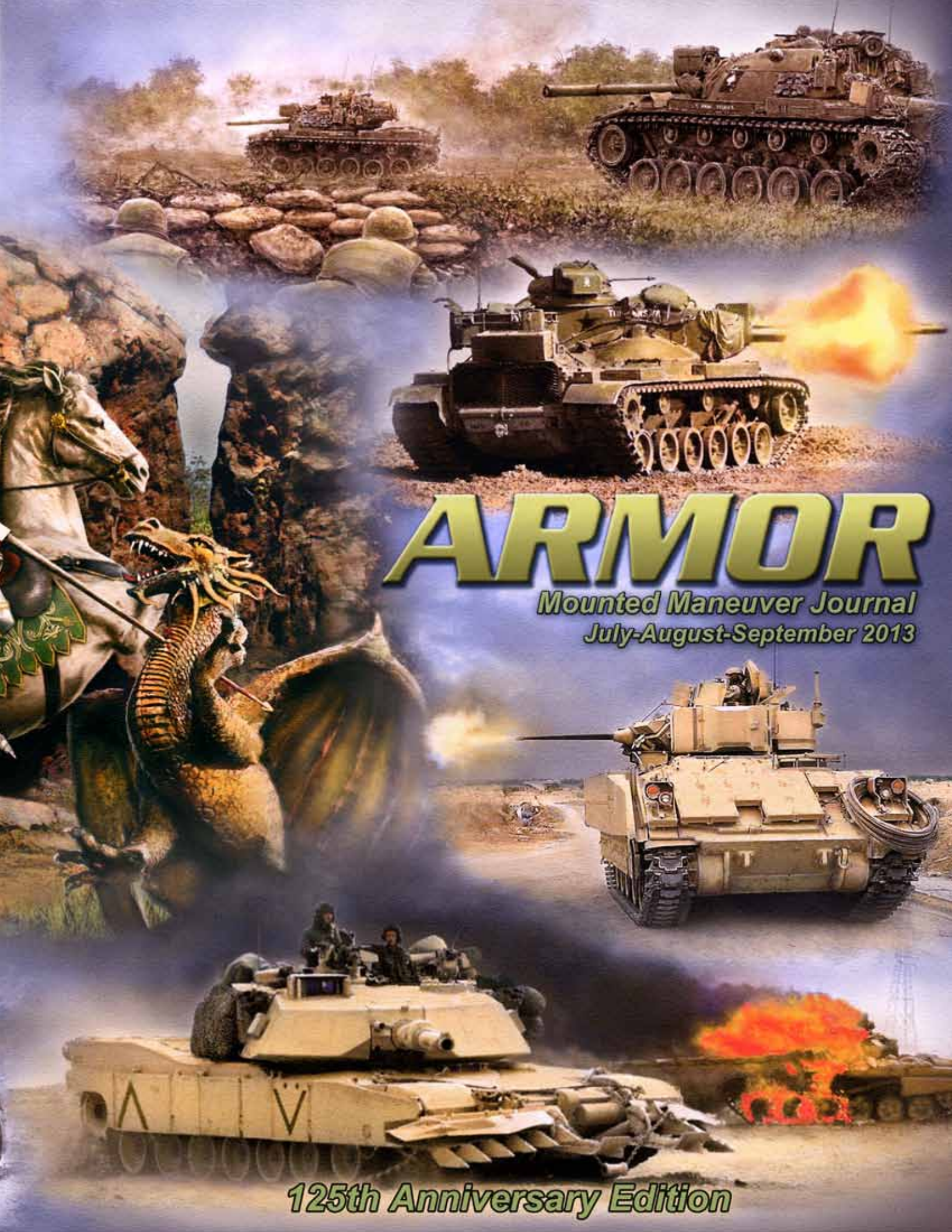

ARMOR

Mounted Maneuver Journal

July-August-September 2013

125th Anniversary Edition

EDITOR'S NOTES

This is ***ARMOR***'s 125th anniversary commemorative edition and the last printed edition before we must take the U.S. Army Training and Doctrine Command-ordered printing hiatus — at least for a fiscal year.

We are reviving the editor's column for this anniversary edition only to explain why this edition is unique. This edition commemorates highlights from which the Armor Branch drew important lessons; milestones along its storied path; and other noteworthy features chronicled over the 125 years of ***ARMOR***'s existence. We also have "celebrity" authors John Wayne and Beatrice Ayer Patton, the widow of GEN George S. Patton Jr., represented here. The Armor Branch's professional journal is itself storied; as I understand it, ***ARMOR*** is the second-oldest continuously published publication in the United States — only ***National Geographic*** is older.

As the budget forces us to the printing hiatus, please understand that we will continue to publish — Web publishing is publishing — via e***ARMOR***, http://www.benning.army.mil/armor/earmor/. Be sure to enjoy our old back issues, as we are building our digital archives from 1888 to more recent issues.

Since we cannot get everything worthy into the printed edition's pages, a number of articles looking at the Armor Branch's past are available in e***ARMOR***'s historical series.

This edition is not rooted in the nostalgic past, however. We look back to measure how far we've come. We also look forward to the future. Maneuver issues and leadership, reflecting our combined-arms army, are discussed via the pens of CPT Brian Harris and CPT Joe Byerly. For this issue and at least the next one, it is rewarding to see the content support ***ARMOR*** enjoys from company-grade officers, a class of leaders whose importance LTC Chris Budihas and 2LT Brian Bove note. MAJs Steven Meredith/David Bergmann discuss practical considerations of operational power and energy.

As we look forward to another 125 years of publishing, we echo what ***ARMOR***'s last military editor, LTC Shane Lee, said in his editor's column ("From My Position," July-August 2007):

"This is just not another training pamphlet; it is a magazine, and like all good magazines, it will be interesting, stimulating and, I hope, at times amusing. In it you will find current military thought, tips on training and the lessons of war illustrated by experience in battle. You will be the authors of the articles; you will contribute the ideas and suggestions that will make alive your training and your leadership. We [all have] a lot to learn and we [all have] something which, out of our own experience and study, we can teach. This magazine is to enable us to share the results of that experience and that study. I want every officer and NCO to read the [journal], and I want a lot of you to contribute to it." – Field Marshal Viscount Slim of Burma in the [foreword] to the first edition of the ***British Army Journal****, later renamed* ***British Army Review****.*

"Although ***ARMOR*** is a professional bulletin … I could not have found a better description of our publication than the one Field Marshal Slim articulated for his own army's journal in 1949. ***ARMOR*** is a reflection of the force it serves. As such, it serves to educate mounted soldiers and encourage them to think more deeply about their profession. Every edition of ***ARMOR*** is a brief sound bite of an unbroken dialogue that began in 1888. Long before we knew anything about knowledge management or communities of practice, our mounted ancestors came together on the pages of this publication to learn from each other. We are very proud of our branch's professional journal and constantly seek ways to improve its quality and relevance to the armor force. Frank, but professional, discussions will always find a welcome home in this publication. … We constantly seek articles that promote thoughtful and professional discussion on any subject that affects the armor force. If you have an opinion on a particular issue, take time to organize your thoughts, conduct some supporting research if necessary and write them down. In the end, we will all benefit from your efforts."

I would add that professional development is a must in this high-operational-tempo Army. Along with CPT Byerly's discussion of the Maneuver Leader Self-Study Program, I would encourage you to add ***ARMOR*** to your professional-development repertoire.

L.A. ALLEY

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COMMANDANT'S HATCH

COL Lee Quintas
Commandant
U.S. Army Armor School

"The society that separates its scholars from its warriors will have its thinking done by cowards and its wars fought by fools"-Thucydides

The battle handover from BG Paul Laughlin is complete, and I am extremely honored and excited to be taking the reins here at the Armor School as the 48th Chief of Armor! As my family and I settle into Fort Benning, we are humbled by the hospitality that Fort Benning and surrounding community have shown us. I look forward to building and expanding the camaraderie and teamwork among the Maneuver Center, Infantry School and the Armor School as we continue to train, educate and develop agile and adaptive leaders for America's Army.

This edition of ***ARMOR*** celebrates its 125th anniversary. First published in March 1888 as ***The Journal of the United States Cavalry Association***, the journal debated the advantages of the saber vs. the revolver while mounted on horseback. Though technology has changed since 1888, the fundamentals employed by Armor and Cavalry have not. British MG J.F.C. Fuller's "War and the Future" asserted in 1953 that the horse enabled armies to "reconnoiter, charge, [assault], reinforce and pursue," in addition to the traditional raiding and screening operations that were the foundation of Cavalry units. These fundamental tasks remain essential on today's battlefield, and the Armor and Cavalry Force continues to provide commanders the "power of surprise, [to] therefore attack an enemy morally as well as physically." ***ARMOR*** also continues as an essential resource to understand and apply these fundamentals in an ever-changing environment.

Dedication to professional development of our Armor and Cavalry Soldiers reverberates through the 125 years of this publication. President Ronald Reagan, in a letter to ***ARMOR*** during its 100th anniversary, wrote, "Since its first issue … rolled off a small steam press at Fort Leavenworth, [KS], 100 years ago, your publication has provided a much needed channel for the exchange of ideas and information in the service of military readiness. The accelerating pace of change in heavy armor and armored cavalry requires more than ever that officers [NCOs and Soldiers] keep abreast of new developments in equipment, strategy and tactics. ***ARMOR*** continues to serve that vital purpose with distinction."

The 125-year history of this magazine is a testament to the commitment of our Armor and Cavalry Soldiers and leaders towards professional growth. Leaders responsible for the welfare of subordinates cannot sit idly by and allow the lessons that they and others have learned, sometimes at great loss, to be forgotten. While Armor and Cavalry Soldiers and leaders may find themselves temporarily out of the fight, publications like ***ARMOR*** have allowed the branch to stay informed. These valuable insights and lessons continue to ensure our Soldiers are best prepared to face the rigors of combat and prevail against our adversaries.

In closing, I cannot overstate what an honor it is to be selected as the 48th Chief of Armor. As this issue commemorates the 125th anniversary of ***ARMOR***, and enlightens tankers and scouts as to the lessons of history, I look forward to this publication continuing to provide insightful and informative discussion for future Armor and Cavalry Soldiers and leaders.

Forge the Thunderbolt!

GUNNER'S SEAT

CSM Michael Clemens
Command Sergeant Major
U.S. Army Armor School

This issue marks both the 125th anniversary of ***ARMOR*** and the culmination of the 2013 Maneuver Warfighter Conference at Fort Benning. These events are worth noting as they tie all of us to both our history and our future. The conference offered Soldiers the opportunity to learn and gain mentorship from legendary Soldiers of both the Armor and Infantry branches. The conference also provided valuable insights into the current operations and functions of our Army, as well as glimpses into the future of our Armor Branch.

We were fortunate enough to be in the presence of retired GEN Crosbie Saint, who graciously provided us with insights from his 34 years of service to this nation. During conversations with GEN Saint, I was asked, "Why Armor?" Reflecting on that, what makes Armor the profession young Soldiers want to be part of as they join our Army? It is a powerful question in its simplicity and one to which I welcome feedback and insight from the force to help me define for our Soldiers.

Why Armor? I would answer that it is because the United States will always require premier land forces. Our ability to dominate any other force through combined-arms maneuver is a capability that must be maintained. There is now, and will always be, value in the ability to defeat an opponent on the battlefield and place your figurative boot on his neck. For 238 years Cavalry, and later Armor, has brought mobility to the battlefield, providing the speed, surprise and shock action that is the hallmark of our profession. Even as the Army shifts its focus to the Asian Pacific Rim, home to some of the world's largest armies, I am reminded of the invaluable role Cavalry and Armor forces played in the Pacific campaigns of World War II, Korea and Vietnam.

Why Armor? The Armor force, at its most fundamental level, is about people. I have spent this week at the conference surrounded by the legends of our profession, to include retired LTG John Sylvester, retired MG Terry Tucker, retired CSM John Stephens and retired CSM Joe Gainey, to name a few. Their contributions both on active duty and since retirement are numerous, and they personify the attributes we look for in our Soldiers. Our Soldiers are also personifying these attributes every day. I look at both recently awarded Medal of Honor recipients SSG Clint Romesha and SSG Ty Carter, and I am proud to call myself a 19D.

The citation for SSG Carter is an exceptional example of Cavalry and Armor Soldiers who exemplify the very best of this profession: Then-SPC Carter was awarded the Medal of Honor for his heroic actions Oct. 3, 2009, while serving as a scout during combat operations in Afghanistan. On that morning, SPC Carter awoke to an attack by an estimated 300 enemy fighters employing effective direct and indirect fires, occupying key terrain and surrounding all four sides of Combat Outpost Keating. SPC Carter reinforced a forward battle position, twice ran through 100 meters of enemy fire to resupply ammunition and voluntarily remained there to defend the isolated position. Armed with only an M4, over the course of several hours SPC Carter placed accurate, deadly fire on the enemy, beating back the assault force and preventing the position from being overrun. With complete disregard for his own safety, SPC Carter ran through enemy rocket-propelled grenade and machinegun fire to rescue a wounded comrade pinned down in an exposed position. SPC Carter rendered first aid and carried that Soldier to cover. On his own initiative, SPC Carter again maneuvered through enemy fire to check on a fallen Soldier and recovered the squad's radio, which allowed them to coordinate their evacuation with fellow Soldiers. With teammates providing covering fire, SPC Carter assisted in moving the wounded Soldier 100 meters through enemy fire to the aid station before returning to the fight. SPC Carter's heroic actions prevented the enemy from capturing the position and saved the lives of his fellow Soldiers.

SSG Carter's actions embody the highest values and attributes of the Armor Branch.

Returning to GEN Saint's question of "Why Armor?" The Armor Branch is about the future. Cavalry and Armor continue to move forward in support of the Army's core competencies of combined-arms maneuver and wide-area security. This year's "State of Armor and Cavalry" brief at the conference resounded with ways in which we are looking to develop leaders to face the future's challenges. We have standardized the scout squad and platoon formations. We are codifying the level of training and experience a 19D must have to be an expert in reconnaissance and security. Furthermore, we are examining the best ways to shape master gunner and Stryker training to ensure we remain the experts on mobile, protected, precision firepower for all components and the U.S. Marine Corps. It is a great time to be a member of Career Management Field 19!

In closing, I would ask that everyone think on GEN Saint's question and do their best to answer for themselves – and to encourage everyone to respond with their thoughts – as to "Why Armor?"

Scouts Out!

Maneuver Leaders, Self-Study and War

by CPT Joseph Byerly

Three hundred men was the largest formation GEN George Washington had led before selection as the commander of the soon-to-be-formed Continental Army. He lacked experience to qualify for his newly assigned role. However, what he lacked in experience he made up for in self-study. Washington took his military education seriously, grasping every opportunity to increase his knowledge in the art of war. He bought every military science and history book he could find, making notes in the margins and eventually producing orders from them. In short, Washington was self-taught in the art of generalship.

Similarly, GEN George S. Patton Jr. was a voracious reader from his days at West Point to the time he commanded First Corps. He supplemented his own experience with the experience of past leaders. In a letter to his son, he wrote, "To be a successful soldier you must know history."[1]

More recently, retired U.S. Marine Corps GEN James Mattis observed, "Leaders … do their troops a disservice by not studying (studying, vice reading) the men who have gone before us."[2]

Even though these three leaders led during different periods of American history, the unifying theme running through their careers was the emphasis they placed on a lifelong study of war and warfare. They did not wait for their commanders or a learning institution to tell them what and when to read — they took ownership for their own development.

Importance of studying war, warfare

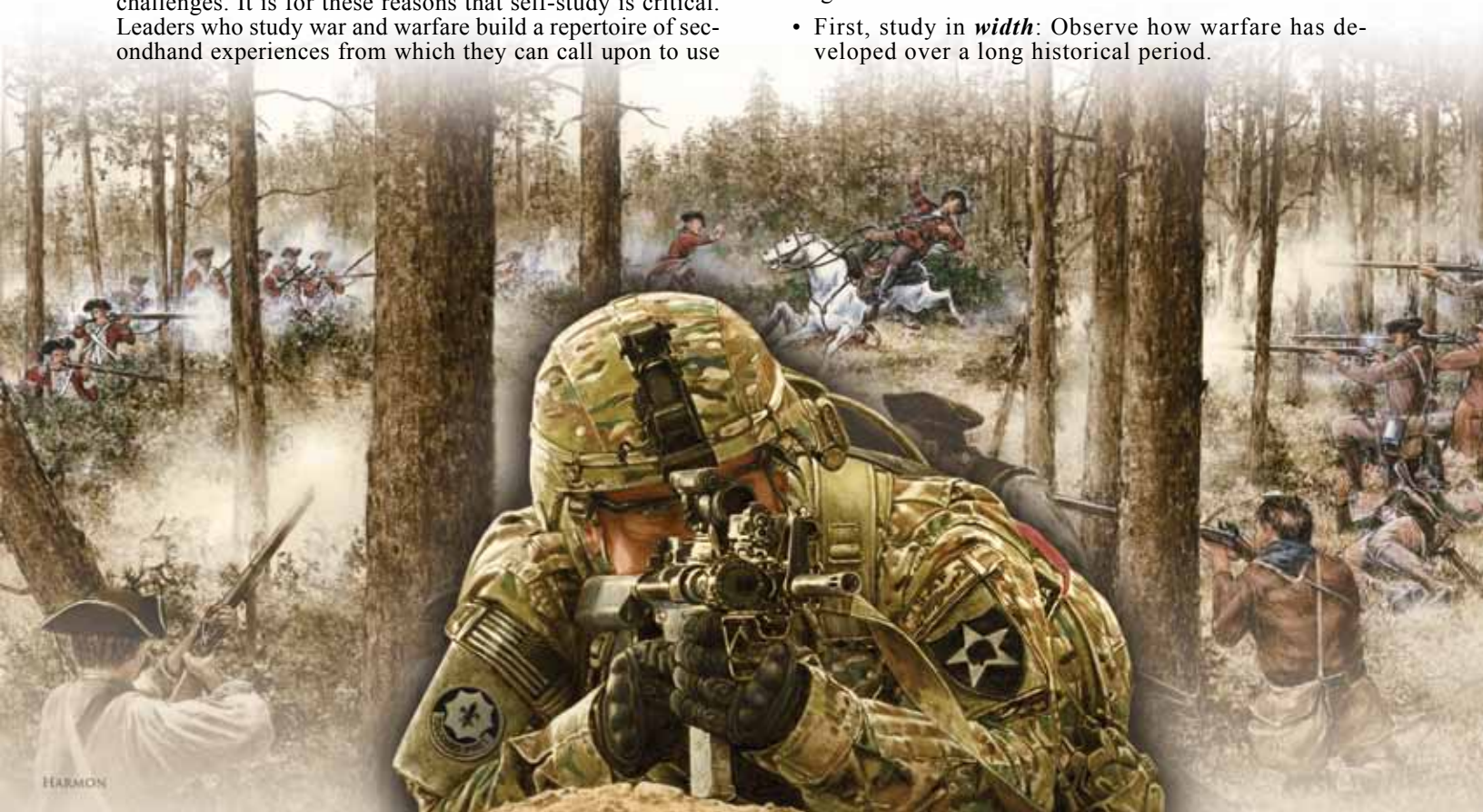
Learning from the experiences of others helps prepare leaders for future roles and responsibilities. Maneuver leaders are constantly in a state of upward mobility, usually spending no longer than two years at any given position of responsibility. Each new rank brings a change in scope of responsibility, complexity of problem sets and type of leadership challenges. It is for these reasons that self-study is critical. Leaders who study war and warfare build a repertoire of secondhand experiences from which they can call upon to use in informing their vision, actions and responses. The vicarious knowledge gained through a study of the past enables practitioners of war to see familiar patterns of activity. It also helps develop potential solutions to tactical and operational problems.[3] Instead of starting from scratch and learning through trial and error, a prior study of previous experiences enables leaders to start where history leaves off; rapidly identify opportunities; and quickly seize, retain and exploit the initiative.

Studying war and warfare helps us understand the continuities of war (those things that have not changed much in 5,000 years), thus guarding against unrealistic silver-bullet solutions to complex problems. In the 1990s, proponents of the "revolution in military affairs," "military transformation" and a "new American way of war" argued that technology would lift the fog of war. Near-certainty in war, combined with precision strike capabilities, would make wars fast, cheap, efficient and decisive. Lessons in Iraq and Afghanistan exposed flaws in these concepts. They neglected the interaction with enemies and adversaries who adopted traditional countermeasures like dispersion, concealment and decentralized command and control,[4] requiring us to fight in close combat with our enemies for periods that might outlast popular perceptions. These interactions ensure no one capability or one service or one arm is decisive. By studying war and warfare, leaders are able to see the wrestling match that takes place between the offense and the defense: the machinegun led to the tank; the tank led to the antitank missile; the bomber led to the radar; the submarine led to the sonar.

Approach to study of war, warfare

The benefits of studying war and warfare depend on the alignment with a proper approach. In the "Use and Abuse of Military History,"[5] Sir Michael Howard recommends the following three rules:

- First, study in ***width***: Observe how warfare has developed over a long historical period.



- Next, study in ***depth***: Take one campaign or battle and examine it in minute detail. Read letters, memoirs, diaries and even historical fiction. This is important, Howard observed, because as the "tidy outline dissolves," we "catch a glimpse of the confusion and horror of real experience."
- Lastly, study in ***context***. One must understand warfare for its social, cultural, economic, human, moral, political and psychological contexts because, as Howard observed, "The roots of victory and defeat often have to be sought far from the battlefield." Failure to study wars in context leads to a superficial view of war with lessons and conclusions divorced from their proper environment.

Where to go

Professional-reading lists are the most prominent resource used to guide leader self-study in the military services.[6] A popular method for promoting professional reading is through the creation of these lists divided into recommended reading by rank. While these selections may provide officers and noncommissioned officers with a list of useful pieces of literature, many subordinates are not privy to the explanation of the selection of books or articles in the first place. Thus, many of the professional-reading guides can seem to be no more than laundry lists. For this reason, I prefer a new resource recently developed by the Maneuver Center of Excellence: the Maneuver Leader Self-Study Program.

The program's intent is to give maneuver leaders a guided self-development program we can use for the study of war and warfare throughout our careers. The self-study program is divided into the 20 topics found at http://www.benning.army.mil/mssp/. Each topic has a brief introduction explaining what it is and why it is important. The Website offers an approach to the study of the topic along with downloadable doctrine, articles, audio/video and recommended books. Carefully chosen, the topics provide us with the interdisciplinary approach required to study war in width, depth and context.

Incorporating self-study into unit leader-development programs

Even though it was established for personal study, the program is a great resource for commanders to use in developing their subordinates. Reading, followed by discussion, is a critical component of our growth as professionals and improves our ability to retain knowledge. Reading by itself is not enough; in the book ***Past is Prologue: the Importance of History to the Military Profession***, Richard Hart Sinnerich observed that "extracting value from the study of history requires active mentorship."[7] Leaders should discuss what they are reading, since "junior officers develop their sense of what matters professionally in large measure by observing their superiors. If the latter are willing to invest precious time in reading and discussing history, so too will their subordinates, and conversely."[8] Leaders can use the MLSSP as a guide to introduce themes to subordinate leaders and facilitate discussion. A battalion commander preparing for a battalion-level training event might use the combined-arms operations topic to set the stage for the upcoming field problem. A first sergeant wanting to discuss leader development with junior NCOs could use an article and questions from the military leadership or leader-development topics to guide an NCO development program. If commanders select an article or topic each month to read and discuss with their subordinates, leaders could have a program of development that spans the entire length of a command.

Conclusion

The study of war and warfare should be an imperative for all maneuver leaders. It is a lifelong effort one must be approach systematically over the course of a career. Clausewitz opined that the purpose of studying war was to sharpen judgment before the battle began, not to dictate decisions during it. Self-study does not cost money or even require extensive training resources; the rewards reaped from this practice have been proven on the battlefields of the past. With the MLSSP, leaders now have a well-researched program to guide them in their education and prepare themselves and their units for the complexities and realities of the modern battlefield.

CPT Byerly is an instructor with Cavalry Leaders Course, 3-16 Cavalry Regiment, Fort Benning, GA. His past duty assignments include plans officer, 2nd Armored Brigade Combat Team, 3rd Infantry Division, Fort Stewart, GA; commander, Headquarters and Headquarters Company, 1-64th Armored Regiment; commander, C Troop, 3-7 Cavalry Regiment; squadron plans officer, 3-7 Cavalry Regiment; and platoon leader, Troop A, 2-1 Cavalry Regiment, Fort Lewis, WA. His military schooling includes Armor Officer Basic Course and Scout Leaders Course. CPT Byerly holds a bachelor's of science degree from North Georgia College and State University in criminal justice. In addition to the Purple Heart, he is the recipient of the Fiscal Year 2011 General Douglas MacArthur Leadership Award, Bronze Star (one oak-leaf cluster) and the Meritorious Service Medal.

Notes

[1] Nye, Roger H., ***The Patton Mind***, New York: Avery Press, 1993.

[2] Murray, Williamson, and Sinnreich, Richard Hart, "Introduction," in ***Past as Prologue: the Importance of History to the Military Profession***, ed. Williamson Murray and Richard Hart Sennreich, Cambridge: Cambridge University Press, 2006.

[3] Vego, Milan, "Military History and the Study of Operational Art," ***Joint Forces Quarterly***, 57, 2nd Quarter, 2010.

[4] Johnson, David, ***Hard Fighting: Israel in Lebanon and Gaza***, Rand Corporation, 2011.

[5] Howard, Michael, "The Use and Abuse of Military History," ***Royal United Service Institute Journal***, 107. February 1962.

[6] Lemay, Curtis, ***Technology-Supported Self-Development for Soldiers Deploying to Afghanistan***, Fort Leavenworth: Army Command and General Staff College.

[7] Sinnreich, Richard Hart, "Awkward Partners: Military History and American Military Education," in ***Past as Prologue: the Importance of History to the Military Profession***, ed. Williamson Murray and Richard Hart Sinnreich, Cambridge: Cambridge University Press, 2006.

[8] Ibid.

Acronym Quick-Scan

MLSSP — Maneuver Leader Self Study Program
NCO — noncommissioned officer

A readable summary of the history and use of mounted combat units leads off our 125th-anniversary commemorative articles

Trends in Mounted Warfare

by LTC Kris P. Thompson

*Reprinted from **ARMOR**'s May-June 1998, July-August 1998 and September-October 1998 editions; the original was a three-part series.*

Part I: mounted combat units in early land campaigns

Think back to 1977. Think about the then-existing concepts of conducting land warfare. Think about the weapons we had for mounted combat. Think about the combat-unit organizations we had at that time. Now reflect on the concepts, weapons and organizations of today. It is simply amazing how much the nature of land warfare has changed in the last 20 years.

