Forrest could visualize the effects of the weather on this road, in this case a dirt road drenched and turned to sticky slop by the rain, under a stifling hot, June sun. Furthermore, in his mental simulation, he could see the cavalry with artillery teams churning up the soft, sticky clay with the trailing infantry slogging through this mud and heat, draining their energy, reducing their pace to an exhausting walk.

He knew the distances between the towns and villages in the region and the route structure that connected them. Consequently, given the known position of his forces relative to Sturgis, and the rate of march his forces could generate relative to the enemy, Forrest quickly recognized which routes to use and where he could feasibly concentrate his forces to meet Sturgis in the time available — Brice's Crossroads. He had become a master of time/distance analysis.

All that remained was to select the best ground on which to fight; ground which afforded him the ability to whip Sturgis although outnumbered two to one. Brice's Crossroads suited that purpose just fine. The terrain west of Brice's Crossroads compelled Sturgis to piecemeal his forces into combat along a single narrow road across a single bridge across Tishomingo Creek. Consequently, it would take hours for Sturgis to march, deploy from brigades in column, and concentrate his forces. Equally important, it must have been apparent to Forrest that there were no other routes or suitable approaches permitting maneuver north or south of this route of advance, until forces were well east of the creek. Therefore, if he could fix the lead elements of Sturgis's force in the vicinity of Brice's Crossroads, it would be like sticking a cork in a bottle. Likewise, Forrest could obviously see that a battle fought at Brice's Crossroads would place Sturgis's back to Tishomingo Creek, with only one route of withdrawal over a single bridge. At the same time, it would afford him the space to fix the enemy and use the north-south, lateral routes just east of the creek to contain Sturgis's forces and afford him the opportunity to attack into one or both flanks of the enemy.

Forrest also appreciated that the ground around Brice's Crossroads was timber-laced, interspersed with thick groves of trees in full summer foliage, and choked with undergrowth. There were few open fields of fire, and those there were lacked depth, negating the range advantage of the Federal carbines and rifles over Forrest's repeating pistols, shotguns, and rifles. Furthermore, the ground severely restricted the effective employment of cannon artillery, a tremendous combat multiplier and advantage of the Federal army. Equally important to Forrest, this terrain limited the enemy's visibility, denying enemy leaders the ability to see and determine the exact size of his force. In short, the terrain supported the necessity of deception; it could help him conceal the actual size and strength of his force. This was a masterful selection of terrain and set the fundamental condition for success, the foundation of every successful engagement and battle in history for that matter.

Second, Forrest could *see the enemy*. He had continual, reliable intelligence from his network of scouts. He knew the science of war. He knew how Sturgis was organized and equipped; the size and strength of his cavalry, infantry, and artillery forces. He knew how fast they marched. He knew the effective ranges of pistol, carbine, and rifle, as well as their rates of fire; therefore, the volume of direct fire the Federal forces could bring to bear, if allowed. And he knew the range and effectiveness of the various types of cannon artillery that Sturgis could add to the fight.

He clearly understood the tactics of the day, the patterns of employment, and could foresee how Sturgis would employ his forces. On the approach march, cavalry with a few pieces of horse artillery would lead the infantry performing reconnaissance and providing security. He predicted the cavalry would proceed three hours in advance of the infantry, which to Forrest was the time available to whip the cavalry before the infantry arrived (almost exactly the time it actually required on the 10th). He knew the cavalry would be used to develop the situation and try and fix him in place until the infantry and artillery came up. Supply wagons would trail with an escort for protection. A mental simulation of this ran through his mind.

Forrest also knew the caliber of men and the commander he would be fighting. Sturgis had pursued him into northern Mississippi from Memphis just two months prior, turning back at Ripley, Mississippi, for lack of subsistence and the will to continue. Forrest was not facing an opposing commander with an iron will or with any experience in fighting the size and complexity of force under his command. Moreover, the Federal soldiers had never fought and won together as a team. They were a rapidly-assembled, *ad hoc* collection of units. Consequently, confidence in themselves and their leadership would be tenuous at best, not to mention teamwork; a glaring vulnerability in pitched battle with Forrest's battle-hardened and ferocious troops. In sum, Forrest knew the capabilities, limitations, and vulnerabilities of the commander and soldiers his men would face.

Third, Forrest could *see himself*. He knew the capabilities, limitations, and inherent vulnerabilities of his force. Steeled by months of combat together, molded by his iron discipline, he knew his subordinate commanders, he knew his troopers, and he knew the bonds of trust and confidence which existed between them. He knew what they were capable of doing in a fight; so did his men. He knew the rate at which they could march. He knew exactly where they were located throughout northern Mississippi. He knew how his forces were armed and equipped, the condition of their horses, stocks of ammunition for all weapons, and his ability to secure his lines of communications and replenish his force. And under his command, they had never lost a fight. His soldiers knew that, too.

Finally, armed with this knowledge and an incomparable tactical intuition, honed through three years of continual combat experience, Forrest had the ability to envision the fight from beginning to end, in all its possible permutations, given the terrain and the enemy. He could recognize all the critical tasks he had to accomplish sequentially to win. He could see the *effects* he would have to produce to accomplish these critical tasks, and therefore, when and where he would have to employ his forces to create those effects: delay, fix, contain, block, destroy, deceive, shock. All that was left for him to do was issue clear, concise orders that would bring his plan to life; maintain situational awareness of both enemy and friendly dispositions; position himself to see the battlefield and sense the progress of the fight; and direct his forces as the battle evolved to achieve the *effects* required to defeat his foe.

In these aspects of battle command, Forrest had no peers. Look no further for an example of a commander who had mastered the science and art of warfighting; a commander poured from Sun Tzu's mold.

Conclusion

In conclusion, I wrote this paper for the aspiring Forrests of the 21st century, in the hope it will provide some insights into what the art of tactical command looks like in practice. I wrote it to illustrate what an accomplished tactician and combat commander looks like, how he thinks and acts on the battlefield, and the knowledge, abilities, experience, and intuition he must possess. I also tried to show that the requirements and characteristics for a master of the science and art of command at the tactical level have not changed in the least through the centuries, only the *conditions*.

These same abilities, no doubt, will be found in our great combined-arms commanders of the future. In our Army, there are and will continue to be those rare commanders who achieve mastery in the science and art of warfighting. They will be more rare given declining experiential opportunities and inadequate professional development patterns our combat leaders suffer today and will in the years ahead — barring bold intervention and change. I hope this article finds and helps those men achieve it despite these conditions and our Army's unwillingness to change. Our soldiers deserve them and our nation must have them to secure the blessings of freedom and liberty in the 21st century.

Notes

[1]James Clavell, Sun Tzu, *The Art of War,* Dell Publishing, N.Y., 1983.

[2]John Allan Wyeth, *That Devil Forrest,* Harper & Brothers, N.Y., 1959.

[3]Ibid.

[4]Edwin C. Bearrs, *Forrest at Brice's Crossroads and in Northern Mississippi in 1864,* Press of Morningside Bookshop, Dayton, Ohio, 1979, p. 68.

[5]Parker Hills, *A Study in Warfighting, Nathan Bedford Forrest and the Battle of Brice's Crossroads,* McNaughton and Gunn, Saline, Mich., 1996, p. 35.

[6]*Forrest at Brice's Crossroads,* p. 93.

[7]*A Study in Warfighting, Nathan Bedford Forrest and the Battle of Brice's Crossroads,* pp. 43-44.

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Abrams Fire Prevention Booklet Will Again Be Available

Abrams tank fires are continuing to occur at higher than expected rates. Team Abrams investigates all reported fires and pursues possible corrective actions.

In an effort to increase soldier awareness of potential fire hazards and continued emphasis on eliminating Abrams tank fires, Team Abrams is republishing the "Abrams Fire Prevention Checks and Safety Procedures" booklets for Crew (Yellow) and Unit (Red) level use. The booklets will be used in conjunction with the –10 and –20 Technical Manuals.

There is no one fire category that stands out as the prominent area of concern. However, three areas that require special attention are NBC System (NBC M48 Filters), Engine Compartment Fuel Leaks, and Main Hydraulic Pump Failures due to case drain QD malfunctions.

Safety of Use, Ground Precautionary, and Maintenance Advisory Messages, as well as Operator and Maintenance Technical Manuals do address these three areas, and other fire and safety hazards. Team Abrams cannot emphasize enough the importance of using the information contained in the booklets and technical manuals. We believe that adherence to these documents will greatly reduce Abrams fires.

Tankers, support personnel, and their commanders must place major emphasis in fire prevention programs if we are to reduce the number of occurrences.

James R. Moran, COL, OD, Project Manager, Abrams Tank System

James H. Nunn, COL, Armor, TRADOC System Manager, Abrams Tank System

It's Time for a True Regimental System

by Colonel Guy C. Swan III

Many who have chosen to be professional soldiers have remained on active duty partly because of the kinship felt with the units in which they served. Each of us has been assigned to a unit that we wished we could serve with for our entire careers. It's one of the intangibles that keeps us in the service in an era of competing (and often more lucrative) financial compensation packages in the civilian world. The notion of being part of a committed team is a strong motivator and something that's nearly impossible to replicate in civilian life.

As our Army embarks on its aggressive transformation campaign, we must capitalize on unique aspects of military life that have special appeal to soldiers and can't be duplicated anywhere else at any price. Exploiting these niches is vital if we are to attract and retain the quality professionals needed to man the kind of force envisioned by the Army's senior leaders. One way to do this is to re-look the regimental system and build one in which soldiers spend the bulk of their careers assigned to a particular organization. Enabling soldiers across the force to develop deep personal and professional bonds with comrades and with the history and traditions of their units is a benefit that far outweighs mere monetary rewards. Sure, pay and benefits are important to all soldiers, but let's face it, we will never reach parity with civilian counterparts. We need something more.

The Changing Strategic Environment. One of the factors driving the Army's transformation process is the recognition that we are likely to face a myriad of military missions across the spectrum of conflict in coming decades. Virtually all missions will be executed in a come-as-you-are fashion. Whether it's responding to a small-scale contingency mission or winning a major theater war, the Army has set in place extremely challenging deployment timelines that can only be met by highly trained and ready units. With goals of deploying a brigade combat team anywhere in the world in 96 hours and up to 5 divisions in 30 days, there will be no time for extensive train-up periods to mitigate the personnel turbulence that has plagued the Army for decades. Leaders will find themselves taking their units into more and more unpredictable environments where individual soldier actions and small unit operations will have strategic significance. These missions will demand soldier self-discipline and unit cohesion on a scale never before seen. Further, soldiers will be deployed frequently to places where it may be difficult to understand the reasons they are there, or what national interests are at stake. Stability like that found in a regimental system is rapidly becoming a necessity for combat effectiveness. Only organizations that have strong unit identities will be able to function in these potentially ambiguous strategic (and tactical) situations.

Clearly, unit cohesion is one benefit of implementing a regimental system, but stabilizing soldiers assigned to the regiment provides a host of other benefits to the Army. For example, modernization efforts would be significantly streamlined. Eliminating personnel turbulence could actually speed the integration of and training on new systems. Further, it would ease the management of soldiers who have received special training or skills — for example, no more problems tracking digitized soldiers who PCS to non-digitized units.

Operational tempo equity would be enhanced because deployments, both to peace operations and wartime missions, could be distributed more equitably among units. No longer would we have the individual soldier who deploys for six months to Haiti with the 10th Mountain Division, then is reassigned to the 1st Infantry Division only to deploy again immediately for another 180 days to Bosnia. Unit deployments would help us get a grip on this quality-of-life and retention sore point. Restationing an entire unit, while disruptive for a short period, would be preferable to the recurring disruption that units face with 10-15% quarterly personnel turnover. Clearly, standing war plans and CONPLANs would be affected by unit rotations. But the Army already routinely adjusts and substitutes units in CINC war plans today to account for modernization initiatives and peacekeeping missions. The point is that deployment predictability at the individual soldier level would be enhanced by a regimentally driven rotation plan.

Evolving Army Structure. Now that we are making a conscious shift to brigade combat teams as the focal point of our Army's future, the time is perfect to capture the history of the great regiments that have served the Army for so long. Divisions will still retain their planning and warfighting roles, but underpinning the division would be a strong "regimental combat team" structure. We are already doing this in great units like the 101st and 82nd Airborne Divisions, where the regimental structure has already been captured by the historic parachute infantry outfits. Other units, like the armored cavalry regiments, also have similar strong regimental identities — we need to capitalize on this now.

Another measurable benefit of long-term identification with a particular unit is the promotion of "elite" professionalism within the unit. Outfits like today's special operations units — the 75th Ranger Regiment, 160th Special Operations Aviation Regiment, and the Special Forces — take full advantage of their uniqueness as a combat multiplier and take their heritage seriously, focusing on it during the reception and indoctrination of new soldiers and leaders. Soldiers in these units are made to feel part of an extraordinary group of warriors and are expected to meet standards and safeguard traditions. The Army has downsized to the point that we really need to ask the question — why not have all soldiers feel that their unit is an elite warfighting organization?

Discussions of regimental systems normally revolve around combat arms organizations. However, special branch/combat support branch/combat service support branch soldiers could also retain their regimental ties to the specialized branch corps (Judge Advocate General Corps, Signal Corps, Transportation Corps, Quartermaster Corps, etc.) much like other armies do. Specialists would then be detailed to combat units as required or serve in branch-specific units (corps signal battalion, military intelligence battalion, etc.).

Family Support. Always a command challenge, family support is a built-in fact of regimental life. The regiment by its very nature becomes a family and fosters teamwork among family members. Long-term lasting relationships are a key quality-of-

life benefit of the regiment. The result would be a reduction in the transient nature of our antiquated individual replacement system, a system that often leaves young military families feeling as though they must go it alone. Additionally, how many commanders and CSMs have been severely beaten by their chains of command over poor sponsorship programs? Again, the stability afforded by permanent assignment to a regimental unit would mitigate this problem significantly. Unit moves would enable families to help each other rather than suffer the individualized pain we all go through during a PCS move. I'm convinced that economies of scale could be realized for the Army if we conducted most personnel transfers as unit moves, rather than letting thousands of individual moving contracts.

Maintenance of Training Standards. Some might think that universal training standards would suffer if the Army went to a regimental system — some units would train well, while others would not. Training standards across the Army would be maintained through our proven CTC program, service schools, and joint exercises that emphasize common doctrinal approaches to warfighting. Maintenance of an Army-wide training base would continue to foster common training standards for soldiers entering the force. Likewise, professional military education would remain centralized and the regiment would decide who goes and when. But by keeping soldiers in their units for the majority of their careers, small units would be able to perfect SOPs and TTPs rather than always having to retrain at square one to account for a constantly changing personnel picture.

Promotion and Advancement. Contrary to what one might automatically think, upward mobility of soldiers and leaders would not be affected. Of course, the accountants will disagree, but I would suggest that leadership opportunities for enlisted soldiers and officers would remain strong. And based on current recruiting trends, perhaps it's appropriate to build into a new regimental system a means to allow some troopers who are not inclined to pursue leadership positions to remain in their current grade and duty position for extended periods. Why not let a junior enlisted tank driver or a mid-career NCO remain in position instead of forcing him or her into an up-or-out situation that drains expertise in key skill areas? A competitive scheme of upward mobility should be instituted that includes rigorous, standardized competency and performance testing regimes to identify the best leaders in the regiment using Army-wide standards. Then units would be led by those who are truly motivated to be leaders and are willing to meet the standards to do so.

One knock on how other armies execute their regimental system is the unfounded notion that soldiers are "marked" early in their regimental careers as either good soldiers or poor soldiers, which then dictates their standing within the unit for many years. The opposite is actually the fact. Soldiers joining a regiment for the bulk of their careers are more inclined to strive to be the best they can be to ensure that they make good impressions on leaders and, more importantly, on comrades within the regiment. Further, if we look at extended service in grade and duty position, we would ameliorate anxiety among troopers who feel obligated to compete in an up or out career pattern, thereby fostering higher levels of professionalism and expertise in critical duty positions. Similarly, the pride of ownership among troopers in the regiment is enhanced and fosters an overall upturn in individual and unit performance within "my regiment."

I have heard the argument that frequent personnel moves are actually a strength of the U.S. Army — new blood and all that — and that we need the turnover to get quality people into the unit. But we already have good people in our units. Downsizing has eliminated the large majority of poor performers and left us with a cadre of solid leaders and good soldiers. We need to build on that. New people do bring new ideas and re-ignite things in a unit — true enough — but at a cost. The price of turbulence is much too high today in terms of unit readiness, quality of life, retention, etc. Under the regimental system, soldiers rotate in and out of units frequently to attend professional schools or to serve in other non-tactical assignments, thereby providing the "new (actually refreshed) blood" to the regiment.

Other Army Requirements. How will we fill all those nominative, non-troop duty assignments? This is easily handled by detailing officers and NCOs from the regiment to periodic assignments in the institutional or infrastructure side of the Army. AC/RC support, recruiting duty, observer/controller assignments, drill sergeant duty, service school instructor, or joint duty would be distributed by unit and factored into unit personnel management decisions, along with internal staff and command assignments. The bottom line here is that the unit's chain of command, not some large impersonal bureaucracy, makes these crucial manning calls in a manner that sustains day-to-day combat readiness.

Finally, in the spirit of the Army taking care of its own, a regimentally-based Army promotes lifelong associations. Strong ties with veterans is a healthy thing for the force and for the nation. Regimental affiliation would carry on long after active military service in an almost fraternal manner. The nomadic, transient Army of today undermines allegiance to the history and traditions of many great units. This can only be preserved through strong regimental attachments, not by soldiers who are just passing through. Anyone who has had the opportunity to meet and share stories with the World War II or Vietnam veterans who served in the same outfit can't help but be moved by the common experiences soldiers share across generations. You can't get that in civilian life at any salary.

Some will say the Army can only take so much change at once (medium weight brigades, 100% manning directives, OPMS XXI, EPMS XXI, etc.), and that's true. Certainly there are many details to be worked out to make this fundamental change in the way we do business — and there will be many naysayers. But when it comes to an issue that could have such a profound effect on the quality of our people and the readiness of our Army, nothing can be of higher priority. The time is right to rejuvenate the regimental system.

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Integrating "Doctrinal" Support Into Peacekeeping Operations:

Supporting a Heavy Task Force in Kosovo

by First Lieutenant Brian Novoselich and First Lieutenant Chad Foster

Peacekeeping operations were nothing new to the soldiers and leaders of Task Force 1-77 Armor. Many members of the battalion were veterans of Operation Joint Guard, operating in both Camp Colt and Camp McGovern, Bosnia, from March to October of 1997. To many, receiving the WARNOs and eventual deployment orders for Operation Joint Guardian II, in Kosovo, meant, "Just another Bosnia." Although many aspects of the mission remained similar, logistically the mission was considerably different. Unlike the base camp concept the task force was used to in Bosnia, the logistical arena in Kosovo would take on a much different form. The logisticians of Task Force 1-77 AR found themselves supporting their armor heavy task force much like they would during the tactical operations of a Combat Maneuver Training Center (CMTC) rotation.

As soon as the leadership of Task Force Tiger hit the ground in Kosovo, they quickly realized that the tactical situation was much different than that of Bosnia. Unlike Bosnia, where ethnic groups were separated into rather coherent enclaves, the Serbian and Albanian Kosovars still lived together in small villages and towns. Ethnic tensions ran high. Within the first week, houses could be seen burning almost nightly. The entire situation was likened by many to the "Wild West," with no sheriffs and lawlessness running rampant. KFOR would take on a multi-faceted role as lawmakers, peacekeepers, and civil court judges during the initial months of the deployment.

To accomplish our peacekeeping mission, our battalion task organized into an armor heavy task force, which consisted of two tank companies, a mechanized infantry company, and an airborne company. This mix of units created many unit-specific support requirements which the task force would eventually have to meet.

The level of violence and the frequency of violent events in the area made it necessary to keep assigned companies outside the Camp Bondsteel base camp. In the midst of the population, they provided a constant presence, which the leadership felt necessary to restore normalcy to the lives of the Kosovars. The terrain supported this plan: there were four large towns, each requiring a constant presence, in the area of operations. These towns each contained large buildings, typically factories, which were used to house the units. Similar to war-fighting operations, the companies each established company assembly areas in their assigned towns. From these areas, they began executing peacekeeping operations.

The array of forces in the area of operations forced the logisticians to change their preconceptions of how to support the force. With no maneuver units living on the base camp, they had to establish a new concept of support.

Task Force Falcon's concept of support for the battalion-size task forces originated from the fact that Camp Bondsteel served as the logistical hub for most classes of supply for all U.S. KFOR forces. Camp Able Sentry, Macedonia, served as the rear logistics node. Co-located on Camp Bondsteel were: the forward support battalion (FSB), elements of the main support battalion (MSB), a property book detachment, the combat area surgical hospital (CASH), a signal company, the Task Force Falcon Tactical Operations Center (TOC), and contracted Brown and Root packages. With the FSB at Camp Bondsteel and the furthest subordinate unit within 17 kilometers, it followed logically that the task force field trains, combat trains, Unit Maintenance Collection Point (UMCP), main aid station, and the TOC be co-located at the base camp. It now fell upon the task force and the companies to determine the best course of action for adequate support of all task force missions and the line companies scattered throughout the task force area of responsibility (AOR).

Revamping Support Operations

The task force commander set the resupply standard with his order to ensure that every soldier received two hot meals each day. This made it necessary for the task force logisticians to execute two LOGPACS daily. The initial task force support plan, upon entry into Kosovo, called for line company first sergeants to execute LOGPACS from Camp Bondsteel twice each day. This initial plan put an undue strain on the vehicles, first sergeants, and supply sergeants of the task force.

During the first few weeks of mission support in early July 1999, the task force quickly realized that due to the tactical and operational situation facing each line company, a closer look at overall support operations was in order.

Maintenance personnel work on the unit's tanks at the task force's Life Support Area, Camp Bondsteel.

Task Force Falcon required all convoys, logistical or operational, to travel with a minimum of two vehicles at all times. Tank and mechanized infantry companies possess only two HMMWVs and one 5-ton truck by MTOE, thus extremely limiting the ability to cover great distances (up to 17 km). With platoons scattered throughout their area of operations, line companies soon felt the huge burden and wear on both vehicles and personnel executing the LOGPACS.

Due to the high frequency of violent incidents in such a large AOR during the weeks following initial entry, the first sergeants played a key role in maintaining senior leadership at company command posts and in the AOR where needed. Normally the company logistical executors, the first sergeants found that they could either run LOGPACS and deal with the intricacies of heavy company logistics or help provide that senior leadership in the AOR, but not both.

Like the first sergeants, the company supply sergeants also found it extremely difficult, if not impossible, to run two LOGPACS a day lasting up to four hours each. Along with the requisition and pick-up of all Class II, maintaining accountability of all property book items, making daily logistical coordination, and keeping vehicles mission capable, the LOGPACS quickly hindered company-level supply operations.

After the initial growing pains, the task force turned to the consolidated task force LOGPAC technique for resupply. With the company supply sergeants living in the field trains and maintaining constant liaison with all higher and internal support assets, the task force adopted a "doctrinal" approach to supporting the battalion. Hoping to take the pressure away from the line companies, the support platoon assumed responsibility for executing two LOGPACS each day to either company assembly areas or the Logistical Rally Point (LRP). The LOGPAC normally consisted of the support platoon leader's HMMWV for command and control, line company supply trucks, HEMTT fuelers and cargoes when needed, and a trail 5-ton truck outfitted with a radio and .50 caliber machine gun. This LOGPAC resembled normal "doctrinal" operations very much like those rehearsed at the CMTC. Using the administrative and logistical net at the combat and field trains locations, the task force logisticians remained accessible for any line company support and supply requests in addition to the two LOGPACS each day.

This LOGPAC method allowed quick and easy replenishment of all classes of supply. Given the underlying constraint of two hot meals daily, the task force also managed to push Class II, IV, and IX from the base camp with the LOGPACS. Based on necessity and/or emergency requirements, special convoys were also established accordingly.

The task force handled Class III bulk and packaged products uniquely. Due to the lack of a combat trains with emergency fuelers and packaged products available, the support platoon positioned HEMTT fuelers at each company assembly area, under the control of the company. These fuelers were tasked to support any emergency resupply needs for all task force elements. Given the initial high operational tempo of the M1A1s, M2A2s, and the light infantry's attached HMMWVs, the forward-positioned fuelers proved extremely helpful for the entire task force. In addition, the support platoon maintained a stand-by fueler in the field trains with an operational basic load of packaged products.

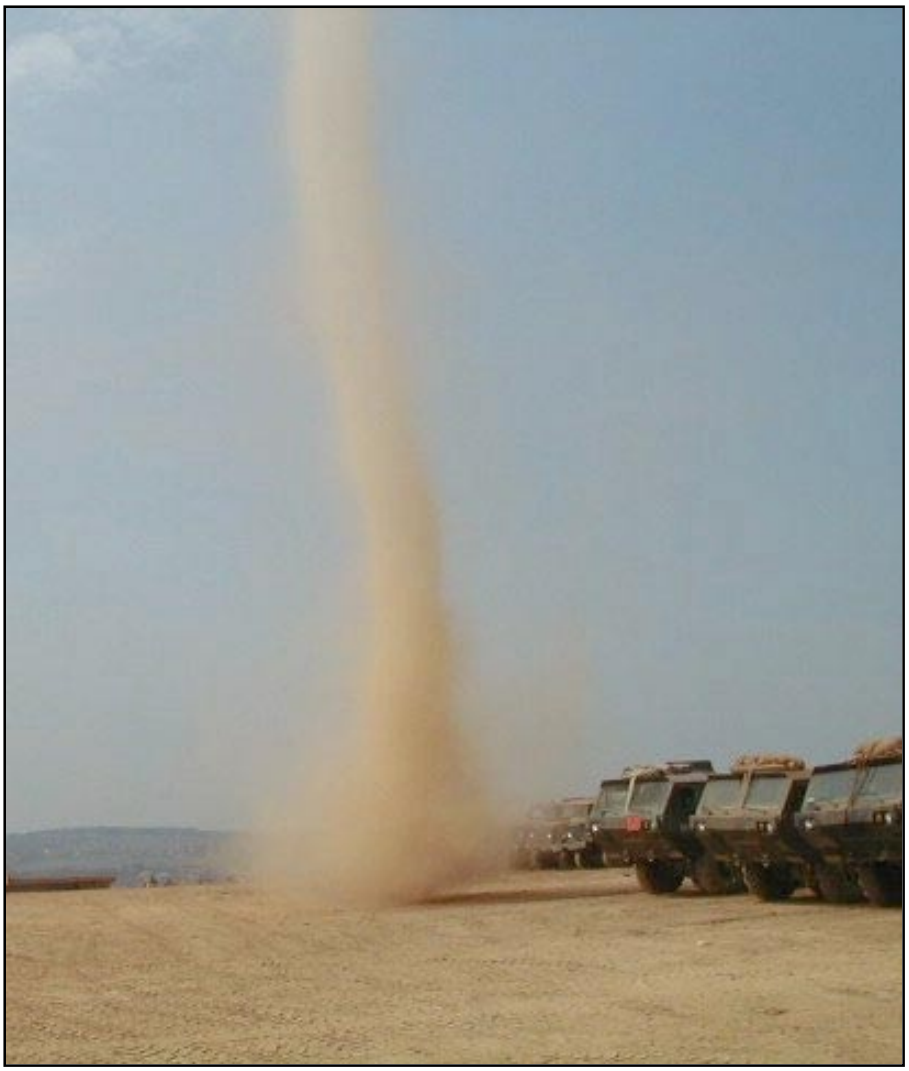
Caring for Troops and Civilians

Medical coverage for the task force also took on another look. In the initial weeks of the deployment, trauma cases in the local population were frequent. In the first month, there were numerous gunshot wounds and also a mass casualty situation, a grenade attack that injured 18 people. All injuries threatening life, limb, or eyesight were treated by KFOR because the local medical facilities were largely incapable of handling such injuries effectively. Unlike the typical tactical situation, Task Force Falcon had a CASH deployed to Camp Bondsteel. Having the hospital that far forward enabled faster treatment of urgent patients and also gave us the ability to push additional assets as far forward as possible.

