

ARMOR

Mounted Maneuver Journal

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Sharpening our Craft



ARMOR

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Relooking Assignment-Based Training

There is no branch of our Army with a greater breadth of mission than that of the Armor Branch. The Armor Branch serves two primary purposes: first, to provide combined-arms formations with the capability to close with and destroy the enemy using a combination of mobility, firepower and shock effect; and second, to provide cavalry and scout formations at all echelons the capabilities and expertise to perform reconnaissance and security operations during combined-arms maneuver and wide-area security operations.

To outfit every brigade combat team with officers and noncommissioned officers who have the necessary skills and expertise to immediately lead formations and accomplish their unique and varied missions, the Armor Branch has instituted an assignment-based training model in Army Regulation 600-3. Given the individual mission requirements and the breadth of potential assignments available to Armor officers at every grade, it is not possible to train them all to the point of mastery in every one of those skillsets, nor is it the desire of the Armor Branch to generate a body of leaders skilled in a broad range of subject matter at the

expense of mastery of any one. To do so would require an officer to spend more time in training than the operating force can afford.

Our Army continues to change and adapt, adjusting to resource constraints and lessons-learned from the various theaters, so it is fitting that this year's Maneuver Warfighter Conference theme is "Sharpening our Craft." With that in mind, it is appropriate to look at the current model for the direction we plan on going in the future.

The current model reflects three distinct officer-assignment-based training strategies for lieutenants wherein each lieutenant is required to attend Basic Officer Leadership Course and the Army Reconnaissance Course. Depending on the type of assignment (armored brigade combat team (ABCT), infantry brigade combat team (IBCT) or Stryker brigade combat team (SBCT)), Armor lieutenants are encouraged to pursue other functional courses. The only additional requirements under the current system are Ranger School for those assigned to IBCTs and those lieutenants going to SBCTs. Also, the Stryker Leader Course is required for all those bound for SBCTs.

In light of a need to further hone our skills as maneuver Leaders, the Armor School is focusing our efforts to better prepare our newest leaders assigned to the ABCTs, where the majority of our branch's combat power and personnel reside. To sharpen these skills, we are developing specific programs of instruction based on the results from our platform lethality study. The core issue is improving the foundational knowledge in young leaders with regard to their unit specific platforms. Reinstating courses such as the Bradley Leader Course and the Tank Commander's Course, we can give young leaders increased repetition and practice prior to leading Soldiers on these platforms. This course of action will increase our lethality as a branch across all formations of our Army.

ACRONYM QUICK-SCAN

ABCT – armored brigade combat team
IBCT – infantry brigade combat team
SBCT – Stryker brigade combat team

GUNNER'S SEAT

CSM Kevin J. Muhlenbeck
Command Sergeant Major
U.S. Army Armor School



Thoughts on This Year's Sullivan Cup

It has been an exciting first 90 days as the Armor School command sergeant major, and it is my pleasure to extend a heartfelt congratulations to all the competitors of the Sullivan Cup Best Tank Crew Competition. Also my gratitude to 316th Cavalry Brigade for their efforts in putting the competition together, and to 194th Armor Brigade for the outstanding Armor Ball that closed out an amazing week.

The crew from 3-67 Armor, 2nd Armored Brigade Combat Team, 3rd Infantry Division, fought hard and won the title of best tank crew! The competition was nested with doctrine and the Integrated Weapon Training Strategy, which fed into the overall observation that although crews demonstrated proficiency in crew drills, there were some shortcomings in some individual tasks of our Abrams tankers.

As a branch and as an Army, we must ensure that Soldiers at all levels get the reps and sets of their individual tasks

to achieve proficiency. This is needed to be successful at our collective tasks and our wartime mission. Based on observations from both the Sullivan Cup and combat-training-center rotations, we are currently pushing forward with the following initiatives at the Armor School. First, we are conducting the staff analysis on extending 19-series one-station unit training an additional 30 days for 19D and 42 days for 19K. These additional days will focus on developing Soldiers who are more disciplined, physically fit and proficient in Skill Level 10 tasks. Second, we are reviewing the program of instruction for Career Management Field 19 Advanced Leader's Course to ensure we incorporate the tasks that will build the foundation of solid leaders that are ready to be tank commanders and scout-squad sergeants.