We are at the threshold of the "new millennium." We are also in the midst of a transition in mounted warfare. Literally thousands of years passed with only incidental changes in mounted warfare – how many ways are there to use a horse? But in the last century there has been a fundamental change in mounted warfare with the advent of the tank, infantry fighting vehicle and helicopter. Because these weapons are still being improved, changed and developed, we are still in this transitional period. How will it play out? In 1815, at the close of the Napoleonic Wars, no one wondered whether the horse was going to change in the next 20 years. Yet we have all come to expect dynamic changes in mounted warfare in every decade.

This article will describe some key trends in the use of mounted units during this transitional period. Since the article will focus on land armies, I will concentrate on the operational setting. This is where campaigns are won and lost.

Part I will illustrate examples of how mounted forces have been used to win campaigns. I do not pretend to make this a detailed presentation of all mobile combat in the last century – obviously, such a project would be a multi-volume work. I have selected events and combat leaders as subjects of discussion that seem particularly appropriate as examples of key aspects of this transition. Analyzing these examples, I will identify trends and develop several theses or principles that are key indicators of successful uses of mounted combat units.

First mounted forces

On March 3, 1855, the federal government of the United States authorized the fielding of two "cavalry" regiments, thus establishing the first Active Component mounted units in our history.[1] Spread around the nation in small detachments, these units were little more than a mounted territorial police for the frontier and western regions of the country. The officers in these detachments, kept busy with frequent deployments and widely divergent "peace-keeping" operations, could not have had training or even a thought process that considered anything above small-unit combat. Even the manual on cavalry tactics then in use devoted a scant three pages to maneuver of a cavalry division.

With appreciation but detachment, these officers probably listened to stories from Europe about the huge legions of cavalry employed in the Napoleonic Wars, not being able to conceive of how such formations would be relevant or practical in the future. (Perhaps in the same way we today look back on World War II.)

At the outbreak of the Civil War, the Union Army's mounted arm remained muted because of a belief that rifled cannon would trump cavalry off any battlefield,[2] and that American terrain was uniquely unsuited for cavalry. The first two mobilization efforts in the North called for only one cavalry regiment. How much this was to change! By the end of the war, only four years later, the Union raised 272 regiments of cavalry, and the Confederacy raised more than 137 regiments.[3]

The overall use of cavalry by the belligerents in the early years of the war is well known. The South used cavalry in mass, and with more sophistication and aggressiveness. The North fragmented its cavalry, employing it for guarding logistics sites, picketing encampments and providing reconnaissance patrols.

Cavalry reorganization

After two years of disaster, disappointment and finger-pointing concerning the deplorable state of the Union cavalry, senior leaders in the Army of the Potomac reluctantly realized the current system was not working. On Feb. 5, 1863, the new commander of the Army of the Potomac – MG Joseph "Fighting Joe" Hooker – put all cavalry in his army into a cavalry corps.[4] The new commander of this unit, BG George Stoneman, organized it into three cavalry divisions.

At the outbreak of the Civil War, the first two mobilization efforts in the North called for only one cavalry regiment. By the end of the war, only four years later, the Union raised 272 regiments of cavalry, and the Confederacy raised more than 137 regiments.

For the next 14 months, the cavalry corps launched a series of attacks and raids, which were of a magnitude unheard of on the Union side up to that time. This period was a blooding of the North's mounted arm, attempting to play catch-up after nearly three years of misuse. With each hard lesson learned, Union leaders became bolder and bolder in using larger cavalry formations. Finally, the much-awaited clash between opposing mounted main bodies (on the flanks of their respective armies) took place at Brandy Station in June 1863. The battle was a hard-fought, face-to-face brawl. The Union cavalry had arrived. While the Southern cavalry leader, J.E.B. Stuart, claimed victory based on the Northern cavalry's retreat from the battlefield, all present realized the Northerners had achieved parity. Hooker's reorganization was a landmark event, no doubt, but Stoneman and his successor – Brigadier Alfred Pleasonton – were not the personalities to complete the evolutionary process of the Union cavalry.

Coming of age

LTG U.S. Grant took charge of the entire land force of the Union in Spring 1864. Grant put MG Philip Sheridan in charge of the cavalry corps. At the time he took over, he was 5 feet, 5 inches tall and weighed 115 pounds.[5] Despite his size, however, Sheridan had tons of fight in him and has been described as "a short, bandy-legged, quick-tempered, foul-mouthed Irish bantam, with a massive torso, dangling arms and an infinite capacity for making men want to fight."[6]

Sheridan had an immediate run-in with his new commander, LTG George Meade, who was still nominally in charge of the Army of the Potomac. Sheridan was insistent on two fundamental changes in the employment of the cavalry. First, he wanted to emulate the Southern enemy who "had organized his mounted force into compact masses ... husbanding the strength of his horses by keeping them to the rear. ..."[7] This philosophy was in stark contrast to the Union philosophy of using cavalry to continually "cordon" the infantry corps with cavalry pickets. This constant deployment caused the horseflesh to go thin and wear down.

Secondly, Sheridan refused to be a martinet stationed at Meade's headquarters, as had his predecessors. They had been "an adjunct at army headquarters – a sort of chief of cavalry..."[8] Because of this, and the outpost duty, he felt the cavalry corps was a corps "in name only."

Sheridan wanted to free his cavalry corps from being tied to the maneuver and pace of the infantry corps. Meade protested and argued the cavalry was the only available force for security of the infantry, trains and artillery. Sheridan explained to Meade his philosophy: "I told him that if he would let me use the cavalry as I contemplated, he need have little solicitude in these respects, for, with a mass of [10,000] men, it was my belief that I could make it so lively for the enemy's cavalry that, so far as attacks from it were concerned, the flanks and rear of the Army of the Potomac would require little or no defense, and claimed, further, that moving columns of infantry should take care of their own fronts. I also told him that it was my object to defeat the enemy's cavalry in a general combat ... that would enable us after a while to march where we pleased, for the purpose of breaking Lee's communications and destroying the resources from which his army was supplied."[9]

Initially, Sheridan did not get his way. In early May 1864, Grant tried to outflank Lee's position on the Rapidan River by moving around the position on the weakly held east side. The Rapidan is an east-west waterway about halfway between the Potomac River and Richmond. Sheridan's cavalry led the way but was still tied to the main body of infantry. While the infantry corps slogged it out in the wilderness, the cavalry sparred with the Confederate cavalry and outposts. The tight linkage between the cavalry corps and the infantry caused a number of problems in movement: intermingling during night road marches, lost opportunities for snatching key terrain and general confusion.

Sheridan was irritated, and his quick Irish temper soon got the better of him. After Meade chastised him for impeding the progress of an infantry corps, Sheridan lashed out: "I told him that I could whip Stuart if he (Meade) would only let me. ..."[10]

At the end of his rope, Sheridan finally told Meade to command the cavalry himself. Meade then went to Grant's headquarters and complained about his insubordinate cavalryman. The story goes that Grant (a friend of Sheridan's) then asked if Sheridan really said he could whip Stuart. After being assured that he did say this, Grant replied, "Then let him go out and do it."

Sheridan then did exactly what he said he would do. Grant's official order was simple: "proceed against the enemy cavalry. ..."[11] Sheridan then explained his plan: "Moving in one column around the right flank of Lee's army to get in its rear

... it was my intention to fight Stuart wherever he presented himself. ... Our move would be a challenge to Stuart for a cavalry duel behind Lee's lines..."[12]

There is no doubt the defeat of the enemy mounted arm was the "principal object" of the raid.[13] The formation was three cavalry divisions in a column of "fours," 13 miles long.

Stuart rose to the bait. In the resulting battle of Yellow Tavern, Stuart was killed by a Michigan cavalry trooper under George Armstrong Custer, and the Confederate cavalry was "badly broken up." Thereafter, Sheridan's cavalry caused disruption and great alarm in the heart of Confederate Virginia. The "most intense excitement" stirred in Richmond with Sheridan running loose. The cavalry corps tore up miles upon miles of Virginia railroad, burned several railroad bridges, captured and destroyed 2 million rations and other commissary stores, and overran small rear garrisons.

This success led to further employment of the cavalry corps to rip apart Lee's communications network. It was now much easier to convince Meade's and Grant's staff of the advantages of having the cavalry "cut loose"[14] from the main body. The raid on Trevillian Station again had the double goal of drawing out the enemy cavalry and tearing up railroad lines. In a replay of Yellow Tavern, Sheridan's cavalry defeated cavalry under Hampton and disabled more stretches of railway. (Wilson alone accounted for 60 miles of destroyed railroads and rolling stock.) Sheridan, of course, was then sent to a larger command in the Shenandoah Valley and the rest of the war, as they say, is history.

What lessons did the Union cavalrymen learn at the birth of the mounted arm in the United States? The major points on the employment of mounted units from Sheridan's standpoint were:

- The cavalry of an army must be employed as a distinct, separate, completely mounted entity.
- It must be "cut loose" from other branches that would slow its maneuver.
- Its first object should be to gain superiority over the enemy's mounted arm, and the secondary object is to disrupt his communications and destroy resources upon which the enemy army depends.
- It should be moved around the enemy army's flank and meet the enemy cavalry in the enemy's rear area.

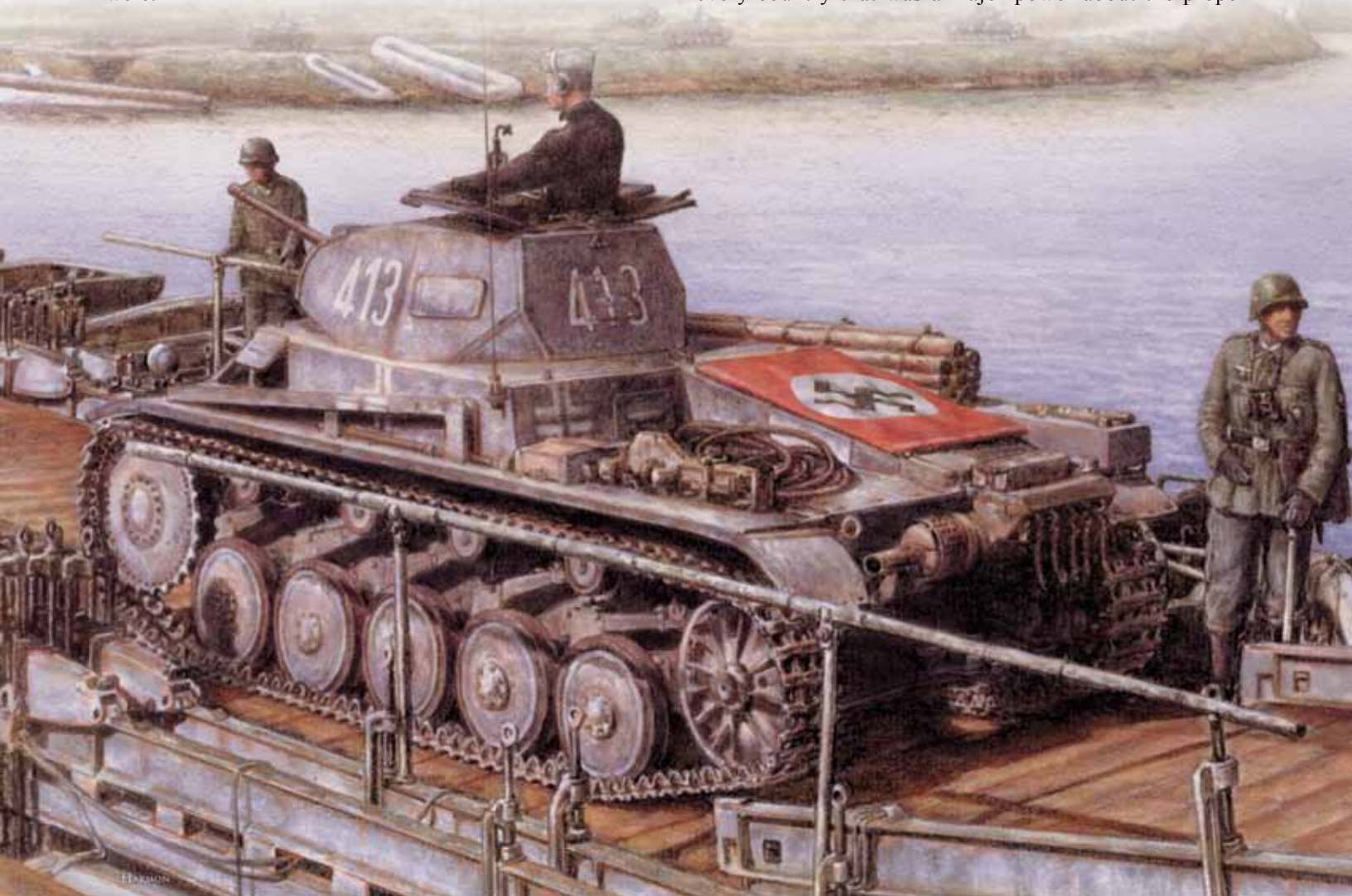
These were important lessons, as they surely made their way into the minds of the future American mounted leaders of World War II. This takes us to the heart of the transitional period of mounted warfare.

Part II: blitzkrieg and the operational level of war

The introduction of the internal combustion engine into the military at the beginning of [the 20th Century] changed warfare in a fundamental way. Mobility and mounted warfare took on a new meaning. The ability to use the engine to power all sorts of vehicles caused military theorists to compete in developing the best way to employ this new way of waging war. In the previous 2,000 years, only the advent of gunpowder had such a revolutionary effect.

Blitzkrieg, the theory

After World War I, which proved to be a bloody experiment for the proponents of tanks, there was rigorous debate in every country that was a major power about the proper



employment of motorized and mechanized forces. One man eventually dominated the debate: Heinz Guderian.

He had a friendly face with piercing eyes and a close-cropped, graying mustache. He had a lopsided smile with a dimple in one cheek when he smiled – which was not often. It was said of him that he was a difficult officer to work with, a poor listener, critical and direct to those (even his superiors) who disagreed with him, and that he had little feeling or tact. Yet, at the same time, he was imaginative, analytical, energetic and tenacious.[15]

Guderian had originally been an infantry officer. He was appointed to the Motorized Transport Department of the German army as a captain in January 1922. For the next 15 years, Guderian studied, analyzed, experimented, reasoned and finally developed a concept for using mounted forces to win campaigns.

What was blitzkrieg, as Guderian envisaged? Everyone has his or her own version. Len Deighton in ***Blitzkrieg*** focused on the materiel side, listing infiltration tactics, tanks and the radio as the three vital components.[16] Bryan Perret lists tanks, the use of air power, the indirect approach and the effort aimed at a strategic objective, with the "keystone" of blitzkrieg being a breakthrough with pursuit of the routed army until its will to fight had been broken.[17] Of course, both Deighton and Perret, as well as many other authors who have written on the subject, are correct in some aspects. But because of the fascination with the materiel side, analysis often gets bogged down on tactics. Many writers focus on how the panzer division conducted business. This approach, I think, misses a major component of the blitzkrieg philosophy – which is at the operational level of war.

Guderian's concept

Guderian's refined ideas were published in 1937 in ***Achtung, Panzer!*** This is a remarkable book, and is "must" reading for every armor officer. His true genius was demonstrated by his conceptualizing how tank and motorized forces could bring about tactical victory "and then exploit it into the operational dimension."[18]

He placed great emphasis on this basic theme. Winning rapidly in the operational dimension was necessary because of the economic stress of warfare. Guderian viewed mounted warfare as a "means to bring an armed conflict to a rapid and tolerable end."[19]

Guderian's basic principles for employment of tank forces were:

- Surprise – attained through speedy and well-concealed movements or new technology.
- Deployment en masse – the concentration of tank forces where we seek to gain the decision.
- Suitable terrain – enough to allow the tank forces to move through it in sufficient breadth and depth.

Guderian also pounded away at several other main points. He stressed combined arms in mounted units. He believed all combat arms necessary to support the tank formations had to be mechanized or motorized and able to move at the same speed. This brought about the forming of panzer and panzergrenadier divisions that were, at least in theory, completely mounted.

His writing strongly stressed the use of joint air-ground operations. He repeatedly emphasized the use of close air support in halting or delaying the movement of enemy reserves. He also repeated a Sheridan theme: the maneuver of mobile forces, now mounted in tanks rather than on horses, should not be tied to the infantry and artillery:

> "Tanks will lose the capacity to concentrate on the decisive spot if they are incorporated as organic elements of all the infantry divisions. ... The possibility of speed is killed stone dead, and we forfeit all real hope of attaining surprise and decisive success in combat. ... We will ... lose thereby the means of exploiting at speed any

successes on the part of the first echelon. We will grant the enemy time to bring up reserves, re-establish themselves in rearward defenses, beat off our enveloping movements and concentrate for counterattacks."[20]

Of course, by concentrating tanks en masse for breakthrough and exploitation, moving them deep into the enemy rear at speed, the enemy does not have time to commit reserves, construct new defensive positions in depth, or launch counterattacks. Guderian predicted this would result in operational-level success. It is interesting that German panzer leaders such as Guderian and Von Thoma routinely favored lighter, faster tanks with longer ranges (able to go deeper and faster in penetrations to the operational level) for the main armor force.[21]

"Blitzkrieg," in Heinz Guderian's mind, was a mounted force centered on the tank (supported by mounted infantry, ground-attack bombers and mobile artillery), used to break through enemy defenses with mass and speed, and then exploit to break the enemy's will, resulting in operational-level victory.

Guderian was somewhat vague on what would be the principal target of the mounted forces. Given the raging debate going on at the time, he probably did not want to tie himself down. At one point, Guderian suggested the tanks were meant to "execute deep breakthroughs aimed at reaching the enemy command centers and reserves and destroying the hostile artillery."[22] At another place, Guderian added in the necessity of victory over the enemy anti-tank defenses and tank reserves as the gateway to a pursuit. At still another point, he lists the tank forces' "principal foes" as hostile tanks, antitank guns and artillery, in that order.[23] But then Guderian returned to his theme of having an impact at the operational level:

> "One could imagine how at the beginning of a war the armored forces could strike at vital enemy airfields or other relevant objectives close to the border; again, after successes on the ground at a later stage of the war, the tactical aircraft, air-landing troops and tank forces could be assigned common objectives deep in the enemy rear, with the aim of breaking the enemy's power of resistance with the least loss of life. This is a concept of warfare which has so far received little attention."[24]

Thus, "blitzkrieg," in Guderian's mind, was a mounted force centered on the tank (supported by mounted infantry, ground-attack bombers and mobile artillery), used to break through enemy defenses with mass and speed, and then exploit to break the enemy's will, resulting in operational-level victory. Indeed, Guderian's subtitle for the book was "The Development of Armored Forces, Their Tactics and Operational Potential."

1940 campaign in France

We all know the story of how the German army ran roughshod over France in 1940. This campaign was certainly conducted very close to Guderian's blueprint for success. This campaign gives us a stark comparison of two ways to employ mounted forces.

The Germans adhered to Guderian's principle of mass. The Germans attacked with 2,400 tanks and around 2,600 aircraft. The French and allies defended with some 3,400 tanks and 1,700 aircraft. The Germans concentrated their armored units into compact, all-mounted forces with five of the 10 available panzer divisions concentrated in a panzer group (two corps) at the main point of attack. Three motorized infantry divisions followed these divisions. The French and British frittered away their tanks by scattering them among the infantry corps, for the most part. Of the 3,400 tanks available, about half were penny-packeted in battalions to the infantry; one quarter were formed in cavalry divisions for security missions; and the remaining quarter were formed into small tank divisions.[25] Even this small tank reserve was not under a corps headquarters.

The Germans also achieved surprise. The French, much like the Americans four years later, negligently ignored many intelligence indicators of an assembly of German forces in the area of the main attack.[26] They were banking on the assurances of the French intelligence service that they would give the army 24 hours' warning of any invasion.[27] One aspect of the surprise was the terrain considered by the Germans to be suitable for a large armored thrust. The attack came through a "no-go" area: the Ardennes. The French had declared this region "impenetrable."[28] In the German planning process, however, Guderian had personally certified the area as feasible for the maneuver of the armored forces. Another aspect of the surprise was the use of airborne and air-landing units in surprise pre-invasion assaults on key enemy positions.

Further, the Germans directed their main attack to avoid the most strongly held portion of the French position: the Maginot Line to the south of the intended decisive point. It also avoided the area in Belgium to the north where the Germans expected the Allies to advance and occupy defensive positions. The main effort of the attack came in the middle, against Sedan, which the Germans knew was the boundary between two second-class divisions. This was an operational-level weak point. And although the invasion planners were not counting on political turmoil in the Allied governments to aid them, the launching of the attack happened the day after both the English prime minister, Neville Chamberlain, and French prime minister, Paul Reynaud, had offered their resignations.[29]

Mechanisms of defeat

The employment of the German panzers clearly resulted in the rapid, operational-level victory Guderian promised. What were the mechanisms of defeat in the way the panzers carried out the exploitation and pursuit? There were both physical and psychological effects that reduced, and eventually broke, the enemy's will and ability to carry on the fight.

Physical effects. There were two significant physical effects. The first was isolation. The penetration by the German main effort was designed to go all the way to the coast and thereby cut off the Allied forces in Belgium. These isolated units would be destroyed in an attack from the rear,[30] while the French reserves to the south were prevented from massing by spoiling attacks from forces on that flank of the penetration. Then, after defeating these isolated units, France would be on its own. This plan was strikingly similar to Napoleon's "central position" concept. It was key that the penetration occur quickly, preventing the two Allied wings from re-establishing ground lines of communication with each other. It also cut lines of communication within the French army on the southern flank of the penetration.

After the penetration by the massed mounted units of the German army, there was no delay or slowing. Just the opposite occurred – the pace of the maneuver quickened. The average rate of advance was about 30 miles per day, with some units achieving a staggering 60-mile advance.

The second physical effect was exposure and destruction/displacement of command, communication, logistics and other "soft" assets. By penetrating faster than the defending army could prepare a cohesive defense-in-depth, all the "soft" targets and installations necessary for an army to function were continually subject to direct attack by tanks, infantry and dive-bombers. These soft targets include logistics sites, command posts, transportation assets and airfields.[31] The exposure to direct attack caused these soft targets to be destroyed, or to continually be displaced, which greatly reduced their effectiveness. It is very clear that it was the intent of the German plan to destroy the isolated Allied units in the north by attacking their vulnerable rear areas and destroying or cutting them off from their ports.[32] Thus, the "target" of the penetrating mounted units was the "soft" assets of the Allied units in Belgium.

Rommel reported that French soldiers from artillery and supply units "tumbled headlong into the woods at the approach of our tanks. ..." Such units cannot provide fire support or supply hard-pressed combat units. The displacement led to destruction as the panzer troops fired on the move, destroying military vehicles, and sending soldiers and civilians alike into "wild flight."[33] Artillery units disappeared without ever firing a shot after unexpected encounters with Rommel's tank columns.

When the Allied air assets were forced to displace, their usefulness eroded quickly as secondary airfields were not as good as the original airfields, and the transportation and supply organizations were not quite up to the task.

Psychological effects. Field Manual 100-5 defines "shock" to mean firepower, armor and speed.[34] Yet shock emanates from the psychological makeup of soldiers, not the physical. It was the psychological effect of the German attack that caused the French will to fight to "spring a leak," then gush, then flow away as a raging torrent. What sprung the leak was the fear in the hearts of those soldiers at the "soft" targets – the artillery gunners, the truck drivers, the headquarters personnel – of having to undergo an attack from tanks with no real means of defense.

The decisive point in the campaign occurred shortly after the assault crossing by the infantry at Sedan. A colonel from the French corps artillery in the area issued a report that he was displacing his headquarters and some heavy batteries to the rear, and that "German tanks were arriving" as he was moving out.[35] This officer's rumor spread like wildfire. An officer from a French infantry unit in-depth then witnessed:

> "A wave of terrified fugitives, gunners and infantry, in transport, on foot, many without arms but dragging their kitbags, swept down the Bulson Road. 'The tanks are at Bulson!' they cried. Some were firing their rifles like madmen. ... Gunners, especially from the corps heavy artillery, and infantry soldiers from the 55th Division were mixed together, terror-stricken and in the grip of mass hysteria. All these men claimed actually to have seen tanks at Bulson and Chaumont. ... Panic brooked no delay; command posts emptied like magic."[36]

In fact, no German tanks were actually in that area, although they were preparing to cross the Meuse.[37] This "leak" quickly impacted the French center of gravity: its artillery. For 150 years it had been the case that if the guns stood fast, the army stood with it. When the guns pulled out, so did the rest of the army. The hysterical mob grew as word spread the guns had pulled out. The rumors became worse. Everyone started spreading reports of panzers in the rear areas. Command posts displaced without warning their subordinate headquarters. Officers began assuming there was a general withdrawal and issued orders to pull out. Communication centers were

The employment of the German panzers clearly resulted in the rapid, operational-level victory Guderian promised. The mechanisms of defeat were both physical and psychological effects that reduced, and eventually broke, the enemy's will and ability to carry on the fight. *(Bundesarciv photo)*

abandoned. Demolitions were triggered prematurely. Jittery infantrymen shot first without confirming targets, resulting in fratricide. All this displacement, of course, took place on the road, which made these units great targets for the dive-bombers and fighters to strafe. Commanders issued conflicting, indecisive orders.

This is breaking the enemy's will to fight.

Blitzkrieg refined

For the rest of World War II, commanders on all sides attempted to emulate the 1940 campaign. There were notable successes such as Operation Cobra, the breakout from Normandy; the initial stages of the campaign in Russia in 1941; and the Afrika Korps' initial campaigns. There were also notable failures such as Operation Goodwood, Operation Market Garden and the Ardennes campaign of 1944. The successes were generally characterized by Guderian's recipe of mass, surprise and suitable terrain, together with attacking a weak point, exposing "soft" targets to attack, speed in the penetration and penetration to operational-level depths. One or more of the following caused the failures: attacking strength or locations where the enemy had positions in depth; failure to have local air superiority; terrain difficulties; or by having a slow rate of penetration (allowing the enemy to maneuver reserves to defeat the attacking units).