With the maneuver companies deployed throughout the AOR, medical could not be handled from a consolidated aid station on Camp Bondsteel. Instead, each company had assigned medics and a tracked ambulance at their assembly areas, but despite having the tracked ambulance on hand, we found they were often too slow or too large to maneuver effectively in the small villages and crowded roads of Kosovo. Having the FSB's medical company as well as the CASH located on Camp Bondsteel allowed the attachment of five field litter ambulances (FLAs) to the task force. These FLAs were attached to the maneuver companies for evacuation purposes, and greatly reduced the time needed to move patients to the air medevac landing zones.

In addition to having medics and an FLA attached to each company, the task force also pushed a trauma team forward to the largest town, Vitina, which was also the area's ethnic "hot spot." This team, which co-located with the airborne company in their assembly area, consisted of two medics, the physician's assistant, and an ambulance, bringing advanced treatment as far forward as possible. In addition to being located in the largest town in the area, they also were centrally located to all companies. This trauma team began seeing an influx of routine and priority patients from the local population. In many instances the Kosovars did not trust or have access to health care in their towns. Although medical care was always readily available for KFOR soldiers, the majority of patients treated by the trauma team and task force medics in general were from the local population.

The remainder of the medical platoon, with the augmentation of two FLAs,



Reminiscent of a scene at the NTC, a dust devil swirls through the support platoon motor pool at Camp Bondsteel.

maintained health services in the base camp as well. These personnel served all task force personnel remaining on the camp, and their facility also served as a Class VIII resupply hub for the forward medical teams. The close proximity of the CASH allowed immediate and direct resupply to the aid station on a demand basis. In the event of a mass casualty situation in the area of responsibility, a medical quick reaction force was immediately dispatched from the aid station to help assist in casualty treatment and evacuation.

Decentralized Maintenance

Task force maintenance also required dispersing maintenance teams away from the base camp. Each line company took its organic trains to the assembly areas, along with the maintenance team tool trucks. This allowed the teams to fix most deficiencies and shortcomings on sight, and eliminated the need to travel back to the base camp for quality assurance checks.

The UMCP and field trains remained co-located at Camp Bondsteel. This allowed constant access to direct support maintenance assets. All ULLS-G boxes were linked directly to their FSB counterparts via a local area network to allow immediate maintenance reporting and Class IX transactions. Any direct support level deadlines were evacuated to the UMCP for repair. This configuration let us house mechanics and crew in the LSA (Life Support Area) already established on the base camp. Overall, maintenance operations remained fairly similar to the tactical configuration the task force repeatedly rehearsed at CMTC. With minor adjustments, the system worked well in both war-fighting and peacekeeping missions.

The growing pains of supporting a dispersed, tank-heavy task force during the first few weeks in Kosovo led the logisticians to reassess their concept of support for the task force. The decision to deploy all companies to assembly areas throughout the AOR forced a re-evaluation of the preconceptions many task force logisticians had from their experiences in Bosnia. The task force-level LOGPAC was the solution of choice. Not only did the "push" method of support facilitate all classes of resupply, but it also allowed line companies to focus efforts on the mission at hand. Pushing medical and maintenance support assets as far forward as possible ensured responsive support. Battalion task forces routinely rehearse logistical support at the training centers. Peacekeeping missions should not force battalion logisticians to scrap those operations that they execute routinely. Although the missions may be different, a task force deployed outside a base camp can be supported in a peacekeeping environment much as it would be in a war-fighting environment. By considering all logistical support requirements prior to entry into these areas of conflict, heavy mechanized units will be better prepared to support the unorthodox missions involved with stability operations.

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Reconnaissance and Security Forces in the New Heavy Division Structure

by Major Michael C. Kasales

As the world transitions into the 21st century, the United States Army also begins a transition, both in organizational restructuring and doctrinally. These transitions must be well thought out in order for the force to meet the challenges of the future battlefield. Organizational restructuring (the new heavy division) and emerging doctrine (distributed operations) have sufficiently addressed the changes to our traditional armored and mechanized forces. However, there are several shortcomings with respect to reconnaissance and security operations, both doctrinally and in force structure. This article discusses these issues and makes some recommendations to ensure that proper consideration is given to future reconnaissance and security operations.

Intelligence collection assets at national, corps, and division levels can provide commanders with valuable battlefield information. New equipment and technology will allow this information to be quickly disseminated and become available down to individual crew and squad level. This technology will allow orders and operational information to be disseminated faster, ensure more timely and accurate reporting and coordination, and enhance situational awareness across the battlefield. However, until the new technology and equipment is fielded and integrated throughout the force, commanders will have to rely on organic reconnaissance and security forces to provide timely and accurate combat information.

Even with the wide range of intelligence collection assets available to the commander, he has no better asset than his scout platoons to put reliable "eyes" on the objective. Imagery intelligence (IMINT) may not be available due to weather; human intelligence (HUMINT) from sources above brigade may be outdated; and signal intelligence (SIGINT) may not provide a clear enough picture for the commander. The ground scout provides the commander with a continuous, all-weather, thinking source of information. The scout provides timely and accurate reports on enemy strengths, weaknesses, locations, and disposition. The commander also employs his scouts to the front, flanks, and rear of main body forces, or in a specific area, to establish security for the main body, providing early warning to the commander of the enemy's advance.

Brigade and task force commanders must carefully weigh the need for detailed reconnaissance of an objective area, reconnaissance of the routes or axes for the approach march, and flank or rear security. The commander and staff must thoroughly analyze the mission and develop a plan that provides sufficient reconnaissance forward to deploy main body forces, while ensuring adequate security to the flanks so the main body can maneuver freely to achieve their intended purpose. With a limited number of reconnaissance and security forces, this can be a challenge to even the most prudent commander and well-trained staff.

Approaches to Reconnaissance

There are several methods or schools of thought for employing reconnaissance forces. The commander must understand which method he will use, as it will influence his planning process. Additionally, subordinate reconnaissance forces must also understand which method the commander is using, since this drives the amount of planning and preparation required for execution of the reconnaissance mission, as well as their understanding of how the intelligence information collected will influence the main body's execution.

The first method of employing reconnaissance forces is "reconnaissance push." This method calls for reconnaissance forces to be deployed early in the planning process. The staff uses the intelligence information collected to develop the plan. This technique requires the staff to develop facts and assumptions on the enemy early enough to focus the reconnaissance effort. These facts and assumptions are generally based on enemy templates and a thorough IPB. As reconnaissance forces confirm or deny the facts and assumptions, this intelligence information is reported back to the staff in order to complete the plan. "Reconnaissance push" requires that a detailed R&S plan be developed prior to the planning of the main body's mission. And the intelligence information must be gathered and reported in time to influence the planning process. The result of "reconnaissance push" operations is a detailed plan, based on hard intelligence, for the employment of main body forces. This is the technique that most BLUEFOR organizations attempt to use at the National Training Center. It is generally unsuccessful in a time-constrained environment because the staff does not dedicate enough time on R&S planning, and most units do not use the intelligence information collected to develop or adjust their initial plan.

The second method of employing reconnaissance forces is "command push." This method is similar to "reconnaissance push," as collected intelligence information is used to develop the plan. The difference is that it calls for the staff to develop several detailed main body courses of action prior to deploying reconnaissance forces. The staff must also develop a detailed R&S plan, normally based on the IPB process. Reconnaissance forces are then deployed to gather detailed information on enemy strengths and weaknesses. The intelligence information collected is used by the commander to select the appropriate course of action — massing his strengths against enemy weaknesses. This method also results in a detailed plan, based on hard intelligence, for the employment of main body forces.

The third method is "reconnaissance pull." This method also calls for reconnaissance forces to identify enemy weaknesses so they can be exploited by the main body. However, the staff must develop a flexible plan, based on several possible courses of action and driven by the commander's intent. In order to execute "reconnaissance pull," the commander must ensure that all subordinates

truly understand his intent for the operation, as this type of operation calls for decentralized, but synchronized and integrated execution. The plan must allow for maximum flexibility because the reconnaissance forces precede and continually place the main body in a position of advantage against identified enemy weaknesses. The commander uses a series of decision points, based on the intelligence "read," to maneuver his forces. This method does not alleviate the staff from planning R&S operations. They must still provide reconnaissance forces with the probable locations, strengths, and disposition of enemy forces. The result of the planning process is a flexible plan, based on decision points, that allows the commander to maneuver his main body forces based on intelligence information collected from his reconnaissance forces.

The commander must determine which reconnaissance method to use. The staff must become proficient in using the collected intelligence information to develop the plan or to advise the commander on which COA to execute. The technique for employing reconnaissance forces and exploiting the intelligence information they collect will become even more essential as brigades and task forces operate over a larger battlespace.

Emerging doctrine outlines an increase in the division's and brigade's battlespace. This increase — 100x100 kilometers versus 120x200 kilometers for the division, and 20x50 kilometers versus 60x100 kilometers for the brigade — amounts to giving the division and brigade responsibility for a third more battlespace, to include the responsibility for providing the added security and reconnaissance in this larger area.

Currently, armored and mechanized infantry battalion task organization includes an organic scout platoon. Its mission is to collect intelligence information for the commander by answering specific priority intelligence requirements (PIR). These scout platoons consist of six M1025/1026 HMMWVs (having been reduced from 10 HMMWVs). The platoons' total assigned strength is 18 scouts (1 officer/17 enlisted), a reduction of 12 scouts (4 NCOs/8 enlisted). Each vehicle has a crew of three: a vehicle commander, gunner, and driver. The platoon's main armament consists of three vehicle-mounted M2 .50 caliber machine guns, three vehicle-mounted Mk 19 automatic grenade launchers, and personal weapons. Additionally, scout platoons can be issued anti-tank weapons (AT-4s and Javelins), demolitions, and countermobility munitions (MOPMS and HORNET). By using GPS and hand-held laser rangefinders (MELIOS) (and in the near future the LRAS3 system) scout platoons also possess the capability to direct and call for precision indirect fires. Current plans for fielding the LRAS3 call for one per scout platoon.

Brigade Reconnaissance Troop

A recent change in force structure introduced a dedicated brigade-level reconnaissance and security element — the brigade reconnaissance troop (BRT), which consists of a headquarters platoon, two scout platoons of six vehicles each (identical to the organization of the task force scout platoon), and a striker platoon of six three-man fire support teams. The primary role of the BRT is to provide battlefield information to the brigade commander through the conduct of dedicated brigade-level reconnaissance and security operations. The headquarters platoon gives the BRT commander an organic command, control, and support element.

The BRT scout platoons have the same capabilities as the task force scout platoon and are directed by the BRT commander to observe specific named areas of interest (NAIs) to answer the brigade commander's PIR. The striker teams are dedicated fire support teams that allow the commander, in accordance with the brigade commander's scheme of fires, to shape the battlefield with indirect fires. They accomplish this task by observing and calling for fires into specific targeted areas of interest (TAIs).

Supporting the BRT

Commanders may task organize certain combat support elements to the BRT or scout platoons, based on mission requirements and asset availability. These assets include ground surveillance radar (GSR), fire support teams (COLTs), engineer reconnaissance teams (ERT), FOX chemical reconnaissance vehicles, Stinger air defense teams, and communications retransmission teams.

Each of these assets is employed to enhance the BRT's or scout platoon's reconnaissance or security mission. The commander and staff must ensure that these assets are fully integrated into the plan and that their task/purpose directly relates to the overall reconnaissance or security operation's success.

Overall, the brigade combat team has a total of five dedicated scout platoons. The BRT works primarily for the brigade commander and each of the task force scout platoons work directly for the task force commanders. All of these assets are integrated and synchronized through the brigade reconnaissance and surveillance plan. The BRT and task force scout platoons are capable of infiltrating into enemy areas and providing the commander with critical intelligence information. However, there are several constraints and limitations that must be considered when planning the employment of the BRT and TF scout platoons.

The brigade's frontage can be up to 60 kilometers. Realistically, the main body should only maneuver over terrain that has been sufficiently reconnoitered or defend a sector no larger than that over which security (early warning) can be provided. By current doctrine, the scout platoon can reconnoiter a zone 3 to 5 kilometers wide. With a scout platoon of six vehicles and only 18 personnel, the scout platoon will be limited in its ability to conduct reconnaissance and security operations. METT-TC (Mission, Enemy, Troops, Terrain and Time, Civilians) conditions will increase or decrease the size of the zone or sector over which the platoon will operate. However, the width of the zone able to be reconnoitered will obviously be reduced due to fewer scout squads.

A conservative estimate of the scout platoon's frontage is one to three kilometers in forested or rugged terrain and five to ten kilometers in open or desert terrain. This estimate is based on the general characteristics of the terrain, the ability to infiltrate and maneuver, observe assigned NAIs and TAIs (Targeted Areas of Interest), and communicate across the battlefield. Commanders and staffs should consider all of these factors when assigning zones or sectors to the BRT and scout platoons.

With smaller brigades and task forces dispersed over a larger battlespace, there is an increased need for security. While there are additional intelligence assets available to the brigade to observe the flanks and rear of the unit, there must be dedicated ground security elements on the critical flanks to protect the force. We should commit scouts to those flanks seen as avenues of approach for the enemy's courses of action. This requires, at a minimum, one scout platoon dedicated to these vulnerable flanks to provide security and early warning.

Brigade and task force commanders must consider the limitations of the BRT and scout platoon's ability to reconnoiter fewer routes. By current doctrine, the HMMWV scout platoon can reconnoiter up to two routes simultaneously (reconnoitering for trafficability only). Based on a 6-vehicle platoon, they will now only be able to reconnoiter one route at a time.

With the requirement for the platoon to provide for its own security along the actual route being reconnoitered, the HMMWV scout platoon does not have a sufficient number of squads to reconnoiter two routes simultaneously. This will have an impact on planning the routes or axes of the main body's avenue of approach. This does not mean that commanders and staffs should avoid considering multiple routes. However, they must understand that they may have to accept risk when considering the use of alternate routes because the scout platoon will be committed to reconnoitering only one route.

During offensive operations, commanders normally attempt to employ an advanced guard. The advanced guard should be an armored or mechanized company team, not a HMMWV scout platoon task organized with tanks or BFVs. The BRT or task force scout platoons do not fare well when given the mission to conduct aggressive reconnaissance. These platoons do not have the armor protection or firepower to react to decisive direct fire contact. Scout platoons must be able to maintain freedom of maneuver and avoid becoming decisively engaged. If they are designated as an advanced guard, attempting to establish contact with the enemy, they generally will not survive the initial contact. Consequently, the commander risks losing this precious asset.

The organizational changes also impact the platoon's ability to man observation posts. The scout platoon will only be able to establish a maximum of three observation posts, providing continuous observation of three NAIs at any given time. This results in the brigade's ability to observe a total of 15 NAIs with scouts and six TAIs with striker teams. Keeping in mind the larger battlespace (with more possible enemy avenues of approach) and the requirement to provide for greater flank security, the brigade should realistically only plan to observe 9-12 NAIs and six TAIs forward across a frontage of up to 60 kilometers. This limits the commander's ability to sufficiently employ scout elements throughout the depth and width of the battlespace to provide detailed reconnaissance or security. The S2 must carefully scrutinize enemy courses of action and prioritize NAIs to ensure scout observation posts are positioned to accurately track the enemy's advance or report on enemy locations.

Current changes will also limit the scout platoon's ability to organize for combat. With a 10-vehicle platoon, the platoon leader could organize his platoon into two, three, four, or eight teams. Now, having only six vehicles, the platoon leader will only be able to organize his platoon into two or three teams (he could possibly organize into six squads for short duration). This will reduce the number of scouts able to conduct "eyes on" reconnaissance and surveillance, resulting in less flexibility for the commander in employing his dedicated reconnaissance and security element.

Overcoming Dismount Limitations

The HMMWV scout platoon has a very limited dismount capability and must be carefully task organized to conduct dismounted operations. The scout platoon will find it even more challenging to execute dismounted operations in the future. The 10-vehicle scout platoon has the capability of constituting 10 dismounts while still manning all of its vehicles. The six-vehicle platoon can only constitute six dismounts while still manning all of its vehicles. What this really results in is losing the ability to constitute two two-man dismounted reconnaissance teams, once again limiting the platoon's ability to provide reconnaissance or security.

In the task force, the smaller platoon organization will also pose challenges to command, control, and combat service support. The platoon headquarters section will be called upon to man observation posts and conduct reconnaissance. Executing these scout tasks will reduce the platoon leader's ability to provide command and control. Additionally, the platoon sergeant will have a more difficult time executing platoon CSS operations while he is directly involved in the reconnaissance or security effort. To overcome this problem, the combat service support responsibility must be placed on the HHC commander and 1SG. In the new heavy division structure, the HHC commander and 1SG are not encumbered by duties in the field trains. These duties are now the responsibility of the logisticians in the task force support area. This frees the HHC chain of command and makes them available to closely track and coordinate the support required by the scout platoon.

Following is an example of how to employ the BRT and TF scout platoons during brigade offensive operations:

The BRT conducts a zone or area reconnaissance to collect intelligence on the enemy to the front of the brigade. Initially, the BRT will conduct reconnaissance across the brigade's frontage, focusing on the brigade's main objective. Once task force scout platoons are committed, the BRT scout platoons focus their reconnaissance beyond the objective, attempting to locate the enemy's reserve. Striker teams are employed to influence the fight by calling for fires on the objective or on the enemy's reserve.

The scout platoon of the brigade's main effort task force conducts route reconnaissance along the main body's axis of advance and then reconnoiters the objective for the main effort.

The task force scout platoons that follow reconnoiter objectives for the supporting efforts, reconnoiter alternate routes or axes of advance, conduct flank or rear security for the brigade, or facilitate the movement or forward passage of follow-on forces.

After the brigade has secured the objective, a security zone must be established while the brigade conducts consolidation and reorganization. This plan should have already been developed and included as the final phase of the current operation. During this consolidation and reorganization phase, the BRT and TF scout platoons establish a screen forward and to the flanks of the brigade to provide early warning during this vulnerable period.

Following is an example of how to employ the BRT and TF scout platoons during brigade defensive operations:

The BRT screens well forward in the brigade's security zone. BRT scout platoons observe NAIs and report on the advance of enemy formations. The striker teams are positioned in the security zone to call for indirect fires in order to shape the battlefield by destroying, delaying, disrupting, or limiting enemy formations as they advance. Additionally, the BRT has the capability to shape the battlefield by employing MOPMS and Hornet minefields to delay, disrupt, or limit enemy courses of action.

The scout platoons from the lead task forces also occupy a screen in depth in the security zone. They conduct reconnaissance and surveillance to identify enemy forces and accept target hand-over from the BRT. The lead task forces must also dedicate combat elements, task organized with the scout platoons, to occupy the security zone. The company teams forward in the security zone accept target hand-over from the scout platoons and destroy enemy reconnaissance elements.

Scouts can also be used to destroy enemy reconnaissance elements by employing Hornet minefields or engaging with direct fire systems (Javelin, AT-4, and .50 cal MG). However, commanders must consider the value of destroying enemy vehicles versus the cost of compromising scout locations.

After the enemy reconnaissance phase, the BRT and scout platoons continue to report on the advance of the enemy main body. The BRT, striker teams, and scout platoons continue to shape the battlefield with indirect fires and counter-mobility munitions; attempting to delay, disrupt, or limit enemy courses of action.

The security zone company teams move back to the main battle area and participate in the main defense. The task force scout platoon from the rear task force should be employed on a flank to provide early warning to the brigade along a most dangerous enemy avenue of approach.

The concerns and recommendations discussed above are based on observations from 18 training rotations at the National Training Center as a cavalry troop and scout platoon trainer. During this period, several brigade reconnaissance troops and reorganized task force scout platoons were observed and each of these elements had to overcome the challenges addressed above. Based on the trends observed, the following recommendations are proposed:

Current scout platoon doctrine (FM 17-98) and reconnaissance/security doctrine in task force and brigade-level field manuals (FMs 71-2 and -3) should be amended to address the above concerns. The specific issues to address include: reduced scout platoon doctrinal frontages, limitations on reconnoitering routes and axes of advance, use of HMMWV scouts as an advanced guard, limitations on the number of OPs, and combat service support to the TF scout platoon. Addressing these issues in our field manuals will ensure that maneuver commanders are fully aware of the tactical implications of employing the BRT and the smaller task force scout platoons.

We should reconsider the decision to field six-vehicle, HMMWV-equipped scout platoons. The scout platoons, both in the task force organization and in the BRT, should be modeled on the 10-vehicle platoon organization. As the task force and brigade inherit a larger battlespace, they will require a larger number of reconnaissance and security assets. The concerns discussed above clearly outline the challenges of employing smaller scout platoons and support the need for a 10-vehicle, HMMWV-equipped organization.

We should re-think the distribution of new equipment. The scout platoon is currently scheduled to receive only one LRAS3 per platoon. Instead, each scout section should be issued the LRAS3. This system will give scouts the ability to acquire targets out to 12 kilometers and identify targets at 8-10 kilometers. Additionally, this system will allow scouts to lase targets for precise grid locations in order to call for accurate indirect fires. The current distribution plan does not provide a sufficient number of LRAS3s to the scout platoons.

The future MTOE strength of the scout platoon must be carefully considered. The LRAS3 is an interim fix until the Future Scout and Cavalry Vehicle (FSCV) is fielded in FY 2007. The FSCV will provide improved surveillance capability to the scout platoons in the task force, BRT, division cavalry squadrons, and ACRs. However, current plans only call for a scout platoon to be equipped with four FSCVs. For the same reasons mentioned above, fewer scout systems will significantly reduce the commander's ability to conduct reconnaissance and security operations. Based on surveillance and communications equipment limitation, four vehicles per platoon will not be able to provide sufficient coverage. The ideal size of an FSCV-equipped platoon would be six vehicles.

In conclusion, organizational and doctrinal changes are here or just over the horizon. As we transition into the 21st century, we must ensure that the organizational restructuring and doctrinal revision of our reconnaissance and security forces are carefully considered. These forces have a significant role in all military operation and provide the commander with invaluable combat information. Failures to give the issues due consideration will significantly reduce the effectiveness of these valuable brigade and task force assets.

MAJ Michael Kasales served as scout platoon leader, support platoon leader, and troop XO (Operation Desert Storm) in 2d Squadron, 3d ACR, Fort Bliss, Texas; assistant S3, 2d Squadron, 11th ACR, Wildflecken, Germany; division gunnery officer, 1st AD, Bad Kreuznach, Germany; commander, B Troop (Operation Joint Endeavor – Bosnia), 1st Squadron, 1st U.S. Cavalry, Buedingen, Germany; and cavalry troop/scout platoon trainer, Cobra Team, National Training Center, Fort Irwin, Calif. Currently, he is the Tactical Operations Center (TOC) Trainer, Cobra Team, National Training Center.

Joint Force Quarterly Announces Essay Contest

To stimulate innovative thinking on how the Armed Forces can remain on the cutting edge of warfare, *Joint Force Quarterly* has announced the 1999-2000 "Essay Contest on Military Innovation" sponsored by the National Defense University Foundation, Inc. The contest solicits contributions on exploiting technological advances in warfighting as well as on the development of new operational concepts and organizational structures. Essays may be based on either historical analyses of military breakthroughs or contemporary trends in the conduct of war.

Prizes are $2,500 and $1,500 for the two best essays. In addition, a prize of $1,000 will be presented for the best essay submitted by an officer in the rank of major/lieutenant commander or below (or equivalent grades), regardless of nationality.

Entrants may be military personnel or civilians (from the public or the private sector) and of any nationality. Essays written by individual authors or groups of authors are eligible. Entries must be original in nature and not previously published (nor under consideration for publication elsewhere). Essays derived from work carried out at intermediate and senior colleges (staff and war colleges), universities, and other educational institutions are eligible.

Entries must not exceed 5,000 words in length and must be submitted typewritten, double-spaced, and in triplicate (no electronically transmitted contributions will be accepted). They should include a word count at the end. Documentation may follow any standard form of citation, but endnotes rather than footnotes are preferred. Entries must be submitted with a letter indicating the essay is a contest entry, together with the author's name, social security number (or passport number in the case of non-U.S. entrants), mailing address, daytime phone number, and FAX number (if available); a cover sheet containing the contestant's full name and essay title; a summary of the essay which is no more than 100 words; and a biographical sketch of the author. Neither the names of authors nor any personal references to the identity of the contributors should appear in the body of the essays (including running heads or other distinguishing markings such as office symbols).

Entries should be mailed to: Essay Contest, ATTN: NDU-NSS-JFQ, 300 Fifth Avenue (Bldg. 62), Fort Lesley J. McNair, Washington, D.C. 20319-5066. All entries must be postmarked no later than June 30, 2000 to be considered eligible.

Joint Force Quarterly will hold first right to publish all entries. The prize-winning as well as other essays submitted in the contest may appear in future issues of the journal.

The GDLS Pandur fires at Baum Range. This vehicle has been fielded by Spain, Belgium, Kuwait, Slovenia and Austria. Photo by Jon Clemens

Soldiers Try Out Medium Armor In Fort Knox Demonstrations

General Eric Shinseki's controversial plan to create lighter, more deployable brigades moved a step closer at Fort Knox this winter with the arrival of 35 vehicles for a Platform Performance Demonstration (PPD). The Chief of Staff of the Army's vision calls for the Army to acquire medium armored vehicles that are deployable by C-130 or larger transports and capable of getting to the world's trouble spots ready to fight on arrival.

During the PPD, soldiers from Fort Knox, Fort Benning, Fort Lewis, and Fort Leonard Wood had a chance to drive, shoot, and swim the vehicles, which were supplied by eleven manufacturers. The intent was to find out if suitable vehicles for the new brigade would be available "off the shelf," so that these new formations can be created quickly. The vehicle types required include reconnaissance vehicles, infantry carriers, mobile gun systems, antitank vehicles, and platforms for mortars, command and control, engineer teams, and battlefield ambulances. The demonstrations included driving, live fire exercises, deployability by C-130, rail, and HET, tactical movement, both cross-country and in urban areas, and swimming capability.