American experience

Of course, GEN George S. Patton, the "godfather" of the armor force and the most successful practitioner at the operational level of using American armored forces, was very much influenced by Guderian's concepts. He read ***Achtung, Panzer!*** immediately after the book was translated,[38] along with many other books and treatises on German armored doctrine. After the Carolina Maneuvers of 1941, he railed about being "reduced to the speed ... of the infantry" by having the armored force under the control of an infantry headquarters.[39] His train of thought on the use of armored forces, expressed prior to his involvement in World War II, mirrored Guderian's concepts in many ways:

- 1940 – The brigade he commanded was "designed to strike and penetrate weak points in the enemy's defensive line, or else outflank and envelop the enemy's defenses. In either case, the brigade was to destroy enemy command posts, communications centers, supply dumps behind the front and thereby paralyze the enemy's ability to react."[40]
- 1940 – Patton addressed a lawyers' club in Columbus, GA, and noted that once a defensive line is pierced, tanks could pour through the hole to "give the enemy a spanking from behind. You can kill more soldiers by scaring them to death from behind with a lot of noise than you can by attacking them from the front."[41]
- 1941 – He wrote an umpire for an upcoming wargame that "the primary function of an armored force is to disrupt [enemy] command, communications and supply."[42]

Our opponents, the Germans, gave Patton high marks for his skill in mobile warfare. Von Mellenthin praised Patton as a commander "who thoroughly understood the character of armored warfare. ..."[43] Rundstedt said Patton and Montgomery were the two finest commanders he dealt with.[44] But while Americans had a "keen sense of mobile action,"[45] the American leaders at the operational level, including Patton, did not "mass" their armored divisions for any operation. Even Operation Cobra, which most historians view as a massing of armor, was a relatively small operation in terms of mobile units taking part in the penetration. The final plan called for three non-motorized infantry divisions to make the initial penetration, followed by two armored divisions and one motorized infantry division completing the penetration and exploitation. This pales in comparison to the concentration of armored forces by the Germans in 1940 and during the Ardennes campaign of 1944.

Operation Cobra was not even designed to result in a successful campaign upon completion – it was merely to set the stage for further exploitation. By way of mitigation, it must be said that this concentration of forces was certainly powerful compared to the opposing forces, especially when enhanced in combat power with air power and sustained artillery bombardment. And, the impact of the three mobile divisions used in the exploitation was very great, and far out of proportion to the number of battalions involved.

Patton and other operational leaders have been criticized for failing to mass armored units. The U.S. Army in France habitually assigned one armored division and two infantry divisions in each corps. There were no armored corps formed, which is clearly distinguished from the German practice. The German battle studies at the end of 1944 attributed this organization to an abundance of caution and hyper-methodical thinking.[46]

This demonstrated a tendency on the part of Americans to think at the tactical level when employing mobile units. Corps commanders parceled out the combat commands of their armored divisions for independent attacks. This, in turn, resulted in dramatic tactical success – such as CCA and CCB, 4th Armored Division, in the encirclement of Nancy – and a failure to turn the tactical successes into operational-level victory because of a lack of mass. The "broad front" strategy must also be labeled as a culprit in encouraging this organization. The Germans felt that American armor usage had deteriorated by World War II's end, as compared to mobile units' breakout during Cobra. Von Mellithin commented on the use of armor in the Lorraine campaign:

> "I think that Patton would have done better if the 4th and 6th Armored Divisions had been grouped together in a single corps, reinforced possibly by the French 2nd Armored Division. These were all very experienced formations and were ably commanded. ... I think the Americans made a grave mistake in coupling their armored divisions too closely with the infantry; combined as a tank army under one commander, these three armored divisions might well have achieved a decisive breakthrough."[47]

Apologists for this employment of armor will contend that the high degree of truck transportation available to the normal infantry division prevented it from being a "drag" on the armored divisions. Yet, a number of incidents occurred where the "drag" effect or parceling hampered the effectiveness of the mobile divisions.

Surprisingly, Patton did not regard mass, in the literal sense, as a requirement. To him, a "charge" with tanks, especially against a defense with antitank weapons, was "futile and suicidal."[48] The widespread belief that the function of the armor division was to attack and destroy the enemy was "erroneous."[49] Like Guderian and Von Thoma, he viewed the armor force getting into the enemy rear by attacking a weak point, and then disrupting the command and supply systems. What was critical was not so much that the armored units move or attack together, but that they have impact at the decisive place at the proper time. In this sense, he was somewhat in

accord with the Guderian approach march technique whereby the attacking armored units start in dispersed assembly areas, move forward toward the enemy "front line," then converge on a breakthrough point. Thus, Patton was more like Stonewall Jackson – able to move everyone (no matter whether they were mounted or dismounted) faster – rather than J.E.B. Stuart or Phil Sheridan, who massed their cavalry.

The American experience in World War II resulted in discarding the concept that the tank was an offensive weapon not intended for defensive combat against other tanks.[50] The inability to find a feasible way to employ tank destroyers led to their phasing out. From that point forward, it has been the U.S. Army mindset that the best and primary antitank weapon is another tank. This resulted in a "heavying" and upgunning of the American tank fleet.

The end of World War II led to a great deal of study and debate about the future of the armored forces. This period proved that mounted combat units, when used correctly, were the dominant force in warfare. They were the campaign winners. In the coming years, their dominance would be tested in a variety of terrain and modes of warfare.

Part III: Korea, Vietnam and Desert Storm

After the refinement of mobile warfare in World War II, all nations in the civilized world breathed a collective sigh of relief and proceeded to dismantle their military forces. National will, eroded by costly world wars in two successive generations, caused a loss of priority, resources and public support in the U.S. armed forces. In the midst of this degenerative period, the Army was asked to fight two undeclared wars.

Korea: constrained by terrain

The failure to properly employ mobile units in both Korea and Vietnam serves as an example that an army can make the same mistake in two consecutive conflicts. Armor was helpful to the infantry in Korea but was not employed in enough numbers to be a campaign winner. The armored units sent to Korea were broken up and employed by platoon or company the vast majority of the time. Even the breakout from Pusan in September 1950 – which could have and should have been a great opportunity for a blitzkrieg or Operation Cobra-type breakout – was characterized by small armored task forces leading (mostly) motorized infantry divisions up mobility corridors. After a delayed breakthrough on the Naktong Line, MG Hobart Gay, commander of 1st Cavalry Division, said "From now on, it's a tank battle."[51]

Wishful thinking.

The spearhead of the Pusan breakout was Task Force Lynch, consisting of 70th Tank Battalion and 3/7th Cavalry. Hardly the concentration of mobile forces one would hope for to make an operational-level exploitation and pursuit. Three days after TF Lynch began operations, GEN Walton Walker, commander of Eighth Army, formed two other armor task forces hoping for a Cobra-type breakout. It was not to be.

TF Lynch provides examples of the variety of problems faced by mobile combat units during the Korean War. The first problem was that TF Lynch's mission was to link up with the Inchon invasion force, in furtherance of Eighth Army's mission statement – which was to pressure the North Koreans to their front, preventing them from moving north to defend Seoul, and to link up with the invasion forces. This was not an inspired concept, as it did not contain a defeat mechanism,

nor did it result in decisively winning a campaign.

MacArthur intended for the Seoul invasion forces to "cut the enemy's supply line and seal off the entire southern peninsula."[52] Only the first part of this purpose was accomplished. The problem here was that most of the few available mobile forces were not assigned to the enveloping force landing at Inchon, but instead they were with the direct-pressure force, Eighth Army, inside the Pusan perimeter.

There is no doubt the Inchon invasion was highly effective in many respects. It cut the North Korean supply routes through Seoul, captured the largest airfield in the country and had great psychological effect on both sides. But the failure to seal off the peninsula allowed large numbers of North Koreans to retreat northward, prolonging the war until the Chinese could intervene.

The difficulty and desperateness of the close fighting in Korea and Vietnam sometimes tend to cause [people] to mitigate the magnificent success of mobile forces in Operation Desert Storm. Yet the result of Desert Storm and the resulting low casualty rate is a strong indication that the use of mobile forces in this campaign was of a very high order — by far the best use of mobile forces in the U.S. Army since the invention of the tank.

The main problem, of course, was lack of mass. TF Lynch accomplished the final linkup after a hard firefight just south of Seoul. That was it. No sweeping movements across the enemy rear. No overrunning of enemy command posts and supply bases. No blocking of enemy retreat routes. No destruction of enemy artillery units. It sounded good in the press but, in reality, it did not have much effect at the operational level.

Vietnam: operational chaos

Because of the experience with Pacific Rim terrain in Korea, and the unfortunate results of the French in Indochina, planners for the Vietnam War initially ignored armored forces. Engineers completed an early terrain analysis which was very conservative in labeling "go-no go" terrain. This stands in marked contrast to the Germans having Heinz Guderian, an armor officer, personally certify the Ardennes as trafficable for the 1940 campaign. In 1967, revised terrain studies indicated that armor could move cross-country through most of South Vietnam. Battlefield experiences verified the decisiveness of armor in close combat, and the deployment of armor to Vietnam steadily increased between 1966 and 1970. By 1970, 46 percent of the combat troops were armored battalions.[53] This rose to 54 percent in 1971.

A new type of platform for mobile warfare came to fruition in Vietnam: the helicopter. Initially, helicopters were used primarily as transports, but their tactical effectiveness led to innovative, aggressive development of many other ways to employ them. Because of their high value, both armor and aviation units found themselves being broken up and employed piecemeal. Better motor and suspension technology for tracked vehicles, along with the increased mobility of supporting aviation assets, gave mobile combat units even greater speed of movement than in World War II. The 3rd Squadron, 11th Armored Cavalry Regiment, moved 200 miles in two days to be at the line of departure for the attacks into Cambodia in May 1970 during Operation Toang Thang 43. This particular operation illustrates the problems caused by piecemeal commitment and indecisiveness at the operational level.

The operation's purpose was to attack enemy sanctuaries in Cambodia, which had been previously off-limits. U.S. forces involved in the operation included 1st Cavalry Division (Air Assault), 25th Division and 11th ACR. Brilliant use of aviation and armor in mobile warfare led to success at the tactical level. Surprised enemy units were encircled and annihilated. Huge stocks of individual weapons, crew-served weapons, ammunition and rice were captured. The penetrating forces overran an extensive logistics base with a fully equipped motor park, complete with grease racks and spare parts.[54] The 11th ACR was assigned two more engineer companies to handle all the added demolition work. By the end of the operation, almost 10,000 tons of materiel and food had been destroyed and more than 11,000 enemy soldiers killed.

Not all went well, though. One armor battalion had to be withdrawn after only a few days in the fight. This was in large part due to the piecemeal employment of the battalion previously with resulting logistical breakdowns. And, in the midst of this devastation on the enemy base of operations, President Richard Nixon declared he was satisfied with the results and that American forces would be pulled out of Cambodia within seven weeks. This prevented the operation from having decisive effect at the operational level. The value of the operation was to provide time for the South Vietnamese forces to build up and the U.S. forces to continue redeployment out of Vietnam – important, but certainly not a campaign winner.

We all remember the post-Vietnam era as the lowest point for mobile warfare since the early 1930s. Everyone thought the tank was a "has-been." The 1973 Arab-Israeli war supposedly proved that the anti-tank guided missile was now the dominant tactical weapon. The artillery arm and the Air Force were still claiming they could win a war by themselves with new technology. Light-infantry tactics were the "in" thing. Grenada and Panama were touted as blueprints for all future conflicts.

There was constant pressure to conduct simulations, experiments and studies on how to make the armor force relevant in a low-intensity, light-infantry fight.[55] The light-cavalry regiment, AGS and light/heavy concepts were the hot, current ideas. We felt we were on the verge of being ignored out of existence.

Desert Storm

When older veterans compare Korea, Vietnam and Desert Storm, the difficulty and desperateness of the close fighting in Korea and Vietnam sometimes tend to cause them to mitigate the magnificent success of mobile forces in Operation Desert Storm. Yet the result of Desert Storm and the resulting low casualty rate is a strong indication that the use of mobile forces in this campaign was of a very high order – by

far the best use of mobile forces in the U.S. Army since the invention of the tank.

Because Saddam Hussein and the Iraqi senior leaders exercised very centralized control, the theater commander-in-chief, GEN Norman Schwarzkopf, felt Hussein's national communications facilities were a center of gravity. He also felt the Republican Guard, as the heart and soul of the army, was its center of gravity. Destruction of the Republican Guard would leave Hussein without a means of enforcing his will – and, as a result, national will would quickly deteriorate. Thus, the target of the mobile forces was the Republican Guard. This is somewhat reminiscent of Sheridan's first attack against Stuart's cavalry. But there is an important distinction between the two, as Stuart's cavalry was not a center of gravity, while the Republican Guard certainly was.

Schwarzkopf's method was a four-phased plan:

- Disrupt enemy command and control with air/smart weapons power;
- Gain air superiority;
- Cut enemy supply lines with air/smart weapons;
- Destroy the Republican Guard.[56]

The concept involved massing of mobile forces, surprise, indirect approach and destruction of the enemy center of gravity.

First, despite doubts as to whether surprise was feasible in the Information Age, both the fact of the attack and the location of the attack were totally unexpected by the Iraqis. Schwarzkopf intentionally waited until the air campaign had stopped Iraqi reconnaissance flights to displace VII Corps and XVIII Airborne Corps to the west. This prevented the Iraqis from detecting the movement.[57] The lack of a road net in the intended area of attack probably also led the Iraqis to discount the chances of an envelopment from the west.

Second, the plan called for an unprecedented massing of mobile forces in the main effort. To put things in perspective, in VII Corps – the main effort – LTG Fred Franks commanded more than 1,200 M1-series tanks and 1,400 Bradley Fighting Vehicles in U.S. formations as well as 1st Armored Division (United Kingdom). This represented more than 3,000 armored fighting vehicles – more than the entire German Wehrmacht fielded on the Western Front in 1940, and more than were in Patton's Third Army. In addition, XVIII Airborne Corps (paired with VII Corps in the envelopment) had a mechanized division, a light armored division, a light (motorized) division and an air-assault division. Since they were on the outside arc of the turning movement, it made sense for this corps to have predominantly lighter, faster units.

The maneuver concept for Desert Storm, according to Franks, came from GEN Colin Powell, who sketched the scheme of maneuver on hotel stationary for Schwarzkopf.[58] (This episode somehow did not find its way into Schwarzkopf's book, where Schwarzkopf takes credit for the idea.[59]) The scheme of maneuver called for the mobile forces in VII and XVIII Airborne Corps to envelop the Iraqi forces by moving through the lightly defended inland positions. This allowed the two corps to move around the main Iraqi linear positions along the Kuwait-Saudi border and into the Iraqi rear toward their main target: the Republican Guard. They avoided the strongly held enemy positions between their launch point and their objective. This put them into the enemy rear areas quickly, before the enemy could react.

The speed of the movement into the enemy rear was unparalleled. VII Corps attacked 170 miles in 89 hours – or about 45 miles a day.[60] One unit, 1st Cavalry Division, moved almost 150 miles in one day during the attack. The 24th Infantry Division (Mechanized) probably moved further than any other division. It moved 60 miles into Iraq on the first day alone. These units moved at this incredible speed through sandstorms, rain and the Republican Guard. And this, while each armored division was consuming 500,000-750,000 gallons of fuel per day.[61] This rate is comparable to the daily consumption of First and Third U.S. Armies in World War II of 850,000 for all 18 of their divisions combined. The corps as a whole consumed 6.2 million gallons of diesel fuel and 2.2 gallons of aviation fuel in 89 hours.[62]

Projecting into future

In 1936, the new French chief of staff, GEN Maurice Gamelin, smugly asserted, "All our information shows that it is our doctrine [as compared to the German panzer doctrine] which is correct."[63] Gamelin's smugness was based on the doctrine of defense, continuous front, containment and fortification that had proved successful in World War I. Yet, only four years later, Gamelin said he was utterly "surprised," "shocked" and "astonished" by the German method of mobile warfare.[64]

When prodded by Churchill about when he was going to counterattack the penetration of the panzers, Gamelin responded, "'Inferiority of numbers, inferiority of equipment, inferiority of method' — and then a hopeless shrug of the shoulders. There was no argument. Here was the admission of the bankruptcy of a whole generation of French military thought and preparations."[65]

Our Army certainly has justification for patting ourselves on the back for recent success as well as for a rich history of successful campaigns. We must not be drawn, however, into the same rigid mindset as the pre-World War II French high command, which relied on recent success to ignore developments in mobile warfare at the operational level.

What do the trends of mobile warfare tell us about the characteristics of successful mobile warfare in the next generation?

Use mobile units in mass. One lesson that seems to be continually relearned is that mobile units are most effective when massed at the operational level. That is to say, mobile units have decisive impact at the operational level where corps or armies are formed with units that move at the same speed, with the same level of mobility. It seems there is a countertrend of "critics" who appear after each war and pronounce the day of the tank and mobile warfare over. This train of thought normally appears very attractive to budget analysts and exponents of artillery or air power. Yet, time and time again, this has been proven wrong.

The attack plan [for Operation Desert Storm] called for an unprecedented massing of mobile forces in the main effort. ... The speed of the movement into the enemy rear was unparalleled. VII Corps attacked 170 miles in 89 hours — or about 45 miles a day One unit, 1st Cavalry Division, moved almost 150 miles in one day during the attack.

Thus, our force planners must stay focused at the operational level when task-organizing mobile forces for a campaign. The vast majority of available armored and mechanized divisions in a theater should be massed into a corps or multiple corps operating together. The smaller the deployed force is, the more important it is to mass mobile units.

There are force developers who claim longer ranges for direct-fire weapons mean fewer weapons systems are needed in a given space. While this theory holds true when comparing Napoleonic weapons systems and battles to weapons systems and battles in the 20th Century, this theory has a limit imposed by terrain. If the average line-of-sight in Europe is 1,500 meters, the utility of ground or near-ground (e.g., helicopters in nap-of-the-earth mode) systems able to fire 4,500 meters is minimal.

Even Desert Storm, conducted in terrain that favors longer-range weapons, proved that mass is still a necessary component of mobile warfare. Mass enables the attacking force to overcome enemy fires, the friction of movement – such as maintenance breakdown and inefficiency in road marches – and it enables the attacking force to attack along multiple supporting thrust lines.

Also, the drastic downsizing in the size of our active-duty armored force severely hampers our ability to project a massed, mobile force of significant "weight" into a combat theater, let alone two theaters, while retaining a strategic reserve. We all recognize that we do not have the size of army necessary to even conduct one Desert Storm-type of operation. Mobility, and the ability to shift combat power rapidly in a theater of war, is of critical importance in this environment.

Is surprise at the operational level still possible? One need only consider the number of campaigns launched in the last 30 years that were a surprise to the opposing side: the Israeli pre-emptive strikes of 1967, the Tet Offensive of 1968, the Yom Kippur assault of the Egyptians in 1973, the Russian incursion into Afghanistan, the Panama invasion, the Iraqi invasion of Kuwait and the Desert Storm offensive. Indeed, the improvements in communications, transportation, mobility and speed of weapons systems have enhanced the ability to achieve surprise in a campaign.[66]

Always, always, always use the indirect approach. Until Desert Storm, the American fixation on firepower has repeatedly been a distraction from our development of mobile warfare. Of course, there is certainly nothing wrong with using firepower to inflict damage on the enemy, but firepower by itself – without movement – cannot win a campaign. One trend of mobile warfare is the repeated success shown in campaigns where the opening penetration by mobile units was through an enemy weak point. Manstein did not think his plan for the invasion of France in 1940 was anything particularly brilliant: "After all, we just did the obvious thing; we attacked the enemy's weakest point."[67]

One area to be on guard about is the tendency to underrate the ability of terrain to carry mounted forces. This turned out to be a critical factor in a number of campaigns including the 1940 campaign in France, the Ardennes in 1944, Korea and Vietnam. Our terrain analysts at the strategic and operational levels must strive to include experienced armor officers and practical experience with armored vehicles in their studies.

Faster, deeper penetrations or envelopments to operational depth. There is no doubt that the mobility and speed of mounted forces during penetrations and envelopments has consistently increased during modern warfare. We need to make changes that enhance our ability to take advantage of this trend:

- *Cut the aviation units loose in their own corps and divisions.* The air-assault and attack helicopter units should be used in mass (in divisions and even corps) to lead breakouts and envelopments into the enemy rear. They would fulfill the same function of light-horse cavalry and the light tank units in World War II. Using aviation in mass in the soft areas of the enemy rear – against command and control centers, logistics sites and enemy reserves – would set the stage for massed armored thrusts following on the ground. While the aviation units are not as well-armored as armor and mechanized units, their speed of movement is obviously much higher. We should use each arm in a way that takes advantage of its respective strengths.
- *Smaller, more mobile headquarters and staffs.* Our headquarters at all levels are too fat. Reviewing the size of

headquarters and the method of command used in successful mobile operations in the past discloses the need for small, very mobile headquarters. Desert Storm was a rude awakening for many battalion and brigade executive officers forced to operate out of command posts on the move. Franks' method of commanding his corps was very similar to Rommel, Guderian and Patton: forward with his subordinate units, giving saddle orders on the spot. The utility of a huge headquarters apparatus in the rear is significantly less in the mobile environment.

Since each potential enemy may have a different center of gravity, perhaps there is no "right" target for mobile combat units. Having said that, planners must take advantage of the relative strengths of armor/mechanized units and aviation units.

Armored divisions now have about the same number of tanks and tank battalions as their predecessors in World War II. Yet headquarters are bigger, and there are more combat-service-support soldiers in the divisions. Further, technology has made leaps and bounds in communications and information management since World War II. One would think all this progress would reduce the number of people necessary to run a headquarters. Could we form more tank battalions by cutting headquarters personnel at all levels by 50 percent? You bet.

Also, we should eliminate any 2½-ton, 5-ton or Heavy Expanded Mobility Tactical Truck that is supposed to carry "baggage" for headquarters, or any unit for that matter. By this, I mean trucks that carry duffel bags, tents, plywood map boards, folding chairs, tables, cots, etc. Fewer trucks in march units means greater throughput of units on routes of march.

- *Reduce fuel consumption.* Our Achilles' heel in mobile warfare with our current and projected combat vehicles is fuel. The engines that propel tanks, Bradleys and helicopters achieve unprecedented speed for weapons systems while consuming unprecedented amounts of fuel. Fuel will no doubt be, and always has been, necessary for movement. But any reduction in the consumption rate would enhance overall speed of movement and make losses incurred by our fuel-truck fleet less devastating. We need a new tank engine that significantly cuts fuel consumption. Reducing consumption also means fewer fuel trucks moving on a route, which would again increase throughput of units on the route.
- *Train for operational-level penetrations and envelopments.* We have an absence of training for operational-level penetrations in the units that must execute them. Neither combat training centers nor warfighter exercises train operational-level movements. We need a training mechanism that complements these great tactical training events with training in long-range, sustained movement. We have all heard stories about horse cavalry and armor units before World War II conducting road marches hundreds of miles long. We should do the same periodically. We should have some simulation exercise for staffs at brigade, division, corps and army level to conduct penetrations and envelopments with mobile units to operational depth.

What should mobile units aim for when they penetrate or envelop an enemy force? There seems to be no clear agreement or trend on "the best" target for mobile units after they have penetrated or enveloped an enemy force. Sheridan and Swarzkopf aimed at the enemy mobile reserve. Guderian and Patton preached avoiding enemy strengths and aiming at isolating enemy units, destroying or displacing the "soft" targets, and disrupting enemy command and control.

Our current operational doctrine says that the essence of operational art lies in being able to mass effects against the enemy center of gravity.[68] Since each potential enemy may have a different center of gravity, perhaps there is no "right" target for mobile combat units. Having said that, planners must take advantage of the relative strengths of armor/mechanized units (characterized by heavier armor, moderate mobility and heavier firepower) and aviation units (characterized by lighter armor, higher mobility and lighter firepower).

We should also continue to develop anti-tank missile technology. Having ATGM units available which can provide defense against enemy tanks will allow us to mass armored units at the operational level for attacking the enemy. If our light infantry is unable to defend itself against tanks, and requires attachment of tanks in a defensive mode, it will reduce our ability to concentrate forces at the operational level. The further our drawdown goes, the more important this phenomenon becomes.

One must also acknowledge that the characteristics of armored forces and aviation are slowly drifting toward each other. The tank and infantry fighting vehicle is getting faster, and the helicopter is carrying heavier armor and weapons than previously. Perhaps 50 or 100 years from now the difference will not exist – there could be one platform able to operate on the ground with heavy armor and firepower, but able to move through the air. That, as they say, is another story.

LTC Kris Thompson commands 2-185th Armor, California Army National Guard. He previously served as cavalry troop commander, squadron S-4 and troop executive officer with 1/11th Armored Cavalry Regiment; headquarters troop commander for 4/11th ACR (Air Cavalry); staff officer with VII Corps during Desert Storm; brigade S-3 for 2nd Brigade, 40th Infantry Division (Mechanized); and battalion executive officer for 2-185th Armor. He is a graduate of Command and General Staff College and the Canadian Land Forces Command and Staff Course. He received a bachelor's of science degree in accounting from Kansas State University and a juris doctor (law) degree from the University of Kansas.

Notes

[1] Urwin, ***The United States Cavalry, An Illustrated History***, Blandford Books Ltd., 1983.

[2] Stackpole, ***Sheridan in the Shenandoah Valley***, second ed., Stackpole Books, 1992.

[3] Urwin.

[4] Ibid.

[5] Sheridan, ***Civil War Memoirs***, Bantam Books, 1991.

[6] Urwin. Lincoln claimed jokingly that Sheridan could "scratch his shins without having to stoop over. ..." (Stackpole).

[7] Sheridan.

[8] Ibid.

[9] Ibid.

[10] Ibid.

[11] Ibid.

[12] Ibid.

[13] Rodenbough, "Sheridan's Richmond Raid," ***Battles and Leaders of the Civil War***, Vol. IV, Castle.

[14] Rodenbough, "Sheridan's Trevillian Raid," ***Battles and Leaders of the Civil War***, Vol. IV, Castle.

[15] Cooper, ***The German Army 1933-1945***, Bonanza Books, 1984.

[16] Deighton, ***Blitzkreig***, Ballantine Books, 1980.

[17] Perret, ***A History of Blitzkreig***, Jove Books, 1983.

[18] Guderian, ***Achtung, Panzer!***, Arms and Armor Press, 1995.

[19] Ibid.

[20] Ibid.

[21] Ibid; Liddell Hart, ***The German Generals Talk***, Quill, 1979.

[22] Guderian.

[23] Ibid.