The PPD, intended to educate the Army about what's available, also gave soldiers the opportunity to tell manufacturers' representatives how their vehicles might be improved. In addition to U.S. firms, manufacturers from France, Turkey, Canada, Germany, Singapore, and Switzerland participated.

General Eric K. Shinseki, Chief of Staff of the Army, talks to some of the soldiers who were assigned to try out the equipment in the Platform Performance Demonstration.

Combat developers observed the demonstrations to assess each vehicle's adaptability to the new brigades and its potential for the insertion of new technology to improve its capabilities.

The Chief of Staff's vision calls for the ability to put a combat brigade on the ground anywhere in the world within 96 hours, a division within 120 hours, and five divisions in 30 days.

- Jon Clemens

At left, this Armored Gun System (AGS) vehicle, seen coming down the ramp of a C-130, has the Level I (of three) possible levels of armor protection.

An MTVL, with a one-man turret, is driven onto a heavy equipment transporter as part of the deployability demonstrations.

A GDLS Dragoon has emerged from the water in this view of the swim exercise area.

At left, the TPZ Fuchs, from Germany, emerges from a C-130 during deployability demonstrations. This armored personnel carrier is the same chassis as the Army's Fox NBC detection vehicle.

A French VAB armored personnel carrier is chained into place on a rail car during the deployability demonstration.

The LAV III assault gun variant, at left, fires its pedestal-mounted 105-mm cannon at Baum Range.

Photos by Robert L. Stevenson

Soldiers familiarize on the LAV 300 Mark II, one of the infantry fighting vehicles being demonstrated.

Below, the Bionix 25, an infantry fighting vehicle from Singapore, mounts the firing ramp to demonstrate its capabilities with its 25mm gun fully depressed.

The Dragoon 4x4 APC with 25mm turret, above, fires downrange during the live-fire portion of the demonstrations.

The LAV III with 120mm turreted, breech-loading mortar speeds by during the basic driving demonstration.

Editor's Note: Space did not permit inclusion of photos of all 35 vehicles that participated in the PPD.

An XM 1117 takes the plunge, demonstrating its fording capability.

OPFOR Key Tasks in Security Zone Operations At the National Training Center (NTC)

by Captain Curtis A. Buzzard

Security zone operations on the NTC battlefield are often the most difficult for the OPFOR to execute and for units to attack; consequently, these missions offer excellent learning points and subjects for discussion.

The security zone is the quintessential example of a mobile defense in depth, which attempts to attrit, disrupt, and delay enemy forces, and, most often, successfully destroy them. The foundation for OPFOR success lies in the definition of the key tasks they must perform to achieve the stated purpose of the operation and succeed on the battlefield. This article discusses the OPFOR's key tasks during a security zone battle and suggests some BLUEFOR actions that could mitigate or neutralize them.

These tactical suggestions are not meant to be all-inclusive or present an approved solution, but they offer some simple actions that can dramatically change the outcome of a security zone battle. For the benefit of clarity, OPFOR will be referred to as friendly forces and BLUEFOR as enemy forces.

Understanding the Security Zone

The security zone, according to *TRADOC Pamphlet 350-16*, is "established when the defense is organized out of contact with the enemy." The security zone is placed in depth (15-50 km) and extends across the entire zone of responsibility (10-15 km). Furthermore, it is established in depth in front of 1st echelon units in the main defensive area; arrayed in initial, subsequent, and forward positions (see Figure 1). In simple terms, the security zone equates to a large counterreconnaissance force arrayed in depth ahead of the main battle area. At the NTC, an MRB (+) (11 x T-80s, 33 x BMPs, 200 x infantry, and 2 x 2A45M AT guns) normally defends against a brigade combat team (1 x armor task force, 1 x mechanized infantry task force, 1 x light infantry battalion).

Its task and purpose is to attrit and delay in sector, attacking enemy forces in order to provide time and space for 1st echelon defensive preparation. Implied tasks are disrupting enemy maneuver and denying any effective direct or indirect fires from being placed on 1st echelon positions. Quite simply, the best way to accomplish this mission is to destroy enemy forces. Therefore, the planning process is focused on denying any enemy penetration of the security zone and arraying forces to completely destroy attacking forces. The desired end state consists of a destroyed enemy BCT, no penetration of the security zone rear boundary, 1st echelon positions protected from effective direct or indirect fires, and one MRC prepared to conduct follow-on offensive operations.

OPFOR Reconnaissance Goals

During planning, the MRB commander will develop and answer several critical questions, which basically parallel those developed prior to any defensive operation. (1) How do I establish reconnaissance in depth to maximize situational awareness? (2) How do I deny the enemy the ability to effectively gather intelligence on my defensive preparation and array of forces? (3) Where, how, and with what combat power and engineer assets do I build my engagement areas (initial, subsequent, and forward positions)? (4) How and where do I force the enemy to attack piecemeal into my engagement area? (5) What are the occupation, disengagement, repositioning, withdrawal, and counterattack criteria and times to execute? (6) Where and when do I commit my MRB reserve or the regimental combined arms reserve? (7) Where, when, and with what combat power do I counterattack? These are but a few of the proposed questions for the commander, but, clearly, one understands that the answers are only derived from an appreciation of terrain, friendly and enemy capabilities, and time, all of which are integrated into decision points. Ultimately, the OPFOR commander wants to create a battle where he controls the tempo and initiative throughout.

The answers to these questions are found in the key tasks necessary for accomplishing the security zone mission. The key tasks are divided into eight, which are not meant to serve as "standardized" key tasks, but generally apply to every OPFOR security zone mission. During the planning process, these tasks will be modified and refined based on the principles of METT-T.

First, the OPFOR attempts to establish reconnaissance in depth in order to maximize situational awareness. Reconnaissance assets will stagger their infiltration along numerous ground and air routes in order to meet the commander's intent and will identify and, if required, destroy enemy forces in zone to facilitate the MRB's occupation. Division and regimental reconnaissance companies will array forces in depth in order to be capable of identifying and observing high payoff targets, to include enemy forces (both ground and air) in their tactical assembly areas, FARPs, BSAs, UMCPs, TOCs, artillery PAs, and the Q-36. Deep scouts will test local security of the attacking unit and will often intermingle with enemy forces during the hours of limited visibility to gather further intelligence, such as the location of engineer breaching and FASCAM assets, air defense assets, and task force task organization. Furthermore, scouts and stay-behind Division Reconnaissance Teams (DRTs) will be arrayed in depth to confirm the enemy course of action, report BDA, and enable the massing of indirect fires and CAS at key choke points along the enemy direction of attack.

The BLUEFOR Response

In order to counter the OPFOR's reconnaissance plan, BLUEFOR units must secure their assembly areas. They should conceal locations of forces through the use of terrain, camouflage nets, and repositioning during hours of limited visibility. Don't assume that OPFOR reconnaissance assets cannot be in the BLUFOR sector prior to an offensive operation. Ultimately, the battle is won by the unit with the best situational awareness. Finally, BLUEFOR must develop a counterrecon plan, even in the offense, to secure their approach march. S2s must SITTEMP enemy recon locations, based

on terrain analysis, and develop a maneuver plan with the S3 to deny these platforms. "Counter-DRT" sweeps with aviation assets linked to infantry on the ground is the most successful technique.

Second, the OPFOR will focus on destroying all enemy reconnaissance assets; to include brigade reconnaissance troops, scout platoons, GSR teams, NBC reconnaissance, COLT teams, retrans teams, etc. The OPFOR will use a variety of techniques. Initially, the division and regimental reconnaissance companies will identify any enemy stay-behind forces during their infiltration. Next, when an MRB occupies its assigned sector, its focus is on "clearing the sector" of any enemy forces.

The combat reconnaissance platoon (CRPs composed generally of three BMPs and two BRDMs) accomplishes this locally for the MRB by examining key terrain that facilitates observation of the sector. Normally, the CRPs initially clear key terrain at lower elevations using hunter-killer teams to identify and destroy these forces. In addition, dismounted infantry, upon occupying sector, will immediately conduct patrols of key terrain assigned to them in their area.

Simultaneously and in conjunction, the OPFOR conducts "DRT sweeps" with SOKOL (OPFOR attack aviation replicating HIND-Ds). SOKOL will use two aircraft to accomplish this mission. One aircraft attempts to identify enemy recon assets on key terrain at high elevations overlooking the zone, and it will either destroy these forces or will maneuver a second aircraft with a squad of dismounted infantry to a position to unload the infantry and destroy the target. SOKOL's actions are monitored by the MRB, and the MRB commander orients and focuses SOKOL's efforts based on regimental recon reports and the CRPs, who monitor both the OPFOR O&I net and MRB command net. This facilitates excellent situational awareness and timely and accurate reporting.

During hours of limited visibility, the OPFOR will establish a counterreconnaissance sector within the MRB zone. Normally, the CRPs will establish OPs along the FEBA, often to overwatch a situational or tactical obstacle emplaced during the hours of limited visibility. Each MRC will provide one MRP for counterrecon. Some forces will deploy forward and at least two thermal systems will be able to overwatch any portion of the obstacle work for redundancy. All forces within the MRB conducting counterrecon during limited visibility will report directly on the MRB command net. This facilitates situational awareness. Once the counterrecon fight is over, these forces will revert back to their MRC net for command and control. The OPFOR does not want the enemy to attack at night. Though a challenging mission, attacking units would be maximizing their capabilities by conducting a night attack properly supported by effective command and control, reconnaissance, and fire support. Indirect delivered smoke placed on OPFOR battle positions and the enemy side of obstacles would severely limit the OPFOR's ability to destroy attacking enemy forces. (However, the gradual fielding of the BMP II, which has an effective thermal night sight, is beginning to change that situation.)

When the enemy recon assets begin movement into the security zone, the CRPs will cross-talk with the regimental recon assets in order to ensure the OPFOR is aware of the LD of the enemy recon assets, their composition, route of march, and infiltration techniques. Regimental recon assets will often displace off of key terrain for day observation in order to patrol dismounted into assembly areas or along key infiltration routes in order to be capable of identifying dismounted or mounted (HMMWV or Bradley) infiltration during limited visibility. These enemy recon assets will then be passed off to the MRB CRPs. Arrayed in depth behind the CRPs will be the reconnaissance screen of approximately one MRP from each MRC. Ideally, each vehicle has thermal capabilities, and the tanks possessing searchlights are arrayed on the flanks in order to illuminate a greater portion of the sector for non-thermal vehicles to orient fires.

The use of all visible and infrared light is tied to the execution of direct fires. Indirect illumination and searchlights are the two most common methods for illuminating the enemy. A hand-held illum flare or searchlight will not be employed unless a direct fire system is oriented on the location of the enemy. The OPFOR employs these through "hunter-killer" teams. For instance, one BMP may serve as the hunter. Once he identifies combat power attacking, he alerts a T-80 in depth by using night TRPs (both thermalized and marked with IR light signature). Once the T-80 identifies the TRP, the BMP counts down 3, 2, 1 then shoots the illum. This facilitates short duration of light and the ability to quickly identify and destroy targets. On the contrary, in a similar fashion the T-80 could illuminate a target with the searchlight for the BMP to destroy. Often, the OPFOR does not need the illumination because enemy units do not conduct proper PCIs to ensure the vehicles are not emitting light. Amazingly, some units attempt to infiltrate with blackout drive or marker lights illuminated on their vehicles.

Furthermore, the OPFOR uses all assets available to contribute to the counterrecon fight. Dismounted infantry patrol obstacles and key terrain to deny the positioning of enemy recon assets and enemy air battle positions not covered by air defense assets. Other regimental assets in place, such as air defense, retrans, and IEW, also contribute to the counterreconnaissance fight by providing accurate reporting in addition to their primary duties. It is not uncommon for a SA-18 team to jump to the MRB net and report enemy movement in his sector or enemy aircraft on station to facilitate destruction. Overall, the ability to communicate to all assets in sector and their timely and accurate reporting enables the MRB commander to have unparalleled situational awareness and information dominance during the counterreconnaissance fight.

During the planning process, BLUEFOR units must fight their reconnaissance as a combat operation, which is fully supported and synchronized with the combat multipliers. This is the most important action other than the actual tactical maneuver of the attack. Too often, it appears that scouts are left to fend for themselves and not fully supported by all battlefield operating systems. Aviation assets, when available, must be used to identify OPFOR positions and provide timely and accurate reports to the infiltrating forces. Furthermore, scouts must obviously practice excellent light and noise discipline and phase scouts into sector throughout the hours of limited visibility. In addition, they can air assault scouts into position simultaneous to ground insertions. Particularly effective is the employment of deception SEAD fires along an air avenue of approach, which will not be used. When artillery is fired at night, the OPFOR immediately thinks SEAD. Unless the SEAD is employed perfectly, seconds prior to the aircraft, the OPFOR will reposition along the SEAD route to destroy aviation assets. Remember, don't assume that air defense assets are the sole source for air defense. The BMP main gun kills aircraft just as effectively as an SA-18. Therefore, one could potentially either fire deception SEAD or the SEAD early and air assault 2-3 hours later. These two methods would thoroughly deceive the OPFOR. Furthermore, scouts must call for indirect fires when contact is made and bypass OPFOR positions. Often, scouts become decisively engaged rather than focusing on reaching their assigned position to accomplish the commander's intent. Also, units must maintain surveillance along their LD. The OPFOR often em-

places obstacles very far forward to delay not only scouts, but also the attacking BCT. One technique used successfully by the OPFOR is employment of an independent reconnaissance detachment (IRD), composed of an MRC. When BLUEFOR counterrecon is effective, an IRD will attack into the screen to either collapse the screen or so fixate defending forces that scouts can infiltrate on the flanks without being observed. Most importantly, all reconnaissance assets, not just scouts, must be able to communicate successfully, which means effective positioning of retrans assets, and must provide timely and accurate reporting to maneuver commanders. Ideally, the scout platoon leader should be able to communicate on the maneuver net and provide guidance to company/team commanders. Too often, the normal intel processing method — from scout to S2 on O&I, then over the command net — either takes too long or loses its accuracy.

Third, once the enemy attack commences, the OPFOR seeks to destroy the lead company/team from initial positions. The initial positions (or ambush positions) are normally arrayed along the FEBA. Their task and purpose is to destroy the lead company team in order to disrupt the lead task force and force its piecemeal commitment into the subsequent positions. The initial positions are generally MRP (1 T-80 and 3 BMPs) or smaller in size and are supported by limited engineer assets. Individual vehicles are generally positioned in key terrain available. Keyhole positions in broken terrain are preferable, because they provide concealment and enable repositioning. Their effect is not only to destroy but disable forces unable to fix and bypass.

Obstacles will be emplaced only to disrupt routes of march on main avenues of approach. Once these forces have accomplished their task and purpose, or when ordered, they will disengage and reposition back in depth to subsequent positions. Disengagement criteria is normally determined by the status of enemy and friendly combat power or when ordered to withdraw.

The initial positions have a variety of resources to support disengagement. These techniques include persistent or non-persistent chemicals, indirect HE fires, smoke (indirect, smoke pots, or TDAMs), BRDM AT-5 overwatch positions, use of artillery delivered FASCAM, emplacement of the UMZ (similar to enemy VOLCANO), and deception (via radio traffic, positions, false obstacles and battle positions (BPs), etc.). Every asset will support the bounding overwatch disengagement of these forces, so that they can safely maneuver to their subsequent positions to attrit more enemy forces without their movement being observed.

BLUEFOR units must plan to make contact as soon as they cross the LD. Units seem to think they will be able to attack unopposed past the LD until they reach the main engagement area or OPFOR obstacles. Remember the tasks for the security zone: attrit and delay. Therefore, BLUEFOR must conduct effective route and zone reconnaissance prior to the approach march. Early on, scouts must identify enemy forces and obstacles deployed forward and target forces with indirect HE fires and smoke. They must also report enemy locations to the advanced guard company/team in order to fix and bypass or destroy. Company/teams must plan likely areas along the approach march where they may need to dismount infantry to assist in destroying ambush positions or clearing intervisibility lines where contact is anticipated. Remember that aggressive massed movement will overwhelm OPFOR initial positions.

Fourth, the OPFOR will attempt to destroy the lead task force from subsequent positions. The task and purpose of the subsequent position is to destroy the lead task force main body in order to disrupt BCT maneuver and create separation within the BCT main body prior to contact with the forward positions. The subsequent positions are normally composed of an MRC (-) (two T-80s and six BMPs) in addition to combat power repositioning from the initial positions. These positions are supported with slightly more engineer work, primarily focused again on countermobility. These positions will develop a more clearly defined engagement area using a series of disrupt obstacles to facilitate a piecemeal attack by the BCT (see Figure 1 for engineer intent graphics). These positions may remain in place and continue to destroy enemy forces or disengage and withdraw to the forward positions. Often, if the enemy forces fail to fix the subsequent position and bypass or avoid it, then this force will counterattack into the flank of the BCT main body or remain in place to counterattack into the rear.

Again, BLUEFOR units must conduct effective route and zone reconnaissance to identify these forces and any obstacles. Attacking forces must rapidly close with and destroy these forces or fix and bypass and deny them the ability to reposition. Only crews, platoons, and companies that are fully trained on their battle drills can accomplish this. Platoons must rehearse and be trained on the actions on contact battle drill. As in defeating initial positions, crews must execute proper scanning techniques (often, TCs fail to use NODs at night to scan or check light discipline), quickly identify and destroy targets, and cross-talk between vehicles and sections. There is no other method for success.

Fifth, as previously mentioned, the OPFOR must successfully reposition forces from initial to subsequent to forward positions or counterattack with forces out of contact. This supports the overall task and purpose of the security zone. Therefore, all friendly forces are required to have all obstacle work completed, planned tactical and protective obstacles, planned situational obstacle locations, and planned chemical target locations on their graphics to facilitate movement and prevent

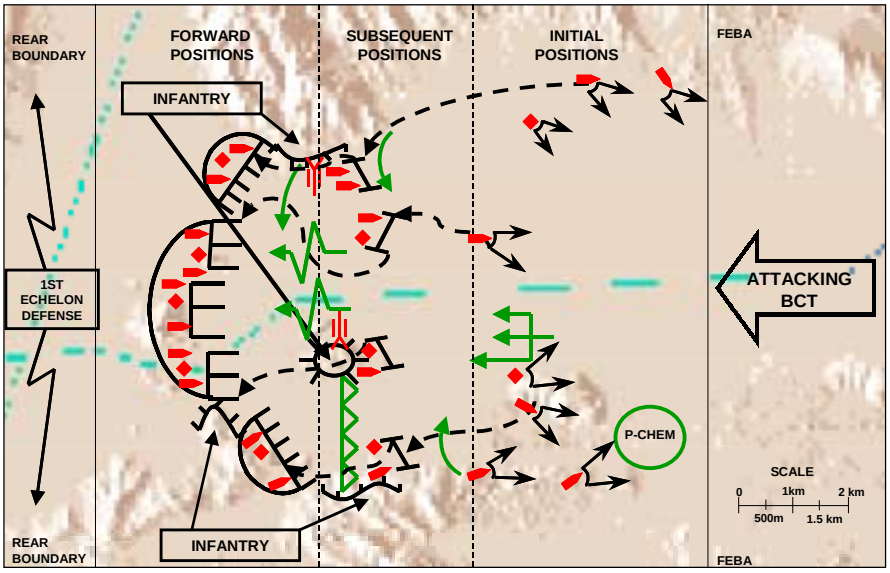

Figure 1: Security Zone Concept Sketch

fratricide. Any planned passage of lines will be rehearsed and forces identified (usually dismounted infantry) to open and close passage points. All units attached to the MRB in the security zone must continually update the MRB commander on the location of all forces in sector and any movement that they make, especially if they are withdrawing through positions. All units must have a planned passage point through the obstacles.

The most difficult force to withdraw is the infantry. Normally, one MRP is tasked to support their disengagement. A T-80 and a BMP overwatch, while another BMP supervises the upload of infantry onto trucks prepositioned in hide sites. Once uploaded, this BMP leads the infantry through the rearward passage of lines, while the other two vehicles successfully bound back. (The new BMP II greatly increases the OPFOR's ability to reposition infantry with its ability to carry up to five soldiers and their equipment.) Furthermore, each MRC, the MRB reserve, and the regimental combined arms reserve will have timed, during both day and night, all possible repositioning and counterattack routes. The MRC commanders will turn in this information as well as a completed defensive checklist and sector sketch at an MRB coordination meeting held between 3-9 hours prior to the NLT defend time. *(Editor's Note: The MRB Defensive Checklist is available in MS Excel format on our website at www.knox.army.mil/armormag/ma00indx.htm.)* Finally, all combat multipliers support the withdrawal of forces disengaging. The goal is for forces to disengage and reposition laterally without being identified and with no loss of combat power.

Most importantly, BLUEFOR must expect OPFOR repositioning and designate scouts to look for this. Attacking forces must maintain contact with the enemy or use special munitions to deny potential counterattack routes on the flank or repositioning routes. Artillery delivered FASCAM, indirect HE fires, and the air VOLCANO are the most effective methods. Again, this is all predicated on effective reconnaissance and terrain analysis to identify these targets. Furthermore, IEW assets should have identified OPFOR single channel unsecured nets and must jam them once contact is made.

Sixth, combat multipliers (specifically CAS, SOKOL, and indirect fires) must attrit, separate, and delay attacking enemy forces. CAS, SOKOL, and indirect fires each owe the MRB commander a company/team destroyed, if properly integrated into the security zone concept of operations. The MRB commander must have excellent situational awareness of friendly and enemy forces for this to occur. In addition, SOKOL must be effectively oriented into lucrative targets by crews in contact. This means that an individual track commander will call SOKOL on their frequency and give them a hasty contact brief to orient SOKOL on the current enemy situation, location of enemy and friendly units, suggested air battle positions and engagement areas, suggested routes of maneuver, and methods of orienting SOKOL's fires (smoke, terrain, illumination, PAQ-4s, etc.). Indirect fires are successfully integrated into the security zone to complement direct fire planning. As the MRC commanders proof their engagement areas, they identify dead space, probable breach effort locations, and choke points which facilitate indirect fires, and they mark these with TRPs and "plugger" the grids. These TRP locations are then passed from the MRC commander to the MRB commander and then to the regimental chief of artillery. The successful integration of these combat multipliers into the MRB commander's scheme enables their success in destroying approximately three company/teams in total.

In order to deny the OPFOR success in their employment of combat multipliers, BLUEFOR must be trained on force protection measures. BLUEFOR must array combat multipliers (specifically, intel, fire support, air defense, and IEW) to support movement on multiple avenues of approach to retain flexibility. Don't fight the plan. If the OPFOR is rapidly destroying the unit on its primary direction of attack, do not continue to "follow the blinking lights." Plan flexibility. Most importantly, crews, platoons, and companies must exercise proper dispersion along the approach march and execute the following battle drills: react to indirect fire, react to air (CAS and attack aviation), and react to ATGM. Finally, don't hesitate. Make a decision, quickly synchronize combat multipliers, and execute violently.

Seventh, the MRB must shape the battlefield with combat multipliers in order for the forward positions to destroy the remaining enemy [TF (-)] in the main defensive area. The task and purpose of the forward positions is to complete the destruction of the BCT in order to provide time and space for 1st echelon defensive preparation. The forward positions are normally composed of an MRC(+) in addition to the forces which repositioned from the initial and subsequent positions. The engineers give the greatest support to this engagement area. The focus is on countermobility and survivability. Often, only a few two-tier holes will be dug, in order to maximize dozer assets in the countermobility role (tank ditch). This trade-off is decided only after careful analysis of the terrain. The countermobility and deception efforts must force the enemy to attack where the MRB commander wants. Ef-

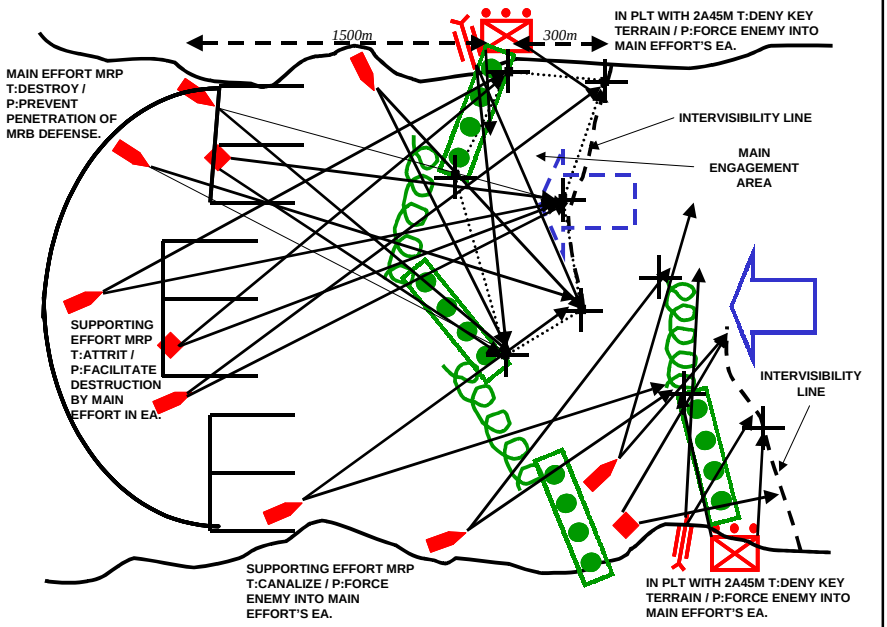

Figure 2: Forward Position Main Defensive Area

fectively placed initial positions, subsequent positions, tactical obstacles, deception, and AT fires will force the enemy into a kill sack composed of devastating cross and volley fires. The direct fire planning in the kill sack will enable rapid destruction of enemy maneuver forces from various sectors by maximizing flank fires. Tactical obstacles are positioned to optimize the weapons capabilities of the OPFOR and minimize the enemy's (see Figure 2: Forward Position Main Defensive Area). Situational obstacles are emplaced to deny mobility, re-seed obstacles, or build subsequent engagement areas for the MRB reserve (one T-80 and three BMPs), regimental combined arms reserve (three T-80s, eight BMPs, one ZSU 23-4, two SA-18 BRDMs, 50 infantry, two TDAMs, and three AT-5 BRDMs), or forces out of contact repositioning in depth. Infantry will be integrated into the start and end points of obstacles with assigned AT weapons to deny key terrain and prevent the enemy from penetrating along a seam and enveloping the MRB. 2A45Ms will be positioned on flanks to overwatch obstacles and establish final protective lines (much like an M-60 during a light infantry defense). AT-5s, if task organized for the defense, will be positioned to provide long range fires (up to 4 kms) to overwatch occupation of forward positions and destroy armored vehicles in depth throughout the main engagement area. Overall, an effectively constructed engagement area, direct fire planning and rehearsals, and proofing the engagement area will accomplish this task.

Again, BLUEFOR must establish reconnaissance in depth early in order to achieve success. The OPFOR's worst enemy during defensive preparation is artillery fires. Harassing fires delay the priorities of work tremendously, yet very rarely does the BLUEFOR employ them. BLUEFOR units also generally fail to establish observation to support indirect fires to disrupt defensive preparation. Also, recon assets must be focused on the most rudimentary intelligence requirements: Where are the OPFOR combat forces? (Determines initial, subsequent, and forward positions and possibly the reserve.) Where are the mine and wire obstacles? (Determines engagement areas.) Where are the dozers? (Determines survivability positions, tank ditches, and, ultimately, the engagement area.) Where are the SEEs? (Determines dismounted infantry locations.) Finally, they must look for and identify defensive prep to occur during limited visibility. These simple questions and answers should ultimately determine OPFOR weakness. Also, do not expect a perfect intelligence picture from your reconnaissance assets. Company/team commanders must be capable of effectively creating an enemy SITTEMP. For instance, when a "feed" comes in with a majority of the OPFOR countermobility work, a maneuver commander should be able to develop a SITTEMP of enemy maneuver forces based on weapons capabilities and terrain. Too often, the S2 is blamed for a poor read when maneuver commanders could better estimate OPFOR direct fire planning and engagement area development in the defense. Also, units must effectively activate and reactivate their radar Critical Friendly Zones (CFZs) throughout the attack at critical defiles and breach locations. Finally, all combat multipliers must be focused at the likely breach site (point of penetration) and at command and control (for instance, IEW assets jamming both red and green nets; destructive artillery fires focused on the RAG and DAG to prevent effective OPFOR fires and in observed OPFOR BPs, CAS focused on denying adjacent OPFOR combat power from repositioning or destroying the reserve or CAR, etc. Of course, all of this depends on excellent reconnaissance and the ability to effectively see oneself and the enemy.

Eighth, the MRB commander must successfully deceive the enemy about his intent and the location of obstacles and maneuver forces. There are numerous deception measures employed by the OPFOR, and I will discuss only a few. The OPFOR commonly will use deception radio traffic and nets (both command and engineer) to portray a false intent. Often, false graphics will be positioned for easy enemy discovery and use.

False battle positions may be developed with scrapes in place of holes, single strand wire to represent a complete obstacle, and false turrets emplaced in the scrapes with heat and light sources to further add to the accurate deception. During limited visibility, MRCs will emplace false hides and battle positions with heat and lights sources in order to deceive night attack aviation (AH-64 and OH-58D) and LANTIRN-equipped night CAS. Reserves or forces not employed in defensive preparation may occupy sectors or avenues of approach to portray strength where a weakness truly exists.

Engineer work during the day is often deception, and the real tactical obstacles are emplaced during limited visibility. Sometimes smoke is employed to obscure the engineer preparation until hours of limited visibility. In addition, smoke is used to further deceive and disrupt the enemy. Often smoke is fired on a different avenue of approach than the counterattack route. Units often fixate on smoke, enabling OPFOR forces to counterattack into the flank of enemy forces who are convinced that the counterattack is actually coming through the smoke. Finally, the MRB often launches a false counterattack force composed of CSS assets dragging concertina wire to replicate an MRC-size counterattack force to deceive JSTARS and other intel-gathering assets.

Quite simply, there is no replacement for confirming any reports with human eyes. BLUEFOR must not get focused on the intelligence feed. Don't take JSTARS for granted. All intel sources must be validated by observation.

This article describes the key tasks an MRB must complete to successfully conduct a security zone. It also offers some simple strategy to defeat the OPFOR mechanism for success. Attacking units must understand that a security zone battle will extend through multiple layers of contact in depth, and forces are arrayed to reposition or counterattack when out of contact. This battle is a contest of controlling the tempo. The OPFOR is usually vastly outnumbered and must buy time and space to reposition forces to create multiple engagement areas in depth. BLUEFOR units will inevitably fail if they are not supported with effective reconnaissance, if they are hesitant to execute maneuver, or if they are not ably supported by synchronized combat multipliers. On the contrary, friendly reconnaissance in depth and effective integration and synchronization of the OPFOR combat multipliers enables the MRB to focus on a direct fire fight where the enemy is attacking piecemeal into the engagement area. In summary, success is determined by one's ability to see oneself and see the enemy.

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A Company/Team Guard Mission Technique

Planning to defeat enemy recon elements

by Captain Chad Young

The time is 1330 hours local. The radio crackles… "Cobra 6, this is Thunder Main, FRAGO follows, over." You scramble to pick up the handset lying on top of your tank. You answer the call, "this is Cobra 6, over." The battalion TOC responds, "this is Thunder Main, Cobra, execute tactical road march along Route Red and then guard from Phase Line Pine to Phase Line Oak. On order, conduct a rearward passage of lines along Route Red, occupy hide position Snake as the task force reserve, begin movement at 1500 hrs local, over." You respond and check your watch at the same time. "This is Cobra 6, WILCO over." Simultaneously you pick up the company net and announce, "Guidons, guidons, guidons, this is Cobra 6. Meet at my tank at 1400 hours for company FRAGO, WARNO for the operation will be given over this net in 10 minutes, over."

The time is 1340 hours local. It is time to get your thoughts together. First things first: what exactly is the **mission** that I have been given? **Guard.** Being a recent graduate of the Armor Captain's Career Course, you know the definition verbatim. "*A form of security operation whose primary task is to protect the main force by fighting to gain time while also observing and reporting information, and to prevent enemy ground observation of and direct fire against the main body by recon, attacking, defending, and delaying.*"

As you continue through your abbreviated troop leading procedures, you understand your **task** is *to destroy enemy recon assets*. The **purpose** of this operation is to *prevent enemy ground observation of the main body.*

The time is 1345 hours local. You have done this mission many times before. You learned the Cobra guard technique from your first commander and, with a few refinements, have made it work for your team as well. You begin the Cobra seven-step planning process.

STEP ONE: List assets available.

- Two M1A1 platoons
- One M2A2 platoon
- One FISTV
- Task force scout platoon
- Eleven infantry dismounts
- One medic M113
- One M977
- One M978
- One 120mm mortar section
- One maintenance team with M113 and M88
- 1Sgt M113

STEP TWO: Determine likely enemy avenues of approach. After a thorough terrain, weather, and enemy doctrinal analysis, you conclude that the enemy has three likely avenues of approach. (Fig. 1)

You have studied the enemy in detail and know that the enemy Brigade Recon Company will attempt to infiltrate into your sector beginning at EENT. According to *FM 100-60,* he is capable of committing two BRM-1Ks, two BMP 2s, and four BRDMs. The enemy forces have limited thermal sights, however they do have PVS-7B-type night vision goggles.

STEP THREE: Determine likely scheme of the recon company. The enemy commander has many choices, but will most likely choose to infiltrate along the three avenues templated earlier. You feel that avenues one and three are most likely because of their use of the terrain to mask movement, and you decide to accept limited risk along avenue of approach two. You assume the enemy commander will commit his tracked recon platoon along AA1 and AA3 and his wheeled platoon along AA2. You assume the enemy commander will task organize his BRM-1Ks with the tracked recon platoon. There should be no tanks in the enemy recon company's task organization.

STEP FOUR: Determine where to kill the enemy. Based on the task organization of the enemy, his use of terrain, and the enemy likely scheme of maneuver, you decide to focus your killing systems on three primary areas. You label these three areas as counterrecon boxes one, two, and three. (Fig. 2)

STEP FIVE: Task organize and emplace your direct fire systems. You

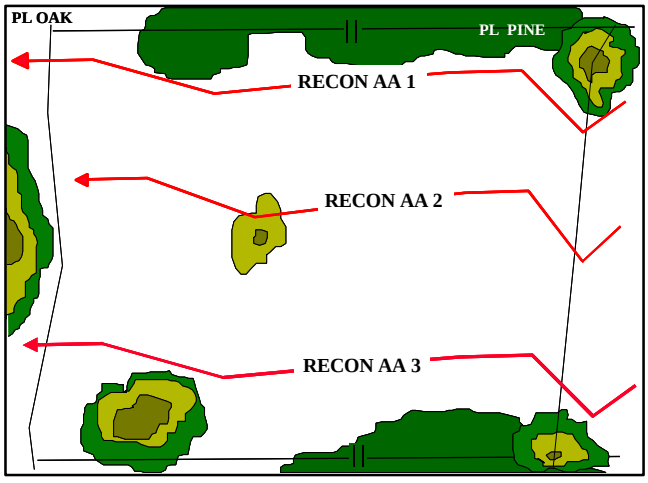

Figure 1

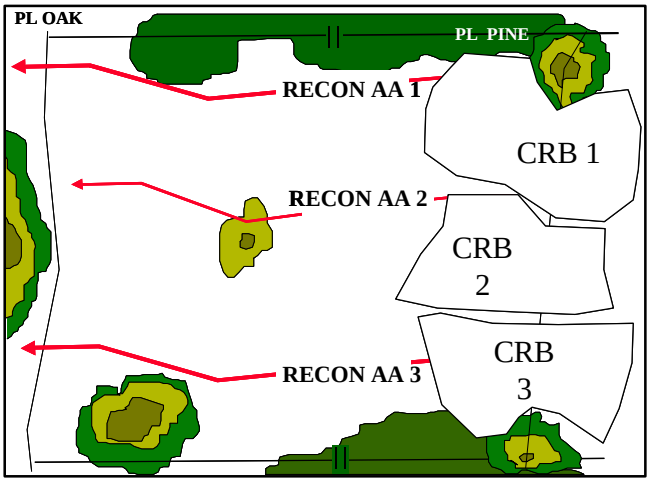

Figure 2

TEAM 1	TEAM 2	HQ TEAM	SUPPLY TEAM
1ST PLATOON TANK	2ND PLATOON TANK	COBRA 5 AND COBRA 6	1SG M113
A SECTION MECH	B SECTION MECH	MORTAR SECTION	M977
INFANTRY DISMOUNTS	SCOUT SECTIONS THREE AND FOUR	SCOUT HQ SECTION	M978
SCOUT SECTIONS ONE AND TWO			MEDIC M113 AND MAINTENANCE M113

FIRST PLATOON ORGANIZATION

HUNTER 1	HUNTER 2	HUNTER 3
#12, M1A1	#13, M1A1	#11, M1A1
#11, M2A2	# 12, M2A2	#14, M1A1
SCOUT SECTION 1	SCOUT SECTION 2	

SECOND PLATOON ORGANIZATION

HUNTER 1	HUNTER 2	HUNTER 3
#22, M1A1	#23, M1A1	#21, M1A1
#14, M2A2	#13, M2A2	#24, M1A1
SCOUT SECTION 3	SCOUT SECTION 4	

Table 1

decide to task organize your team into the standard Cobra guard configuration (see Table 1).

Each platoon will form a "hunter" screen line and a series of "killer" teams employed in depth. The platoons will organize internally in the following manner as per the Cobra TACSOP. The infantry dismounts will be placed in ambush positions along likely dismounted avenues of approach or will patrol in dead space not covered by the hunter or killer teams.

OVERLAY TECHNIQUE: Using one overlay with the enemy infiltration routes in red, you now add a platoon boundary and checkpoints to aid you with command and control and target hand-off. You remind yourself to enforce the "no-move rule" as soon as the team leaders report "set." You visualize the operation by drawing an accurate and detailed sketch of the terrain, enemy, likely friendly locations, and graphic control measures to assist in command and control. (See Fig. 3)

STEP SIX: Place hasty point obstacles and plan indirect fires. Using the unit basic load of Class IV and Class V (mines), the team will place a series of hasty point obstacles known as "cheap tricks." These standard obstacles consist of a single layer of four rolls of concertina, reinforced with u-shaped pickets and four to five AT and AP mines. Each obstacle can cover 40 to 50 meters. When employed in mass by all vehicles within the team, these obstacles will occasionally entangle a BRDM or BMP during limited visibility conditions. Indirect fires should be planned using the mortar section as the prime executor of targets. Mortar targets during the guard mission are best planned on likely OP locations, choke points, key terrain, and at "cheap trick" locations. Most importantly, "cheap tricks" and mortar targets should be placed in depth throughout the sector. You ensure that you add the indirect fire targets to the **one** overlay. Once the "cheap trick" locations are confirmed with GPS, they will also be added .

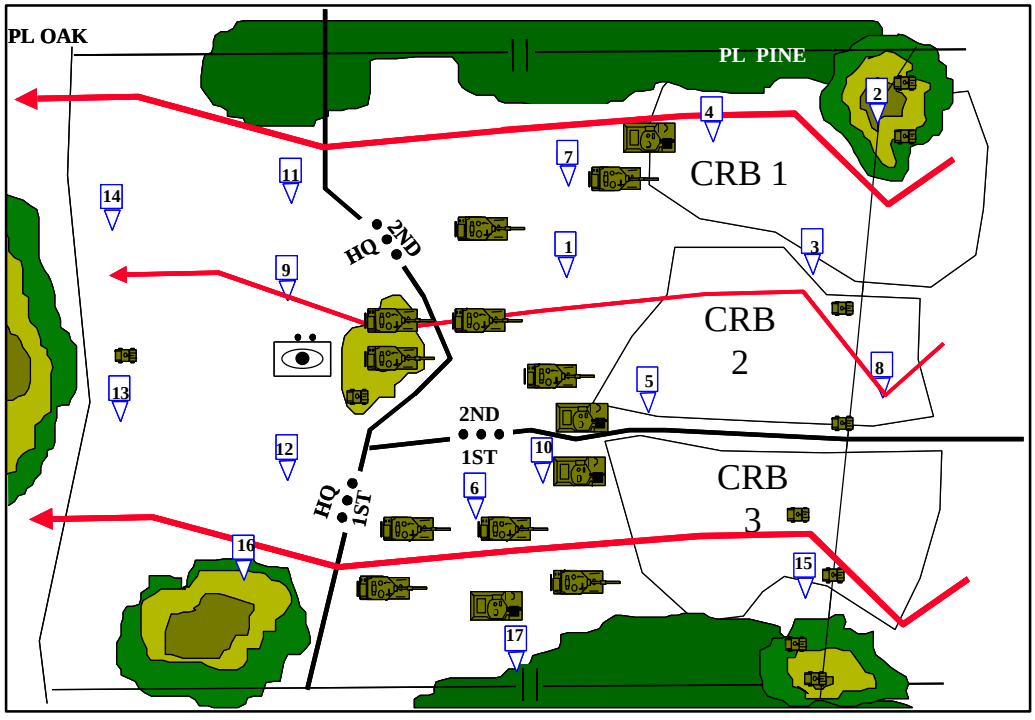

Figure 3

STEP SEVEN: Rehearse *critical events* of the operation. Once set in position to observe the counterrecon boxes and as much of their respective areas of operation as possible, you plan to rehearse several critical events of the operation. This includes target handoff, the observation plan, the communications plan, the security plan, logistics issues, and any branch plans.

TARGET HANDOFF: The distance between the scout "hunter" and the Bradley/Abrams "killer" is critical to proper target handoff. You know from past experience that a 1 to 2½ kilometer separation between the "hunter" and the "killer" is about the

right distance for desert-type terrain. In restrictive terrain you have had to close that gap to less than 500 meters. After your terrain analysis, you will order the distance to be less than one and a half kilometers. Once the enemy vehicle is spotted by the scout "hunter," it is critical to relay the information through the platoon net immediately. You will remind the platoon leaders to send up the contact and spot reports using the checkpoints from the operation overlay. This way, precious time is not used looking up grids in the dark of the turret. The team has trained for this mission several times at home station and they know the usual routine. Single BMPs or BRDMs attempt to infiltrate into sector around EENT. The initial report is from the forward "hunter" and is relayed to the "killer" to which the scout section is responsible. Once the target is handed off to the "killer" team, the scout continues to scan for targets forward in his assigned observation sector. The "killer" team then has two choices: He can either wait for the target to present a clear shot or he can aggressively maneuver to the target, corner and kill him. You know from past experience that the latter works best, especially in restrictive terrain. If the team does move, the team commander will announce the movement over the company net and receive a reply from all parties to ensure that friendly fire will not be an issue.

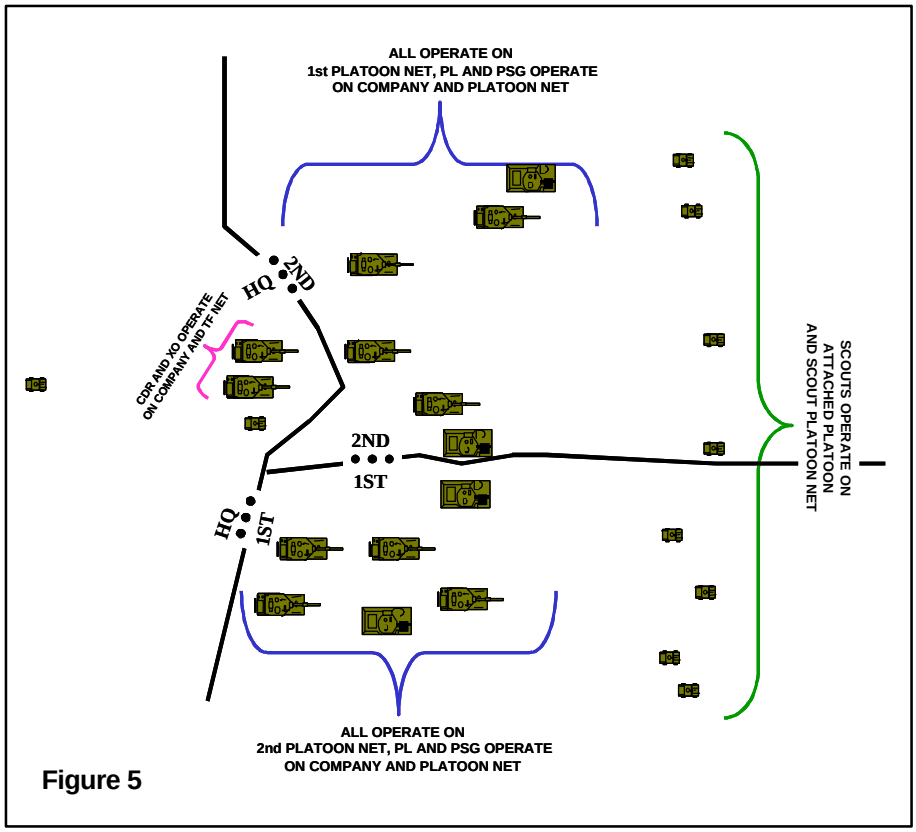

Figure 5

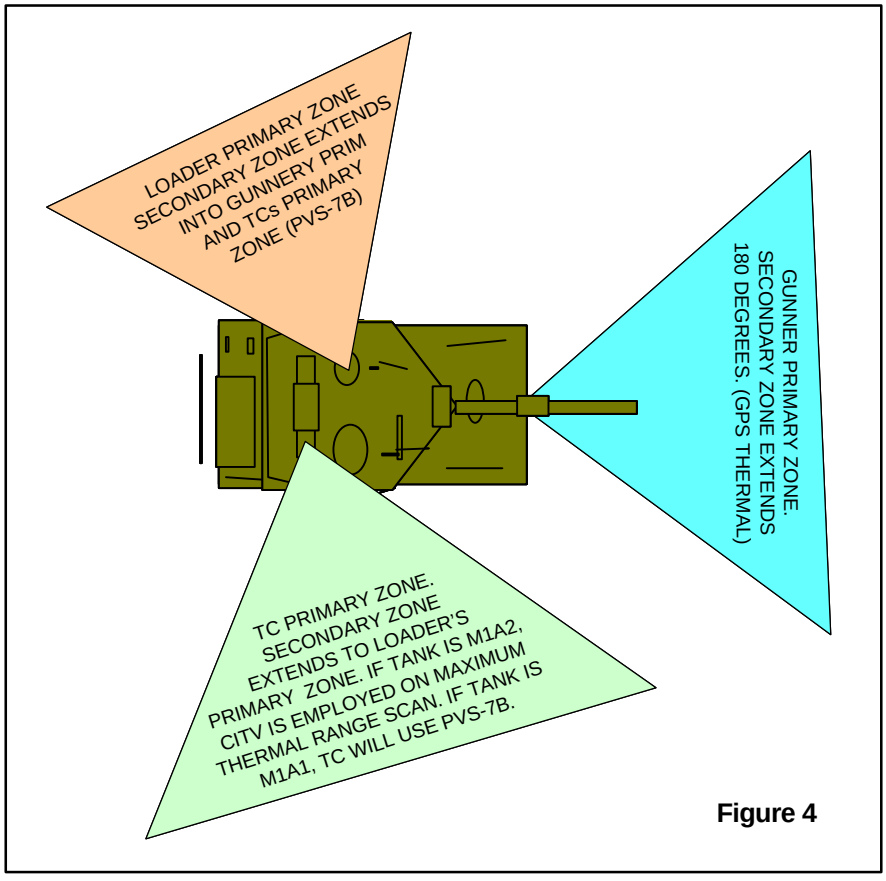

Figure 4

OBSERVATION PLAN: You want to make it perfectly clear to each platoon leader that the reason guard missions fail is due to two common problems, poor scanning discipline and a faulty observation plan. Each platoon is responsible for its entire area of operation, but with a focused effort on those avenues of approach which appear most likely for enemy infiltration. A focused observation plan does not only scan between TRPs to the direct front, but each vehicle scans a 180-degree frontal arc, and leader tanks should scan the rear of their forward killers to ensure infiltration has not occurred. The HQ tanks will scan to the flanks and rear. The mortar section and supply team will also scan a designated avenue. *Everyone should be involved in the fight!* When one turret stops scanning, this allows an open gap in a properly prepared observation plan. You will remind the platoon leaders about the Cobra standard observation plan and will personally refer them to the page in the Cobra TACSOP that outlines the individual vehicle observation plan. (Fig. 4)

COMMUNICATIONS PLAN: Communication during the late night hours, especially between the hours of 0200 to 0400 is always difficult. You require a SITREP from each platoon leader every 30 minutes to ensure situational awareness and radio operational status. You pull out your communications plan chart from the back of your bustle rack that

outlines the radio linkage between vehicles. (Fig. 5)

SECURITY AND SLEEP PLANS: The men know this is an extremely difficult mission. Because of the importance of the mission, you have to make a difficult call on sleep plans. Therefore, as in the past, you make the call for a REDCON 1, minus engines running status. No turret will stop scanning. The crew will take turns on the Gunner's Primary Sight. The driver, who is not actively scanning will ensure the Auxiliary Power Unit is running smoothly, that the batteries are not running low and will monitor other crew level functions. The driver will take his turn on the GPS as well. After the battle, the task force will shield the company if possible to allow us some rest.

LOGISTICAL OPERATIONS: The task force has task organized your team with an additional fuel and cargo HEMTT and the usual maintenance and medic attachments. Team Supply, also will be scanning an assigned sector and able to move forward to evacuate casualties or execute any emergency resupply needs. The team will rehearse movement to and from the platoon positions during limited visibility. Each platoon will plan for one maintenance collection point and one casualty collection point. The XO will accompany the resupply effort for security if needed. Companies will execute a quick resupply stop when beginning the rearward passage of lines, using the extra M977 and M978 assets.

BRANCH PLANNING: You know the enemy rarely does exactly what we think or want him to do, so you plan accordingly. You know that if a guard operation is very successful, the enemy commander will commit an independent recon detachment or IRD. This detachment will fight for intelligence and can be as large as a reinforced company. If the enemy commander makes the tactical decision to commit such a force, your unit will execute the Cobra standard counter-IRD branch plan. This plan goes into effect if an IRD is committed or if any force penetrates the forward platoon and becomes a threat to the MBA. Upon identification of the potential penetration or enemy IRD, the platoon in contact will give an accurate spot report and recommend execution of the branch plan. The commander and the XO will then commit to an attack by fire position in order to prevent penetration of the team's rear boundary. You draw a quick sketch to help the platoon leaders visualize the plan. (Fig 6)

The time is 1400 hours local. Your platoon leaders look anxious as they approach your tank. You issue the young leaders your FRAGO and the Cobras begin movement along Route Red on time, enroute to another successful counterrecon operation.

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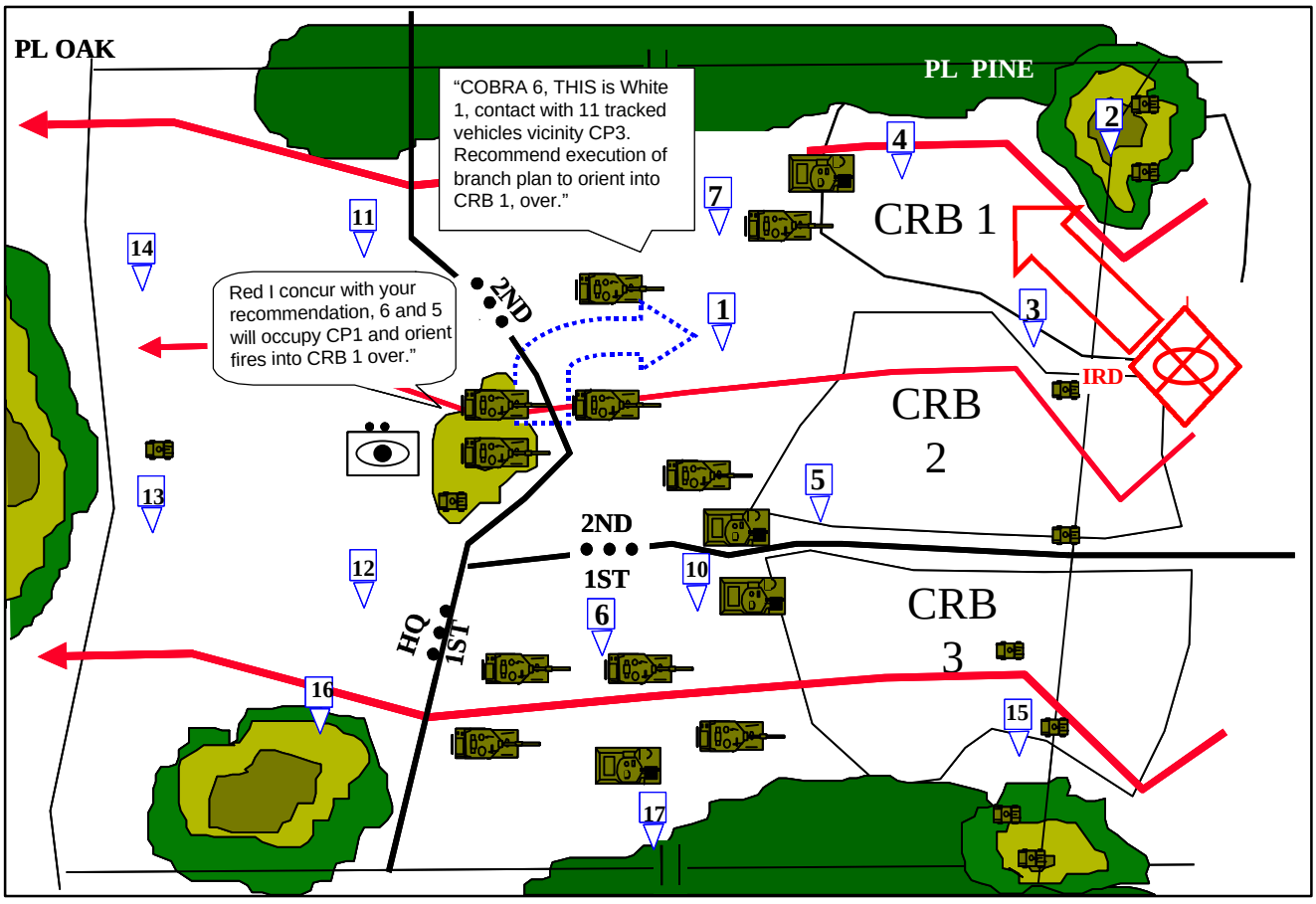


Figure 6

Tank Proofing Teams: Key to a Successful Gunnery

by Sergeant First Class Samuel K. Haines

The first priority in tank gunnery is mastery of individual and collective gunnery training objectives, skills, knowledge, and the demonstration of crew proficiency. Crew qualification is the standard used to measure crew proficiency. This requires well-planned training. Progress in training is based on mastery of the basic tank gunnery individual skills and knowledge. One means of ensuring a successful gunnery is to utilize tank proofing teams.