[24] Ibid.

[25] Horne, ***To Lose a Battle***, Penguin Books, 1988.

[26] Ibid.

[27] Ibid.

[28] Ibid.

[29] Ibid.

[30] Manstein, ***Lost Victories***, Presidio Press, 1984.

[31] J.F.C. Fuller went so far as to advocate the designation and forming of a special mounted unit called a "disorganizing force" which would penetrate to destroy the enemy's headquarters before the main attack was launched. From Perret.

[32] Perret.

[33] Horne.

[34] FM 100-5 (1993).

[35] Horne.

[36] Ibid, quoting French general Ruby.

[37] Horne suggests the tanks were probably French tanks belong to a reserve tank battalion.

[38] Nye, ***The Patton Mind***, Avery Publishing Group Inc., 1993.

[39] Blumenson, ***The Patton Papers 1940-1945***, Houghton Mifflin Co., 1974.

[40] Ibid.

[41] Ibid.

[42] Ibid.

[43] Von Mellinthin, ***Panzer Battles***, Ballantine Books, 1973.

[44] Liddell Hart.

[45] Blumentritt, as quoted in Liddell Hart.

[46] H.M. Cole, ***U.S. Army in World War II: the Lorraine Campaign***, U.S. Army Center for Military History, 1984.

[47] Von Mellinthin.

[48] Blumenson.

[49] Ibid.

[50] Gabel, ***The Lorraine Campaign: An Overview, September-December 1944***, Combat Studies Institute, February 1985.

[51] Hoyt, ***On to the Yalu***, Jove Books, 1991.

[52] MacArthur, ***Reminiscences***, Crest Books, 1965.

[53] Starry, ***Armored Combat in Vietnam***, Arno Press, Inc., 1980.

[54] Ibid.

[55] CPT John Wintels and I authored an article for the September-October 1990 issue of ***Infantry*** magazine entitled "Tanks with Infantry" in large part due to this type of mindset.

[56] Schwarzkopf, ***It Doesn't Take a Hero***, Bantam Books, 1992.

[57] Ibid.

[58] Clancy and Franks, ***Into the Storm: A Study in Command***, G.P. Putnam's Sons, 1997.

[59] Schwarzkopf said the plan he briefed his commanders on was "a fully realized version of the envelopment I'd proposed to Powell three weeks before." (Schwarzkopf, ***It Doesn't Take a Hero***.) Schwarzkopf, after making snide remarks about Franks throughout his book, admitted that "... I'd been too harsh in my criticism of VII Corps' slow progress during the ground battle." Franks led the largest armored corps in U.S. Army history in the fastest penetration in history. Clancy and Franks address Schwarzkopf's criticisms in fine style in their book – which is a much better read, too.

[60] Clancy and Franks.

[61] Ibid.

[62] Ibid.

[63] Horne.

[64] Ibid.

[65] Ibid.

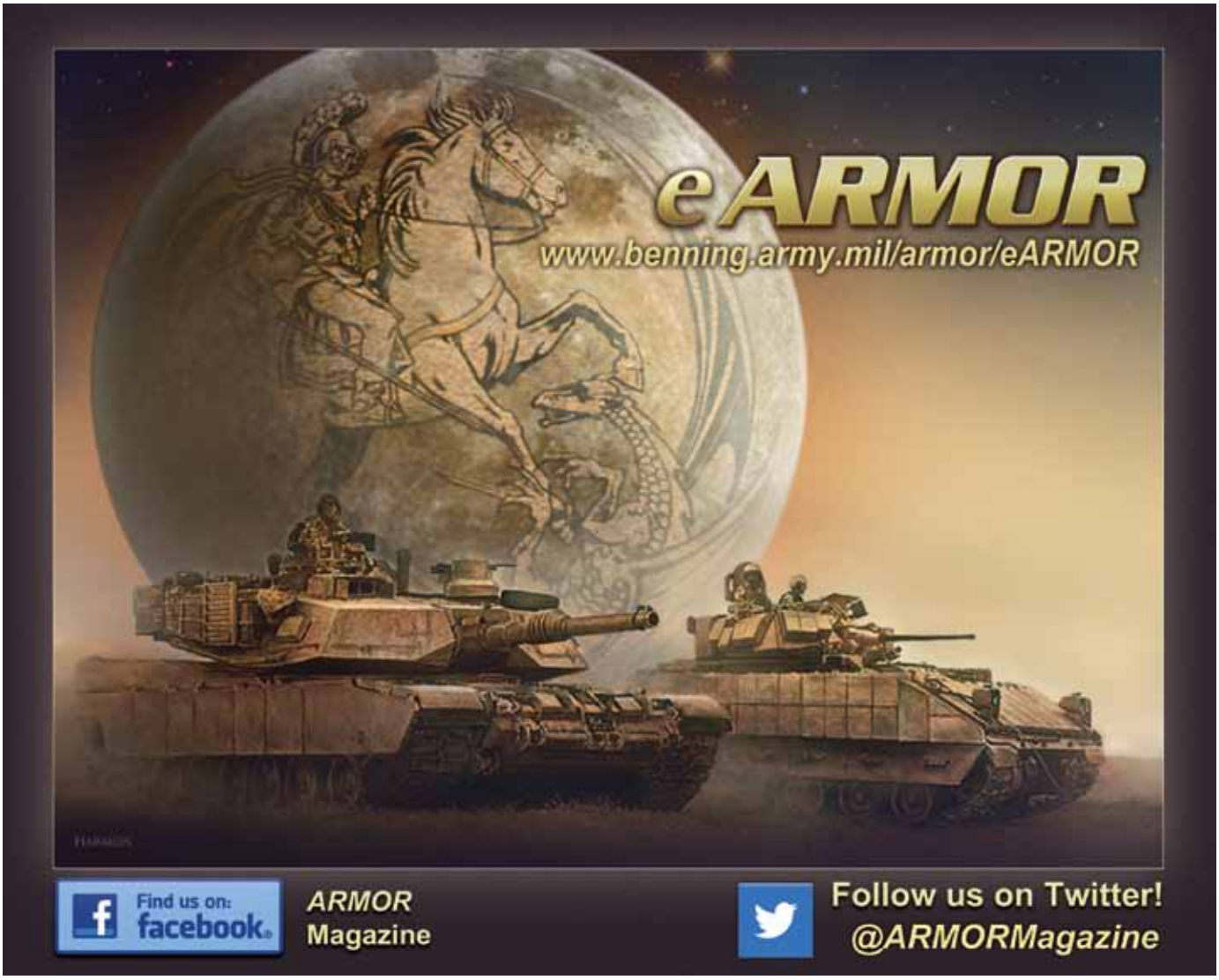
[66] Ephraim Kam, as quoted in Summers, ***On Strategy II: A Critical Analysis of the Gulf War***, Dell Publishing, 1992.

[67] Horne.

[68] Field Manual 100-5, ***Operations***, 1993.

Acronym Quick-Scan

ACR – armored cavalry regiment
ATGM – anti-tank guided missile
TF – task force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In the past few weeks movie-goers have been turning out to see a show called "Rio Grande." Starring actor John Wayne, it is the most recent of a trilogy of screen epics depicting the cavalry's part in the development of our country's frontier. Teamed with "Duke" Wayne's fine acting is the fine touch of John Ford's directing. The whole adds up to a real contribution to the perpetuation of the history and tradition of American soldiery, a tribute to some of

The Men Who Put the Arm in Army

by John Wayne

*Reprinted from **ARMOR**, January-February 1951 edition.*

They may have changed Cavalry to Armor, but nothing can ever erase the great tradition of its heroic past. And in the very change itself the cavalry is living up to its famous heritage.

In spite of all the glamour of the name, the cavalry was never just an arm on which the lavender and old lace of chivalry could be draped. The American cavalryman has always been trained to fight as circumstances demanded. He was a first-rate infantryman when he had to fight on foot, and he quickly got the knack of artillery. As a member of the Armor Branch, the cavalryman is sure to give the enemy "hell on wheels."

And what does a movie actor know about the cavalry? You might say I'm a cavalryman by profession: a "veteran" dating back to the 1870s. You see, I was a cavalryman in "Fort Apache," in "She Wore a Yellow Ribbon" and recently in "Rio Grande."

Actually, I am in a unique position to be able to choose my favorite branch of service. In my film roles, I've been in the Army, the Navy, the Air Corps and the Marines. I've even been a rifleman in the Second Kentucky Regiment of Civil War days. If anyone were to ask which branch I choose, all I can say is "give me my boots and saddle."

It's no accident that a great producer such as John Ford at least three times chose the cavalry as the subject for great motion pictures. In selecting the cavalry, he chose a subject with built-in thrills, and with the drama and spine-tingling action recorded in history by men like "Light Horse" Harry Lee; Francis Marion, "the Swamp Fox" of Revolutionary War fame; J.E.B. Stuart and his Civil War raiders; Phil Sheridan and his "yellow-leg" troopers of the Army of the West. History has recorded them all: Custer, and Patton, and all those nameless heroes who helped mold this country's destiny.

My roles as a cavalryman awoke an interest in this great branch of our armed forces — an interest that led me to a new appreciation of the heroes who fought on horseback. Of the auxiliaries charged with the duty of assisting the infantry in accomplishing its mission, cavalry is the only one that has a military history as a self-sufficient fighting force.

The armies with which the Moslem conquerors, as well as Genghis Khan, carved out their empires were composed almost exclusively of cavalry. With the passing of the age of chivalry, along with the development of firearms, the cavalry inherited the pride and traditions of the ironclad knights. They developed the technique of using the mobility of cavalry for surprise, and its shock power for disrupting the enemy lines. The well-timed cavalry charge against vulnerable flank or line became the conventional knockout punch of competent commanders.

Even the so-called blitzkrieg is merely the cavalry tactics of the American Civil War, streamlined, and moved by machines instead of horsepower, supplied with increased firepower, tremendously speeded up and supported by planes.

In World War II, horse-cavalry troops with speed and daring carried out vital reconnaissance missions in the rugged mountains of central Italy. They penetrated ravines and reached precipitous mountain peaks inaccessible to mechanized troops. They gained information of unmapped trails and roads the infantry used in moving up to surround and capture objectives.

The cavalry has been an important part of the U.S. forces since the first dragoons of Washington's army. But it was in 1832, when the Sacs and Foxes became restive along the Upper Mississippi, and Scott was making the Army famous for its pacification measures, that the cavalry really came to the front. After the War of 1812, the cavalry had fallen into the discard. Now it was rejuvenated with a force of 600 mounted "rangers." From then on cavalry grew to its golden age. Cavalry was essential in pursuing the hard-riding Indians. First a full regiment of dragoons was drummed to the colors, and then a second regiment. When the new territories of New Mexico, Arizona, Colorado, Nevada, Utah and California came under the flag, with an army of but 8,000 men to cover and protect a vast area, the role of the cavalry was plain.

The 3rd Dragoons marched 2,500 miles from Leavenworth, KS, to Oregon, in those days. By 1855, the Army had five regiments of cavalry to 10 of infantry. After the Civil War, Indian tribes in the West began again a war of extermination against whites, and it was then that the cavalry came into its own. Ten regiments, the striking force of a small but tough and rigidly disciplined army, were placed in the field. There were 300,000 Indians facing Sheridan, who had but 1,300 cavalry and 1,400 infantry when the campaign started.

It was this great era of the cavalry that Ford chose for his pictures. And somehow, I feel that it was Ford's most recent, "Rio Grande," that made me a full-fledged cavalryman.

In early September 1947, Ford read a story called "Mission With No Record" in the ***Saturday Evening Post***. It was an amazing and little-known story of a heroic but unsung chapter in the colorful history of the U.S. Cavalry following the Civil War. Ford bought the rights to the story and then set it aside for the time when he could produce a picture based on the event.

The time came when Herbert J. Yates and Ford signed a long-term contract, and Ford chose this thrilling cavalry epic for his first movie for Republic Studios.

The movement of the film crew and cast to the location site resembled a cavalry and armored maneuver in itself. Thirty-two pieces of equipment transported cameras and lighting equipment. Five horse trucks transported 25 horses from Hollywood, and 90 more horses were obtained from surrounding ranches. The construction crew built in its entirety a mammoth cavalry fort.

Filming of "Rio Grande" began June 15, 1950; and to capture some of the thrills and action that are associated with a movie depicting part of the history of the cavalry, Republic spent $50,000 on stunts alone.

Months of preliminary research preceded the actual filming of "Rio Grande," and I spent many a fascinating hour with Ford reading up on cavalry lore, even to the music favored by cavalrymen of the past.

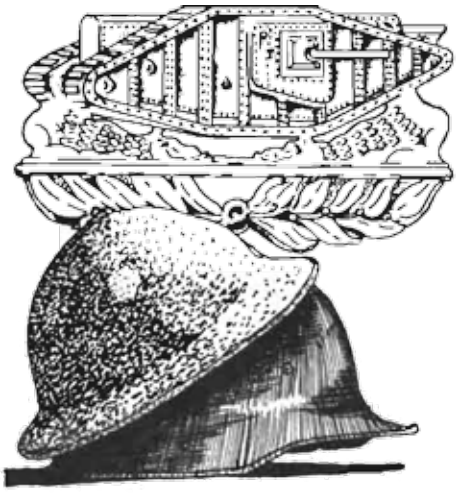
Back in 1870, for example, when Sheridan's outnumbered troopers waged their fierce battles against the Apache and Sioux, the ringing notes of "The Girl I Left Behind Me," played by the post band, would be the last thing the intrepid "yellow-leg" detachments heard as they galloped through stockade gates after the enemy.

But no single historian — least of all a movie actor — can put into words the whole thrilling story of the cavalry. No more than any legislation of Congress can ever change the true meaning of the word *cavalry*. They may have taken the word out of the Army, but they'll never take it out of our history.

304th Tank Brigade: Its Formation and First Two Actions

U.S. tank units were first committed to combat 70 years ago at St. Mihiel and the Argonne

by Robert E. Rogge



*Reprinted from **ARMOR**, July-August 1988 edition.*

BG Samuel D. Rockenbach took command of the U.S. Tank Corps in France Dec. 23, 1917, reporting directly to GEN John J. Pershing, commander-in-chief, American Expeditionary Force. Eight months later, 304th Tank Brigade formed at the 302nd Tank Center at Langres, about 20 miles south of Chaumont, site of Pershing's headquarters.

CPTs Sereno Brett and Ronulf Compton became commanders of 326th and 327th Tank battalions Aug. 18, 1918. The battalions lacked tanks, trucks, motorcycles – every kind of equipment needed for armored warfare. They had only the men, all volunteers from other branches.

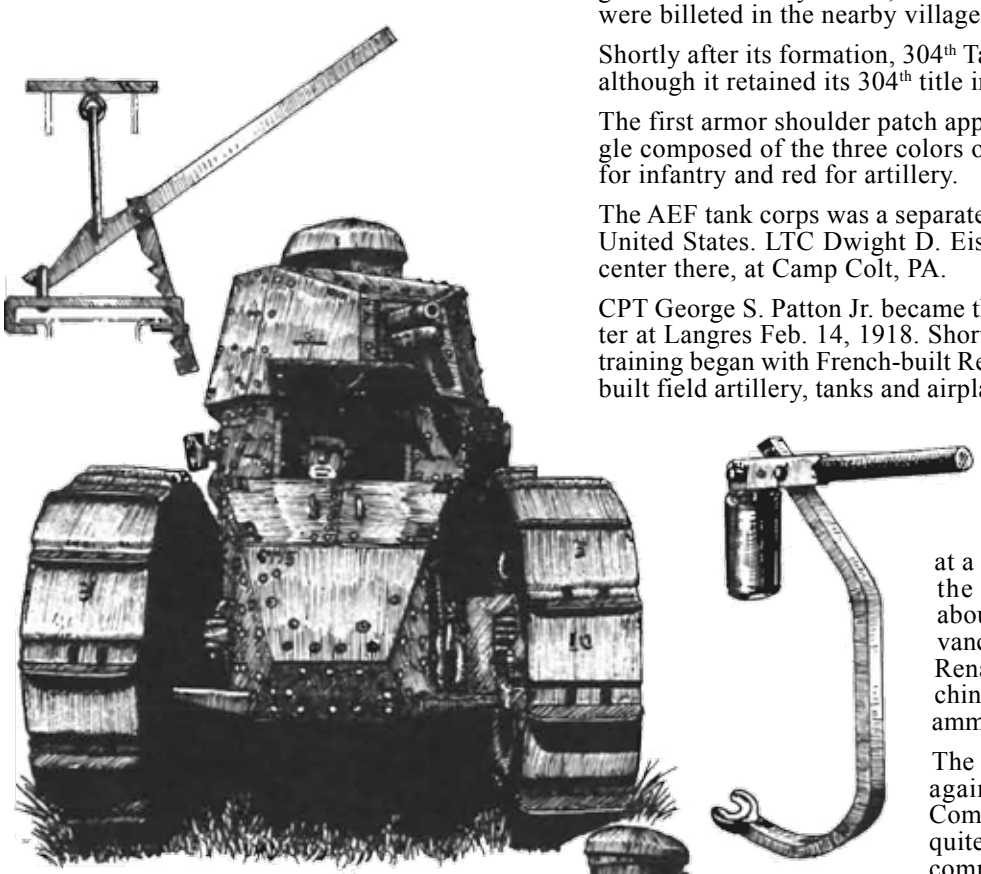
The Langres area was close to ideal for tank training (Figure 1). The town of Langres and the villages of St. Geosmes, Bourg, Cohons, Brennes and Longeau, and the Bois d'Amour (Wood of Love) comprised the area. It was on rising ground crowned by woods, and flanked by two good roads and a railroad. Troops were billeted in the nearby villages.

Shortly after its formation, 304th Tank Brigade redesignated as 1st Tank Brigade, although it retained its 304th title in the St. Mihiel offensive.

The first armor shoulder patch appeared at this time. It was an equilateral triangle composed of the three colors of the arms involved: yellow for cavalry, blue for infantry and red for artillery.

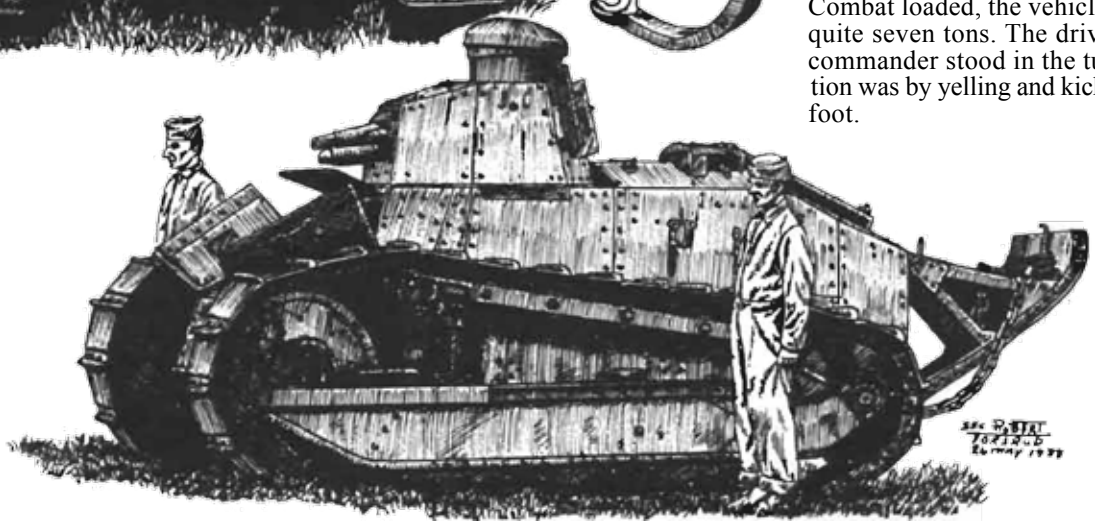
The AEF tank corps was a separate and distinct entity from the tank corps in the United States. LTC Dwight D. Eisenhower commanded the main tank-training center there, at Camp Colt, PA.

CPT George S. Patton Jr. became the first commander of the 1st Light Tank Center at Langres Feb. 14, 1918. Shortly after Patton took command of the 1st, tank training began with French-built Renault tanks. The AEF used French- or British-built field artillery, tanks and airplanes. No American-built tanks and only a few American-built airplanes saw action in that war.



The Renault tank was a two-man machine with a four-cylinder gasoline, water-cooled, 35-horsepower engine that drove it at a top speed of not quite 5 mph. Cross-country, the odd-looking little vehicle could manage about 1.5 mph – faster than the infantry could advance, as was proved time and again in battle. The Renault was armed with an 8mm Hotchkiss machinegun in the turret, and carried 4,800 rounds of ammunition and 26.5 gallons of gas for the engine.

The heaviest armor was only 16mm thick, proof against machinegun bullets and shell splinters. Combat loaded, the vehicle tipped the scales at not quite seven tons. The driver was in front, and the commander stood in the turret. Crew communication was by yelling and kicks from the commander's foot.



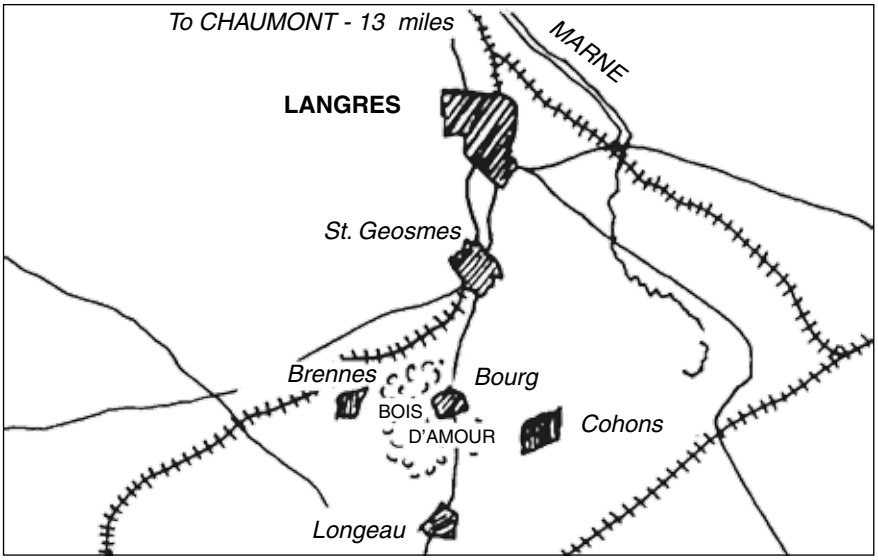


Figure 1. The area around Langres, France.

There were other American tankers in training with the British in England, but they did not figure in the two great American offensives that closed World War I. Those tankers did, however, go into action with the British armies to the north, in Flanders, and served well in the larger and heavier British tanks.

Patton, a stickler for discipline, soon had his raw men whipped into shape as acceptable tanker trainees. He began his preparations for the first great American offensive, the St. Mihiel drive to cut off that great German salient that had bulged deep into French territory since September 1914. The salient had seen no serious fighting since 1916, and the German high command regarded it as a kind of "rest front" for German troops savaged in Flanders by the British. The French high command saw it in much the same light for the survivors of the Verdun debacle. The American attack would change all that.

The St. Mihiel salient was some 32 miles across its base and ran 16 miles deep (Figure 2). A "live and let live" atmosphere prevailed along its front, as Patton discovered on a night patrol with the French. Patton, a cavalryman, appreciated the benefits of personal reconnaissance and held to that principle for the rest of his life. In France, he personally viewed the territory his tanks were to fight over and then, whenever possible, took his tank commanders to see for themselves. Such advance knowledge was to work to his benefit during the final offensive in the Meuse-Argonne campaign.

On the patrol noted, Patton and the French soldiers were crawling across no man's land toward the German barbed-wire entanglements. When they reached the wire, Patton was surprised to hear several Germans in the trenches ahead whistle at them. He was even more surprised to hear a couple of Frenchmen return the whistles, and the patrol turned around and crawled back to its own trenches. There Patton learned that the Germans felt the Frenchmen were quite close enough and had whistled to warn them that any further advance would have to result in some shooting. The experience was typical of the whole salient but, in the event, Patton got a good look at the ground.

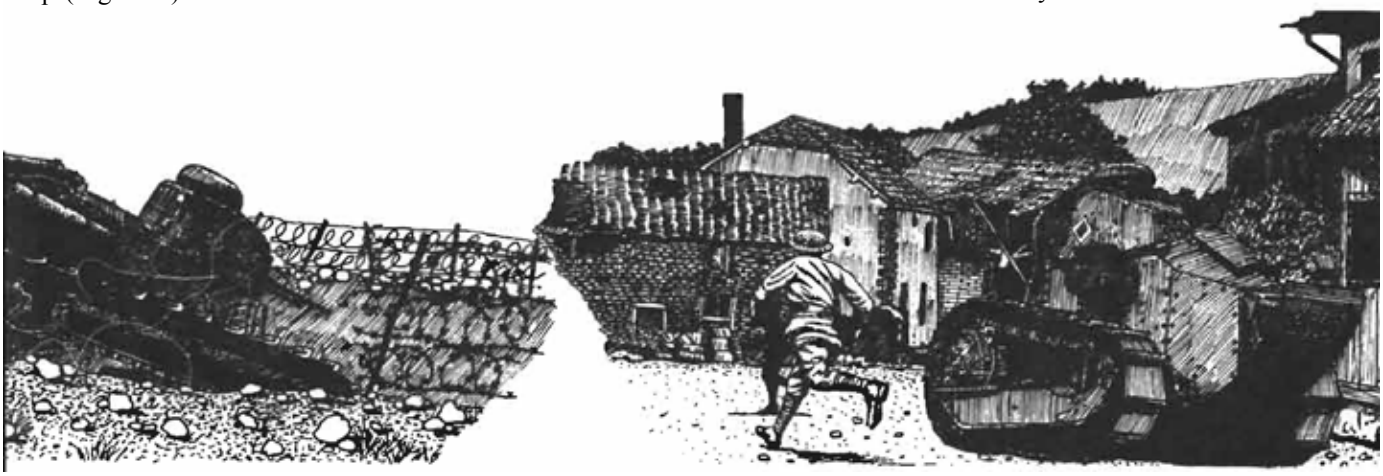
The St. Mihiel offensive would be the Americans' first big battle on their own, and Pershing would be in command of three U.S. Corps (I, IV and V), and several French divisions. He moved his headquarters from Neufchateau to Ligny-en-Barrois, about 25 miles southwest of St. Mihiel.

The U.S. deployment for the battle was as follows: IV and I Corps were on the south flank of the salient with Pont-a-Mousson on their right flank. V Corps was on the east flank, near Verdun. The French divisions were between the U.S. V and IV Corps. The battle plan, like all good battle plans, was simple: the U.S. I and IV Corps would drive north and meet the U.S. V Corps driving east. When they met, they would wipe out the salient.

During his several personal reconnaissances of the ground, Patton determined that the soil would support his tanks – if it didn't rain. But all his careful pre-battle planning and reconnaissance of the battle area were wasted when Headquarters First U.S. Army decided his tanks would operate with IV Corps, rather than with V Corps as originally planned.

After the change in plans, Patton again went out on patrols to reconnoiter the ground, and again he decided it would support his tanks, provided the weather held. It didn't, of course. On the night the artillery bombardment began for the attack, the rain came down in sheets. But the tanks went into action as scheduled.

Among the major planning problems that faced Patton was getting enough fuel and lubricants for his tanks. He managed to establish a 10,000-gallon gasoline dump but was unable to secure any oil or lubricants. A fatuous



staff officer said that the French mud would lubricate the tanks' tracks. Such was the general caliber of staff planning by officers who had never worked with tanks and who either could not or would not take into consideration the special needs of the fledgling armored force.

Such asperity did not hold back Patton; he went right on with his planning and his training. He was lucky in one respect, however. The deep mud his tanks would face in the shell-battered landscape made the installation of track grousers and hull-mounted tow hooks imperative. Patton sent off a telegram to CPT Joseph Viner, commandant of the training school at Langres, for the needed equipment, and Viner sent a thousand sets of grousers to Patton within the week.

Rockenbach saw to it that there would be a good representation of armor in the St. Mihiel offensive. He laid down that three U.S. heavy tank battalions then under training in England would be there with 150 heavy British tanks, along with three French brigades with 225 light (Renault) tanks, the two U.S. tank battalions (326th and 327th) with 144 Renaults, and three battalions of the French 505th Tank Regiment with heavy tanks, plus 12 more St. Chamond and 24 Schneider tanks. As noted, the American tank units in England did not arrive in time for the offensive, and Rockenbach asked the French for another heavy tank battalion. He got the 36 additional heavy tanks.

The French heavy tanks were truly monsters when compared with the little two-man Renaults. The Schneiders weighed in at 13.5 tons and had a 75mm cannon, two Hotchkiss machineguns and a six-man crew. Each had a 70-horsepower motor and carried a maximum of 11.5mm armor plate. They had a top speed of nearly four mph, stood nearly eight feet tall and were almost 10 feet long.

The St. Chamond tanks were equally large and had a nine-man crew. They weighed 23 tons and were armed with a 75mm gun and four Hotchkiss machineguns. Their armor was 17mm thick and their 90-horsepower engines drove them at 5.3 mph. They were almost 26 feet long and nearly eight feet high.

However, the great weight and size of these tanks was a hindrance in the gluey mud of the salient, and the lighter Renaults fared much better in the trench fighting.

Rockenbach and Patton hoped to concentrate their untried (except for the French units) armor formations to give them more punch and to better support

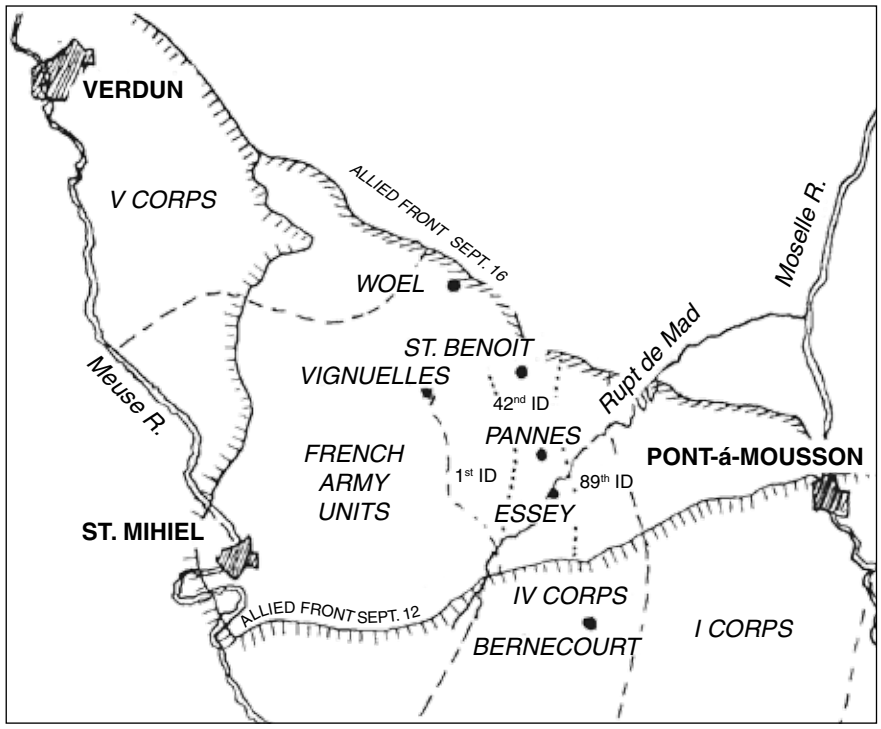


Figure 2. The St. Mihiel salient.

the infantry. The three French battalions, plus six St. Chamond and 12 Schneider tanks, were to fight in the VI Corps area in immediate support of 42nd Infantry Division (BG Douglas MacArthur) in the center of the IV Corps' zone, with 1st Infantry Division on the immediate left. The 327th Tank Battalion (Compton), less 25 Renaults in brigade reserve but augmented by 18 French heavy tanks, was attached to 42nd Division, and 326th Tank Battalion (Brett) was attached to 1st Infantry Division.

The actual tactics were admittedly of the try-and-hope variety, although some study had been made of British tactics. But the Renaults were smaller and lighter than the British behemoths, the attachment of the tank units to the infantry was different from that practiced in the British army, and there were the French units to be considered as well.

As Patton finally laid it out, Brett, on the left flank, with the support of the Renaults in brigade reserve, was to cross the Rupt de Mal (river) and lead 1st Infantry to its objectives. In the center, the French heavy tanks were to follow the infantry. Compton, on the right, would initially stay behind the infantry, then accelerate and pass through them and lead them to their objectives, the villages of Essey and Pannes. It didn't quite work that way in battle.

The planning stages were a nightmare of trying to mass men, supplies, equipment and tanks, and the French railway system compounded Patton's administrative problems as he strove to bring all his tanks together at one detraining point. He finally succeeded, but the last of his Renaults did not leave the flat cars until 3 a.m. Sept. 12 – D-Day – and the attack was scheduled to begin at 5 a.m.

Among his other paper-war battles, Patton tried in vain to convince the G-3 of 42nd Division that he needed smoke included in the preliminary barrage to protect his tanks from direct-fire antitank guns. The G-3 refused his request, and the volatile Patton complained bitterly to Rockenbach – and got the smoke laid on.

Other problems faced Patton; the greatest of these was tank-infantry training. Up until this time, only 1st Infantry Division had had any experience in fighting with tanks, and that had been at the Battle of Cantigny May 28. The 1st was eager to learn more, and the 42nd was eager to learn anything, but time restrictions prevented more than a few briefings for company commanders and platoon leaders. The troops never got the chance to train with the tanks that were to support them in battle, and this led to many problems.

Another difficulty facing the fledgling tank corps in its first battle was that of communications. Contact with the tanks would be lost when they advanced, except for runners – and pigeons! Patton compounded this vital communications problem when he

Continued on Page 28

U.S.

March 1888
Journal of the United States Cavalry Association begins publication at Fort Leavenworth, KS

1890
Cavalry and Light Artillery School is founded at Fort Riley, KS, later renamed Cavalry School; training there ends in 1946

March 5, 1918
Army Tank Service is formed; it was disbanded in 1920

1920
Name changes to Cavalry Journal

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1st C
Cav u

July 20, 1950
Defense Reorganization Act of 1950 formally recognizes Armor Branch as a continuation of Cavalry Branch

Armored Caval
to *ARMOR*; f
ARMOR is J

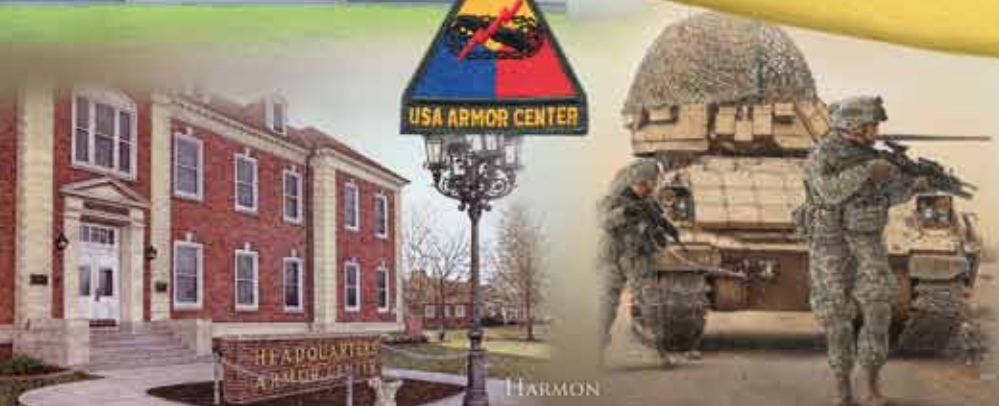
March-April 1974
Armor Center, Fort Knox, first publishes *ARMOR* (previously published by the Cavalry and Armor Assocation)

May 8, 1990
Army unveils monument to the first three chiefs of the Armored Force (Chaffee, Cavalry; Devers, Artillery; Gillem, Infantry) at Fort Knox

Nov. 11, 1990
Memorial dedicated to the Armored Forces at approach to Arlington Cemetary, DC

September 2005
Congress passes law setting the stage for Armor School to move from Fort Knox, KY, to Fort Benning

June 10,
Armor School, 1
Brigade and 3
Brigade case colo



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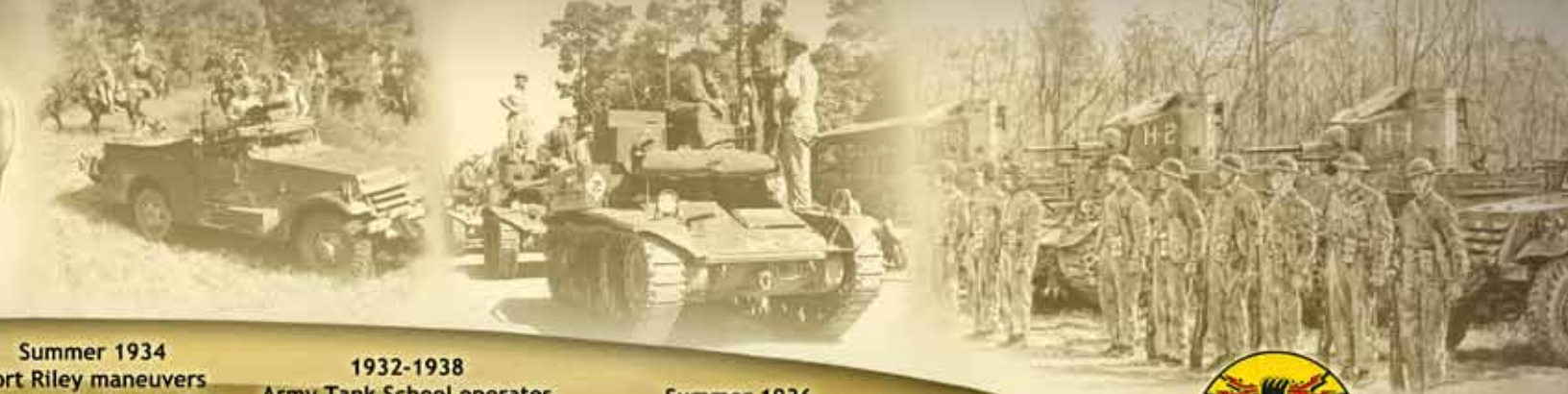

Summer 1934
ort Riley maneuvers
avalry Regiment (first
unit to be "unhorsed")

1932-1938
Army Tank School operates
at Fort Benning, GA

Summer 1936
Allegan (Michigan) maneuvers,
1st Cavalry Regiment

Summer 1940
Louisiana maneuvers,
7th Cavalry Brigade;
tests Marshall's concept
of "armored force"

October 1940
Army Armor School is
established at Fort Knox, KY;
first known as Armored Force School

1950
ry Journal renames
irst edition titled
uly-August 1950

July 1946
Cavalry Journal renames
to Armored Cavalry Journal

, 2011
94th Armored
16th Cavalry
rs at Fort Knox

June 20, 2011
194th Armored Brigade
and 316th Cavalry Brigade
uncase colors under Maneuver
Center of Excellence, Fort Benning

September 2011
Armor School
officially stands up
at Fort Benning

Continued from Page 25

abandoned his brigade headquarters and went forward with his tanks into the thick of the fight. Rockenbach read him the riot act for this after the battle.

D-Day for the first great American offensive was set back five days to Sept. 12 for a number of reasons, including Patton's difficulties with the railroads. The last tanks to detrain immediately marched eight kilometers to the start line and, although their crews had not slept in two days, went straight into action in heavy rain and high winds. The artillery barrage opened at 1 a.m., and at 5 a.m. the attack began. At once, the lack of training between infantry and tanks showed itself. By 5:30 a.m., Brett's tanks were beyond Xivray, and by 9:30 a.m. Compton's tanks had taken Pannes, but an hour later they were recalled because the infantry would not follow up.

Throughout the entire offensive, the tanks consistently outran the infantry and often found themselves fighting alone against determined German machinegunners and infantry. During the following Meuse-Argonne offensive. tank-infantry cooperation was somewhat better, but not all that much. Perhaps it was only natural that the unprotected infantry soldiers declined to face the machinegun fire that rattled harmlessly off the tank's sides and therefore did not struggle hard enough in the mud to keep up. On the other hand, the tankers, from their noisy, smelly, bullet-hammered machines, should have noticed what was happening to the infantry and should have slowed their own advance.

Irresistibly drawn into the vortex of the battle, Patton left his brigade headquarters observation post and went forward on foot into the fight. He saw his tanks leading the infantry on both the 1st and 42nd Division fronts. At 9:15 a.m., he got word that Compton's tanks and the infantry were delayed by "bad ground:" interlocking shell holes, gaping trenches – and mud.

As he made his torturous way to the spot on foot, Patton passed the French tanks halted in a pass (railway cut) where they were under moderate shellfire. He went straight to the firing line and stood there and talked with MacArthur while a German creeping barrage advanced up to and over them. Patton then went on to Essey, where he ordered five of Compton's tanks across the bridge into the town – and he led them on foot. That, and his example of standing under fire with MacArthur, had a great morale effect on his men, but Patton had violated one of the principal tenets of higher command: stay in contact with your higher headquarters.

When the groaning, grinding Renaults began their advance on Pannes, all but one ran out of gas. Patton's supply problems had caught up with him. One tank got into the town with Patton sitting on top, and with a lieutenant and runner on the back plates. When they dismounted hurriedly under machinegun fire, the tank went on, and Patton had to chase it on foot and bring it back.

Five tanks finally assembled in Pannes and went forward in line abreast to Beney to the north. They took the town, along with four field guns and 16 machineguns. Meanwhile, 25 tanks had taken Nonsard with the loss of four men and two officers, but they were now out of gas. Patton walked back seven miles to get gas for his tanks. That night, gas drawn on sledges by two tanks from Bernecourt refueled the dry Renaults.

Casualties for the first day's action were five men killed, four officers and 15 men wounded, and five tanks, two by direct hits from artillery and three with engine trouble. Two of the French heavy tanks had stalled with track problems. Forty tanks had been stuck in the trenches and ditches, but all were recovered and ready for action Sept. 13. Eighty U.S. and 25 French tanks were on hand for the next day's battle.

The heavy French tanks had great difficulty in crossing the trenches (some of which were eight feet deep and 10-14 feet wide), and they never succeeded in getting ahead of their infantry. U.S. tanks, on the other hand, were recalled because they had often outrun the infantry and were vulnerable to AT guns and counterattacks.

U.S. tankers, who called themselves the "Treat 'Em Rough" boys, had acquitted themselves very well in their first action. The primary difficulties they faced were the lack of fuel and the congested roads in the rear areas that delayed the fuel trucks. Two gas trucks, for instance, took 32 hours to drive 14 kilometers, and Patton quickly saw the need for tracked supply vehicles that could keep up with the armor and avoid the congested roads.

The tanks accomplished little on the 13th, primarily because of the lack of gas. Some of Compton's tanks were able to drive from Pannes to St. Benoit that morning, and later a few more tanks got that far. About 20 French tanks also reached St. Benoit but were stopped there by the lack of fuel. When gas for Compton's tanks finally arrived, he rolled through Nonsard and Vigneulles, where 50 tanks assembled that night.

On Sept. 14, the tanks moved out of Vigneulles toward Woel to the north. Brett's battalion, unable to contact Headquarters 1st Division, moved out with 51 tanks toward Woel, hoping to contact Compton's 327th on the Woel-St Benoit road. On the way, just short of Woel, they learned that the Germans had evacuated that town, and that French infantry now held it.

A patrol of three tanks and five infantrymen was sent into Woel with orders to proceed down the Woel-St. Benoit road in hopes that it would contact American troops. They made no contact, but on the return trip, the tanks met a German column with eight machineguns and a battery of 77mm field guns. Five tanks hastily came forward to assist the three, and the eight tanks, unsupported by infantry, attacked and drove the Germans toward Jonville, destroying five machineguns and capturing the 77s. An attempt to tow the captured guns was cut short when shrapnel fire wounded two officers and four men. Two mechanically disabled Renaults got a tow to safety from a third, and all the tanks then withdrew toward St. Maurice.

At 9 p.m., word came to withdraw all the tanks to the Bois de la Hazelle, back near the original start line. By the night of Sept. 18, traveling at night, all the tanks, except three hit by artillery fire, were in the assembly area. The fighting was over for the tanks.

In his after-action report, Patton stated that the enemy's failure to react strongly to the tanks deprived them of any real opportunity to display their fighting powers. However, he continued, the tanks had almost always been in position to help the infantry and had, in fact, entered the towns of Nonsard, Pannes and Beney ahead of the foot soldiers. The tanks had also captured Jonville without infantry support.

Rockenbach laid down the law about brigade commanders who abandoned their posts to go forward into the battle. He said: (1) The five light tanks in a platoon had to work together, had to be kept intact under the leader and not be allowed to split up; (2) when a tank brigade was allotted to a corps, the commander was to remain at the corps headquarters, or be in close telephonic communications with it; and (3) tank crews are not infantry and are not to fight as infantry if their tank is disabled. If a tank is disabled, the irate

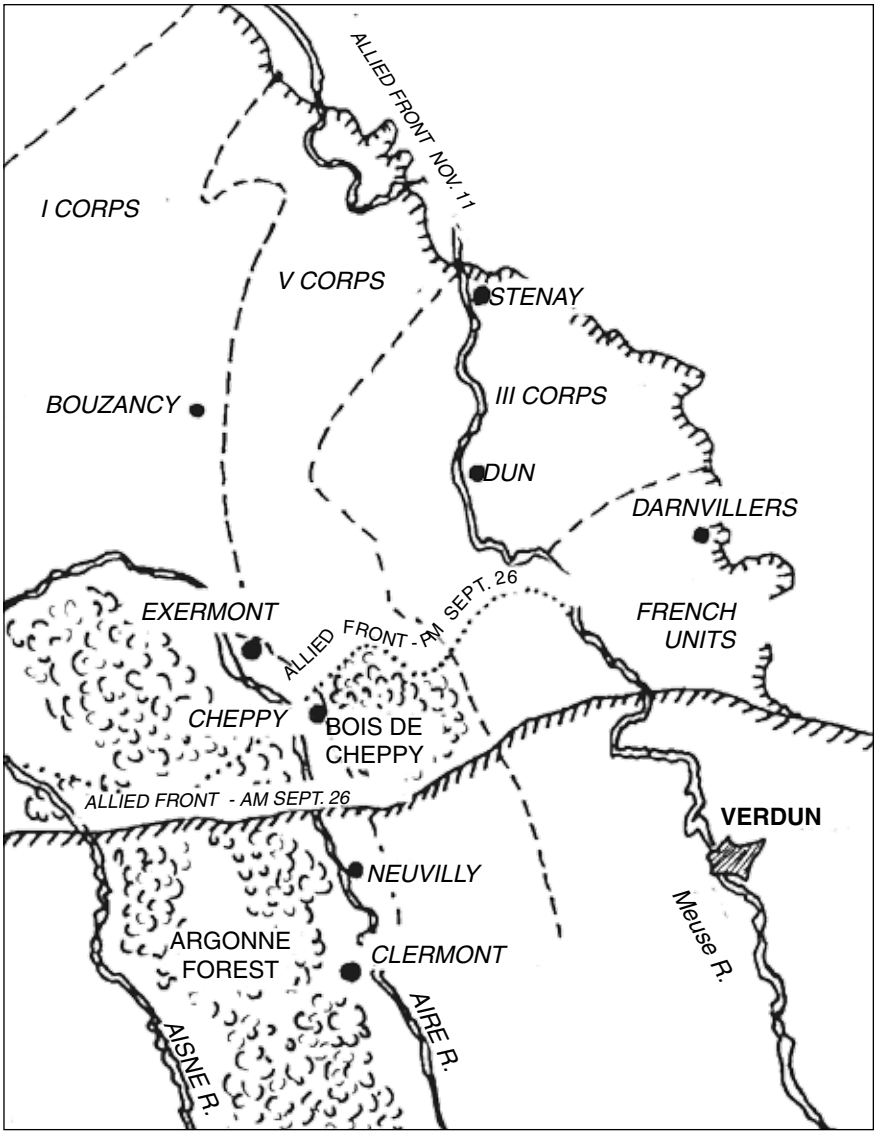

Figure 3. Map of the Meuse-Argonne sector.

general wrote, one man is to stay with it and the other is to get help.

Pershing sent a congratulatory letter to Rockenbach Sept. 16 on the successful and important part played by the tanks at St. Mihiel. Plans were already underway for the next American offensive in the Meuse-Argonne sector.

The same tank formations that had fought at St. Mihiel were to be under Patton's command in the Meuse-Argonne offensive: the U.S. 326th and 327th tank battalions, and the French 14th and 17th groupes. In this battle, however, they would fight with I Corps. Work on movement orders began Sept. 15, one day after the St. Mihiel offensive closed down, and Patton was already poring over maps of the new sector (Figure 3).

The French heavy tanks detrained at Clermont and moved into cover, and on Sept. 20 the American light tanks arrived at Clermont. Brett's battalion was now designated the 334th, and Compton's the 345th.

The Meuse-Argonne offensive was part of a joint American-French offensive, with the French army on the left from the Suippes River to the Aisne River. Here the Americans took over and extended the front to the Meuse River. The American sector included the Argonne Forest.

Pershing took command of his front Sept. 22 and placed his three corps in line, right to left: III, V and I. I Corps had three divisions, right to left: 35th, 28th and 77th. The tanks would fight with the 35th and 28th divisions on the eastern edge of the Argonne Forest. The 77th Division's sector included the Argonne Forest, impassable for armor. The whole area had been fought over long before and was going to be difficult for tanks. It was liberally laced with old trenches, ditches and dugouts, and was filled with shell holes.

In his pre-battle planning, Patton envisioned a long-range penetration by his tanks *en masse*, followed by a pursuit – the classic cavalry maneuver. But the terrain forced him to fight otherwise. He would mass his armor in the relatively narrow corridor between the Argonne Forest and the Bois de Cheppy.

Because of terrain features, including the Aire River, Patton proposed committing one tank company with the 28th and one with the 35th divisions, even though the 35th's ground would have enabled him to have used two tank companies there. After another look at the terrain, Patton changed his mind and placed Brett's battalion up front with two tank companies with the 35th Division and one with the 28th Division. Compton's battalion would be immediately behind in the same tactical formation, and the French tanks would bring up the rear.

Patton planned for Brett's tanks to support the infantry to its first line of objectives, then Compton's tanks would go forward and lead the attack to the second line of objectives. Once on higher (and drier) ground, the heavy French tanks would come through and pave the way to the final objectives.

As in the St. Mihiel campaign, supply problems continued to plague Patton. For instance, he received 100,000 gallons of gasoline in railroad tank cars, but no pumps. On the other hand, based on his St. Mihiel experience, Patton ordered that each of his Renaults was to carry two two-liter cans of gas on its back plates, regardless of the danger of fire. Four liters of gas wasn't much, but it would keep a tank moving in a difficult situation.

The Renaults marched six miles to the line of departure on the night of Sept. 25. At 2:30 a.m. Sept. 26, the three-hour preliminary bombardment began, and the attack went in at 5:30 a.m. Patton had about 140 tanks under his command.

The attack began in a heavy mist, and the tanks with the 28th Division came upon a German minefield, but the warning signs were still in place, and the tanks avoided the trap. By 10 a.m. the mist had risen, German fire became intense and accurate, and some of the infantry panicked.

Patton, furious at Compton for not advancing when he was ordered, went forward himself to sort out the tangle at the front, and was wounded near

Patton, at center, looking to the left, and MAJ Sereno Brett, also looking left, prepare to review tankers of Brett's 326th Tank Battalion. Note camouflage on the unit's Renault tanks, lined up in the background.

Cheppy. As he was carried to the rear, he left Brett (now a major) in command of the tank brigade. Serious German resistance near Cheppy and Varennes forced the use of all the tanks during the first day's fighting. Tanks fighting with the 28th Division ran into concrete pillboxes for the first time and silenced them by firing straight into the gun slits. Tankers with 35th Division helped capture a strongpoint at Vauquois and also one at Cheppy. The 304th Brigade lost 43 tanks that day.

On the second day of the battle, 11 tanks went to the Aire River (with 28th Division) and advanced north along the edge of the Argonne Forest, clearing out machinegun nests. The tanks on the Aire's east bank spent the day answering calls for help from the infantry, which, in effect, seriously degraded their shock potential in the battle. The fighting all along the front was serious, and by the third day, only 83 U.S. tanks were in running order. Even so, the brigade took the town of Apresmont five times before the infantry could come up and consolidate the position.

At the end of Sept. 26, Rockenbach withdrew all his tanks for an intensive repair and maintenance session. The men worked all night and had 55 tanks ready for action the next morning.