The proofing team assists the master gunner in training and supervising individual tank crews at company/troop level. The team helps tank commanders perform maintenance checks, fire control system calibration, and troubleshooting procedures. The commander and master gunner must select the most technically competent tank commanders and gunners to act as the proofing team.

At home station, the proofing team trains the tank crews, as required or directed by the commander, and is on hand to help crews prepare for and conduct the screening test. The team also assists the crew in firing the screening test, if necessary. The success of the screening test depends on the proofing team and crewmembers eliminating mechanical faults and crew errors before firing the first round of the test.

The proofing team inspects tanks that fail the screening test for mechanical or crew procedural errors that might have caused a screening test failure. When available, direct support contact teams should also participate. Throughout the remainder of the gunnery density, the proofing team provides assistance, as required. The following must be completed before the screening test:

- **Collimation checks** of the Muzzle Boresight Device (MBD), (M26A1 or M27A1). An MBD may be collimated to the particular tank on which it will be used. When an MBD is collimated to a particular tank, boresighting the tank is faster and more accurate and does not require a mean boresight reading. The tank crew should conduct a collimation check before main gun live fire to determine if the MBD must be collimated. The crew should also conduct collimation checks periodically during routine maintenance to ensure the MBD is correctly collimated and to determine if it needs to be turned in for repair.
- **Preventive maintenance** checks and services (PMCS) are performed to keep the tank in operating condition. The checks are to find, correct, or report problems.
- **Fire control system calibration**. Reserve component tank crews should perform armament and accuracy checks (AACs) quarterly. These checks allow units to diagnose and correct problems at home station before any scheduled live fire.

Prepare-to-fire checks and muzzle boresighting must be performed before the AACs; therefore, quarterly checks also serve as valuable training tools to help ensure crews become proficient in prepare-to-fire checks and muzzle boresight procedures. A master gunner performs special gunnery checks when a tank fails the screening test. Fire control system calibration consists of:

- **Prepare-to-fire checks**. These checks ensure the tank is ready to fire. These checks supplement, but do not replace, PMCS and should be performed in the order listed in table 2-2 of the operator's manual.
- **Muzzle boresight procedures**. Boresighting establishes a definite relationship between the axis of the bore of the gun and the sights, providing a basis for all sight adjustment. When the tank is boresighted at a known range, the fire control system provides system parallax corrections to the gunner's primary sight (GPS) and the thermal imaging system (TIS). It is impossible to fire accurately without sight adjustment; therefore, boresighting is fundamental in tank gunnery. In training, boresight before every firing table. In a hostile environment, boresight whenever the tactical situation permits.
- **Armament and accuracy checks**. These checks help to ensure that the fire control system is fully operational and special inputs and the ballistic solutions are implemented properly for fire control components and all main gun ammunition. They also verify that the muzzle reference sensor (MRS) can correct an artificially induced boresight loss. These checks are also designed to be performed by the crew quarterly. Crews need to know, not only how to perform the checks, but also what they are checking.
- **Special gunnery checks**. A master gunner will perform these checks if the AACs cannot be performed or the tank cannot pass the screening test. The lead accuracy check should be done when the gunner begins to miss targets excessively in azimuth for no

apparent reason. The superelevation check should also be done when the gunner begins to miss targets excessively in elevation for no apparent reason. Before conducting these checks, the crew must perform an end-for-end check on the M1A1 gunner's quadrant to ensure it is within tolerance.

Live fire accuracy screening test (LFAST). To ensure tanks can fire accurately using the fleet zero, Computer Correction Factors (CCF) method of calibration, a screening test is conducted at the start of every live-fire training cycle. Calibration of the main gun consists of boresighting and entering CCFs into the ballistic computer; the zeroing process is no longer performed when an MBD is available. In the past, many fire control mechanical errors were not detected, or were allowed to go uncorrected, because crews thought zeroing would compensate for mechanical problems. Zeroing will never make mechanical problems go away; nor will zeroing make a defective tank shoot properly under all conditions. The only effective correction is to identify the mechanical problem and fix it.

- The screening test consists of firing first sabot, then HEAT ammunition at a screening test target (ST) at 1200 meters, (the target must be within 20 meters of the required range). Two rounds of each ammunition type are allocated for this purpose once each year. To pass the screening test, one round (out of two shots) for each ammunition type must hit entirely within the octagon of the target.
- If a tank fails either the sabot or HEAT portion of the screening test, the proofing team inspects it. If a correctable mechanical problem or procedural error is found, it is corrected and the crew re-boresights the tank, with supervision from the proofing team. Then the tank crew re-fires the portion of the screening test the tank failed. If the tank passes the screening test the crew and tank proceed with training. If the tank is sent to direct support maintenance or a line replacement unit is changed, the tank crew must reboresight the tank and fire another screening test (when the faults are corrected) using the fleet CCF, or the tank-discrete CCF if one has been established, with supervision from the proofing team.
- The next step is to zero the coax and boresight the M2 caliber .50 machine guns in accordance with the operator's manual.

Troubleshooting. Maintenance instructions are outlined in Chapter Three of the operator's manual. They are organized into two sections: troubleshooting and maintenance procedures. Each section has its own index to provide a quick reference for solving a problem. Troubleshooting helps the crew solve the problem through corrective action. Maintenance procedures tell the crew how to make the repairs allowed at crew level. The proofing team must have extensive knowledge of maintenance procedures and of the following tasks:

- **Boresight loss**. Boresighting is simply an alignment process by which the gun and sighting system are referred to the same point. Any movement of the gun or sights away from that alignment is a loss of boresight. While the tank has boresight retention equipment (the MRS), the most reliable method of correcting boresight loss is to reboresight the system.
- **Boresight check.** During long periods between the time the system is boresighted and the time the tank is fired, boresight loss may occur due to changes in weather conditions. Crews can check for boresight loss by conducting a boresight check.
- **MRS confirmation**. When reboresighting or a boresight check cannot be performed, an MRS update is used to correct for boresight loss. An MRS update can be accomplished only if the tank sights and MRS have been properly boresighted. During live-fire training, crews can monitor the performance of their MRS to determine if the MRS performs within tolerance.
- **Screening test failures.** *FM 17-12-1-1* chapter 5-5,6 lists some common questions the proofing team should check when a tank fails a screening test. These questions are only samples and are not all-inclusive.
- **Tank-discrete CCF**. If a tank cannot pass the screening test using the fleet CCF, a tank discrete CCF must be determined. An additional round of the ammunition type that failed must be fired. The proofing team will determine a CCF from the three-round group in accordance with procedures in *FM 17-12-1-1* chapter 5-6 through 5-8. Once the CCF is entered, fire one round for confirmation. If the round hits, screening is complete. If the round misses, the proofing team will troubleshoot the system. If the proofing team established a new tank-discrete CCF, that CCF should be recorded on the vehicle DA Form 2408-4 and used on that vehicle in place of the published fleet CCF.

Results of all screening test failures must be compiled by the firing unit and sent to the U.S. Army Armor School (USAARMS). The data will enable the USAARMS to monitor unit experience under these calibration policies. This data will be recorded on a discrete CCF worksheet seen in *FM 17-12-1-1* chapter 5-9.

Good maintenance and training programs are paramount to successful fire control system calibration. Success of the screening test depends on the proofing team and crewmembers eliminating mechanical faults and crew errors before firing the first round of the screening test. Having a qualified proofing team at company/troop level will better enable the unit to meet requirements during tank gunnery qualification.

References: FM 17-12-1-1/2, TM 9-2350-255-10-1/2, and DA PAM 350-38

Editor's Note: To implement this technique, units may wish to access a Proofing Team Certification Test and a Training Outline, which will be available on our website at: www.knox.army.mil/armormag/ma00indx.htm.

SFC Samuel K. Haines entered military service in 1983. After OSUT at Ft. Knox, he served as a loader, driver, and gunner with 3-66 Armor, Ft. Hood, Texas. Other assignments include gunner and TC with 3-32/2-67 Armor, Friedberg, Germany; gunnery instructor, Armor Officer Gunnery Branch, 6-12 Cav, Ft. Knox; recruiter/station commander, Salt Lake City Recruiting Battalion, Utah; and TC/platoon sergeant, A Trp, 4-16 Cav, Ft. Knox. He has attended PLDC, BNCOC, ANCOC, COFT SIO, AFIST SIO, and Master Gunner School. He recently served as Master Gunner Advisor, Field Training Group, 28th Infantry Division (M). Presently, he is a National Guardsman serving as a master gunner in the 28th ID (M).

Keeping Our Options Open: Another Possibility for Heavy Force Deployments

by Captain John S. Wilson

Recent remarks by the Army Chief of Staff and Vice Chief of Staff have no doubt sent shock waves through the mechanized community. I had to read three different articles on the subject to ensure Gen. Shinseki had not been misunderstood or misquoted. It is true: the General has called for the replacement of ALL tracked vehicles in the Army inventory, to include the King of the Killing Zone, the Abrams MBT.[1]

The reason for Gen. Shinseki's radical approach is our seeming inability to move our present heavy forces into a contested territory in a timely fashion, and the inability of our light forces to take and hold ground effectively against better equipped mechanized forces. The Army was embarrassed by its irrelevance during the Kosovo crisis as a direct result of our "inability" to get significantly heavy forces into the region in a timely manner.[2] Indeed, many of the articles in *ARMOR* magazine since the fall of the Iron Curtain have debated this issue at length. The Chief of Staff has seemingly put an end to this debate by his vision to replace all tracked armored vehicles with lighter, cheaper wheeled armored vehicles. While I applaud Gen. Shinseki's decisiveness to tackle the problem of Army deployability, we may be throwing the proverbial baby out with the bath water. There are other suitable alternatives, which demand closer scrutiny. I will focus on one alternative in this article: Lighter-than-air transportation.

Benefits of Light Armored Wheeled Vehicles. The introduction of some light armored vehicles to the current mix of Army weapons would be a benefit to the force.

Shorter Logistics Tail. Wheeled armor does have a shorter logistics tail.[3] The ability to sustain an armored force without unduly taxing lift assets is certainly a plus. Under current scenarios, roughly 90% of our strategic airlift is dedicated to logistics missions to supply the force.[4]

High Degree of Operational Mobility. Because most wheeled armored vehicles travel significantly faster and farther on roads than their tracked cousins, they possess a higher degree of operational agility. Wheeled armored forces can project quickly from one area of operations to the next along road networks.

Easier/Quicker Into Theater. Because wheeled armor is lighter than conventional tracked armor, it is much easier to airlift into a theater. Current specifications required of a new, wheeled armored vehicle include deployability by C-130 and a desire for an airdrop capacity.[5]

Limits of Light Armored Wheeled Vehicles. There are many good wheeled vehicles which can take the place of many tracked vehicles within the Army inventory. A towed 155mm howitzer can replace the M109, the High-Mobility Multipurpose Artillery Rocket System can substitute for the MLRS, and the LOSAT HMMWV-mounted AT gun, firing high velocity rockets, could serve as a direct-fire tank killer. All these systems could act as substitutes to lend power to a more agile force.[6] They should receive significant consideration. Indeed, even some wheeled assault guns, reconnaissance platforms, and infantry carriers would be beneficial additions to the current arsenal. However, there is no suitable wheeled main battle tank to substitute for the M1A2 or the AGS, and no wheeled IFV that can replace the tactical mobility and survivability of the Bradley. Wheeled vehicles should not replace all tracked vehicles. There are only a few close substitutes: the LAV 25, LAV 90, AMX 10RC, Panhard and the Vextra 105.

Limited Armor Protection. The LAV, the AMX 10RC, the Panhard, and the Vextra 105 are all classified as reconnaissance vehicles, and are not nearly as survivable as the Abrams or the AGS. The number one concern of designers during the development of the M1 was crew survivability[7] because Army leaders, based on historical analysis, realized that armies tend to lose highly trained crews much faster than they lose vehicles.[8] The WWII-era M4 Sherman tank, while cheap, agile, and easy to maintain, was outmatched by German tanks in terms of armor protection and armament.[9] Even the up-gunned, but light-skinned tank destroyers of World War II, when misused in a main battle tank role, suffered heavy crew casualties.[10] Now that the American public has become accustomed to warfare without casualties, we cannot afford to sacrifice crew survivability for strategic or operational mobility.

Limited Tactical Mobility. Even with innovations in all-terrain wheeled mobility; there is no wheeled armored vehicle with the ability to cover the same rough terrain as a tracked vehicle. Even our former adversaries realized this. By doctrine, Soviet BTR-equipped MRRs were given one BMP MRB to handle the more rugged avenues of approach while the BTR MRBs stayed mainly on road networks.[11] They even reinforced these MRRs with a tank battalion. Today, Russian IFV technology is returning to tracked IFVs such as the BTR-90. Even with the success of the LAV and the AMX 10RC during Operation Desert Storm, no wheeled armored vehicle possesses a tracked vehicle's degree of mobility. The very invention of the tank stemmed from the inadequacy of armored cars in crossing the muddy, cratered no-man's land of World War I.

Limited Firepower. The current developments in tank design are moving toward more sophisticated, heavier armor and larger guns to defeat it. Russian tank designers have recently been showing their Black Eagle, a heavy MBT capable of mounting a 140mm main gun.[12] The best that TRADOCs "Transformation Axis" can presently hope for is to mount a 90mm or 105mm main gun on an existing wheeled armored chassis.[13] This is no match for the current crop of MBTs with heavier armor and larger main guns of superior range.

Problems with Heavy Forces. Undoubtedly, the challenges that heavier tracked vehicles face are strategic mobility and massive logistics requirements.

Not Enough Fast Heavy Lift Assets. There are presently not enough heavy airlift assets to move heavy forces into a theater in significant numbers quickly enough to influence a regional conflict or meet the Chief of Staff's deployment

criteria. According to a DoD bottom-up review of strategic lift requirements, it would require 1,708 C-141 sorties and 1,275 C-17/(C-5) sorties to move one mechanized infantry division by air (See Table 2).[14] There are only 190 C-141s and about 126 C-5s in the Air Force fleet.[15] Only 120 C-17s are programmed for production up to the year 2005.[16] If every airlift asset were brought to bear, it would require weeks to mobilize the aircrews and load out the personnel and equipment. This includes the piecemeal ferrying into a staging base. Each C-141 would have to fly back and forth nine times to move its share; five to ten times each for C-5s and C-17s.

The primary method for moving heavy forces into theater is sealift. During Desert Storm, the DoD moved 72 percent of dry cargo via ships that steamed from the U.S. and 13 percent from pre-positioned equipment near the region.[17] The drawback of sealift is the amount of time required to activate, load, and transport massive quantities of men and materiel into a theater. Although an armored or mechanized division requires only about six large, medium-speed ROROs to transport, it could take weeks to move the ships to the port of embarkation, load them, and sail them to the port of debarkation. It takes an average of four days alone to load and unload a medium/large RORO.[18] Pre-positioned equipment (afloat or on land) is a helpful remedy.

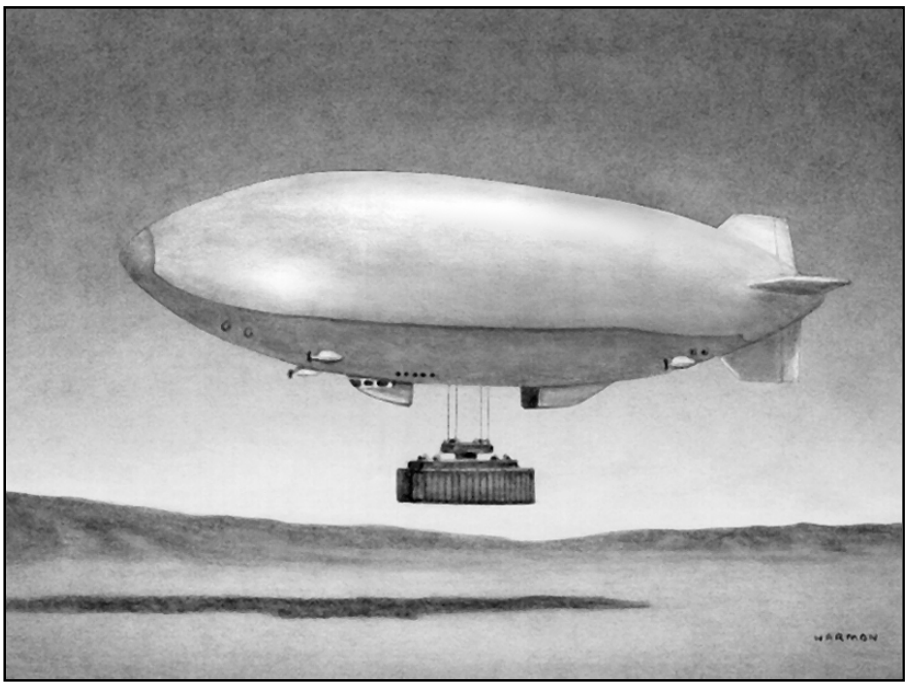
Lack of Sea and Airports. The other problem for heavy (or even medium forces) is the lack of suitable air and seaports to handle heavy lift assets. Mobility planners make the key assumption that suitable infrastructure will be available to accommodate air and sealift assets enroute and in staging areas. Even pre-positioned equipment afloat will require port facilities to unload. Closer study indicates that our potential adversaries have learned from Saddam Hussein's mistakes. To Third World troublemakers — rogue states like North Korea, Libya, Iran, or Iraq — the basic lesson of the gulf war is to stop the United States before it can get started.[19] Future adversaries are sure to rain missiles on the ports and airfields where tanks and other heavy equipment must arrive to form an invasion force.[20]

During a recent war game scenario at the War College, a resurgent Russia tried to re-conquer oil-rich states around the Caspian Sea. When the "Blue Team" tried to send in a U.S. invasion force to drive them out, the "Red Team" barraged the Army's arrival points in Turkey with chemical and biological weapons. The mauled U.S. expeditionary force had to fall back so far to get out of Russian missile range that it wound up operating from back bases in Cyprus and Crete.[21]

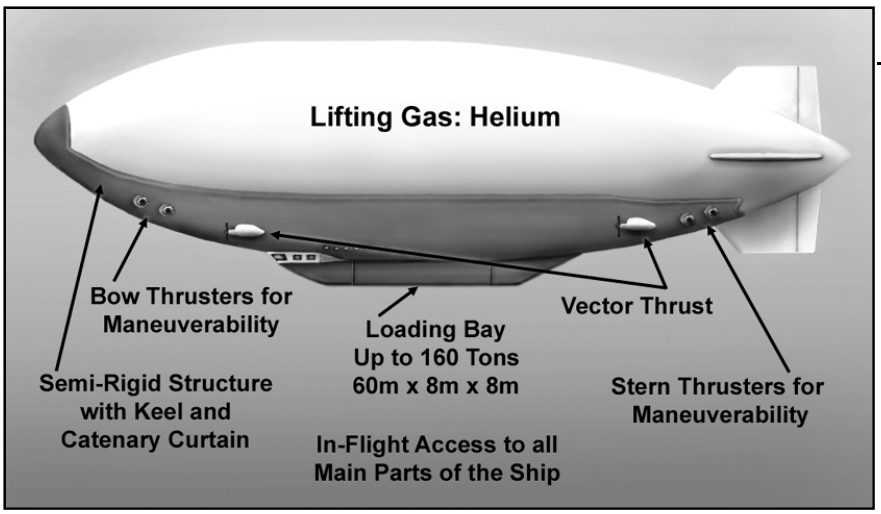
The Long Logistics Tail. The undeniable fact of heavy forces is the long, heavy logistics tail they carry with them. Fuel and ammunition rank among the heaviest commodities.[22] However, this is a worthwhile price to pay for superiority. "There is only one tactical principle which is not subject to change; it is, 'To use the means at hand to inflict the maximum amount of wounds, death, and destruction on the enemy in the minimum amount of time.'"[23] The key is to work harder and find other innovative ways to get personnel and material into a theater in a timely manner. "A pint of sweat [in this case] will save a gallon of blood."[24]

Solution to the Problem: The CargoLifter Airship. The solution to the problem lies in lighter-than-air (LTA) transportation: the airship. New innovations in LTA show great promise in heavy aerial logistics. The largest, most ambitious, and most advanced LTA logistics project is the German CargoLifter. The CL160, the first airship in the CargoLifter fleet, will be the largest airship ever flown. Measuring some 850 feet in length and 210 feet wide, the CL160 will be roughly the length of three Boeing 747s and the height of a 27-story building.[25] It will contain 15 million cubic feet of nonflammable helium, giving the airship a lifting capacity of 176 short tons (over twice the capacity of a C-17).[26] The CL160's range will be about 6,000 miles and the airship will cruise at 50-60 mph at an altitude of 5,000-6,000 feet.[27] A CL160 can cruise from the United States to Europe within 2-3 days.[28] The CargoLifter is a semi-rigid dirigible, with a fixed keel and unframed envelope.[29] The airship will operate much like an ocean-going vessel and will remain in operation most of the time since it will not have to land for routine refueling or cargo operations.[30] The CL160 will require a crew of 10-12.[31]

The Concept. CargoLifter is a skillful blend of the old and new. The project combines lighter-than-air (LTA) principles, modern crane technology and sophisticated worldwide communications to give birth to an entirely new mode of transportation.[32] The CargoLifter system will be the world's first point-to-point network, permitting the movement of extremely heavy or large payloads from a source site to final destinations almost anywhere in the world — all in one, seamless shipment. Whether long-haul trips of up to 6,000 miles, or short-haul shuttles,[33] the CargoLifter is ideally suited for the Army's heavy lift problems. CargoLifter airships do away with the need for road, bridge, and railroad repairs.[34] There is no need for large airfields or seaports, since loading and un-



CargoLifter is a proposed 850-foot-long semi-rigid dirigible. The concept is being developed by several major firms in Europe.



loading is accomplished in small areas using a patented crane-like load frame while the airship remains in the air.[35] Due to low fuel consumption, these ships will be economical to operate compared to their heavier-than-air cousins.[36] CL160s will be highly reliable because of their simplicity.[37]

Envelope. The CL160's outer "skin" will be constructed of a space-age multi-laminate material, which assures minimal helium loss while staying lightweight and durable.[38] The aerodynamic, heart-shaped profile of the CL160 is the end result of years of exhaustive design and testing.[39] Computer simulations and dynamic testing in wind tunnels and water have led to a truly innovative design, which optimizes lift and ensures high levels of fuel efficiency.[40]

Keel. With its semi-rigid design, the CL160 is more like a super-large blimp than its Zeppelin ancestors that relied on a complex inner framework for support.[41] The backbone of the CL160 is an extraordinarily light and strong polycarbon keel, which runs the length of the airship.[42] The keel supports the loading bay, load frame, main propulsion units and the flight deck.[43] The CargoLifter will be propelled by four to six fuel-efficient diesel engines.[44]

*Maneuvering Units***.** Like the space shuttle, the CL160 will rely on short bursts of energy from smaller engines for maneuvering during landings, take-offs and load exchanges.[45] Using small, powerful jet turbine engines, like those used in helicopters, these thrusters allow for additional stability and slight attitude corrections during ground operations.[46]

*Flight Deck***.** The flight deck, the airship's nerve center, will be packed with the latest avionics and navigational instrumentation.[47] It will be a hybrid between an aircraft flight deck and the bridge of a large ship.[48] The flight deck will also accommodate space for flight engineers, navigation, communications, other important in-flight functions, as well as the crew's living quarters, galley, dining area, and even recreational space.[49]

*Load Frame***.** The CargoLifter is, in a sense, a "flying crane."[50] At its heart is a uniquely designed load frame assembly that enables the airship to take on and discharge cargo while it hovers some 300 feet above the ground.[51] The load frame is designed and manufactured by one of the world's acknowledged leaders in crane technology, Liebherr.[52] The load frame is lowered from within the belly of the airship, attached to the payload, and then retracted into the cargo bay for flight.[53] Some oversize payloads may be securely affixed to the exterior underbelly of the airship by means of the load frame, similar to a helicopter sling load.[54]

*The Multi-Box***.** CargoLifter is designing a unique Multi-Box cargo carrier measuring roughly 150' x 25' x 25', which can be used in a variety of shipping situations.[55] The Multi-Box can be used to "package" a large number of pieces for shipment by the CargoLifter airship — such as for break-bulk transport — or as a self-contained unit.[56] In this latter application, the Multi-Box can house a small factory (which can be shipped intact from a manufacturing site to the field), a hospital, a maintenance facility, and a variety of other uses.[57]

*Ground Facilities***.** Unlike conventional cargo aircraft, the CL160 and its offspring will need only minimal ground support and, hence, no airports.[58] There are three sorts of CargoLifter facilities planned. The first, and largest, is a Home Base (HB), encompassing some 1,500 unobstructed acres, which will include a hangar, up to two mooring masts, and buildings/infrastructure to support construction and maintenance of up to four airships at a time.[59] The Operating Base (OB) will consist of a cleared area and a mooring mast for ground operations.[60] CargoLifter Load Exchange Zones (LEZ), about the size of a football field, are essentially cargo pick-up and discharge sites at destinations, manufacturing plants, or ports (or a small lodgment for forward deployment).[61] Presently, Home Bases are planned for Germany (now under construction), North America, South America, Asia, the Far East, and the Pacific Rim.[62] Operating bases will be more plentiful and widely distributed globally, while LEZs, requiring almost no ground infrastructure beyond mooring points, can be located almost anywhere in the proximity of cargo staging areas.[63]

Safety. Because of its immense size, the CL160 will be virtually unaffected by normal winds and weather.[64] Although larger and slower than other, more conventional aircraft, the airship can be protected from attack enroute in much the same way that convoys are protected at sea. The CargoLifter is built of several self-contained compartments of non-flammable helium in a semi-rigid design.[65] This means there is no potential for tragic catastrophes like that of the *Hindenburg*.

A Realistic Proposition. The Heavy Lift logistics airship is not a pipe dream. The CargoLifter and other similar projects are very serious and close to fruition.[66] Unveiled at the "Transport & Logistics" trade fair in Leipzig in May 1998, "Joey" is a one-eighth-scale model of the CargoLifter CL160.[67] "Joey's" role in the CargoLifter R&D program is that of a dynamic test platform for larger airship development.[68] CargoLifter AG's first prototype (the CL160 P1) is scheduled to begin test flights in 2001, and the company expects to have an operating fleet of airships by 2004.[69] CargoLifter AG is already receiving significant interest from potential customers plagued with the problems of point-to-point heavy lift.

CargoLifter AG is partnered or affiliated with several, well-known industrial names: IBM,[70] Siemens, Praxaire, Linde, Deutsche Bank, Commerzbank, and others.[71] Even NASA is in the planning stages of developing a similar airship program.[72] Some may consider LTA an "unproven" prospect. However, even Gen. Shinseki admits a lighter, wheeled armored force will rely on new, unproven technologies to provide suitable survivability.[73] Meanwhile, the general concept of LTA has been around for most of the 20th century. Indeed, the use of airships in direct combat (even with U.S. forces) is not a new concept.

Airships as a Strategic Lift Solution for Heavy Forces. The CargoLifter is a "quick" Heavy Lift Asset. It is, of course, not as fast as standard aircraft, but each CL160 will carry twice as much cargo as the largest commercial cargo airplane, the Antonov 124.[74] It will take only 25 percent as many airship sorties to carry heavy forces into a theater as it does standard aircraft (see table below). Likewise, the CL160 will cost only $100 million per copy,[75] merely 55 percent of the cost of a C-5 or C-17! (See Table 2)

The airship, while not as fast as other airlift, is certainly faster than sealift. It would only take a few days to LTA lift a unit from right outside its own motor pool straight into the area of operations. It would take weeks to move a unit's equipment to a seaport of embarkation, load it, sail it to a staging base, unload at a seaport of debarkation, and then move the equipment into the area of operations.

If the DoD were to spend the planned $20 billion for upgrading strategic sea and airlift forces on airships,[78] they could purchase 200 CL160s. An additional $10 billion would provide enough lift to move an entire armored or mechanized brigade in one lift. No one yet has asked how much Gen. Shinseki will have to pay to replace the entire tracked fleet with wheeled vehicles. What if that money were also spent to purchase airships in lieu of turning over a perfectly usable armored fleet? To replace the current fleet of M1- and M2-series tracked vehicles alone would cost about $16 billion, not including all the support systems, spare parts, and retraining crew and maintenance personnel. That would purchase an additional 160 CargoLifter airships. Include with the purchase of an airship fleet the reduced cost to maintain it, and we get more strategic lift for the investment.

In the context of an airship deployment, each CL160 will require a LEZ the size of a football field to deploy its cargo. There is no need for air and seaports to handle CargoLifter because it does not land. Because it is not a slave to infrastructure, the airship is not nearly as vulnerable to operational weapons attacks (such as those earlier mentioned in the War College war game). Planners could pick random areas relatively close to the area of operations or in the area of operations to insert heavy forces. Given this, a mechanized "forced-entry" mission might be possible (move over, 82nd Airborne).

The inclusion of an airship fleet in the strategic lift mix will also help shorten the logistics tail for heavy forces. First, the near exclusive use of airships would free up the conventional airlift fleet to handle logistics missions, its current bread-and-butter.[79] Second, the inclusion of airships in the service support pipeline would allow U.S. forces to line haul up to 176 tons of supplies at a time directly into division and brigade support areas (DSAs/BSAs). The nature of the Multi-Box design would further allow the throughput of other CSS assets (hospitals, maintenance facilities) into theater in a short time.

A Medium/Heavy Airship Division. The development of an airship fleet could lead to new, custom MTOEs better suited to today's contingency missions. Imagine a mixed medium/heavy airship division. The new division would include an airborne brigade for forced entry to establish a lodgment wide enough to insert heavier, follow-on forces directly behind them. The division would include a medium, wheeled cavalry squadron or brigade (LAV25/LAV105) to airdrop, or LTA lift, in with or just behind the airborne force to quickly establish security for the main body. The main body, the backbone of the division, would incorporate two mechanized and/or armored brigades to begin landing within hours of the airborne and cavalry. Division and DS artillery would come in the form of lighter wheeled/towed cannon and MLRS. Add a self-deploying aviation brigade to increase the division's combat power. If staged and deployed with the proper synchronization, the entire division could easily be in theater within 96 to 120 hours after lift-off, well within the Chief of Staff's desired timeline.[80] If used to secure forward seaports and/or airports, this division could be the foot in the door for four more conventional divisions within 30 days, again meeting the Chief of Staff's deployment goals.[81] What is more, this entry force division would have far more firepower, survivability, and versatility than any wheeled armored force equal in size could promise.

Conclusion. Given the revolutionary nature of Gen. Shinseki's plans for heavy forces, it is not inconceivable to introduce such an ambitious means of strategic lift to counter the Chief of Staff's argument. While we do face many more low-intensity style conflicts, the loss of conventional combat power to fight a medium-intensity conflict is the surest way to invite a medium-intensity conflict. Just because many other rogue nations are divesting themselves of armored forces is no excuse for us to do likewise.[82] The very nature of success in warfare is to scare the enemy out of acting against you and then, once the battle is joined, never fight fair.

	Number of Vehicles per Sortie		
Model	C17	C5	CargoLifter
M1A2	1	1	2
M2A2	2	3	5
M109 Series	2	4	7
M88A1	1	1	3
Price per A/C (Mil)	$ 180.0[76]	$ 184.2[77]	$ 100.0 **55%**
Vehicle weight/volume and aircraft capacity based on TB 55-46-1			

Table 1 — Cost Comparison

Notes

[1]Sean D. Naylor, "Radical Changes: Gen. Shinseki Unveils his 21st-Century Plans," *Army Times*, Oct. 25, 1999, p. 8.

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[3]Sean D. Naylor, "Fast and Furious," *Army Times*, November 22, 1999, p. 15.

[4]"Moving US Forces: Options for Strategic Mobility," Congressional Budget Office Report, February 1997.

[5]Sean D. Naylor, "Medium Armored Vehicle Must Have These Attributes to Ace Army's Competition," *Army Times*, November 22, 1999, p. 15.

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[14]"Moving US Forces: Options for Strategic Mobility," Congressional Budget Office Report, February 1997.

[15]Ibid.

[16]C-17 Globemaster III, US Air Force Fact Sheet.

[17]"Moving US Forces: Options for Strategic Mobility," Congressional Budget Office Report, February 1997.

[18]*FM 55*-15, p. 5-13.

[19]John Barry and Evan Thomas, "Not Your Father's Army," *Newsweek*, November 22, 1999.

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[22]Sean D. Naylor, "Medium Armored Vehicle Must Have These Attributes to Ace Army's Competition," *Army Times*, November 22, 1999, p. 15.

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[25]www.cargolifter.com.

[26-63]Ibid.

[66] "Inflated Ambitions," *FOCUS*, August 1999, pp. 14-19.

[67]www.cargolifter.com.

[68]Ibid.

[69]Ibid.

[70]"IBM to Pilot CargoLifter's IT and CAD Efforts," *CargoLifter Newsletter*, November 17, 1999.

[71]www.cargolifter.com.

[72]"Cargo Airship Among New NASA Start-Ups," www.cnn.com, August 31, 1999.

[73]Neil Baumgardner, "Shinseki: Tank's Demise Depends On Technology," *Defense Daily*, November 17, 1999.

[74]"Inflated Ambitions," *FOCUS*, August 1999, p. 19.

[75]www.cargolifter.com.

[76]C-17 Globemaster III, US Air Force Fact Sheet.

[77]C-5 Galaxy, US Air Force Fact Sheet.

[78]"Moving US Forces: Options for Strategic Mobility," Congressional Budget Office Report, February 1997.

[79]"Moving US Forces: Options for Strategic Mobility," Congressional Budget Office Report, February 1997.

[80]Gerry J. Gilmore, "Army to Develop Future Force Now, Says Shinseki," *Army News Service*, October 13, 1999.

[81]Ibid.

[82]John Barry and Evan Thomas, "Not Your Father's Army," *Newsweek,* November 22, 1999.

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Sortie Lift Comparison[2]

Notional Units (Based on 1994 MTOEs)	Number of Personnel	Unit Weight (Tons)	Airlift Sorties (C-141 / C-17 mix)		CargoLifter Sorties (Replaces C-17 only)	CargoLifter Sorties (Replaces C-141)	CargoLifter Sorties (Replaces C-17 & C-141)	% of Airship Sorties to Aircraft Sorties
Airborne Division	13,242	26,699	1,101	78	38	172	210	18%
Air Assault Division	15,840	35,860	1,412	195	95	221	316	20%
Armored Division	17,756	110,431	1,761	1,274	623	275	898	30%
Mechanized Division	17,982	109,116	1,708	1,275	624	267	891	30%
Light Infantry Division	11,036	17,092	769	41	20	120	140	17%
COSCOM	22,410	98,717	3,599	500	245	562	807	20%
Airborne Brigade[1]	4,414	8,900	367	26	13	57	70	18%
Air Assault Brigade[1]	5,280	11,953	471	65	32	74	105	20%
Armored Brigade[1]	5,919	36,810	587	425	208	92	299	30%
Mechanized Brigade[1]	5,994	36,372	569	425	208	89	297	30%
Light Infantry Brigade[1]	3,679	5,697	256	14	7	40	47	17%
						Average Percentage of Airship Sorties to Aircraft Sorties		23%

1. Assumes 1/3 of a division.

2. Personnel, Tonnage, and Aircraft Sorties based on "Moving US Forces: Options for Strategic Mobility, CBO Report, Feb 97." CargoLifter capacities based on cargo weight capacities only. CL160 will carry more volume than weight.

Table 2

Building a New Armor Force for the Marine Corps:

The High Risk of Deep Maneuver Will Require Tanks

by Lieutenant Colonel Randy B. Carlton

The Marine Corps is now entering a new century and a new strategic era. The stage is now set to propose a new armor organization. But what should be our vision? Let's first look at the vision of our Marine Commandant to ensure the right focus. Then we should consider the character of forces that military theorists think will be required to achieve operational and tactical success on the battlefields of tomorrow. These critical visions and force characteristics then support a proposal for reforming Marine armor to meet emerging threats and to serve future national military strategies.

The Marine Corps Commandant's vision is described in the Marine Corps Master Plan and in planning guidance he published in *Marine Corps Gazette*. He provides a great deal of information on what kind of Marine Corps we expect to have:

It is a Corps with limited resources; therefore, it must provide cost effective military capabilities. It must be a highly versatile fighting force prepared to handle a variety of missions. It will be a fully combined arms team, on the scene, ever ready to protect the nation's interest. It must be a force that can flourish under conditions of uncertainty and be ever ready to win our nation's first battles. The force must be expeditionary and prepared for immediate deployment. Forces must be able to operate from sea. Finally, the Marine Corps must be able to conduct forcible entry from the sea in the face of armed opposition.

Reserve forces must be able to quickly integrate and add combat power to a theater of conflict. These capabilities add up to strategic reach and operational and tactical success. Marine Air-Ground Task Forces (MAGTFs) must have sufficient force to respond rapidly and effectively and act as an enabling force for follow-on forces. These forces must be compact enough to respond rapidly and yet heavy enough to get the job done. The forces must provide relevant and easily integrated forces to the unified commanders. Furthermore, they must provide agile, adaptable, and combined arms force for Operational Maneuver from the Sea (OMFTS).

Finally, to support the National Military Strategy, the Marine Corps must have the forces to shape and respond across the spectrum of conflict.

The Character of Future Warfare

What will define the character of future forces and allow them to win quickly and decisively? The obvious answer, *knowledge and speed,* are the basic tenets of maneuver warfare and OMFTS. Knowledge and speed will be more deadly in the future than at any time in our history. A greater knowledge of the enemy and a greater speed of movement of forces will ensure tactical and operational success (the hope of information warfare), thereby achieving strategic objectives. As noted in the U.S. Army monograph, "Knowledge and Speed," the combination of knowledge, speed, the massing of the effects of fires, and mission-type orders will allow highly mobile forces to "enter an engagement more quickly, achieve decisions more rapidly, finish the fight faster, and reengage the enemy elsewhere." Employing speed of maneuver based on certain, detailed knowledge; using precision fires; and guided by mission type orders, commanders at the tactical level will function in compressed planning and operating cycles at very high tempos.

An integral part of the MAGTF, Marine armor forces within the ground combat element (GCE) can play a dynamic role in this era of warfare. They are near-perfect forces to achieve the commandant's vision and ensure a credible *shaping* and *responding* force. Unfortunately, today's tank and light armored reconnaissance (LAR) battalions are not optimally configured to achieve the end state desired by the commandant. Each battalion has great capabilities, but each also has limitations that prevent greater utility. For example, much has been written in the *Marine Corps Gazette* about the deep operational maneuver group. This is the LAR battalion's concept of conducting operations deep in the enemy's rear. While this is a great concept with tremendous potential, the force is too light and the risks are too high to warrant these operations. Such a deep operational strike group requires tanks! Why? Because deep operations are high-risk missions. They will require greater survivability of the force, and they will also need enhanced lethality. A deep operation force equipped with tanks would be more capable of handling the unexpected and will have a better chance of accomplishing the mission. Consider the recent advanced warfighting experiment, Hunter Warrior. At no time was the Red Force concerned about LAR units on the battlefield. Without tanks, these units posed little threat. Any heavy machine gun, shoulder-held anti-tank weapon, or mines could easily take them out. The Blue landing force of LAVs was not credible.

Can't we meet these needs with supporting arms?

While supporting arms are great, and should always be part of the plan because they can greatly enhance chances of success and survivability, maneuver commanders cannot always count on them due to the friction and fog of war, especially in certain kinds of weather. But commanders *can* count on those Marines and weapons they directly control. To achieve greater credibility in the MAGTFs, old paradigms must be broken. Tracked and light armored wheeled vehicles can not only operate together, they can also be organized together. Logistics and maintenance can be combined under one organization. Training tank and LAV crewmen within the same organization would not be difficult, since the missions and gunnery training are similar. There are challenges, but these obstacles can easily be overcome.

We need an armor force cohesively built to launch from a standing start and dynamic enough to *shape* and *respond* across

the spectrum of conflict. The Marine armor battalion proposed in the graphics is ideally configured to serve 21st century strategy needs. (See Figures 1 and 2)

Armor Battalion Mission

The mission of the armor battalion is to provide lethal armor-protected firepower, shock effect, and maneuver in the offense or defense in support of the ground combat element's participation in Marine air-ground task force amphibious, maritime prepositioning, and air contingency operations. The armor battalion would consist of a headquarters and service company (scout, mortar, air defense, and command & control platoons), four armor companies, (two armor and two tank platoons), and one tank company (three tank platoons).

The tank and LAR platoons would be downsized to three tank/LAVs per platoon. Given the capabilities of each of these vehicles (especially the M1A1 tank), a three-vehicle platoon is still extremely capable and lethal. The increase in maneuver units across the battlespace more than offsets the slightly reduced platoon. Another advantage for the platoon commander is that his span of control is increased. Many would argue that this increases his ability to fight his weapon system, command and lead his platoon, and coordinate supporting arms. I believe the overall gain contributes to maneuver warfare and OMFTS warfighting doctrines.

The available LAV 25mm chain gun with two antitank side launchers and the 120mm turreted mortar vehicle would greatly enhance the LAV's lethality and provide greater tactical flexibility. Extended range munitions currently being developed by the Army will greatly enhance the M1A1's capability to engage targets non-line-of-sight to 10 kilometers. These tank munitions may change the way tanks are tactically employed in the 21st century. The armor battalion's organization would best support future tank capabilities.

The LAV-scout, LAV-mortar, and LAV-air defense platoons (Blazer turret with 25mm Gatling gun and two Stinger pods that can carry four missiles each) provide a balanced offensive and defensive capability that greatly enhances the armor battalion's employment across the spectrum of conflict.

Additional mobility equipment would be added to the armor battalion, such as tank mine plows (already available in the tank battalions) and a platoon of six Grizzly in-stride/obstacle vehicles (planned allowance under procurement).

The LAV-command vehicle in each maneuver company headquarters serves as a dedicated fire support vehicle for coordinating supporting arms.

Concept of Employment

The armor battalion can be employed as an independent maneuver force. Task forces can be formed by attaching tank or armor companies to infantry battalions and infantry companies to the armor battalions. This cross-attachment procedure could extend to platoons within the infantry and armor/tank companies.

The armor battalion's combat support platoons, its four integrated combined tank/LAV companies, and its one tank company can perform all the offensive and defensive missions assigned to the separate tank and LAR battalions, including the guard and cover missions LAR cannot currently perform. This organization is structured to fight for information, conduct rapid maneuver, and coordinate supporting arms with greater *knowledge* (situational awareness) and greater *speed;* so it retains the offensive initiative for the GCE or MAGTF. As a result, the sum of these capabilities is greater than any of its parts.

The smaller size of the companies provides for greater *command and control, speed of movement,* and *agility* while *increasing* the number of maneuver companies from four to five in the battalion. Similarly, the smaller size of the platoons also confers the same advantages. This in turn provides greater flexibility to the MAGTF commander, as well as a smaller footprint and less logistical support for MAGTF employment.

This organization is a "natural" culmination of the close relationship the tank and LAR battalions have had with the Air Combat Element (ACE). The synergistic effect of this armor force operating with fixed/rotary wing aircraft, unmanned aerial vehicles, and its own indirect fire capability (mounted mortars) would be a powerful combined arms force in its own right.

Cost Effective Military Capabilities

Currently, the Marine Corps has two active duty tank battalions and three active duty LAR battalions. The new organization would produce four armor battalions, eliminating one battalion headquarters. The four battalions would be far more capable, each providing five maneuver companies to support the MAGTF. The reorganization of weapon systems can be done within the current structure of the Marine Corps, although it would require modifications to LAVs in order to obtain the de-

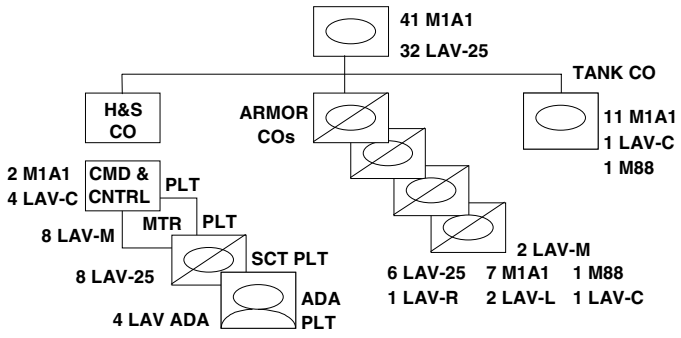

Figure 1: Proposed Armor Battalion

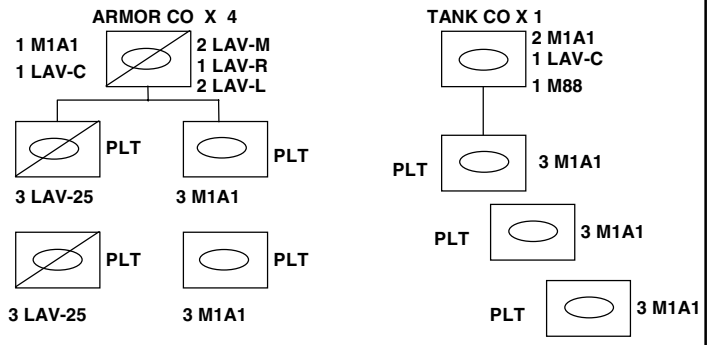

Figure 2. Proposed Armor Companies and Tank Company

WPN	C-CO (1)	C-BN (1)	C-BN X (2)	C-BN X (3)	C-MPF(1)	C-MPF (3)
M1A1	14	58	116	N/A	58	174
LAV(V)	N/A	N/A	N/A	N/A	27	81
LAV-25	14	60	120	180	27	81
LAV-C	1	8	16	24	N/A	N/A
LAV-M	2	8	16	24	N/A	N/A
LAV-R	1	6	12	18	N/A	N/A
LAV-L	3	16	32	48	N/A	N/A
LAV-AT	4	16	32	48	N/A	N/A
M88	2	12	24	N/A	5	15

WPN	F-CO (1)	F-BN (1)	F-BN X (4)	F-MPF (1)	F-MPFX(3)	PLUS	MINUS
M1A1	4X7 1X11	41	164	41	123	0	7
LAV (V)	N/A	N/A	N/A	44	132	N/A	N/A
LAV-25	6	32	128	44	132	52	0
LAV-C	1	8	32	N/A	N/A	N/A	8
LAV-M	2	16	64	N/A	N/A	N/A	40
LAV-R	1	6	24	N/A	N/A	N/A	6
LAV-L	2	12	48	N/A	N/A	N/A	N/A
LAV-AT	0	0	0	N/A	N/A	48	N/A
M88	1	6	24	5	15	N/A	N/A
					LAVs	+100	-54

Table 1:
Distribution of Vehicles

Notes:

(1) LAV(V): All LAV variants include LAV-25s. Distribution of LAV variants to MPF to be determined. LAV(V) & LAV-25 C or F - MPF columns include other variants which are listed as N/A.

(2) LAV-AT is not required in new armor battalion as tanks are available. Excess LAV-25 & LAV-ATs are available for transition to other variants.

(3) Reduction of M1A1s in Maritime Pre-positioned Forces (MPF) opens room for more LAV-(Vs).

(4) An adequate number of LAV hulls are available to meet requirements. However, LAV-25 & LAV-ATs would require transition to LAV-C/M/R to meet distribution requirements for a new armor battalion.

(5) Seven additional tanks are required for the active/MPF new armor battalion. The additional MPF tanks could come from the reserves and/or the maintenance float.

(6) Code: C stands for current Co/Bn/MPF.

(7) Code: F stands for future Co/Bn/MPF.

sired mix of weapon systems. Furthermore, it places more LAV variants on maritime pre-positioning ships, thus reducing the number of sorties required to deliver the force (see Table 1).

Additionally, with four armor battalions, the Marine Corps can deploy three armor battalions to the three maritime prepositioning ship's squadrons (MPSRONs) and support the two amphibious MEF-FWDs without calling up the reserves. This provides greater strategic and operational capability to the MAGTFs and warfighting theater commanders.

This combined tank/LAV force, organized as a cohesive fighting team, can conduct operations spanning the range of offensive and defensive missions. A highly mobile armored reconnaissance force provides greater situational awareness. Combined with the most lethal, mobile, and survivable tank on the battlefield, it facilitates organized velocity across the battlespace. The armor battalion will be able to quickly expand the battlespace by entering the battle more quickly, achieving decisions more rapidly, finishing the fight faster, and re-engaging the enemy elsewhere sooner.

The armor battalion fights as an integral player in the combined arms team of the MAGTF. Pure or task organized, provided with close air and/or artillery support, the armor battalion can easily conduct combined arms operations as an independent maneuver battalion.

The robust LAV mortar platoon (eight 81mm tubes) at the battalion level and the mortar section in each armor company gives the battalion its own artillery during those times when towed artillery is not positioned to provide support. The available LAV 120mm turreted mortar, with a range of 9+ kilometers (standard) or 12+ kilometers (rocket assisted), would truly enhance the armor battalion's ability to conduct high speed operations at greater distances in offensive or defensive operations.

This would truly be a "deep maneuver force," but one with the punch necessary to survive. It is also "compact enough to get there rapidly and heavy enough to get the job done," as called for in the commandant's vision.

This flexible, versatile, agile, and lethal information-seeking battalion would flourish in *uncertainty.* LAR and tank forces normally deal with mission-type orders and conduct operations on the move. This is an organization with a 360-degree capability to exploit *uncertainty.*

The four armor battalions would provide immediate deployable armored forces to all the MAGTFs. They would meet all armor force requirements. The two reserve tank battalions and one LAR battalion could remain unchanged, available for major theater war. These new armored forces would impact the MAGTF's capabilities at all levels, giving them greater *strategic,* operational, and tactical impact.

Amphibious ships can transport the M1A1 and LAV. They could be delivered over the horizon with air cushion landing craft (LCACs) that can carry one M1A1 and four LAVs. Also, the Landing Craft Utility (LCU) can carry two to three M1A1s and four LAVs. The cruise range of the M1A1 is 289 miles and the LAV is 375 miles. They could be re-supplied by air and/or from the sea.

Instead of Marine tanks being located in two battalions, awaiting the call to glory in the next major theater war, they would be integrated into four battalions making them much more accessible to Marine forces. Tanks would be placed in 20 companies, rather than the current eight.

This armor force organization would provide greater operational and tactical support to the MAGTFs, who are the true strategic instruments of the Marine Corps. The armor battalion

is easily task organized and can be quickly integrated into any operation.

The employment of the armor battalion generally remains the same. However, reconfiguration provides two major advantages: The armor battalions can conduct all offensive and defensive missions as one cohesive fighting force, and the battalion and companies' organization provide a more capable maneuver and reconnaissance force for the MAGTF while remaining a powerful armor force in its own right. The net result is a force possessing greater knowledge and speed.

In Marine Expeditionary Unit (Special Operations Capable) [MEU(SOCs)], employment generally remains the same. Tanks and LAVs deploy as separate platoons. However, with the new armor company mix of LAVs and tanks, an entire armor or tank company may be able to deploy. Having an armor or tank company support the MEU(SOC)s would greatly enhance their combat capabilities and provide them a fourth company for combat employment.

The MEU(SOC)s, forward deployed, are truly one of the nation's instruments for shaping a developing situation. Enhanced combat power at this level would have tremendous tactical impact, but would also affect the operational level, resulting in *strategic implications.* The armor company with a MEU(SOC) is not going to win any wars, but it will win battles. To the Marines at the tip of the spear, an armor company or platoon may mean the difference between life and death.

Conclusion

The new armor battalion is a more relevant force for an uncertain and unstable environment. It is definitely the type of armor force the 21st century demands. In a fiscally constrained environment, it allows the Marine Corps to obtain the greatest utility from its tank and LAV force. Finally, our warfighting doctrine demands that we organize to obtain the greatest shaping and responding force in order to impact the three levels of war. This armor force is the right size, with the right mix of combat weapons (lethal, highly mobile, survivable, and sustainable) to ensure the Marine Corps MAGTFs can meet the national military strategy.