After hard fighting with the infantry, the tankers withdrew to reserve positions for several days. Men and machines were worn out, but by Oct. 1, 89 tanks were back in action, and 59 of them were lost that day.

The survivors were pulled back once more, and on Oct. 5, the 304th Brigade committed its remaining 30 tanks to action and lost 13 of them. Rockenbach pulled back the 17 survivors.

The tankers' final action came Oct. 16 when a provisional company of 20 tanks with 30 officers and 140 men supported the 28th Division. Ten tanks reached the objective, but again the infantry failed to follow up and consolidate, and the tanks had to withdraw.

The war ended Nov. 11.

Shortly after the war, Patton drew up a list of nine major tactical conclusions on the use of tanks in battle. A number of these 1918 conclusions have long since been corrected, but some remain valid. They were:

- Infantry officers lacked understanding and appreciation of tank capabilities, for tanks needed infantry operating with them at all times to be successful (which subtly, probably unconsciously, foreshadowed a shift in doctrine from the use of tanks to support infantry to the contrary conclusion that infantry should be used to support tanks; but this idea would remain obscure until clarified with terrifying suddenness by the German blitzkrieg in World War II.)
- A lack of liaison between tanks and infantry hampered efficient operations.
- Infantry should act as though tanks were not present, and not expect tanks to overcome resistance and wait, expecting tanks to attempt to consolidate a success.
- Tanks were too valuable because of their strengths in firepower and mobility, and too weak in mechanical reliability to be dissipated in reconnaissance missions.
- The distance between readiness positions and the line of departure should be reduced for "tanks cannot sustain a prolonged march without being overhauled and put in order."
- A thorough preliminary reconnaissance on foot of the terrain to be used by tanks was absolutely indispensable.
- The enemy artillery is the most dangerous adversary of the tanks. Therefore, strong supporting artillery, ready to deliver counter-battery fire, as well as screening smoke, was terribly important to ensure tank success.
- The value of tanks as attacking units and as a fighting arm had been demonstrated.
- Some slight changes in tactical employment were necessary: a better use of tanks in mass and in depth.

*Robert Rogge is **ARMOR**'s assistant editor.*

Acronym Quick-Scan

AEF – American Expeditionary Force
AT – antitank

A Soldier's Reading

by Beatrice Ayer Patton

Our great mobile commander had a rare sense of history

*Reprinted from **ARMOR**, November-December 1952.*

It began with the classics, for the Pattons felt that life was too short to get one's education unless one started early, and the family loved to read aloud. By the time the future general had reached age eight, he had heard and acted out ***The Illiad***, ***The Odyssey***, some of Shakespeare's historical plays and such books of adventure such as ***Scottish Chiefs***, Conan Doyle's ***Sir Nigel, The White Company, The Memoirs and Adventures of Brigadier Gerard, The Boys' King Arthur*** and the complete works of G.A. Henty.

As a cadet he singled out the great commanders of history for his study, and I have his little notebook filled with military maxims, some signed J.C., some Nap, and some simply G. Sources were his specialty, and as a bride, I remember him handing me a copy of von Treitchke, saying: "Try and make me a workable translation of this. That book of von Bernhardi's, ***Germany and the Next War***, is nothing but a digest of this one. I hate digests." Unfortunately, my German is not of that caliber, and he had to make do until a proper translation was published several years later. He was, however, one of the first Americans to own that translation, as later he owned translations of Marx, Lenin and the first edition of ***Mein Kampf*** — believing that one can only understand Man through his own works and not from what others think he thinks. No matter where we moved, there was never enough room for the books. We were indeed lucky that an Army officer's professional library is transported free.

He made notes on all the important books he read, both in the books themselves and on reference cards, and he was as deeply interested in some of the unsuccessful campaigns, trying to ferret out the secret of their unsuccess, as he was in the successful ones. I have one entire book of notes on the Gallipoli campaign. He was especially interested in landing operations, expecting to make them himself someday.

Our library holds many works on horsemanship, foxhunting, polo and sailing, all sports with a spice of danger to keep a soldier on his toes in time of peace.

He was an intensive student of the Civil War, and one of his regrets was that his favorite military biography of that period was a foreigner ... Henderson's ***Stonewall Jackson***. Imagine his delight when Freeman's ***Lee*** began to appear. He bought and read them one volume at a time, and when I showed it to the author, crammed with my husband's notes and comments, he smiled: "He REALLY read it, bless his heart." His memory was phenomenal and he could recite entire pages from such widely different sources as the ***Book of Common Prayer***, Caesar's ***Commentaries*** and Kipling's Macaulay's poems. On the voyage to Africa in 1942, he read the Koran, better to understand the Morrocans, and during the Sicilian campaign, he bought and read every book he could find on the history of that island, sending them home to me when he had finished them.

During the campaigns of '44 and '45, he carried with him a Bible, prayer book, Caesar's ***Commentaries*** and a complete set of Kipling – for relaxation. A minister who interviewed him during that winter remarked that when he saw a Bible on his table, he thought it had been put there to impress the clergy, but had to admit later that the general was better acquainted with what lay between the covers than the minister himself.

Most of all, he was interested in the practical application of his studies to the actual terrain, and as far back as 1913, during the tour at the French Cavalry School, we personally reconnoitered the Normandy Bocage country, using only the watershed roads used in William the Conqueror's time, passable in any weather. When he entered the war four years later, he fought in eastern France, but in 1944, his memory held good. People have asked me how he "guessed" so luckily.

"Terrain is sometimes responsible for final windup of a campaign, as in the life of Hannibal," he wrote. To him, it was not

a coincidence that the final German defeat in Africa was near the field of Zama. His letter, "I entered Trier by the same gate Labienus used and I could almost smell the sweat and dust of the marching legions," is an example of how dramatically he could link the present with the past. As he had acted out the death of Ajax on the old home ranch, so he and our family acted out Bull Run, Chancellorsville and Gettysburg. I have represented everything in those battles from artillery horses at Sudsleigh's Ford to LT Cushing, Army of the Potomac, at the battle of Gettysburg. That was a battle long to be remembered. At the end of the third day, as the girls jumped over the stone wall into Harper's Woods, Ruth Ellen fell wounded, took a pencil and paper from her pocket and wrote her dying message. (The original by COL Tazewell Patton, C.S.A., is in the Richmond Museum.) I heard a sort of groan behind me. As LT Cushing, firing my last shot from my last gun, I had been too busy to notice a sightseeing bus had drawn up and was watching the tragedy of Pickett's Charge.

If I have digressed from my subject, reading, it is to show the results of reading. First he studied the battles; then, when possible, played them out on the ground in a way no one who ever participated in the game can forget.

From his reading of history, he believed that no defensive action is ever truly successful. He once asked me to look up a successful defensive action ... any successful one. I found three, but they were all Pyrrhic victories. History seasoned with imagination and applied to the problem in hand was his hobby, and he deplored the fact that it is so little taught in our schools, for he felt that the study of man is Man, and that the present is built upon the past.

As I read the books coming out of this last war, I know those that he would choose: authoritative biographies and personal memoirs of the writer, whether he be friend or enemy. No digests!

Mrs. Patton's annotated list of General Patton's favorite books

Maxims of Frederick the Great.

Maxims of Napoleon, and all the authoritative military biographies of Napoleon, such as those by Bourienne and Sloane.

***Commentaries**, Julius Caesar.*

Treatises by von Treitchke, von Clauswitz, von Schlieffen, von Sceekt, Jomini and other Napoleonic writers.

Memoirs of Baron de Marbot of de Fezansec, a colonel under Napoleon: we were translating the latter when he went to war in 1942.

***Fifteen Decisive Battles of the World**, Creasy.*

***Charles XII of Sweden**, Klingspor.*

***Decline and Fall of the Roman Empire**, Gibbon.*

***Strategicon**, Marcus and Spaulding.*

***The Prince**, Machiavelli.*

***The Crowd**, Le Bon.*

***Art of War in the Middle Ages**, Oman, and other books by him.*

***The Influence of Sea Power on History**, Mahan, and other books by him. (The Trilogy)*

***Stonewall Jackson**, Henderson.*

Memoirs of U.S. Grant, and those of McClellan.

*Battles and leaders of the Civil War; **R.E. Lee: a Biography** and **Lee's Lieutenants: a Study in Command**, Freeman.*

***Years of Victory and Years of Endurance**, Arthur Bryant.*

***Gallipoli,** Hamilton.*

*Thucydides' **Military History of Greece.***

Memoirs of Ludendorff, von Hindenburg and Foch.

***Ghengis Khan, Alexander and other biographies**, Harold Lamb.*

***Alexander**, Weigall.*

***The Home Book of Verse**, in which he loved the heroic poems.*

Anything by Winston Churchill.

Kipling, complete.

Anything by Liddell Hart, with whom he often loved to differ.

*Anything by J.F.C. Fuller, especially **Generals, Their Diseases and Cures**. He was so delighted with this that he sent a copy to his superior, a major general. It was never acknowledged. Later he gave 12 copies to friends, colonels only, remarking that prevention is better than cure.*

COL Dave Thompson, commander of 194th Armored Brigade, and CSM William Beever case the brigade's colors during the departure ceremony June 10, 2011, at Fort Knox, KY.

Armor School Moves Operations to Fort Benning

The Armor School left its "old Kentucky home" in 2011 and relocated to Fort Benning, GA, from Fort Knox, KY, joining the U.S. Army Infantry School to form the Maneuver Center of Excellence.

The move transferred more than 7,500 Soldiers and 500,000 pieces of equipment to new facilities at Harmony Church. The move was part of the Base Realignment and Closure initiative and supported the overarching concept that since infantry and armor fight together, they should live and train together.

Fort Knox had been armor's home since 1940, but the move to Fort Benning was actually a return of sorts. "The Armor Center will cease to exist in one week," said Army Vice Chief of Staff GEN Peter Chiarelli at the Armor Warfighting Conference in May 2010 at Fort Knox. "It's a bittersweet occasion for many of us. But I would remind you that the tank school was at Fort Benning from 1932 to 1938, so we are really just reclaiming what was ours.

"Some of you are concerned that the Armor Branch is dead, but I assure you that Armor Branch is alive and well," Chiarelli said. "It's a key element of the MCoE. At the MCoE, we will train as we fight – together – just as we win together."

"We've been waiting a long time to merge armor and infantry and get the folks down here from Knox," said MG Robert Brown, the MCoE and Fort Benning commanding general. "We fight together, so it's pretty awesome we're here together. We can do so much more together."

Storied history

Fort Knox hosted a departure ceremony in June 2011 marking the departure of the Armor School and its units 194th Armored Brigade and 316th Cavalry Brigade, which were leaving to join other armor elements already at Fort Benning. MG Terry Tucker, 40th Chief of Armor, said there that the Tank Corps was established in 1918 and changed the American way of war forever, but the roots and heritage of armor go back much farther.

"We were born from the great mounted infantry dragoons of 1832, forged as light cavalry during the Civil War and honed during the late 1800s on the Western Plains," said Tucker.

The notion of combined-arms maneuver and wide-area security are not new concepts, he added, but a return to the principles learned by the American cavalry in the 19th Century. With World War II, the United States realized that fast-moving forces protected by armor were required to respond to the German blitzkrieg, therefore the U.S. Armor force was established at Fort Knox in 1940.

New construction

Fort Benning prepared for the arrival of Armor School Soldiers by constructing state-of-the-art barracks, dining facilities, headquarters and instructional and maintenance facilities. With the many improvements made at Fort Benning, including 140 miles of roads and tank trails, it is now the largest Army training installation in the world.

Named in honor of fallen Soldier PFC Jesse D. Mizener, the eight buildings on the 42-acre Wheel and Track Sustainment Complex include vehicle maintenance, an engine test bay, paint stripping and paint application buildings.

"More than 5 million square feet of new building space, eight bridges, 200 miles of roads and trails, and 19 ranges were constructed to meet the specialized needs of armor Soldiers and their critical requirements," said George Condoyiannis, area engineer for the U.S. Army Corps of Engineers' Savannah District construction program. The Corps of Engineers completed the $1.5 billion construction program, mostly in the Harmony Church training area, in preparation for the Soldiers' arrival.

For example, the new Bradley Vehicle-Maintenance Instruction Facility boasts 138,534 square feet of instructional space; a 10,000 square-foot technical library; 58 vehicle instruction bays; 20 hands-on turret training bays; 14 live engine bays; and six multipurpose classrooms equipped with the latest teaching technology.

Multi-staged move

The move occurred in stages over several years. The first Armor School tanks reached Fort Benning soil in August 2010 when five M1A2 Abrams System Enhancement Package tanks arrived to use in validating the new digital tank range.

Joe Massouda, MCoE support-operations officer, said the tanks were the first of 188 operational tanks transferred from Fort Knox as part of the Armor School's relocation under BRAC.

SFC Vernon Prohaska, liaison officer for the Armor School's strategic-plans cell, said the range tests were to validate what the tanks see and where their weapons systems are aimed. The digital range, located east of the Malone complexes, was under construction for seven years.

Another milestone occurred in January 2011 with the launch of the Armor School's first class at Harmony Church. At a ceremony in the Bradley VMIF's main bay, the MCoE formally kicked off the M2/M3 Bradley Fighting Vehicle System Maintainer Course and activated Company F, 3rd Battalion, 81st Armor Regiment, which is directing advanced individual training for Bradley maintainers. The event featured a "christening" of the VMIF to symbolize the training function's transfer from Fort Knox.

"Many thought it would never actually occur and would never work, but it has happened and it is working," said MAJ Henry Delacruz, executive officer of the battalion's forward element. "This is so because of persistence, vision and a lot of hard work by leaders at all levels within both the armor and infantry schools over the last five years."

Delacruz noted that George S. Patton, then a colonel, commanded 2nd Armored Division at Fort Benning after its activation in July 1940 and trained the unit there prior to World War II. "If it's good enough for GEN Patton, then it's sure as hell good enough for us," he said.

Company F includes both instructors and students under the same command, a first in Armor School history. They were assigned to different companies at Fort Knox. The unit numbers about 65 permanent personnel and 120 trainees.

The VMIF is "the best facility for instruction I've seen anywhere in the world, bar none," Brown said.

Most students in the inaugural Bradley maintainer class were in elementary school when the effort to move the Armor School to Fort Benning began. BRAC was announced in 2005, but officials said the planning went back about a decade.

The Armor School trained more than 300,000 Soldiers and Marines during its time at Fort Knox. In addition, the Armor School was known around the globe as an educational opportunity not to be missed, as 50 countries sent their armor officers to Fort Knox for courses.

Armor and Cav museum

Part of the Armor School's training and education efforts include the Armor Branch's heritage. "We train our Armor Soldiers about the customs and traditions of the branch through

Soldiers from the 7th Battalion, 18th Engineer Company work on a trail and parking lot for Pattons' Park. The park will feature a continuation of artifacts displayed in the Armor and Cavalry Gallery in the National Infantry Museum.

the history and vehicles," said retired LTC Phil Linn, treasurer for the National Armor and Cavalry Heritage Foundation. "The decision was made that we would not only bring the Armor School here, but the vehicles as well."

To that end, military and civilian developers began the first phase of construction in August 2013 for the site of the future Armor and Cavalry Museum on Fort Benning. Called the Pattons' Park project, it will provide a continuation of artifacts displayed at the Armor and Cavalry Gallery in the National Infantry Museum, Linn said.

The foundation's mission is to create a 100,000-square-foot museum on land adjacent to the NIM, which is located on Benning Boulevard. Linn said the site will be the Army's largest museum complex when completed.

Pattons' Park, named for GEN George S. Patton and his son, MG George S. Patton IV, will exhibit nine tanks and other armored vehicles from World War II up to Operations Desert Storm and Iraqi Freedom, as well as three Vietnam-era rotary wing aircraft. Linn said the vehicles should be available for public viewing by Spring 2014.

The park will include a 1,000-foot trail that extends through a wooded area, a parking lot and the visitor's center located in the median of Benning Boulevard that will provide a layout of the park and direct visitors back to the NIM gallery. The foundation relies solely on funds from private donors for any construction of the site and museum, Linn said.

Pattons' Park will be temporary and dismantled upon construction of the museum in Phase 2, which Linn said is expected to be complete by 2018.

(***Editor's note***: *This article is adapted from the articles "Pattons' Park to display 9 vehicles" by Aniesa Holmes, http://www.army.mil/article/109642/Pattons__Park_to_display_9_vehicles/; "Armor School kicks off first class at Harmony Church" by Vince Little, http://www.army.mil/article/50548/armor-school-kicks-off-first-class-at-harmony-church/; "Chiarelli: Armor School moving home to Benning" by Maureen Rose, http://www.army.mil/article/39763/chiarelli-armor-school-moving-home-to-benning/; "Armor School sends first wave of tanks" by Vince Little, http://www.army.mil/article/43803/Armor_School_sends_first_wave_of_tanks/; "Final units depart Fort Knox Armor School" by Maureen Rose, http://www.army.mil/article/59527/; and "New home for the Armor School at Fort Benning" by Rashida Banks, http://www.army.mil/article/71402/New_home_for_the_Armor_School_at_Fort_Benning/.*)

For more information on the Armor and Cavalry Museum, visit www.armorcavalrymuseum.org.

Acronym Quick-Scan

BRAC – Base Realignment and Closure
MCoE – Maneuver Center of Excellence
NIM – National Infantry Museum
VMIF – Vehicle-Maintenance Instruction Facility

Armor School Graduates First Female Abrams and Bradley Fighting Vehicle Maintainers

The Armor School observed "firsts" in 2012 when it graduated its first female Bradley Fighting Vehicle maintainers May 31 and its first female M1 Abrams tank-system maintainers Aug. 1.

The 91M Bradley maintainer and 91A Abrams maintainer courses are two of six combat-support jobs made available to women after the Army expanded access to some combat positions formerly reserved for men. Of the six military occupational specialties, two are taught at the Armor School, Fort Benning, GA.

Five Soldiers became the first female Bradley Fighting Vehicle maintainers. They are PVT Christy Bailey, PVT Taylor Robbins, PVT Melissa Allen, PVT Christian Haws and PVT Amanda Layman.

Four Soldiers made history as the first females to obtain the 91A MOS. They are PFC Emma Briggs, PFC Anita Ramirez, PVT Erika Leroy and PVT Kaitlin Killsnight.

Company E, 3rd Battalion, 81st Armor Regiment, 194th Armored Brigade, conducts both courses.

The graduates trained alongside their male counterparts to transform them into mechanics for the Bradley and Abrams. The instruction included general automotive knowledge, learning to read schematics, understanding suspension systems, electronics, diagnostics and troubleshooting the engine and turret systems.

Not only was Briggs one of the first females to obtain the 91A MOS, but she was the distinguished honor graduate. SSG Jahi Foster, one of the 91A instructors, said Briggs' willpower was what set her apart from the rest of the class.

"She had a lot of self-motivation and she came in with the same attitude every day," Foster said. "A lot of the students have problems, and they've been here for months dealing with things, but she always came out with the same hard-charging, ready-to-go attitude every day."

Bailey said she joined the Army to find a greater purpose in life. "I joined the Army to do something better with my life, and I didn't want to be a desk clerk – I wanted to be as close to the action as possible," Bailey said. "This seemed as close as I could [get] to doing something for the Army and for myself at the same time. I like to be hands-on, and it's pretty hands-on."

Following in the footsteps of her father, who served as a tanker, Robbins decided to join the Army after high school. "I wanted to prove that female Soldiers could do this and be leaders and cut the way for future Soldiers and females here," she said. "I (assumed) they would be harder or softer on us females, but in all we got treated the same, and they expected the same as males."

"We worked very hard to ensure our female Soldiers were treated exactly like our male Soldiers," said CPT Travis Iommi, company commander. Iommi said the integration process presented little challenge to the E Company cadre; barracks renovations and regulations were thoroughly established to promote the safety and security of male and female Soldiers.

The Soldiers said they relied on teamwork and commitment to operate just as any other class would. "In the Army, it's a big teamwork effort," Bailey said. "You have to push your individual needs aside to get the job done."

Iommi said hard work and camaraderie are the most vital assets for any Soldier to succeed in the Army.

"It doesn't matter if you're male or female," Iommi said. "If you get after it, (do) PT and volunteer to put in a bunch of hard work and work as a team, I don't care what your gender is, people are going to say, 'That's a Soldier I would want in my motor pool.'"

*(**Editor's note:** This article was adapted from "Breaking barriers: 4 Soldiers set to become Army's first female Abrams tank maintainers" by Nick Duke and "Bradley Fighting Vehicle maintenance course graduates first female Soldiers" by Aniesa Holmes.)*

PVT Kaitlin Killsnight (left), PFC Emma Briggs (center) and PVT Erika Leroy work on an Abrams tank simulator in Bldg. 5215 at Harmony Church, Fort Benning, GA. Along with PFC Anita Ramirez, these Soldiers made history Aug. 1, 2013, when they became the first females to graduate from the 91A Abrams tank maintainers' course.

Acronym Quick-Scan

MOS – military occupational specialty

We end the 125th anniversary section with this thoughtful article by the father of Airland Battle doctrine. We are but a few steps into the 21st century, but it appears that it may one day be characterized as the "counterinsurgency century."

Welcome to the Counterinsurgency Century

by retired GEN Donn Starry

*Reprinted from **ARMOR**'s September-October 2008 issue.*

The 21st Century, even in its infancy, is obviously quite complex — perhaps even far more complex than the worlds of the 19th and 20th centuries, both of which were characterized by warfare, largely between nation states, in conflicts resulting in frightening losses in human resources as well as other national treasure. Indeed, the loss was of entire nation states as well as the catastrophic devastation of others — even those said to have "won" the war.

To illustrate the complexity thesis, consider the French experience post-1939-1945, as Japanese forces withdrew and the French attempted to re-establish control over their territorial holdings in what was once called "French Indochina." It was here that the French army was confronted by a considerable and well-developed Communist underground who aimed to spread Communist governance into Indochina, thus beginning counterinsurgent warfare against the Viet Minh.

French army forces deployed to Indochina were far too few and not adequately equipped to accomplish their assigned mission. Recognition of those inadequacies caused French army commanders on the ground to petition the home government for more units, weapons capabilities and support to match. Their petitions were largely ignored or outright denied. The best and most relevant histories of this period are set forth in Bernard Fall's books, ***Street without Joy*** and ***Hell in a Very Small Place***. Both have been extensively read by those attempting to characterize counterinsurgency warfare in Vietnam, as they represent preludes to what took place after the Geneva Accords were signed in 1954 and, at the time, at least token U.S. involvements in Vietnam began.

Surrendering at Dien Bien Phu, the French army leadership considered the rug pulled from beneath them by their political masters, who, from the soldiers' viewpoint, had neither tried to understand the situation nor respond to the entreaties of on-site commanders for help. The army literally withdrew into seclusion in army schools and colleges to begin the construct of a relevant counterinsurgency doctrine at strategic, operational and tactical levels in an attempt to determine what they should have done strategically, operationally and tactically; what had gone wrong; and how they might have done better.

Over the next few difficult years, they fashioned an operational concept titled *La Guerre Revolutionaire*, which included concepts for strategy, campaign and tactical operations. With its new operational concept, the French army went to war once again in a French colonial holding where there was a mounting insurgent movement. It was, however, an involvement quite different from that in Indochina. Algeria had in fact been a French colonial holding; however, it was to most French people part of the homeland — metropolitan France. It was

acceptable to give up some colonial involvements, but never the metropole. GEN Paul Aussaresses, in ***The Battle of the Casbah***, provides a striking account of what happened as *la Guerre* doctrine went to counterinsurgency war.

The campaign ended in 1962 when the French government under GEN Charles de Gaulle signed an agreement with the National Liberation Front granting Algeria independence from France. France thereby gave up a vast colonial holding in North Africa: nearly 1 million French citizens were forced to abandon their possessions and flee; there was admission to the deaths of nearly 30,000 French citizens; and perhaps as many as half a million Algerians died. Once again, French military leaders considered the rug pulled from beneath them by political masters, the senior of whom was this time one of their own. History had been provided a counterinsurgency situation considerably more complex than had been prepared for, despite the fact that French military doctrine in support of national goals had been drawn from the French army's own bitter experience in Indochina.

It is not at all difficult to transfer from the French experience in Indochina to that of U.S. forces in Vietnam. Once the November 1968 U.S. elections made clear that there would be a Republican in the White House in 1969, it was also clear that there would soon be a move made to redeploy U.S. forces from Vietnam. Further, it was anticipated in Saigon that by some official means redeployment would be ordered soon after the 1969 installation of the new government. This particular directive arrived in the form of National Security Study Memorandum 36 in April 1969.

The commander of U.S. Military Assistance Command-Vietnam, GEN Creighton Abrams, had already assembled a very small group of officers and enlisted and begun planning for the inevitable. The redeployment was called "Vietnamization." There were public pronouncements that U.S. forces would turn over conduct of the war to the Republic of Vietnam Armed Forces. Further, it was announced that funds would be made available to provide RVNAF with capabilities which were insufficiently robust in its existing forces to support its force structure. In the main that meant fire-support means — artillery and air, and logistics support of all kinds. Funds were appropriated by the U.S. Congress earmarked for that support. GEN Abrams' instructions were quite clear: "We have been directed to do this. There is considerable pressure from Washington to just cut and run. We must therefore very carefully examine the situation — the enemy's and our own, and propose redeployments that do not jeopardize the Vietnamese army's ability to continue successful combat operations against regular North Vietnamese Army forces attempting to infiltrate into South Vietnam, and infiltrations to support the remaining Viet Cong infrastructure in the south."

The first redeployment increment of 25,000 troops departed Vietnam in Summer 1969. Subsequent increments for redeployment were planned beginning in late 1969, all pursuant to GEN Abrams' guidance. However, two significant obstacles were thrown into the works by directives from Washington.

First, GEN Abrams and his planners had developed a plan to redeploy by unit rather than by individual. Despite brisk exchanges of traffic on the matter, GEN William Westmoreland, U.S. Army chief of staff, overrode GEN Abrams and redeployment was to be done by individual. GEN Westmoreland's decision meant that once redeployment began, there would be a constant readjustment in Vietnam to fill the ranks of units, still in-country and fighting, and replace the long-tenure people in those units who had been redeployed as individuals. The inevitable result was an on-station army in Vietnam considerably less combat ready than it had been and needed to be.