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LTC Randy Carlton, commissioned in 1976, attended the Training Basic Officer School at Quantico, Va., and then Armor Officer Basic Course at Ft. Knox, Ky. His previous assignments include: S3 reconnaissance liaison officer, battalion NBC officer, tank platoon leader, company XO and battalion S1/adjutant with 3rd Tank Battalion, 29 Palms, Calif.; tank company commander, D Co (-) Rein, 1st Track Vehicle Battalion in Okinawa, Japan; AOAC instructor, Ft. Knox; S4 and XO during Desert Shield/Storm in the first M1A1 battalion for 2nd Tank Battalion); maritime prepositioning and executive officer with 7th Marine Regiment (Rein); and commander, 1st Tank Battalion, 1st Marine Division, 29 Palms. A graduate of AOAC, NBC Warfare School, CGSC (Quantico, Va.), and the Army War College, he is currently Deputy of Ground Forces Branch, Combined Forces Command, Operations Division, Ground Forces Branch, Yongsan Army Base, Seoul, Korea.

Translating Peacekeeping into Combat Readiness

Unit Learns to Train for Combat While Keeping the Peace in Bosnia

by Captain Rich Morales

In February of 1996, 2-63 Armor deployed to Operation Able Sentry, where the unit executed what had been a traditional infantry role. Then the battalion successfully transitioned from United Nations peacekeeping to warfighting as a counterreconnaissance company at the Combat Maneuver Training Center (CMTC). This article is intended to explain how we forged a battle-ready team capable of operations at both ends of our mission spectrum.

Our rotation was not atypical. Units regularly deploy to the CMTC, refine techniques, and develop confidence in their ability to fight. Like most units, we benefited from a well paced training regimen that included seven intense days of STX training. Professional observer controllers and a spirited OPFOR made for a great rotation. But what made our rotation different was that the most of our preparation was done hundreds of miles away from our equipment as tankers — without tanks. Training for battle is not a new concept in any tank battalion or cavalry squadron; nevertheless, ours was a unique challenge that called for imaginative and resourceful training to sustain mission essential task proficiency following six-months of peacekeeping. As it turned out, our United Nations deployment to the Former Yugoslav Republic of Macedonia (FYROM) sharpened, rather than dulled, our preparation for combat by building a truly cohesive team in which leaders were routinely given the latitude to execute without fear of failure. Continuous operations along a 100-kilometer United Nations patrol line between Serbia and FYROM provided an unusual opportunity to build on scout and tanker skills. Specifically, competence, leadership, reporting, navigation, and again — attitude.

It had been a busy year, one that included more than three months of training units to conduct stability operations in Bosnia, two gunnery densities, and the six-month deployment to the Former Yugoslavia. Training as part of a fast-paced USAREUR unit forced leaders at all levels to focus on accomplishing a host of missions to standard. In hindsight, I attribute our success primarily to our outstanding troopers and secondly to the ability of leaders to instill an attitude of mission accomplishment. Harnessing the ability to shape attitudes and perceptions to build a cohesive team is an important tenet of our training philosophy that directly contributed to our success.

Photo:
Robert L. Stevenson

Tank companies, specialty platoons, and staffs became tight-knit, mission-focused components of a battalion with one mission: Train for combat while deployed as peacekeepers. Our initial training was largely conceptual, focusing tank, scout, mortar, and support NCOs and officers on the mechanics of our mission. Officers and senior NCOs met every Saturday for a two-hour professional development class on the combat functions of a tank battalion. Comprehensive written exams tested our grasp of a growing list of topics over a six-month period. Practical applications included construction of wire and mine obstacles, manual breaching techniques, orders production, and detailed rehearsals of fundamental components of the attack and defense on hangar-sized terrain models.

Unlike leadership in a garrison environment, leading under field conditions offers additional challenges. Deployments magnify the benefit of leading in the field ten-fold. Tired, yet determined soldiers must execute real-world missions that have a far-reaching impact on the interests of the battalion, Army, and our nation. Austere operations based out of hilltop observation posts allowed junior officers and NCOs to independently execute countless mounted and dismounted community, border, and sector patrols over six months.

Despite the hands-on application of reconnaissance fundamentals in sector, our battalion was still a tank battalion minus tanks. Consequently, we built on a readily-available resource — our soldiers. Not unlike our efforts at home station, the battalion went to work immediately upon our deployment to improve morale and build cohesion. We motivated troopers through events such as Friday Night at the Fights, frequent trips, tournaments, sports, and developed legendary Battalion

"Individual Replacement Training (IRT) commitments prevented the battalion's line companies from spending any considerable amount of time on tanks in the months that led up to our rotation. Instead, crews and platoons trained specific tasks."

Horse and Rider Fights. The battalion, divided in half and mounted, charged into weekly combat to capture the opposing force's "flag." Cohesion would see us through rain, fatigue, and constant monitoring of operations as part of Operation Able Sentry.

The aim of extensive patrolling (and subsequent counterrecon operations) was accurate reporting. Standard SALUTE reports were drilled at every level. Nets were monitored continuously. Competency rose quickly as proper radio telephone procedures, communications security, and insight into the operation of radios, TACSAT, and antennas permeated the units in the battalion. In the end, every private, sergeant, and officer was prepared to communicate effectively and thus prepared to win a critical component of the counterrecon (or any other) fight.

Map reading became second nature for new soldiers and was reinforced in more senior leaders. In addition to usual mounted land navigation, our tank company was exposed to the challenges of dismounted navigation over difficult terrain. Patrols varied in distance from 3 to 30 kilometers and in time from one hour to three days. Crewmen learned to employ Global Positioning System equipment and, more importantly, improved their ability to associate terrain on the ground with map features on maps.

Home Station Preparation

Redeployment allowed for a deliberate hands-on training of our troops and preparation of our equipment for combat at the CMTC six months after our return. Again, preparation hinged on building competency through classroom instruction and OPD and NCOP events. A positive attitude continued to be a central theme in all training. In addition to the preparations begun in Macedonia, we focused on several critical areas: gunnery, logistics, and knowing our enemy.

In light of limited tactical training opportunities, we prepared mentally for gunnery, the CMTC, and combat. Our weekly OPD program continued throughout our redeployment and during gunnery. In addition, "Warrior Nights" were added to the preparation plan. Company commanders, staff, and specialty platoon leaders, and slice element commanders met after hours over a potluck dinner to discuss operations, refine SOPs, and watch videotaped AARs of other units at both training centers. The cohesion established in Macedonia continued to grow.

The battalion gunnery program challenged crews by integrating advanced gunnery tables (M1A2 tables fired off of M1A1 tanks) in preparation for combat. Methodical preparation included standard TCGST and UCOFT training and incorporated TC-gunner drills that allowed for quicker acquisition and destruction of the enemy. Qualification gunnery tables that challenged crews to engage up to five targets at a time sharpened skills dulled while peacekeeping. Again, establishing cohesive crews early and training them would pay off later at the CMTC.

Servicing our tank fleet, training new soldiers on tank specific maintenance, and ensuring our equipment was prepared for combat became a top priority upon redeployment. Systems were re-established to deal with support issues. Our ability to land on our feet after months of being off of tanks was crucial. Maintenance management and operator PMCS training was reinforced at all levels. In the end, our task force was able to bring nearly all combat systems to bear on enemy forces with no fewer than 42 of 44 tanks learning from the fight.

The CMTC leader's recon was a superb learning experience and opportunity to observe another maneuver battalion train. Not unlike combat, our intent was to understand how our enemy fights and thinks. We reviewed OPFOR tactics, techniques, and procedures as both a company and battalion. Unlike a real threat force, the OPFOR worked hand-in-hand with my company during STX to coach and share their own experiences in the box. Beyond natural spirited exchanges between soldiers, the OPFOR was intent on making us a better battalion.

Individual Replacement Training (IRT) commitments prevented the battalion's line companies from spending any considerable amount of time on tanks in the months that led up to our rotation. Instead, crews and platoons trained specific tasks. Instructors, role players, and lane NCOICs and OICs continued to execute missions as late as two weeks before our deployment to Hohenfels. Despite the reduced training time on tanks, the team formed to tackle peacekeeping, gunnery, and IRT proved capable of executing its wartime mission.

In the end, specialty platoons, staff sections, and task force soldiers focused on fighting throughout the depth of the defensive sector. A mindset permeated the entire battalion to fight and win. We did. Cooks, staff sections, HEMTT drivers, mortars, tanks, and scouts all applied leadership and tactical lessons learned in the hills of Former Yugoslavia to the battle at Hohenfels. By the early hours of March 23, Task Force 2-63 Armor had defeated nearly all recon assets, conducted a passage of lines in contact (100% of its combat power from the security zone), and subsequently overwhelmingly defeated an attacking Opposing Force (OPFOR) regiment. The scout platoon and two infantry platoons and three tank platoons formed the base of my company's team. Additionally, we were linked to specific tank platoons in adjacent companies that were trained and poised to react alongside our team.

In the end, nearly 100 continuous hours of counterreconnaissance operations and aggressive execution of the MBA fight resulted in a superb defense that allowed no ground assets past the No Penetration Line.

In a period of increasingly limited budgets and resources, innovative training becomes a way of life. It is important therefore, to train smarter and make the best of available training. Effective leadership, superb soldiers, and a winning attitude empower a unit to accomplish any mission.

CPT Rich Morales is a 1989 graduate of the U.S. Military Academy and served in the 3rd ACR, 2-37 and 2-63 Armor as a tank and scout platoon leader, HHT XO, SMO, S3 Air, tank company commander, and UN Sector commander. He attended the Armor Basic and the Infantry Advanced courses. After earning a Yale MBA (Strategy and Operations) in 1999, he will teach management in the Department of Systems Engineering at West Point.

Armor Movie Classics:

Readers Nominate Their Favorites

(Editor's Note: Quite a few readers responded to our November-December article on Armor in the movies.)

From Stanley C. Crist:

I, too, really enjoyed **"The Beast,"** especially the opening scenes of the bombardment of the village. Realistic explosions, not the typical Hollyweird gasoline-fueled fireball crap. Also like the use of real T-62s, even though they were ones that had been modified by the Israelis, equipped with U.S./British-type 105-mm main guns...

I agree with your analysis of **"Kelly's Heroes"** except for the statement that "...all the military equipment in the film was dead-on genuine." The German "Tiger" tanks were actually Russian T-34s with well-executed VISMOD cosmetic shells. Compare the road wheel and track configuration to photos of real Tigers and T-34s.

From LTC Chuck Wohlrab, Ret.

First, a correction to an otherwise excellent article. The 1951 movie filmed at Otter Creek, Fort Knox, was **"The Tanks Are Coming,"** starring Steve Cochran and Philip Carey. It is based on the story of the 3rd Armored Division from the Breakout to breaching the Siegfried Line. It has some excellent shots of massed armor moving forward and in assembly areas. The credits thanked the Kentucky National Guard and U.S. Army for their help. It is available on video.

I would like to nominate another "sort of" armor movie called **"Theirs Was the Glory."** It is the story of the 1st British Airborne at Arnhem. The impressive thing about this movie was the tanks used. The first time I saw it, I was awed when a real German Panther came around the corner to attack the British defenders. It was one of several used for the movie, and supplied by the French. Later, there was a static shot of a Tiger I. These were actually from one of the French armored divisions. The movie was made around 1950, on the actual sites and using many actual veterans of the battle. It is also available on video.

A couple of other interesting facts to go with the article on tank movies: Lulubelle, the star of **"Sahara,"** was kept by the studio until 1970 or so, when it was sold at a studio auction. It has since shown up in other movies, most notably **"1941"** by Steven Spielberg (I haven't seen the 1995 remake of **"Sahara,"** so I don't know if it was used there).

"Kelly's Heroes" was based on a book entitled *Kelly's Warriors,* written by a former WWII U.S. cavalryman. It made much of the missions and losses of the cavalry groups in that period.

Early models of the M3 Stuart light tank, part of 1st Armored Division, ford Otter Creek during filming of "The Tanks Are Coming" at Fort Knox in 1941. The movie was re-made in the 1950s.

From CPT John S. Wilson, Infantry, AR ARNG

Loved the article. There just are not enough good armor/tank movies. Here's my vote for my favorite three:

"The Beast." It was an unwritten requirement in AOB 16-89 to watch this flick at least twice before graduation. I thought it was a great movie. Very well done. It showed the stark contrast between the Great Patriotic War generation and the conscript generation, much the same experience we faced with Vietnam and the Israelis in Lebanon. I'm glad you included it in your article. You get a No Go on AFVID, though. The "T-62" is actually a T-55 the Israelis captured and re-gunned with an M68 105mm main gun. No doubt the bore evacuator threw you, but check out the gap in the road wheels. The gap is in the front of the suspension, not the back. I'm sure the Israeli Defence Force loaned these tanks out for the production of the film.

"Patton." How could you not include this Armor classic about the god of war himself?! The tank substitutions were lame, but the portrayal was epic. This film was influential in my choice of profession.

"Kelly's Heroes." Deep down (even though they won't admit it) most armor officers would rather be more like Oddball than Patton. As for your animosity over the '70s antiwar treatment of the military in this comedy, "Don't hit me with those negative waves, man." Even the most astute military professional can pick out some valuable lessons on combined arms employment and the MDMP (Check out the download).

From LTC Tom K. Terry, Armor (Ret.)

Here's my vote(s). **"Sahara"** is the best movie for accurate/pure tanks and tank action. **"Kelly's Heroes"** was the most entertaining, by far.

All the others and their use of new vehicles to simulate old or foreign ones pretty much spoil the effect for me.

I am not familiar with **"Here Come the Tanks."** But along in the '50s or real early '60s, I caught part of a movie on TV that was about WWII U.S. tankers. The only thing I remember was a tank commander who kept carrying on about how he would take care of the Germans if he could get ahold of one of the new tanks (M26?). I think he got one at the end of the movie. I would like to see this show again.

I think a well made movie about the trials and heroics of WWII U.S. tankers along the lines of **"The Big Red One"** or **"Saving Private Ryan"** would be tremendous. There are lots of Shermans, Stuarts, Chaffees, etc., still around and **"Kelly's Heroes"** showed that German tanks can be fabricated in a believable fashion.

Keep up the good work. I have been a member since 1973 and, as (now) an old guy, I appreciate seeing some articles and topics that deal with history and stuff other than technology, blue sky weapons systems and long essays explaining "new" leadership concepts, which in reality are the same things we have done for a century, but, spiced up with catchy new terminology. History is important. I always found it difficult to accept current strategy and technology until I understood all the stuff (history) leading up to it.

From Francis G. Blake

Read your article about old war movies, and was wondering if some of your information came from my **"Sahara"** article in the Fall 1996 issue of *Army Motors.* (*Yes, it did. -Ed.*)

The movie, **"Five Graves to Cairo,"** also used an M3 Lee (in the opening scenes). The movie, **"The Tanks Are Coming"** (1951), should also be listed, but my vote is for, of course, **"Sahara."**

From David W. Bessemer

In response to your request in the Nov-Dec '99 *ARMOR,* I nominate **"Cross of Iron"** (I think made sometime in the early '80s), starring Maximillian Schell and James Coburn. For tankers, the main attraction is a sequence showing WWII Eastern Front style attack by a platoon of real T-34s accompanied by infantry.

gain from better suited force-on-force training or simulations in unit-level trainers such as SIMNET or CCTT. In the simulation facilities, a unit can truly maximize the value of having a field grade officer looking over the shoulder of a young platoon leader or company commander who gains invaluable, well-mentored training at very low costs in terms of time, equipment, and personnel. In addition, those simulators, because of their capability to stress the entire crew and to mitigate safety concerns, allow leaders to truly learn from their mistakes. When we conduct force-on-force training in the field, we have tankers doing what tankers enjoy most, "boar hogging" in the bush (as my old platoon sergeant used to call it), shooting at an enemy that shoots back. Out in the field, multi-echelon training comes to the fore without artificial time, land and safety restrictions of the live-fire range. This is the place to conduct unit-level training.

To quote MG Grange, "I want somebody to be master of their weapon, not just to say I've qualified with it." These latest moves to "harvest" ammunition take us one step lower than qualification, substituting instead, "verification." This flies in the face of reason when one considers the recent AH-64 debacle in Kosovo where we would not commit troops because we had untrained crews. When the bullets are black instead of blue, leaders and soldiers get real particular about how well trained we are. Never were tankers so concerned about their boresight than in the early days of the Gulf War. That isn't a skill you learn on the simulation range.

Our leadership needs to step up to the plate. We have to quit saving money at the expense of vital qualification training. This latest "innovation" with a "XXI" label attached is not a move in the right direction. It doesn't take a math major to figure out how many bullets a unit needs to fire two gunnery qualifications a year. These rounds aren't that expensive when compared to the cost of a single missile. Why do we attempt creative accounting when the quantity and costs are known expenses? When compared with the cost of missiles, our tank rounds are a bargain. We shouldn't be cutting corners and pinching pennies with our soldiers' lives.

JOHN R. TIBBETTS
LTC, Armor
Alexandria, Va.

Reconnaissance and Cavalry: They Ain't the Same Thing!

Dear Sir:

The July-August 1999 issue of *ARMOR* had eight separate articles about scouts, scout vehicles, cavalry recon, cavalry reorganization, and doctrine. My favorite was CPT Bill Williams' article, "The Battalion Scout Troop," on pages 37-40. His proposed scout/tank mixture sounds so much like the old divisional cavalry troop organization we had under ROAD and H-series TO&E, before we shuffled everything under Division '86, Army of Excellence, and Force XXI.

I sense that the old Cavalry branch is getting confused. I suggest that the fundamental dilemma with "cavalry" and "recon" is that we have lost sight of their historical roles and evolution and mistakenly assume that they are synonymous. They are not!

My trusty 1960 version of *Webster's New World Dictionary* defines "reconnaissance" as "…the examination or survey of a region, especially in military science, for obtaining information about the enemy." "Reconnoiter" is defined, "…in military science, to observe or scout (an enemy position, etc.)."

In the olden days, when military forces walked around searching for the enemy and communication depended on messengers, horsemen were the obvious choice for passing along information, to include performing recon. This did not, however, make them "Cavalry." Cavalry is an arm of mounted soldiers, originally on horseback and now motorized, mechanized, and armored. Cavalry's historic mobility and shock action (and its 20th century armor-protected firepower) make it suitable for missions such as security, counter enemy cavalry, counterattack infantry, reserve, pursuit, exploitation, economy of force, etc., etc. Conversely, while a cavalryman makes a speedy messenger because he is already mounted, that does not give him the "communication" mission, either.

Recon, (scouting) is performed by all sorts of units. Infantry squads have "point men" and platoons send out patrols. Tank and Infantry battalions have organic "scout" platoons. Brigades now have organic "recon" companies (more on that, later). Chemical and engineer troops perform specialized technical recon, as needed. Aviation conducts aerial recon, and Rangers conduct deep recon. Then there are radio intercepts, satellites, etc., etc. Let's consider recon by stealth versus recon by combat.

Before radio, scouts infiltrated into an area and had to return to report. All of this took time and risked revealing the commander's intent. The commander had to wonder if the situation had changed since the scout's recon. A mounted scout was a bit faster, but also easier to detect. Scout teams could be enlarged and could leave observers behind to update the commander and guide his approach, but this larger scout force could also be more readily detected.

Once radio evolved into a portable and reliable link, scouts could keep the objective under observation and report the developing situation. But all too often, even though reporting, the scout still watched helplessly as the enemy conducted some sort of actions that hindered the commander's intent (reinforce a position or destroy a bridge, for example).

It seems intuitively advantageous to have the scout actually interdict enemy activity in advance of the main body's attack. This evolved into the "coordinated attack," with infiltrated elements launching surprise supporting attacks. Radio later permitted much more closely coordinated (synchronized) operations, but the dilemma remained: how much combat power to put with the recon element? To maintain stealth, combat power must be limited because large combat elements risk early detection.

In all the above situations, the REAL issue is *time*. Time to recon, time to revise the plan, time to task organize, time to maneuver, etc., etc. The solution was often to seize the initiative, move in attack formation, and let audacity carry the day. This is what "getting inside the enemy's decision loop" is really all about. The scouts have no time to do anything but provide close-in security along the route and flanks while tempo takes care of the rest. This is exactly the role at which armored cavalry excels: audacious high-tempo shock action. Armored cavalry brings along a tremendous combined arms capability in a fully organic combined arms team. No "tailored" or "ad hoc team" nonsense here. However, armored cavalry is about as stealthy as an equal-sized armor task force because that is exactly what it is!

So, where does that leave stealthy scouts and recon? I suggest that a scout platoon at battalion level is about right, and its mission is "security." The scouts patrol around the battalion and move in advance of the battalion until contact is imminent. They then allow the maneuver companies to pass through and attack.

I also suggest that the recently created divisional brigade recon troop is redundant to the division's cavalry squadron since it results in stealthy recon elements crossing the same ground already covered by heavy cavalry. The brigade commander's role should be arraying battalions against enemy forces already identified by the division commander. If anything, the resources of the brigade recon troops might be merged with the division cavalry squadron either to increase the squadron's combat power, turn it into a two-squadron regiment, or even a fourth ground maneuver brigade. (Only separate brigades need a cavalry troop because there is no parent divisional cavalry squadron.)

It all comes down to scale and perspective. While the Army may be conducting a "deep operation," the squadrons of the armored cavalry regiment are "traveling," the troops are in "traveling overwatch," and the platoons are "bounding." When the army commander orders a recon in force, the regimental commander conducts area or zone recon and the squadron commander conducts movement to contact. The troop commander is conducting a hasty attack, and the platoons are firing and moving by bounds.

But there is no inherent link between "cavalry" and "recon." The former is a combat organization, and the latter is a common task or mission. Once we get the concept straight, we can focus on appropriate equipment. Now, if only we can change the name of the Future

Scout/Cavalry Vehicle (FSCV) to either one or the other, we might get somewhere.

CHESTER A. KOJRO
LTC, AR, USAR (Ret.)

Medium Brigade Combat Teams: Reinventing the ACR?

Dear Sir:

Normally your magazine gets letters of opinion from captains and colonels. However, looking at things from the bottom up, I have to express some confusion at the "Brigade Combat Team" concept. My understanding is that these units are to be able to deploy to low intensity conflict and "operations other than war" as is, and deploy as part of a heavier force in the event of a full-scale mechanized war to provide screening and reconnaissance elements. To me, this sounds like a job tailor made for an ACR. They are brigade-equivalent units, their combined arms are integrated at lower levels and they have more organic support elements than a traditional brigade. Reconnaissance and screening are part of their METL, and they are traditionally used to operating forward and in smaller units. I fail to understand why re-equipped ACRs aren't being proposed rather than reinventing the wheel with BCTs.

ROBB D. SHIMP
SPC, CAARNG
C Co, 1-149 AR

NOTE: This statement does not reflect the official policy of the Military Department of California, the California National Guard, or the United States Army.

Red Army's BMP Was Not The First IFV Fielded

Dear Sir:

On Sep. 30, 1991, I retired as Program Manager Tanks and Combat Weapons Systems from the Bundeswehr. During my frequent international meetings, I had the privilege of getting to know COL Frank Hartline very well (see "Letters," Sep-Oct 99, p. 3). I fully agree with his first sentence, that for us "old-timers" the best policy is silence. Like him, I do not follow this advice right now.

Generally speaking, I am in agreement with Frank, but I do not want to comment on the background for U.S. requirements for the M2/M3 Bradley. But I do want to point out that there were IFVs before the BMP was fielded with the Red Army.

Undoubtedly, Generaloberst Guderian was the driving force behind equipping the Panzerdivision with troops that could follow the tanks and fight dismounted, or mounted if the need so arose. He used half-tracks for Panzergrenadiere and Panzerpioniere, but did not find a solution for towed artillery. So he used the JU 87 "STUKA" as airmobile artillery...

In 1956, the Bundeswehr was equipped mostly with U.S. weapon systems. We needed vehicles to accompany the M41 tanks in cavalry units and the M47/48A1s in armor units. The half-tracks just were not up to standard. So we looked and found the Hotchkiss to accompany the M41s in cav units and the Hispano Suiza HS 30 for the Panzergrenadiers. The HS 30 was a very low, full-tracked vehicle with not much armor, no roof, and a powerpack that was not very reliable, but it was better than any half-track. In the 1960s, we decided to develop a tank that was lighter and faster than M48A2 and M60, with a diesel engine and British 105mm gun — the Leopard 1 (A1-A6). For a companion, we developed the Marder Schützenpanzer, which was able to follow Leopard 1 in battle, could carry an infantry squad, and could fight with its 20 mm gun, MILAN ATGW (added later), and the individual weapons of the infantry squad mounted, with a small squad of one NCO and six Panzergrenadier dismounts when necessary ... Now we need a new IFV — if we just could find the money for it! But that is another story.

So, the Bundeswehr did not follow the Red Army and their BMP design; we followed our own ideas and we did not put a "gun" on the MARDER bigger than 20 mm. But that today is not big enough any more, so a follow-on was developed, the RH 503-35 mm with interchangeable 50 mm tube plus telescoped ammo. The IFV should foremost fight enemy infantry and AT; for that, a machine gun is better than a bigger single shot gun as seen on BMP. I wish you well on your efforts for an adequate requirement and successful development of a FIFV — the Bundeswehr did not have much luck with SPz MARDER 2 and is trying a new approach — we could use some luck ourselves!

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DOD Signs Corporate Contract With NAPA Auto Parts

The Department of Defense is partnering with NAPA, the National Automotive Parts Association, in a new strategy focused on improving the procurement process for government credit card users. The Defense Logistics Agency (DLA) corporate contract with NAPA will give local purchasers access to over 230,000 automotive parts from the nation's largest automotive supplier, along with discounts of 20 to 50 percent.

Through its 9,200 dealers, supported by 71 distribution centers located throughout the country, NAPA also offers free delivery and an online ordering system. NAPA sales to DLA have increased 300 percent since the contract went into affect in 1997.

Combining the convenience and efficiency of the credit card with the "buying power" of DLA gives the military customer better prices and better service. Purchasers buy, (by either government credit card or MILSTRIP/FEDSTRIP requisition) from the manufacturer's inventory when possible and utilize the manufacturer's distribution system when feasible.

NAPA also will assist DLA's maintenance locations by developing a stocking inventory assortment based on the vehicles in the fleet and previous usage. An example is the Ohio National Guard Combined Support Maintenance Shop's agreement with KPS NAPA Auto Parts in Newark, Ohio. Local dealership manager Randy Swihart has agreed to keep 10 HMMWV steering gear rebuild kits on his shelf at all times to support the unit that maintains all of the state's National Guard vehicles.

"They deliver within an hour or less," added Sergeant Crane. "That allows me to stay here in the shop to do the things I need to be doing instead of running down to the store. They're very responsive to our needs, and we pay as we go (using the IMPAC card)."

The NAPA partnership adds one more important advantage. When parts become obsolete, the government won't be stuck with them since it will be NAPA's responsibility to eliminate the items from its inventory.

Another program for the future is the Distribution Center Stocking Program for customers with regular large purchases. Customers will be able to send their orders directly to the nearest NAPA distribution center by fax or e-mail and their orders will be pulled, packed, and shipped to the local NAPA dealer, who then delivers them to the military customer.

Partnerships such as the ones with NAPA move DoD from the old inventory-base supply system to an economically efficient distribution-based supply system. The military services can no longer afford to purchase and manage large numbers of spare parts in the field, but they still need the right parts at the right place at the right time.