Secondly, as redeployment progressed, the U.S. Congress reneged and withdrew appropriations programmed to provide adequate fire support, transportation and logistics support to the RVNAF once U.S forces were redeployed. Many military members and others serving in Vietnam when this happened were, and remain, convinced that had the United States lived up to its commitment, the RVNAF could quite likely have won the fight against the NVA intrusion from the north. It was that close. A better description is to be found in Lewis Sorley's excellent book about GEN Abrams, ***A Better War***.

One recurring conclusion from the examples cited above, along with many others, is that military forces can perhaps no longer cope with more than part of war. Many counterinsurgency requirements stem from political, social, demographic, religious and other situations not directly resolvable by military operations. At the outset, then, there should be serious consideration of precisely what is being attempted, what capabilities are required (what are we trying to do), and how might the total capabilities of the nation be assembled to achieve whatever desired outcome has been decided on. However, if one then looks to departments of a federal government for help and finds employees who refuse to serve in an expeditionary environment, then what?

A French Foreign Legionnaire goes to war along the dry rib of a rice paddy between Haiphong and Hanoi. Behind the Legionnaire is a U.S.-gifted tank. *(Defense Department photo circa 1954)*

French troops man barricades in Algiers, Algeria, during France's war with its former colonial holding. The insurgency drove France to agree to grant Algeria its independence. *(ECPAD France)*

GEN Dwight D. Eisenhower, during his time as president, created an undertaking titled Project Solarium. It was an attempt to focus the U.S. government executive branch's resources on a select agenda of likely situations with which the president could be confronted and postulate coordinated solutions to those situations. If, however, the nation's leaders consider that its military forces are the only resource available for deployment — in a counterinsurgency or any other situation demanding action on the United States' part — then there must be a defining statement in the national-security strategy that stipulates this fact. It is only out of defining statements that force structure, manpower and equipment capability-requirements statements — prescribing the size, shape and equipping of the nation's armed forces — can materialize.

The examples cited above also represent involvement of officials in national political infrastructures in the conduct of military operations in the field, which those political entities had directed be undertaken at the outset. Some who have suffered the effects of those intrusions would call it "meddling." And so it is; unfortunately, it may continue to be. Indeed, the increasing complexity of counterinsurgency operations quite likely invites that type of intervention. In the United States, the tendency to attempt to direct operations of a deployed military force in the field from Washington offices has been a serious problem since the Spanish-American War. The problem has been aggravated by the growing ability to almost instantly move information in considerable volume from places far distant from one another to far more people than truly have a "need to know."

Advances in information technology have created an information glut that defies description as well as inhibits intelligent decisions based on analysis of available information. There is more information available than can be digested in a reasonable amount of time, enabling a decision that is relevant to the situation. In other words, there is not time to sort out and think about what all that information conveys. Further, the media — print as well as video — now has a parallel information glut to that in "official" channels. There is "investigative reporting" by people who are neither qualified "investigators" nor good reporters.

A hand goes up in the back of the room! "Is the peacekeeping function considered a mission for counterinsurgency forces? If so, is doctrine for such operations to be found in an appropriate field manual, or elsewhere?"

Several fairly recent events prompt such questions. Most dramatic, although now a matter of tragic but nearly "ancient" history, is the United Nations' assistance mission that deployed to Rwanda in 1993 and 1994 to referee the confrontation between the Tutsi and Hutu. The force commander was Canadian Forces LTG Romeo Dallaire, a brilliant, brave and concerned soldier with an impossible mission. In a long-overdue book, ***Shake Hands With the Devil***, LTG Dallaire recounts his experiences, his reports to United Nations Secretary General Kofi Annan, his requests for more forces (all denied), the tragic deaths of 15 of his soldiers (four officers and 11 enlisted) and the tragic deaths of nearly 800,000 natives in the massacre that ensued. The United Nations failed; humanity failed.

As U.S. forces concluded redeployment from Vietnam, the obvious question became, "What to get ready for next?" Several considerations made answering the question much more difficult than necessary. First was the early decision not to mobilize Reserve Component units for Vietnam. Army Chief of Staff GEN Harold K. Johnson frequently recounted that he had gone to the White House seeking presidential approval to mobilize, only to be rebuffed by President Lyndon B. Johnson some five times on the basis that mobilization would threaten LBJ's Great Society program; therefore, it was not an acceptable course of action.

The Army then simply created three new divisional structures, then filled them with a combination of draftees and cadre from existing units. Absent mobilization, the authorized endstrength was then considered inadequate to support a one-year tour for those deployed to Vietnam. So the entire Army — continental United States-based units as well as those located in Europe, Korea and elsewhere — became the rotation base for Vietnam. This resulted in unit turbulence rates well beyond any threshold necessary to achieve and sustain readiness.

Especially hard hit was the noncommissioned officer corps — NCOs stationed in Europe could leave families there, deploy to Vietnam and return after a year, only to find themselves back in Vietnam again in about 18 months. On an average, this occurred three times, and the NCO would

retire, divorce or both. Most unit NCO academies shut down for lack of students as well as cadre. Morale was rock-bottom; military jails were full to overflowing; and equipment readiness rates were seldom above the 50-percent level due to lack of parts, mechanics and trained crews. Units deployed to North Atlantic Treaty Organization Europe did not believe themselves capable of successfully defending against an attack by Group Soviet Forces Germany, let alone capable of "winning" against such an attack.

On the other side of the inner-German border, it was apparent that the Soviets understood what was happening in U.S. Army Europe and elected to take advantage of the situation. In the roughly 10 years we concentrated almost solely on Vietnam, GSFG fielded new operational-level doctrine. The new doctrine, "mass, momentum and continuous land combat," featured reorganization of heavy units, fielding of 2 ½ generations of new tanks, seven new field artillery systems (six of them nuclear-capable), other technically improved equipment and shorter timelines for follow-on echelons to move forward to reinforce the first echelon fight. It was a new force; it obviously cost them dearly. GSFG exercise data revealed that they intended to concentrate on the northernmost three of NATO's deployed corps. Two of those corps were not deployed; one was only partially deployed. It appeared that they hoped to bring down those corps before the 16 NATO nations could reach a nuclear decision, and do so with conventional weapons. But if NATO did give a "yes" to nuclear employment, GSFG was ready to go nuclear at the tactical and operational levels of war. It was quite clear that the threat from GSFG was much more urgent than anyone could remember, making resuscitation of U.S. forces, especially Army forces in Europe, a first-order requirement.

On the other side of the coin was the U.S. Army's traditional practice after every war of getting ready to fight it over again, only better. This line of reasoning led to a need to determine what we had learned in Vietnam and develop revised doctrine, new force structure and manpower requirements, and new equipment requirements, all for fighting the counterinsurgency war as well as the war against NVA regulars like those we had just left behind in Vietnam.

One of GEN Abrams' first challenges as chief of staff — having redeployed from Vietnam early in 1972 and been confirmed as Army chief of staff later that year — was to resolve the issue of "back to Europe first" vs. the pressing need for counterinsurgency doctrine. The best advice was while we did know a lot about counterinsurgency, we had not yet digested what we knew to the point from which we were ready to write doctrine and spell out equipment requirements, organizations and related requirements; hence, the decision to fix the U.S. Army in Europe first. Reflecting that decision, the Army returned to its pre-Vietnam 16-division structure, but with a manpower base of more than 200,000 soldiers smaller than the pre-Vietnam 16-division Army. Manpower of course is money, and the best advice seemed to be to take what could be had and ask for more as time and circumstances allowed. So it is that the 2008 Army does need greater endstrength, and that need is a holdover from the post-Vietnam decision to return to 16 divisions but without trying to settle the endstrength problem at the same time. Relative to that was the decision not to seek renewal of the draft law, which expired the end of July 1973. We knew we would be short endstrength, but we had no experience as to how many volunteers we could recruit. Today's Army lives in the shadow of those long-ago decisions.

It is necessary to remember that as the Army redeployed from Vietnam, while there were many problems, two demanded immediate resolution. One was the rather dismal condition of U.S. Army units deployed and on station in NATO Europe, as described earlier. Second was the advent of a volunteer Army reflecting the decision not to seek extension of the draft law, which expired in July 1973. Given the decision to reconstitute a credible U.S. Army in NATO Europe, that requirement became the focus of doctrine, equipment, force structure, organization development and fielding for nearly 17 years from 1973 to 1990.

For the Army that went to war during Operation Desert Shield/Storm, and performed so very well, was the product of two doctrinal evolutions that characterized those busy years: Active Defense (circa 1976) and AirLand Battle (circa 1982). Desert Shield cum Desert Storm were together the field test of all elements of that doctrinal evolution. And while not all of it worked precisely as its authors had intended, whatever shortcomings there may have been were overcome by the synergy of sound tactics, well-trained soldiers and well-led units. As a general rule, really good work is not done overnight.

U.S. UH-1D Huey helicopter picks up U.S. troops in Vietnam in 1966.

Finally, some relevant observations about mechanized (armored) forces in counterinsurgency operations are appropriate. In Vietnam, for example, both French and U.S. forces employed a varied assortment of armor(ed) equipment and units. The story commences with armor in Vietnam in the years immediately following the 1939-1945 war. The French, attempting to re-establish their pre-war colonial hold in French Indochina from 1945 to 1954, when French forces surrendered at Dien Bien Phu, experienced a generally unsatisfactory experience with mechanized forces, all equipped with 1939-1945 war-vintage equipment.

Observing the French experience, U.S. Army planners in Washington were convinced that armored forces could not operate successfully in Vietnam. There was considerable misunderstanding concerning the monsoon climate, jungle, mountains, rice paddies, weather and the Mekong Delta — not to mention the enemy in all those venues. As a result, when U.S. forces, primarily infantry, deployed to Vietnam in the early 1960s, infantry units deployed without their organic tank or armored cavalry battalions or squadrons; once there, they realized they needed their mechanized components and sent back to have them deployed after the fact.

At the same time, however, considerable investment was underway to create an armored command for the RVNAF, including necessary equipment, and a cadre of U.S. advisers. On balance, it was a quite successful effort. Forthcoming from the Naval Institute Press is a scheduled publication of a full-up history of the RVNAF armor command titled ***Steel and Blood***. Written by COL Ha Mai Viet, a distinguished member of that command, it is a well-written, authoritative account of RVNAF armor-command operations against insurgents as well as regular NVA forces.

However, it was not until 1967 that the report of the Mechanized and Armor Combat Operations in Vietnam study group, led by MG Arthur L. West Jr. — chartered by GEN Abrams, then the serving vice chief of staff of the Army — reported that after several months of in-theater evaluation, armor units were very effective in a counterinsurgency environment. Further, said the study group, the most cost-effective force in the field during all kinds of operations in Vietnam was armored cavalry, best represented by 11th Armored Cavalry Regiment (Blackhorse). Thus, after eight years of fighting over terrain considered impassable to tanks and other armored vehicles; where climate and weather were said to severely inhibit armored-vehicle movement; where fighting an elusive enemy whose tactics put armored forces at considerable disadvantage, the mechanized force — especially armored cavalry — stood front and center not only in close combat but in pacification and security as well. In 1969, that evidence led GEN Abrams' redeployment planners to hold off redeployment of armor and mechanized units until the very last.

The remnants of war most often leave behind invaluable lessons to be deciphered and applied in an effort not to repeat the same mistakes. In the case of the aforementioned examples, two undeniable lessons were at least taught: in all categories of operations required of U.S. forces in Vietnam, armored units represented, more than any other force and by wide measure, more firepower and mobility for the least manpower exposure; and especially evident in the Cambodian incursion of 1970, when NVA regular units faced U.S. armor units — especially the Blackhorse — the mobility, firepower and combined-arms capability of the attacking armor force inevitably caused NVA commanders to order their troops to break and run. Herein lies the very important question: Were those lessons well learned, or were they not?

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Acronym Quick-Scan

GFSG — Group Soviet Forces Germany
MACV — Military Assistance Command-Vietnam
NATO — North Atlantic Treaty Organization
NCO — noncommissioned officer
NVA — North Vietnamese Army
RVNAF — Republic of Vietnam Armed Forces

Hiding Behind Mission Command: How the Fear of Micromanagement Prevents Leader Involvement in Detailed Planning

by CPT Brian J. Harris

After painstaking inspection of the map, checking contour lines, the location of urban areas and analysis of the road network most likely used by military forces, the student takes his red map marker and draws a small, red triangle, denoting the location he anticipates that the enemy will establish an observation post to watch for approaching U.S. forces. Through some level of internal analysis, he has established criteria by which to evaluate the terrain. He assesses the enemy's capabilities and applies his own level of combat experience, determining that this hilltop, more so than any other within the general vicinity, is the best location to observe the valley. He stakes his professional reputation on it.

Hours later, after completing his analysis and developing his tactical plan, and drafting an overall concept of the operation and supporting scheme-of-maneuver graphics, he briefs the instructor on everything he knows, thinks he knows and how he plans to accomplish his mission. He briefs the enemy courses of action, depicting how he sees the enemy fighting in the current scenario, demonstrating understanding of terrain and threat capabilities and their relationship with one another.

Finally, he produces his scheme-of-maneuver graphics. The instructor sits forward, anxious to see how the student plans to tackle the problem he has defined through hours of analysis and consideration. The disappointment is immediate. The graphics are sparse, the timeline useless and no effort, none whatsoever, has been made to make deliberate contact with the small red triangle.

When the instructor asks the student, "Why don't you have a counter recon plan to engage the enemy observation post you assessed on that hilltop?" the answer is one the instructor has heard so many times before: "I'm not going to tell my platoon leaders how to do their job. I want to give them maximum freedom of maneuver."

What is mission command?

Army Doctrine Publication 6-0 defines *mission command* as "the exercise of authority and direction by the commander using mission orders to enable disciplined initiative within the commander's intent to empower agile and adaptable in the conduct of unified land operation."[1] The part about mission orders seems to be the point lost upon many officers and noncommissioned officers leading at the company and lower field-grade level. There are six principles to mission command, with mission orders being one of them. The ADP goes on to define mission orders, which we will break down and discuss.

Mission orders provide "direction and guidance that focus forces' activities on the achievement of the main objective, set priorities, allocate resources and influence the situation."[2]

In short: task and purpose; directly telling subordinates what you want done and why it is important is critical to ensuring mission completion. Without planning missions beyond the cursory task-and-purpose level, a commander cannot effectively allocate resources or set priorities. He cannot ***know*** what is achievable by his subordinates or what they require if he has not explored the mission orders in detail.

"Mission orders seek to maximize individual initiative while relying on lateral coordination between units and vertical coordination up and down the chain of command."[3] This means commanders must plan in detail, for only they can ensure achievement of the aforementioned lateral and vertical coordination. A commander cannot simply give a once-over of the mission to his platoon leaders, lock them in a room and expect them to work out the plan together. This is the commander's responsibility, and his knowledge and experience is crucial.

"The mission orders technique does not mean commanders do not supervise subordinates in execution. However, they do not micromanage."[4] Commanders must be involved in operating and managing the various assets, as well as providing much-needed guidance to subordinate leaders who may not possess the same level of knowledge, experience and perspective. Many challenge this concept, decrying ***any*** guidance beyond simple task and purpose, left and right limits, as micromanagement, stating that leaders on the ground should make the decisions.

Let us explore an example: The commander assigns an eight-digit grid coordinate for a subordinate to establish an OP, as well as a named area of interest to observe. I have personally heard leaders state that all they need is the NAI; they can decide where the OP is. While in some situations this is absolutely true, we must remember that the commander has other issues besides one OP location; he must consider the multitude of other OPs, the position of his mortars, the synchronization of supporting manned and unmanned air assets, attached logistical units ... the list goes on. He gives this directed guidance of OP location because it allows him to better emplace and coordinate those forementioned assets.

The leader assigned the OP location still possesses freedom of maneuver. When he arrives at the assigned grid, knowing what his commander's intent is (observation of the NAI), he can now determine whether the OP location is sufficient or if other nearby positions are better suited. He has the freedom of maneuver to adjust and notify his commander of the shift. ***This*** is mission command — the balance of detailed guidance from command and subordinate flexibility during execution.

How is it perceived?

The above-mentioned concern about micromanagement, coupled with the detached, small-unit nature of a decade of counterinsurgency operations, has given rise to a generation of leaders who believe that mission command is simply giving an endstate to subordinates and then allowing them "maximum flexibility" to achieve those ends. While in theory this seems attractive to leaders who desire autonomy in how they lead their formations, it also contains various pitfalls that jeopardize that endstate and risk crushing defeat. After all, how can subordinates be expected to manage the various supporting assets that do not fall under their operational control? A platoon leader cannot possibly resupply his platoon without the company supply trains, or cannot employ much-needed fire support from mortars that aren't within firing range of his operations.

The knee-jerk solution to the preceding problem simply exacerbates it into a larger issue. Instead of recognizing the critical need for commanders to craft detailed, synchronized plans and get involved in the execution, leaders simply "slice out" elements to their subordinate leaders, thereby providing a quick and easy solution to their problems. Now, however, we have given a second lieutenant, straight out of the Armor Basic Officer Leaders Course — who is challenged enough maneuvering his scout platoon of three Bradleys and five humvees — a fuel truck and a section of mortars to integrate into his platoon operations. When did he learn how to do this? Can a commander truly push so much responsibility down to his subordinates? This fear of micromanagement results in failure to plan, prepare, resource and, ultimately, take responsibility for combat operations.

Mission command in practice: beyond talking points

While mission command may seem abstract, merely a state of mind or a concept, it has very real, tangible outcomes that, when applied to planning, result in greater synchronization of combat power and supporting assets as well as clearer goals for subordinates to achieve.

Timelines. Understanding time is critical when planning above the platoon level. This is due to the introduction of so many other enablers that simply do not reside at the platoon level. Without proper understanding of time, commanders cannot hope to synchronize air assets to support operations, relying simply on hope that air will be available. While this is many times true in the current COIN environment, the dangers of over-reliance on what worked in COIN cannot be overexaggerated. In times of limited asset availability, those who have detailed understanding of their operational timeline will stand a better chance of gaining access to critical supporting assets by anticipating that need and requesting it early.

As an example, a commander who plans his operation in detail and understands that he will reach a set phase line, where he expects to make enemy contact, by 8 a.m. can request air support at this critical moment prior to crossing the line of departure. The commander who simply plans to cross LD when ordered and only knows when his higher expects the mission to be completed by cannot hope to request air support to be in position when he anticipates needing it. The net result is a commander who will spend much of his time reacting to the enemy, requesting emergency support and hoping for the best while his men buy time with their lives.

Task and purpose. As stated previously, understanding ***what*** and ***why*** the commander wants a task done is crucial, if for no other reason than a Soldier is much more willing to accept personal risk when he understands exactly what his leader wants and why it is so important. Simply ordering a platoon to conduct a zone reconnaissance lacks focus and results in a platoon spending hours moving around the battlefield collecting useless information.

Assigning NAI, times and what you are looking for in those locations allows two things: subordinate leaders know when they have achieved their mission, and they have a better understanding of how to develop their own timeline and set their own priorities (another important aspect of mission command mentioned earlier).

Task and purpose, when coupled with a timeline, allows subordinates to better understand the commander's intent,

visualize how he expects the battle to unfold and assures him that the proper resources have been allocated to help achieve mission accomplishment.

Initiative

We return now to our student, blissfully allowing his subordinates maximum freedom of maneuver in the face of an enemy — ultimately handing that enemy the initiative. By not planning how to make contact with the enemy, the commander has ensured one thing: the subordinate unit will make contact on the enemy's terms. The enemy commander will decide how the engagement commences, leaving the subordinate with the only option of reacting and hoping to achieve overmatch by calling for unplanned support.

This problem all starts with mission analysis. While the student did assess the enemy on that hilltop, he is not confident in that assessment. What if he is wrong? I cannot say how many times I have heard that excuse, a valid concern but dangerously destructive to combat leaders. After having trained more than 180 students in the Cavalry Leaders Course at the U.S. Army Armor School, I cannot recall how many times that same hilltop has had that same red triangle drawn on it. Why is that? How could so many students, separated by time and geography, come to the same conclusion repeatedly? The answer is analysis, conducted through the lens of tactical knowledge and experience.

Experienced combat leaders ***do*** have the ability to make calculated, educated assessments of where the enemy will fight. Leaders must accept this and then act upon it, planning around that assessment and thereby allowing them to make contact on their own terms. By assessing that enemy OP on a hilltop, and then assessing his own maneuver timeline and tasks, the commander can leverage his assets effectively on the enemy at a time of his choosing, enabling his subordinates maximum effectiveness and ultimately, flexibility on the objective.

This desire to fight through battle drills is dangerous and saps our confidence in planning and our belief in its effectiveness. Battle drills are not plans. They are, however, the answer to the above question about being wrong in analysis. Should the student plan to attack the enemy OP on the hill, only to find the enemy is on the next hill over, then he uses battle drills to regain the initiative and complete his mission. Battle drills are a tool of survivability, a method by which units react efficiently to unexpected enemy actions and turn the tide of battle quickly; they are not a substitute for operational planning.

Conclusion

There are many reasons why planning skills at the company/troop level decline. Key among them is fatigue. Conducting the same patrols in the same area of operation every day in a COIN environment eventually results in atrophy and the aforementioned over-reliance in battle drills. While this is understandable, and I personally can attest to my own failure in this regard, emphasis must be placed in correcting this degraded leadership skill. Leaders must strive to do better than give vague guidance to subordinates and rely on reactive measures to support them while in contact.

Acknowledging that detailed planning both allows for better execution and admitting that it isn't micromanagement is critical as our Army returns to its roots and relearns how to fight against a peer/near-peer adversary. There are absolutely times when giving a subordinate leader a task and purpose, with little additional guidance, is acceptable. Leaders must realize, however, that giving directive guidance, especially at critical moments and friction points in an operation, is more than just micromanagement. Providing specific guidance not only assures subordinates that their leaders have thought through the mission requirements, but also serves as professional development to junior leaders. A company commander is, in essence, training his platoon leaders when he demonstrates how to solve a tactical problem. Lack of mentorship takes its toll on the professional development of young leaders rising through the ranks, who then continue the cycle with the following generation.

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Notes

[1] Army Doctrine Publication 6.0, ***Mission Command***, May 17, 2012.

[2] Army Doctrine Reference Publication 6.0, ***Mission Command,*** May 17, 2012.

[3] Ibid.

[4] Ibid.

Acronym Quick-Scan

ADP — Army doctrine publication
CLC — Cavalry Leaders Course
COIN — counterinsurgency
LD — line of departure
NAI — named area of interest
OP — observation post

Soldier Power: A Growing Operational Concern

by MAJ Steven P. Meredith and MAJ David Bergmann

"In World War II, it took one to two gallons of fuel per day to sustain a Soldier on the battlefield. Today, it takes 20 plus gallons per Soldier, per day." —LTG Raymond V. Mason, deputy chief of staff, Army G-4 Logistics

"Every time we deliver fuel or batteries on the battlefield, we put Soldiers at risk." —Call to action, Sergeant Major of the Army Raymond Chandler, Army Chief of Staff GEN Raymond Odierno and Secretary of the Army John McHugh

With the proliferation of Soldier and squad-borne technologies, Soldier-power solutions are becoming a critical operational concern. Without access to adequate power, the Army's dismounted-unit capabilities rapidly become degraded on the battlefield. The Army prides itself on providing its Soldiers with the most technologically advanced equipment that overmatches potential enemies' systems and weapons. However, technological overmatch is unlikely if Soldiers are unable to power these systems.

This article explores some of the current and emerging power and battery limitations and potential developmental solutions.

Meeting a growing demand

It is one thing to create a battery that provides twice the amount of power within the same package, but when Soldiers already conduct battery swaps more than seven times over a 72-hour mission, this does not eliminate the need to carry spare batteries or recharge them. Also, with the given state of small, lightweight power-generation technologies, current batteries cannot be charged rapidly enough to fully self-sustain the unit.

In an effort to address potential energy shortages and logistical challenges, the Army is exploring a wide range of solutions to sustain the force through an operational-energy initiative. Operational-energy initiatives at the small-unit level are reducing the frequency of resupply (both aerial and ground), the number of batteries Soldiers must carry and how often Soldiers must replace their batteries. Initiatives are also providing solutions to better manage the power Soldiers do have.

The operational-energy initiative's goal is to improve combat effectiveness by becoming "net-zero," thereby saving Soldiers' lives and reducing Soldier load. Net-zero at the small-unit level is the ability for Soldiers to produce enough energy to power their own individual equipment, reducing the need for resupply related to power demand.

The Army continues to seek revolutionary solutions to generate power on-site, reduce system power demand and eliminate the need for spare batteries. Eventually, the Army will measure power-source life in terms of weeks and months, rather than hours and days.

The Maneuver Center of Excellence's vision is to provide every Soldier with the ability to wirelessly power every system within a one-meter radius of a centrally worn power source and create a power surplus at each echelon. The less power Soldiers use, the more power they preserve, and the more efficiently power is produced, the smaller the cumulative power demand is on the squad.

The same concept is true from squad to platoon, platoon to company, etc. In turn, the next higher echelon would require a lighter, more agile power-generation solution to support the power demand.

For example, to meet the power demand, a platoon could use a lightweight, compact 500-watt solar blanket, as opposed to a heavier 900-watt generator. Or, a squad could use a lightweight solid oxide fuel cell instead of a cumbersome solar blanket, which requires sunlight.

Regardless of the ultimate materiel solution, the objective is to increase the small-unit's ability to gain and maintain contact with the enemy by lightening Soldier load, increasing unit self-sustainability and self-sufficiency, and reduce frequency of mission interruptions due to resupply operations and battery swaps.

Today's challenge

Soldiers are unnecessarily placed in danger due to the frequency of exchanging batteries and exhaustion from carrying additional weight. Excessive loads, in both weight and bulk, negatively impact the mobility, lethality, survivability and combat effectiveness of Soldiers and small units. More physical energy is expended to perform each assigned task. The fatigue resulting from heavy loads decreases a Soldier's alertness and ability to move quickly, thereby making the Soldier and small unit more vulnerable. Reduced mobility requires small units to travel shorter durations and distances between routine resupply. Also, excessive loads may dictate which route a unit takes, potentially exposing them to threats.

The mass proliferation of Soldier-networked radios and advanced Soldier-borne sensors, optics and targeting devices requires a holistic approach to Soldier energy, with a focus on intelligent power management, low-power electronics and networked, smart battlefield-energy on-demand solutions. Included in this approach are both advanced energy sources and improvements in managing energy use and consumption by new Soldier-borne devices. This ensures dismounted small units and Soldiers will be better postured to conduct sustained combat operations in austere environments.