This article was released by the Public Affairs Office at Defense Supply Center, Columbus, OH 43216-5000. The POC is Tony D'Elia, (phone: 614-692-1812, DSN 850-1812).

REVIEWS

Opening of Russian Archives Enriches New Book on Kursk Battle

The Battle of Kursk by David M. Glantz and Jonathan M. House, University Press of Kansas, Lawrence, 1999; 476 pages; $34.95.

While several books have related the epic battle of Kursk in July 1943, this work provides a myriad of details from newly released Soviet archival sources. David Glantz, founder and former director of the U.S. Army's Foreign Military Studies Office, and Jonathan House, Professor of History at Gordon College in Georgia, have both previously written and collaborated on works about the Red Army.

The Kursk salient begged for a pincers attack to eliminate it, as proposed by Field Marshal von Manstein in the early spring of 1943 following his riposte to Kharkov, but such an offensive was postponed until July to await the deployment of the new Tiger and Panther tanks. This allowed the Soviets to fortify the salient with minefields and pakfronts, a defense in depth that ensured that German Operation Citadel would be a struggle of attrition. Hitler wavered as Guderian, Manstein, and Model turned against the offensive, but he was persuaded by Zeitzler, Keitel, and Kluge. As with many other fatal decisions of the war, all of these generals subsequently blamed Hitler alone for the error (as he was conveniently dead). Moreover, "There is absolutely no basis," conclude the authors, "for assuming that Citadel would have succeeded had it been launched in spring 1943" as maintained by Manstein, given the new armies and strategic reserve it is now known that the Soviets had been able to create.

While the Germans focused on *Fall Zitadelle*, the Soviets saw the battle as merely a prelude to their own counteroffensives that would attack the shoulders of the German pincers and drive to the Dnieper, and the book ends with Operations *Kutuzov* against the Orel salient and *Rumiantsev* against the Belgorod-Kharkov sector. Marshal Zhukov, who "used the Red Army as a club rather than a rapier," was balanced by the intellectual keenness of Colonel General Vasilevsky, Chief of *Stavka* (the General Staff), and the two "formed a superb team."

Although previous authors have made astute use of Soviet memoirs and other sources, Glantz and House provide additional information, as the arguments with *Stavka* before Vatutin was allowed to dig in Katukov's armor against Hoth's drive from the south. Leading up to the clash at Prokhorovka, however (note COL Frederick C. Turner's article in *ARMOR,* May-June 1993), Rotmistrov's intention to charge the longer-ranged gun power of the Tigers and Ferdinands of Hausser's II SS Panzer Corps with his T-34s and "engage in hand-to-hand fight and board them" is from his 1984 memoirs. An analysis of battle losses does result in the authors arguing that "hindsight has permitted myth to inform legend," and that actually 572 tanks and assault guns clashed around Prokhorovka, not up to 1,500 as frequently stated (as in Caidin, Carell, and Jukes). In the Kursk salient battle, the Soviets suffered three times as many casualties as the Germans (177,847 to 49,822), and **five** times the number of tanks and assault guns totally destroyed (1,614 of 5,128 to 323 of 2,928 German); but the Russians could afford these huge losses, and commanders on both sides recognized that the initiative had now passed irrevocably to the Red Army.

The book's focus is on the detailed movements of the ground forces, with dramatic descriptions from Carell ("vivid and accurate"), Mellenthin, and unit histories. But close air support and tank busters like Hans Rudel's Stukas with 37mm cannon and the IL-2 Shturmoviks (see Von Hardesty's *Red Phoenix*) are not mentioned, though an attack by German HS-109s (actually Hs-129Bs) left "a hideous, burning wasteland." Mine warfare and the teething problems of the Panther (suspension, final drives, optics, fuel system vulnerability, and no bow MG in the initial D model) are also not discussed, and Glantz's older 1990 *Soviet Military Intelligence* book is referred to regarding Soviet intelligence, where he concludes that the Dora, Lucy, and Werther sources were "contradictory and often unreliable," and that the network of *razvedka* (combat intelligence) sources "was the most important."

There are 52 pages of very thorough German and Russian orders of battle, including numbered battalions and companies, and another 50 pages of tables of strengths and losses and some key German and Soviet documents. There are 32 detailed and progressive daily maps of the Central and the Voronezh Fronts showing regimental units, though these overlay the topography and town names, which are a bit muted. For the student of these Red Army ground operations in particular, this book is to be highly recommended.

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Thucydides on War and National Character by Robert D. Luginbill, Westview Press, Boulder, Colo., 1999; 232 pages; $55.00, hardcover; ISBN 0-8133-3644-9.

The ancient Greek general and historian, Thucydides (460-400 B.C.), has been called "the greatest historian that ever lived," and his classic work *The History of the Peloponnesian War* is a masterpiece of military and political history. As a staple at the war colleges and resting comfortably on the book shelves of most officers, Thucydides' book presents a vivid portrayal of the long and bitter war between Athens and Sparta from 431 to 404 B.C.

The Peloponnesian War was much more than just another barbaric hack and slash conflict so common in that era. It was a titanic struggle between a democracy and an oligarchy, a war for cultural and imperial supremacy which had profound impact on the Hellenic Age and Greek civilization. Thucydides lived through the war, first as a participant, then as an astute observer and chronicler of the military, political, and social aspects of every event. He was a "man of action and intense political interests," and his work vividly reflects the human nature of war.

Robert Luginbill, an associate professor of classics at the University of Louisville, has written a book which seeks to explore Thucydides' views and conclusions about war and national character. As a student of Thucydides, Luginbill's effort here focuses on three points — humankind's tendancy to war, personal and national behavior in times of stress, and the origin of war as it involves individual and collective behavior.

Unfortunately, this book has all the earmarks of a stuffy doctoral thesis. It is scholarly and verbose, is loaded with the academic jargon of the classical age, is boring and difficult to read, and worse, it presumes the reader has already read and digested Thucydides' work. In fact, if a reader has not previously read Thucydides, then this book will make no sense at all, and even then it will be a chore to finish.

That said, Luginbill's study of Thucydides' history of the Peloponnesian War does provide some insight into war as "a product of the human psyche." Leaning heavily on the babble of psychology, he identifies the national characters of Athens and Sparta as being either based on hope or fear, which in turn

relates to the degree of risk-taking each city-state will accept. Luginbill also asserts that Thucydidean scholarship reveals the dual imperatives of human nature — "the desire to rule over others, when possible, but to be free from the rule of others at all costs."

Luginbill goes on to discuss risk and reason, hope and fear, the balance of power and necessity, and national and battlefield leadership, as well as the inevitability of war when collective hope or fear overwhelm capability and reason. Sadly, his observations and explanations are so clouded with pedantic mumbo-jumbo that the reader may as well be trying to read Thucydides in the original Greek. In fact, many of the numerous footnotes are useless because they *are* written in Greek!

Clearly, this book is not for the casual reader. It deserves a pass by anyone not a Greek scholar. Instead, it is recommended that readers pick up one of the many outstanding translations of *The History of the Peloponnesian War,* and reach your own conclusions about war and national character. You will also be delighted to read about strategy, tactics, sea power, land warfare, diplomacy, politics, the ethics of war, leadership, national will, and the perils of prolonged warfare. And that is all good stuff.

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Russia's Air Power In Crisis by Benjamin S. Lambeth, Smithsonian History of Aviation Series, Smithsonian Institution Press, 1999; 256 pages; $29.95.

Benjamin Lambeth is a RAND senior staff member, who was the first Westerner invited to fly a Soviet combat aircraft inside the USSR in 1989, according to the dust jacket of this book. He has a great interest in the Russian (and old Soviet) Air Force, and he looks at an institution in an ongoing severe crisis. The U.S. Army's "hollow Army" and "Vietnam malaise" of the '70s and early '80s were nothing compared to what Soviet/Russian air power experienced.

Imagine the U.S. breaking up into multiple nations; divide the states any way you want (they have to be contiguous), but make sure that no one new nation has all types of aircraft manufacturing capability. Also, parcel out the existing air power to the various new entities, but not equal distribution by type or age of aircraft. Now, assume all these countries are destitute, corrupt, some have border disputes, and there are external and internal threats that have to be addressed. Overlay all this with a REALLY serious left-wing, crony-dominated, intellectually/morally corrupt elitist bureaucracy where all wisdom flows from the top down to the Great Unwashed, and which doesn't want to give up power. You now have a rough idea of what the Russian military pilots faced in the 1990s.

The first six chapters describe the problems in the late '80s through mid-'90s, with emphasis on reality versus paperwork. A "zero-defects" mentality, an overt stifling of initiative, endless forests lost to make blizzards of directives about inconsequential items, lack of training time, few operational funds, "eyewash" projects, training plans turned upside-down due to higher headquarters' whims, commanders' needing to look good; wait, is this the *Russian Air Force* or the peacetime U.S. military? Never mind. Some things never change throughout history and the world.

The loss of experienced pilots to resignation or forced retirement, the lack of flying time for everyone (try 40 hours a *year*!!), poor simulators with much down-time, coupled with the need of each fighter air regiment to train newly arriving pilots from the various pilot academies, had to reduce the effectiveness of almost every regiment in the Soviet/Russian Air Force. With the emphasis on highly scripted planning of every mission, overall control vested in the ground controller, rather than the pilot in the sky, and a need to not have problems or accidents, a pilot's life was not very happy. And it mattered not whether the regiment was Air Defense (VPVO) or Tactical Air (VVS).

Chapter Seven was an eye-opener. Western fighter pilots have what I call a "white scarf" mentality, the flair of WWI fighter pilots looking to become aces. They look on non-fighter pilots as lesser beings (How many want to fly ground attack aircraft (other than the Marines and A-10 pilots?), even though it's those aircraft that put power where it is needed: on the ground. The Soviets were focused on one thing: winning a ground war with NATO in Europe. Air power was for naught if the tanks didn't make it to the Rhine on time. Again, I am reminded of Fehrenbach, and others, who have remarked on the eternal truth of warfare in many eloquent ways, but which can be stated simply, if ungrammatically: "It ain't yours if you ain't standing on it." The Soviets weren't afraid of NATO air power; it would be interesting, as Lambeth says, to find out why.

Chapter 8 is on the Chechnya campaign, and its effects on the VVS and the Russian Army. The VVS came out of the fighting with a better understanding of what its future role might be in other military problems, but without the means (funding) to accomplish its mission. It tried to look candidly at its problems and offer solutions, but the single biggest problem was/is no money. Lambeth offers "lessons indicated" that affected the whole campaign: bad planning, financial starvation, no force integration (jointness) among the operational military forces, with no CINC on the spot able to direct and control events, and the limits of air power in irregular (guerrilla) war in urban areas. Can you say MOUT, my brothers? Also alluded to was the depletion of war reserve munitions, especially the expensive ones; the same problem NATO faced in Kosovo, by having to limit the use of PGMs and cruise missiles, just to have some on hand if needed elsewhere.

The rest of the book deals with the chances of the Russians to field a 5th generation fighter (Chapter 9), how the VPVO and VVS merged into a single Russian Air Force after the funding crisis reached catastrophic depths (Chapter 10), and the future, which indicates a Russian Air Force with only 10 percent of the aircraft the Soviets had a scant 12 years ago to fight wars like Chechnya (Chapter 11). The fact that the Russian government has not articulated a national strategy for its goals contributes greatly to the uncertainty of the Russian Air Force as to its missions.

What I found interesting is what was *not* covered. There was no mention of the threat an expansionist China poses to the Far Eastern Province and Siberia. How would a Russian Air Force fight a long-distance war? How would the Russian Army do against a more modern foe? Would the Russian government use nuclear weapons, or do they feel the threat of such weapons are enough to keep the Chinese out of Siberia? But if the Chinese encouraged people to move into an area claimed by, but not effectively controlled by, Russia, what would the Russian government do? Is the Russian government resigned to being a second-level European power, in the throes of modernization, and view their mission as holding on to what they have?

It does appear that in a conventional war, any modern air force would have a lot of aces quickly if they fought the Russians, and the skies would be cleared rapidly of brave, but unskilled, Russian pilots in poorly maintained aircraft. Again, maintenance separates the West and all the other armed forces in the world.

It was an interesting book, but I can't recommend it as a must-buy to the average *ARMOR* reader. It fails to focus on our concerns as soldiers: how would a Russian Air Force, allied with a hostile nation, affect our ability to wage maneuver warfare to achieve victory, and what would be our countermeasures?

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NCO Guide, 6th Edition by CSM Robert S. Rush, USA (Retired), Stackpole Books, Mechanicsburg, Pa., 1999; 379 pages; $18.95.

In the past 12 years, I've read through a version of this manual at least five times — not so much for reading enjoyment, but as a resource for professional development. This book is slightly different than the versions I remember. It has a more personal feel to it than its sterile predecessors. CSM (Retired) Rush put an exceptional amount of time revising this edition, placing personal experience to

good use, particularly in the leadership chapter. His insight and knowledge clearly show in all sections of the book.

The layout for the book is typical of professional development guides, beginning with leadership and the issues that face sergeants daily. The role of the NCO, history behind the stripes, and basic NCO traditions can all be found early on. Key points of interest are the NCO responsibilities section (mandatory reading), and the contemporary leadership issues. The Army's new Fraternization Policy, Equal Opportunity, Sexual Harassment and Gender Discrimination, and Extremism are all discussed and referenced, to name a few.

The second part of the book is specifically focused on training soldiers and self-development. What I found most useful was the list of available web sites with URLs that deal specifically with military issues. Sites listed cover the Army homepage, *ARMOR* Magazine, the Army Institute for Professional Development, the Army Training Support Center, the Battle Staff NCO homepage, the University of Kansas Military History site, the Pentagon Library, *PS Magazine,* and the Center for Military History. In all, 77 sites are listed that can provide invaluable information to the NCO for his soldiers and his personal growth.

In the final part of the book, the topic is quick reference. Everything from wear of the uniform, awards and decorations, and the Army Physical Fitness Test standards can be found easily. Pay and entitlements, promotions and reductions, and how to get the next assignment are also covered. This is the section of the book I found most useful on a daily basis. (I found this book replaced quite a few regulations that are normally on my cluttered desk.) It also includes 16 color pages of awards and decorations authorized for wear, plus a detailed list (IAW AR 600-8-22) describing criteria for submission, approval, and wear.

I found this book very easy to read and, for the most part, reminiscent of the Common Leadership portions of our NCOES system. This book can easily be the course outline for any of the common leadership training areas taught in today's Noncommissioned Officer Education System.

After finishing this book, I found very few shortcomings. CSM (Retired) Rush omitted the requirements for Master Gunner School in his *Training at Service Schools* section, didn't cover Temporary Lodging Allowances, and failed to mention differences in deferred vs. concurrent travel. All but the Master Gunner Course requirements I didn't mind too much (the seventh edition should correct the oversight).

After getting past the steep price ($12.00 would provide a wider audience through affordability), I would highly recommend this book for the young specialists and corporals prior to attending the Primary Leadership Development Course. As for sergeants and staff sergeants, I highly recommend this book as a quick reference for any general military topic. And, most importantly, I would definitely recommend this book for senior noncommissioned officers as a quick reference guide and a tool to format professional development classes.

Lastly, I would recommend this for leaders who care about making a difference. Use it as a loaner to train the young specialist or private first class. Use it as a desk reference, or as a guide to training, but use it.

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Arms for Spain: The Untold Story of the Spanish Civil War by Gerald Howson, St. Martin's Press, New York, 1999; 354 pages, notes, bibliography, index; $25.95.

Not too many of *ARMOR's* readers can remember the Spanish Civil War, a nasty but relatively insignificant turbulence that took place from July 1936 to March 1939. While insignificant in itself from a world perspective, it was a precursor to the ambitions of Hitler and Mussolini that would shake the whole world. Today's *ARMOR* types are probably more familiar with Hemingway's book, *For Whom the Bell Tolls,* which described a brief episode of that war. No matter; this book is not about the war but about the efforts of both sides to acquire weapons and ammunition in the face of an international arms embargo.

In 1936, both the rebels' Nationalist army and the government's Republican army were too ill equipped and disorganized to conduct any kind of serious operations in what came to be known as "The Time of Chaos." This was a collective madness of hate, murder, and revenge that swept across Spain when people were killed for any reason or, too often, for no reason at all. Most affected was the Republican government, which was unsure which way to turn and ended up failing to do anything to stem the uprisings. Franco took advantage of the turmoil and began to ferry his Army of Africa to Spain by air. Today, we think in terms of air fleets bringing airlifted divisions to a combat zone; Franco had only three Fokker trimotors, two Dornier flying boats and a Douglas DC-2 and he moved his troops a platoon at a time! But in that time of great confusion, it was enough.

Franco, and many others, believed the airplane was the weapon of the future and started immediately to acquire more. He applied first to Italy, then Germany, England and France. At the same time, the Republican government requested aid from both France and England. After numerous delays and excuses, France, England and other democracies decided on a non-intervention policy and a general arms embargo, but Italy and Germany promptly began to send equipment and personnel to Franco. The United States had its Neutrality Acts, which made it a felony to export any weapon to a country at war with another. Since this was a civil war, however, President Roosevelt felt he had no power to prevent any arms sales, but called for a "moral embargo" that threatened any violator with the grave displeasure of the State Department. This didn't do much to dissuade anyone. And even France, in 1937, after a change in government, decided on a policy of "relaxed non-intervention," i.e., discreet smuggling of war materiel in small quantities could continue.

Naturally, there were considerable logistical problems: entrepreneurs saw a hot market selling weapons to both sides but had to get the weapons first, Germany had to find a way to ship equipment to Franco without going through France, and both sides had to find both funds to purchase war materiel and sources to supply it. And that's what this book is all about — lots of "buccaneering traders of genius" conning every government and scanning everyone in sight for a quick buck.

Both sides connived with weapons merchants, paying exorbitant prices and outrageous bribes to acquire antiquated weapons and ammunition. The stories of these transactions read like grade B movie scripts and the ripoffs were horrendous. Ammunition, when it was delivered, wouldn't match the weapons; crates supposedly filled with weapons contained bricks and stones; deliveries already paid for were delayed on the flimsiest of excuses until more bribes were paid; and Russia, thought to be the foremost support of the Republican government, defrauded it of millions of dollars by manipulating the ruble exchange rate! one example: the 49,000 rifles of Soviet origin delivered in 1936 were from eight different countries, ten different types, and six different calibers, and over 13,000 of these were the 11mm Vetterlis, designed in 1868 with a caliber obsolete for over 40 years, and shipped with only 185 rounds each!

There isn't much about Armor here, mostly because tanks didn't play a significant role in the war. Russia sent 280 of its T-26 tanks (a 9.5-ton vehicle with a 45mm gun) and 50 BT-5s, the predecessor of the famous T-34. But there weren't enough tanks and the logistical support was essentially nonexistent. And Spain had no Guderian!

Howson has a casual, relaxed manner of telling these tales. It's almost as if you were sitting in his living room after dinner, listening to him talk. This informal, anecdotal expression lends itself to easy reading. Howson spent several decades researching this book and the expansive and detailed notes show it. This is a comprehensive adjunct to a military library and an interesting weekend read.

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2000 Armor Conference:

"Armor and Cavalry: Building Strategically Responsive Forces for the 21st Century Full Spectrum Army"

Spring is here, and it's almost time for the 2000 Armor Conference. This year's conference focuses on the mounted force's role in a new century that will require lethal, survivable, and strategically mobile forces. The Armor Conference and Armor Trainer Update will have the same opportunities for professional development, discussion, and social events as it has had in years past, plus a few events being held for the first time. This year's Conference is scheduled for 20-25 May.

The Chief of Armor's theme this year is "Armor and Cavalry: Building Strategically Responsive Forces for the 21st Century Full Spectrum Army." As MG Bell discusses in this issue's "Commander's Hatch," the Armored Force is undergoing significant changes in order to remain the dominant force on the modern battlefield. This year's Armor Conference will highlight where we are and where we are going. MG Bell has extended invitations to the Army leaders who are at the forefront of the Army's full spectrum of operations and the transformation of the Army into a more strategically agile force. Leaders from all over the force will benefit greatly from this year's presentations.

The Armor Trainer Update (ATU) will once again precede the Armor Conference on May 21st and 22nd. This event focuses on the Army Reserve and Army National Guard components of the mounted force. The ATU offers a forum for these components to discuss the growing role that the Reserves and National Guard play in meeting the Armored Force's increasing mission requirements.

In conjunction with the ATU, G3/Directorate of Training, Plans, and Mobilization will hold the Annual External Unit Scheduling Conference. This allows Reserve, National Guard and Active Component units, as well as units from other branches, to schedule Fort Knox's facilities for training. Fort Knox has some of the best training facilities in the Army, and the External Unit Scheduling Conference affords organizations the opportunity to reserve them for their training.

The Armor Conference is, of course, not all work. The 6th Annual Armor Golf Classic will take place on the 23rd of May. In addition, the First Annual Armor Conference Skeet Shoot Tournament is scheduled. The conference includes social events every evening that allow tankers to catch up with others in their profession.

Leading companies in the defense industry will showcase the present and possible future "tools of the trade" for mounted warriors at the contractors' displays. This is always one the most popular attractions at the conference as military and civilian attendees alike see the best of what the industry offers. In conjunction with the displays, subject matter experts will offer unclassified briefings on a wide range of armor-related topics, covering current and future technology and doctrine.

Recognizing contributions made to the Armored Force is an important part of the Conference. In light of this, MG Bell will present the General Frederick M. Franks Award to an individual who has made a demonstrable contribution to the Army's ground fighting forces. Conceived by a former chief of armor, Lieutenant General Larry R. Jordan, the Franks Award, now in its sixth year, recognizes outstanding contributors to the Army's combat preparedness. Nominees must demonstrate the leadership characteristics of the award's namesake, including one or more of the following: offered a vision for the future of the mounted warfighting force that significantly improved combat survivability, lethality, or mobility; developed an innovation in equipment, materiel, or doctrine that significantly enhanced the effectiveness of combat arms' mounted elements; exemplified professional excellence in demeanor, correspondence, and leadership; and displayed a love of soldiering.

Last year's the award went to Colonel Greg Fontenot, commander of the Battle Command Training program (BCTP), who was instrumental in the Army's Division Advanced Warfighting Experiment (DAWE) and other measures to bring effective battle command and staff practice and training into the 21st century.

On 25 May, the Armor Center will wrap up the Conference with a bang at the new Mounted Urban Combat Training Site. Conference guests will be able to see a spectacular demonstration of its abilities. The best in the industry have created a facility capable of hosting live fire training of a combined armed force executing a full range of missions. The site includes a complete sewer system, hotel, gas station, embassy complex, apartments, and many other structures, while the latest special effects technology provides the mounted warrior with the most realistic urban combat training possible. This site is a key to preparing armor soldiers to operate in the increasingly urbanized terrain that exists world-wide.

The Armor Conference always attracts a wide audience of military and civilians alike. This is an important opportunity for the Armor family to come together and showcase the finest ground combat force in the world as we move into the next century. We'll see you at the conference!

2000 Armor Conference and Armor Trainer Update

20 - 25 May 2000

"Armor and Cavalry: Building Strategically Responsive Forces For the 21st Century Full Spectrum Army"

DATE	TIME	EVENT	HOST/SPEAKER	LOCATION
Saturday, 20 May	1500-1900	Registration for ATU/Armor Conference	Protocol	Gaffey Hall
Sunday, 21 May	0700-0930	Registration for ATU/Armor Conference	Protocol	Gaffey Hall
	0900-1700	ATU/Welcome Presentations	SACG	Haszard Auditorium
	1900-2200	No Host Social for ATU	SACG	Leaders Club
Monday, 22 May	0700-UTC	External Unit Scheduling Conference	G3/DPTM	Armor Inn
	0800-1700	Armor Conference Early Registration	Protocol	Leaders Club
	0800-1700	Contractor Displays	DFD	Skidgel Hall
	0900-1700	Brigade and Regimental Commanders Mtg	OCOA	HQ Conference Room
	0900-1700	Subject Matter Expert Briefings	DFD	Boudinot Hall
	0900-1645	ATU TASS Battalion Updates	SACG	Haszard Auditorium
	0930-1700	USAARMC Sergeant Major Armor Update	CSM	Rivers Auditorium
	1100-1400	Honorary Colonels of the Regiment	OCOA	Harmon Hall
	1300-1700	Master Gunner Forum	Chief, MG	Skidgel Hall
	1800-UTC	Pre Golf Classic Social	Business Ops	Gallota's
Tuesday, 23 May	0700-1600	Registration	Protocol	Leaders Club
	0800-1700	Contractor Displays	DFD	Skidgel Hall
	0800-1700	Subject Matter Expert Briefings	DFD	Boudinot Hall
	0830-1400	6th Annual Golf Classic		Golf Courses
	1030-1600	Skeet Shoot		French Range
	1630-1830	CG's Garden Party	MG Bell	Quarters One
	1900-2130	Regimental Buffet and Assemblies	OCOA	Leaders Cub
Wednesday, 24 May	0730-1200	Late Registration	Protocol	Gaffey Hall
	0800-1700	Contractor Displays	DFD	Skidgel Hall
	1115-1145	Presentation of 6th Annual Franks Award	MG Bell	Haszard Auditorium
	1145-1215	Armor Association Meeting	Armor Association	Haszard Auditorium
	1215-1330	Lunch/Visit Contractor Displays		
	1330-1400	Presentation of Draper Essay	MG Bell	Haszard Auditorium
	1400-1430	USAREC Award Presentation	USAREC	Haszard Auditorium
	1830-UTC	Cocktails/Armor Association Banquet	Armor Association	Leaders Club
Thursday, 25 May	0800-0900	En Route to Wilcox MUCT Site		En Route
	0900-1100	MUCT Site Demonstration/ Ribbon Cutting Ceremony		Wilcox Range
	1100-1200	En Route to Fort Knox		En Route
	1200-1330	Chief of Armor Luncheon	MG Bell	Leaders Club
	1530-1545	Closing Remarks	MG Bell	Haszard Auditorium

Event	POC	DSN Number	Commercial
Armor Conference	CPT John S. Kennedy	464-7364	(502) 624-7364
Armor Trainer Update	COL Allen Youngman	464-1315	(502) 624-1315
CSM Update	SGM James Anderson	464-1321	(502) 624-1321
External Scheduling Conference	William Rosacker	464-3555	(502) 624-3555
Contractor Displays	SFC Kim Thompson	464-1250	(502) 624-1250
USAARMC Protocol	Jack Eubanks	464-6615	(502) 624-6615
USAARMC Protocol	Sherry Cart	464-6103	(502) 624-6103
Armor Association	Connie Bright	N/A	(502) 942-8624
Armor Magazine	MAJ Dave Daigle	464-2249	(502) 624-2249
VIP Billeting	Reservations	464-6180	(502) 624-6180
On-post Housing*	Carolyn Burton	464-3491	(502) 943-1000
Armor Classic Golf Scramble	Golf Manager	464-4218	(502) 624-4218

*Reservations will be accepted up to 60 days prior to conference start date