Current limitations

The dismounted infantryman or scout deployed in Afghanistan carries on average 9.7 pounds of batteries. Soldiers are unable to recharge these batteries when they are not in or near a vehicle, or have access to power from a combat outpost or forward operating base. This situation will become increasingly challenging as Soldiers are brought into the network.

Battery weight will likely increase to more than 14 pounds for a 72-hour mission if every Soldier is brought into the network. This weight increase will inevitably force small-unit leaders to make tough decisions to either leave equipment behind or further burden their Soldiers with more weight. As most of these systems have battery durations of eight hours or less, Soldiers will have to make about seven battery exchanges for each of their systems over the course of the mission. These battery exchanges could occur during decisive actions, not only reducing the effectiveness of that Soldier and the small unit, but also compromising mission accomplishment.

Potential solutions

The following are examples of the solutions the Army is researching and developing to help maintain enough operational energy at the small-unit level.

- **Integrated Soldier Power and Data**

System. Powering multiple Soldier-borne devices by a central conformal battery is one way the operational-energy community is trying to solve the energy limitations. The ISPDS will eliminate the need for spare batteries for each individual system. This central battery is flexible, lightweight and provides significant improvement in power duration.

The first generation of ISPDS and conformal batteries were evaluated at the Network-Integration Evaluation 13.1 with enormously positive results. During NIE 13.1, Soldiers were able to operate more than 24 hours without having to exchange a single radio or Nett Warrior end-user-device battery. This reduced the number of batteries the unit had to carry and increased its confidence that systems would have enough power when required.

Without the conformal battery and cables, the radio and EUD only lasted four to six hours. The short battery durations dictated many battery exchanges while engaged with the enemy. There were times when Soldiers had no power to operate their communication devices to coordinate for unit enablers (adjacent units, fire support, etc.).

- **Battery charging and power generation.** Although the conformal battery and power-distribution system showed significant promise for enhancing Soldier power, the Army recognizes this is not enough. This alone will not reduce energy demand required by dismounted Soldiers and units. To become net-zero, the conformal battery needs to be charged daily. Currently, this can only be done using a vehicle or while in a secure location like a FOB that has inherent generator support.

To help remedy this issue, the Army is working on a lightweight, man-portable battery charger that can charge many battery types simultaneously, including the conformal battery, using various power-generation inputs such as solar energy.

Another solution is providing a power-distribution and management device in conjunction with a solar blanket or folding solar panels that can recharge batteries or directly provide power to small electronic systems. This power-management device can scavenge power from almost any available energy source (alternating current, direct current, vehicle, solar, etc.) and convert it into useable power for Army communications and electronics devices. It can transfer power from batteries to other batteries and systems, allowing more flexibility for the unit. Recently, 1st Brigade Combat Team, 82nd Airborne Division, deployed to Afghanistan with this capability within the 3-73rd Cavalry Squadron.

Although the first-generation solar technology did not allow rapid battery charging, the power-management device did allow them to transfer power from partially depleted disposable batteries to rechargeable batteries and devices, thereby reducing wasted energy that would normally be lost when replacing a battery before being depleted of energy or thrown away. This device allowed a mortar position to operate continuously without battery resupply — an enormous benefit to the unit in that it could only receive aerial resupply.

The currently fielded state of solar technology provides a good backup at a secure location when fuel is unavailable or impractical, such as while a squad is occupying a combat outpost; however, current solar technology does not provide enough power to support the Soldier indefinitely at the tactical edge. Soldiers in Afghanistan and at the NIE have harnessed solar power and used this energy to power their personal devices. This level of confidence and trust in solar panels is witnessed at home station as well, demonstrated by large numbers of Soldiers who use solar panels to charge their personal devices while camping, hiking or at the beach.

Even with the current success of solar technologies, further development is required for lightweight, flexible solar technology to become a viable solution for the dismounted Soldier and offset the large quantities of batteries now required.

- **Kinetic energy.** As technology improves, kinetic energy could prove to be a viable option to further reduce the dependency on fuel and allowing more autonomy in small units. Harnessing kinetic energy generated from Soldier movement is another way to improve operational-energy efforts. This would provide energy to the conformal battery and other electronic devices. Possible locations for capturing this kinetic energy are the assault pack, rucksack or the Soldier's leg. Early prototypes of these technologies demonstrated potential; however, the energy produced did not merit the additional burden on the Soldier at this time.

Cultivating positive mindsets

Although this article has mainly focused on the materiel aspects of operational power, non-materiel solutions are just as important in addressing the power challenges of today and the future. Army culture and individual attitudes must change if the Army intends to overcome its operational-power challenge by reducing power demand and using power more efficiently. Finding non-materiel solutions to this operational concern can only be accomplished through educating our Soldiers and leaders, developing their confidence in newly established operational power practices and making these new practices routine and habitual.

Army leaders and Soldiers must be educated so they understand the positive and negative impacts of their actions from an operational power and energy perspective. To accomplish this, institutional courses from initial-entry-level training through senior-leader courses must include operational power and energy as it relates to their levels of responsibility and accountability. Education must include strategic, operational and tactical impacts, and it must include power and energy operating fundamentals, principals and best practices.

Operational power and energy impacts every principle of war, warfighting function, formation and form of maneuver across the operational environment. There is not a single aspect of the profession of arms untouched by operational power and energy. It is important; it is ubiquitous; and it can be the difference between winning and losing.

Education is the starting point for changing the current Army culture and attitudes, but it is not the endpoint.

The Army must make the paradigm shift toward operational power and energy an enduring consideration. This is not a fad, here today and gone tomorrow. To achieve permanence, the Army must prove that real progress in all indices of operational power and energy can be achieved by changing its institutional and individual behaviors. From these demonstrated and marked improvements in operational power and energy, individual confidence will take root and grow. Success will encourage expansion of operational power and energy best practices and further solidify the confidence Soldiers and leaders have for future improvements.

Finally, a culminating point is achieved when operational power and energy best practices and a net-zero state become the norm. This must be the enduring endstate of operational power and energy in the Army.

Way ahead

Power and energy represent a unique challenge to Soldiers, units and the Army at large. With the advent and proliferation of advanced technologies, the Army becomes more reliant on power to sustain operations.

Advancements must continue in rechargeable and non-rechargeable battery designs and chemistries. It is likely that electrochemical batteries, particularly rechargeable batteries, will remain the primary means for Soldier power and energy for decades to come. Battery modernization may be achieved through investment in science and technology such as advanced high-density battery improvements, nanotechnology applications to battery materials and design, lithium-based battery improvements and the capability for rapid recharging. Improved battery density will reduce battery size and weight, thereby improving operational effectiveness and unit self-sufficiency. There will be a continuing need to adapt advanced battery technologies for Soldiers through ergonomic design of conformal batteries.

Other focus areas include enhanced battery designs, intelligent power management, smart battlefield-energy on-demand apps, wireless energy sensing and wireless energy transfer, fuel cell use of JP-8, energy systems integrated with other systems (clothing and protection) and novel energy-harvesting sources.

The Army is also exploring the use of computing, networking and analysis tools to automate Soldier power-management and controls. For example, when a Soldier sits in a vehicle seat, the vehicle's intelligent power-management systems activate embedded seat sensors to analyze the Soldier's energy reserves. The sensors then activate the seat's embedded wireless charging pads and passively bring systems to a full state of charge.

To take advantage of this new paradigm, there must be novel approaches to Soldier-borne power and energy sources and a strategic imperative for energy demand-side management. There are opportunities to harvest Soldier-energy from many sources such as solid-state energy-conversion devices, microcombustors and physiological motion and reactions. These approaches will be essential to enable the Soldier systems of the future.

Wireless energy transfer will align with wireless information exchange. Opportunities exist to integrate power storage and harvesting into revolutionary concepts in Soldier protection and clothing systems, thereby easing Soldier power and energy supply demands and overall Soldier load.

For the near future, operational power and energy demands will continue to increase rather than decrease. Consequently, finding viable solutions are a driving force behind the growing Army support and activity in power-related research and development. As a result, advancement in Soldier power and energy solutions are an integral element of the Army's operational-energy requirements document and the soon-to-be-published Army Campaign Plan.

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Science & Technology and Research & Development Focus Areas

- Soldier-borne intelligent power management tools/devices
- Networked applications to enhance Soldier energy awareness and provide data-to-decision capability
- Energy demand efficiency considerations designed into new and future Soldier devices to extend the use of available energy
- Lightweight, compact highly efficient battery charging devices and advanced energy dense rechargeable batteries
- Improved battery energy density that is smaller, lighter, and conformal to the Soldier
- Wireless energy transfer and charging at very efficient levels and meaningful distances
- Intelligent energy interfaces that maintain/improve Soldier energy reserves across transitions
- Highly efficient compact power sources for Soldiers that may take advantage of solid state energy conversion, micro-combustors and micro power, and bio-energy harvesting

Acronym Quick-Scan

EUD — end-user device
FOB — forward operating base
ISPDS — Integrated Soldier Power and Data System
MCoE — Maneuver Center of Excellence
NIE — network-integration evaluation

Success or Failure: The Importance of Junior Leadership in the Decisive-Action Training Environment

by LTC Christopher Budihas and 2LT Brian M. Bove

When 4th Squadron, 2nd Cavalry Regiment (a Stryker reconnaissance squadron), participated in a regimental training exercise at the Army's decisive-action training environment, its junior leadership spelled its success or failure.

This article focuses on the movement and maneuver that Nemesis Troop conducted during the exercise's first two days, specifically highlighting the tactics and techniques used to overcome the diverse factors of terrain, civilian considerations and enemy presented by a non-contiguous and non-permissive operating environment. Ultimately, despite a series of both real-world variables and training-specific scenarios, the troop was able to accomplish its tasks through the junior leadership's adaptability and flexibility.

Background

The exercise was a two-week operation in October 2012 at the Joint Multinational Readiness Center in Hohenfels, Germany, that tested the squadron's capabilities in fighting hybrid threats — consisting of both conventional threats and asymmetric forces — within the parameters of Army Doctrine Publication 3-0, ***Unified Land Operations***.

In the time comprising the military decision-making process and troop-leading procedures that led up to our exercise, senior leaders within the regiment and squadron spent hours developing the plans used to conduct the first exercise of this magnitude in the Bavarian countryside since 1989. The squadron's Soldiers concerned themselves with dedicating the same degree of preparatory work and training they had applied to all the squadron internal training events that year — just as professional cavalrymen in the U.S. Army are expected to do.

Success or failure at this keystone event would come down to how Soldiers at platoon-level-and-below executed their orders and conducted themselves in accordance with the finest traditions of cavalry. The junior leaders within 4th Squadron would be responsible for leading these Soldiers within the parameters of their commander's intent and would ultimately bear the weight of success or failure in the exercise.

Exercise missions

The squadron had three essential tasks built into the initial mission. The first task was to conduct zone reconnaissance from Grafenwoehr Training Area to Hohenfels Training Area to defeat enemy forces in area of operations Dragoon. The second task was to pass an infantry squadron, Task Force War Eagle (1-2 Cavalry Regiment), forward near Phase Line Patriots to allow them to penetrate to HTA. Finally, the squadron was to conduct wide-area security near the northern border of HTA.

Nemesis Troop's mission involved zone reconnaissance from the south side of GTA through the German countryside to the north side of HTA. Nemesis Troop was task-organized to include a Stryker anti-tank platoon, which was given a "follow and assume" mission, and two reconnaissance platoons, allowing the troop to operate in "hunter-killer" teams and defeat enemy armor assets beyond the normal capabilities of a Stryker reconnaissance troop.

The two reconnaissance platoons' tasks included identifying a series of possible enemy engagement areas and defeating any enemy within respective capabilities.

Terrain challenges

Even before Nemesis Troop left the passage point at GTA, the leadership and Soldiers alike were well aware that the terrain they were tasked with reconnoitering was different from the typical maneuver training area found on most Army posts. Most of the Soldiers had operated in similar environments during several preparatory training events in the months preceding the DATE within Weiden Maneuver Rights Area. However, this particular AO offered unique challenges, particularly because of the sheer frontage each troop was tasked to cover. Supporting ranges and distances were often stretched to their limits.

Nemesis Troop received the easternmost portion of the squadron AO, which spanned 10-15 kilometers from west to east at any given point and was geographically isolated from the rest of the squadron on the eastern side of the Vils River. The terrain varied drastically, often consisting of rolling fields, sprawling and dense woodline, and small pockets of tightly packed urban areas. This made identifying, seizing and controlling key terrain paramount to the reconnaissance effort's overall success.

Platoon leaders had the freedom during TLPs to conduct their own intelligence preparation of the battlefield. They worked closely with their platoon sergeants and senior scouts to develop routes through the countryside that maximized both cover and concealment, ***and*** that offered the best vantage points from which to observe and control the previously identified key terrain.

Even with careful and attentive planning, the terrain rarely cooperated during the operation's reconnaissance phase. Rural routes often could not support the sheer size and weight of the Stryker platform, and low-hanging branches hindered stealthy and rapid movement. Success under these conditions was not possible without competent vehicle commanders to make rapid decisions and navigate with dated maps, at night and in the unpredictable German climate.

Vehicle recoveries

In the course of the movement to HTA alone, 1st Platoon performed five vehicle recoveries. These recoveries weren't staged variables built into the training scenario, but rather were the result of the real-world effects of terrain not specifically built for traffic by U.S. military vehicles.

One vehicle recovery occurred just hours into the first night of the operation when the M1117 Armored Security Vehicle manned by the attached combat observation and lasing team nearly rolled into a ditch bordering a large uncultivated field because the narrow dirt trail the platoon was using collapsed underneath the vehicle's weight. This immediately presented a number of concerns for 1st Platoon, which was on a strict timeline to establish a squadron-level passage point still more than 10 kilometers away before first light. The vehicle could not self-recover, nor could a Stryker offer much assistance due to the angle at which the vehicle was stuck. Squadron recovery assets were requested, but they did not appear on-site until well after first light.

The situation dictated that the platoon break into two separate sections — Bravo Section staying with the downed vehicle to provide local security while Alpha Section continued to maneuver forward to establish the passage lane. Section leaders became the key leaders of each operation, rapidly coordinating both the local security effort around the immobilized vehicle and the designated passage-lane team, while the platoon leader and platoon sergeant developed the situation for both the troop commander and the recovery assets from Headquarters and Headquarters Troop.

The flexibility to continue the mission despite unforeseen variables was the direct result of junior-leader competence, fortified by our repetitious training of basic Soldier skills in the field. By understanding key tasks, in conjunction with possessing the confidence to take charge when superiors were preoccupied with other tasks, section-level leaders were able to overcome unforeseen adversity. Leaders at platoon and troop levels were then able to supplement the section, providing security at the passage lane by reallocating a section from 3rd Platoon to assist. This ultimately ensured the lane was established per the regimental timeline. In this instance, the initiative of junior leaders was the catalyst that gave senior leaders the time and necessary picture of the battlefield, enabling them to allocate the resources mandatory for success.

Interacting with German populace

Another factor that increased the mission's complexity was operating in areas populated by German civilians (not role-players). Leaders were challenged to factor civilian considerations into their maneuver, which included varied issues such as avoiding the destruction of cultivated fields, integrating into patterns of life and preventing unnecessary property damage. Ultimately, these factors had the potential to turn the local populace against the squadron's operational lines of effort if not handled appropriately.

This was coupled with the fact that the Stryker platform does not blend in with small European automobiles or quaint villages in any capacity. Section leaders overcame these issues by planning bypass routes and, when this was not possible, they used vehicle bounding or traveling overwatch to ensure the vehicles in their section could mutually support each other while crossing danger areas. These on-the-ground decisions stemmed from comprehensive rehearsals, effective communication and the formulation of contingency plans during the TLP process.

Soldiers also found creative ways to interact with the civilian population to gain a tactical advantage over the enemy. Curious local-nationals would frequently seek out the seemingly-out-of-place military vehicles moving (literally) through their backyards to interact with the crews. Without hesitation, gunners or VCs would ask these civilians general questions pertaining to our priority intelligence requirements about other enemy military vehicles they may have seen and what direction they were traveling in.

Our training exercises reinforced doctrinal tactics and allowed us to creatively exploit situations to collect the information necessary to accomplish the mission. The platoons learned invaluable lessons about how doctrine applies outside of controlled training environments, which translated

into real-world confidence in the skills we trained and developed over months of field-training exercises. The cumulative outcome of overcoming the effects of diverse terrain and civilian considerations prepared the troop for the first contact with enemy forces that quickly followed.

Enemy contact

The enemy consisted of a hybrid threat composed of both conventional and unconventional forces, meaning Soldiers had to be prepared to make contact with everything from a T-80 tank to a Jeep Grand Cherokee.

Within 15 minutes of leaving GTA, while the troop maneuvered in a column to the line of departure, 3rd Platoon observed a black Jeep, which moved toward their position, then suddenly changed directions and sped off. The vehicle was spotted several more times moving on lateral routes in the troop's vicinity, but it failed to display clear hostile intent that would have been necessary for 3rd Platoon to apply lethal force against the vehicle.

In the context of this vignette, it is clear that the vehicle was in fact an unconventional enemy forward-reconnaissance element. However, leaders had to consider the possibility the vehicle was simply being driven by an interested civilian with no knowledge of the training event taking place.

The senior scout from 1st Platoon recommended establishment of a hasty traffic-control point to intercept the vehicle, but this fell outside the scope of the commander's intent and the platoon leader made the tough decision to continue mission.

In another instance, the lead vehicle from 1st Platoon observed two enemy Boyevaya Razvedyvatelnaya Dozornaya Mashinas stationary in the woodline adjacent to a cultivated field. While it was clear that contact with conventional enemy forces had taken place, the existence of a nearby village complicated the use of indirect-fire assets against the enemy vehicles. The COLT, in conjunction with the troop fire-support officer, had to consider the effects indirect fires could have on the nearby town before clearing the fire mission. This increased the time it took to receive clearance from the commander and for the mortar section to drop rounds on target.

In this instance, success resulted from not only having well-rehearsed fires but because flexible indirect-fire personnel could factor in unforeseen civilian variables both quickly and effectively.

The complex decisions made in these two enemy-contact situations capture only a brief glimpse into the multi-layered judgments junior leaders made regarding the second- and third-order effects of their actions. This was the cumulative result of reflexive and flexible leadership developed through months of field experiences, after-action reviews and the study of various conventional conflict vignettes at the troop and squadron level. It quickly became clear that when given the proper training, junior leaders have the capacity to learn from mistakes and achieve results that transcend the expectations of their rank and duty position.

Bridge control

The value of these lessons became apparent as the troop continued its reconnaissance push toward HTA and took on an even more complex mission. As Nemesis Troop maneuvered toward HTA, it received an on-order mission to secure a key crossing point on the northern boundary, marked by the Lauterach River — a mission that would directly affect the success of the regiment's movement into HTA.

The crossing site presented two challenges: the bridge was bordered by a high-speed avenue of approach, and the bridge itself was much smaller than originally anticipated. The platoons relied on the planning and rehearsals they conducted during TLPs to guide them through the task.

Alpha Section of 1st Platoon established overwatch of the crossing site, as well as security down the high-speed avenue of approach parallel to the river. The situation was complicated due to the high volume of traffic moving along the route; in fact, it would have been impossible to establish a TCP and stop all vehicular traffic moving along it without disrupting local patterns of life and affecting local stability as described in ADP 3-07. To overcome this complication, the leader of Bravo Section, 1st Platoon, recommended use of a "chase" vehicle, which would remain concealed near the route until a suspicious vehicle moved into the sector. At that point, the chase vehicle could either pursue or stop any suspicious vehicle with a hasty TCP.

With the exposed nature of the crossing point, 3rd Platoon used a rapid tempo to provide them with the edge they needed to quickly establish local security of the crossing site and conduct a hasty field classification of the bridge's military load capacity. Once established, the passage lane proved valuable and offered an axis along which the regiment penetrated into HTA.

Again, throughout the troop, the recommendations of junior leaders were valued and aided considerably in senior leaders' MDMP and in the unit's subsequent flexibility and adaptability. By learning from mistakes made only days prior, 1st Platoon was able to successfully provide overwatch and establish security by acting on junior leaders' recommendations.

Overall, the establishment of the passage lane was another learning point for the leadership born out of real-world conditions. The adage that the leader on the ground has the best perspective from which to make decisions based on the commander's intent proved to be true in this case. Squadron provided Nemesis Troop with a task and purpose, from which the commander developed an intent-based course of action that each platoon would take. This trust accounted for the flexibility that complex contemporary operations require. Platoon leaders were able to adjust from changing conditions on the battlefield and develop plans that worked in the multi-variable DATE that could not be drawn from map reconnaissance alone. A balance of doctrinally sound planning, interspersed with the adaptability and flexibility of leaders on the ground, achieved desired results and led to mission accomplishment throughout the exercise.

Junior leaders = success

The preceding brief collection of vignettes is a small example of the dozens of similar encounters the Soldiers of Nemesis Troop experienced during the two-day, 60-kilometer movement to HTA's northern boundary. Each platoon cleared anywhere from four to six named areas of interest the regiment had previously identified, as well as countless pieces of key terrain identified at both the troop and platoon levels during IPB.

The environment the platoons operated in was diverse and often not favorable for the Stryker platform. The platoons

faced challenging new variables while operating in the Bavarian countryside as well as within HTA's confines.

Success during the DATE's opening days established confidence and set the conditions for success throughout the rest of the exercise. Junior leaders at platoon-level-and-below demonstrated versatility, seeing first-hand how the conventional doctrine they had spent the previous six months dedicating themselves to mastering actually applied even under the most obscure combination of real-world variables.

This article has presented one perspective that is truly miniscule in the scope of the DATE as a whole, but it proves that junior leaders are able to influence the outcome of regimental operations on a complex battlefield.

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For more information on this exercise, called Saber Junction, visit http://www.army.mil/article/89237/_Saber_Junction__tests_U_S___partners__interoperability/.

Acronym Quick-Scan

ADP — Army doctrine publication
AO — area of operations
COLT — combat observation and lasing team
DATE — decisive-action training environment
GTA — Grafenwoehr Training Area
HTA — Hohenfels Training Area
IPB — intelligence preparation of the battlefield
MDMP — military decision-making process
SAMS — School of Advanced Military Studies
TCP — traffic-control point
TLP — troop-leading procedures
VC — vehicle commander

REVIEWS

September Hope: The American Side of a Bridge Too Far by John C. McManus, North American Library, New York, 2012.

Noted military historian and author Dr. John C. McManus examines the 1944 airborne invasion of Holland in his latest work. The author begins by citing an excerpt from the diary of LTG Lewis Brereton, commander of the First Allied Airborne Army. "In years to come," Brereton noted in November 1944, "everyone will remember Arnhem, but no one will remember that two American divisions fought their hearts out in the Dutch canal country and whipped hell out of the Germans." McManus' excellent book reconciles that historical oversight. This is a detailed, well-researched examination of the American contribution to Operation Market Garden.

McManus concentrates on the planning for Operation Market Garden, tactical use of the 101st and 82nd Airborne Divisions in the plan of attack, and the contribution of the 104th Infantry Division in the seizure of the approaches to the vital port city of Antwerp. Before examining the tactical employment of the force, the author puts forth his conviction that logistics were the key to victory. He recounts that the Allies gained a quick victory when they seized the city and port of Antwerp. The port was able to supply large segments of the Allied army. However, field commanders failed to capture the Scheldt Estuary immediately after seizing the port city. It is the author's contention that this was a stunning oversight with profound consequences to the Allied effort.

Also, McManus holds that the supreme commander, GEN Dwight D. Eisenhower, failed to retain focus on his "broad front" approach to attaining his mission objective by acquiescing to Field Marshal Bernard Montgomery's call for a single thrust through Holland into the industrial heart of Germany. Supporting Montgomery's daring plan required the diversion of supplies and logistical assets from the American 12th Army Group's drive across France toward the German border. The plan that followed became Operation Market Garden, a high-risk operation that failed to contribute to the eventual Allied victory.

Montgomery's proposal received more support from the German rocket attacks on England. British Prime Minister Winston Churchill demanded that forces commit to overrunning the German rocket sites, thus relieving the danger to the British home islands. This consideration influenced the approval of Operation Market Garden.

Operation Market Garden was a "deeply flawed plan," according to the author. "The sad truth," the author notes on Page 43, "was that Market Garden could not be changed or amended into a better concept. … (It was) based mainly on hope, stemming from the faulty premise that a single thrust into northern Germany could magically spell doom for Hitler." For the two American airborne divisions, the die was cast. They were now thrust into an operation that required them to parachute deep into enemy-held territory, seize several key bridges and hold them against substantial German counterattacks while awaiting the speedy arrival of British troops.

Despite these shortfalls, McManus explains on Page 100 that "[t]his mighty host was an impressive demonstration of Allied power — the financial resources that made it possible, the industrial might that created it and, most of all, the human beings who took the leading role in fulfilling its purpose." Also, his outstanding combat narrative addresses the myth concerning the Germans' capture of Market Garden's operational plans. In McManus' opinion, the Germans did not need the Allied plan to appreciate what was taking place. It was intuitively obvious that the airborne- and ground-invasion intent was to seize the bridges, cross the Rhine and smash into Germany — an objective the fast-moving German ground forces wished to frustrate.

McManus appreciates that Market Garden was a complex operation. In effect, he writes, Market Garden required the successful accomplishment of three missions. First, the airborne and ground forces had to keep the narrow corridor open in the face of fierce German attacks. Second, they had to retain key terrain throughout the entire 60-mile route through Holland. Thirdly, the ground force had to make a timely entrance to relieve the British airborne forces in Arnhem. Unfortunately, the Allies failed to achieve these mission objectives.

McManus has written a compelling narrative. Amply supplemented by many maps, McManus provides us a fast-paced narrative without a loss of essential detail. This engaging book clearly blends personal recollections with operational aspects. It is as fitting a tribute to those brave men of the 82nd and 101st Airborne divisions as it is to the men of the 104th Infantry Division. As such, it should be a welcome addition to any professional library.

D.J. JUDGE
COL, U.S. Army (retired)

63RD ARMOR REGIMENT

The distinctive unit insignia of the 63rd Armor Regiment was approved Dec. 4, 1964. Green is used for Armor. The wavy band is from the arms of the Rheinprovinz and indicates service in that area and in Central Europe, while the fleur-de-lis is for service in France and the citation for Colleville. The rampant lion from the arms of Belgium represents the citation for Mons Eupen-Malmedy. The canton represents descent from the 745th Tank Battalion from which these honors were inherited, seven being represented by the septfoil, four by the square and five by the star.

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