However, the process of building tankers and cavalry scouts begins at Fort Benning and must be continued in the

operational force. Noncommissioned officers, you play the most critical role in this process by maximizing available time and resources to ensure Soldier and subordinate leaders get more reps and sets of their respective skill-level tasks. Identify those ready for the next level, challenge them, empower them and get them boarded and professional-military-education trained. That way you can look your platoon leaders and company/troop commanders in the eye and tell them that **your** Soldiers are prepared for collective training.

We at the Armor School are here to help, and please don't hesitate to reach back to us with requests for information or suggestions to help us support you better. Together we will proudly do our part of the maneuver force and add to our branch's legacy. Always remember to be proud that you are an Armor Soldier and that **PRIDE IS CONTAGIOUS!**

Accelerating Multi-Domain Operations: Evolution of an Idea

by GEN Stephen Townsend

Multi-domain battle (MDB) has a clear origin. Stemming from the idea that disruptive technologies will change the character of warfare, it recognizes that the way armies will fight and win wars will also change. It also reflects the desire to replicate the success of AirLand Battle, which is arguably the most significant case of developing a concept and then materializing capabilities across the doctrine, organization, training, materiel, leadership education, personnel and facilities spectrum.

Origin stories establish the foundation from which lasting ideas emerge. However, for ideas to have a lasting impact, they must evolve. For MDB, there are two things driving the need to evolve the concept.

First, ideas must evolve to ensure alignment with the strategic direction of the enterprise they serve. The 2018 National Defense Strategy lays out the missions, emerging operational environments, advances in technology and anticipated enemy, threat and adversary capabilities the Department of Defense envisions for the foreseeable future. It provides direction for how the joint force must evolve to compete,

deter and win in future armed conflict. To this end, MDB must reflect this strategy.

Second, when I took the reins of U.S. Army Training and Doctrine Command, I was specifically directed to “operationalize multi-domain battle” by building upon the foundation created by my predecessor and accelerating its application. And what I found was an incredible foundation. GEN Dave Perkins brought together partners across the joint force, driving development of the concept to an articulated idea and a vision of how the Army fits into it. The key players are all here and are committed to building and improving the concept and finding real solutions. The concept is ready to grow.

But for that to happen, we need to confront some of the problems others have noted. Over the last 18 months MDB has been out there for debate, there have been four consistent critiques. Some noted that the idea was “old wine in a new bottle.” I think the iPhone analogy articulates why that just isn’t true. What the original iPhone did wasn’t all that new, but how the iPhone did it fundamentally changed not just a market but people’s behavior. This is exactly what we seek to

achieve with this new concept. Though the domains of warfare (air, land, sea, space and cyberspace) are not new, how the U.S. armed forces will rapidly and continuously integrate them in the future is new.

Another critique is that this is an Army-only concept. However, the Air Force and Marine Corps have been part of MDB from the start, and recent reporting from many forums has made clear the Army’s desire to listen, learn and include our joint and multinational partners in this idea’s development. Recently the Navy and the Joint Staff have also joined the discussion.

Albert Palazzo’s series of articles in Fall 2017 laid out a clear argument. To be successful, MDB must translate into radical effects on the U.S. military’s culture. The concept must force us to reconsider fundamental tenets like our industrial-age means of promoting, training and educating leaders. It must also pull us from the comfort of our tactical-level trenches to develop capabilities that inform up to the strategic level of war. Putting “battle” into the name both confines the possibilities and limits the result.

In battles, combatants can win time



U.S. Army and British Army paratroopers shake hands before jumping from a C-17 Globemaster III over Latvia during Exercise Swift Response 18 June 8, 2018. (Photo by A1C Gracie I. Lee, U.S. Air Force)

and space and they allow one side to take ground, but they do not win wars. The world we operate in today is not defined by battles but by persistent competition that cycles through varying rates in and out of armed conflict. Winning in competition is not accomplished by winning battles, but through executing integrated operations and campaigning. Operations are more encompassing, bringing together varied tactical actions with a common purpose or unifying themes. They are the bridge between the tactical and the strategic.

In my first months of command at Training and Doctrine Command, it became clear that the use of the word “battle” was stifling conversation and growth of the concept. There are three concrete reasons why MDB evolved to multi-domain operations (MDO).

First, if the concept is to be truly joint and multi-service, we need clarity and alignment in how we talk. The Air Force talks of MDO and multi-domain command and control, while we talk of MDB – often covering similar, if not the same, ideas and capabilities. To this point, none of the many people I have talked to, including my predecessor, are wedded to the use of “battle” – it was what fit best in time, place and circumstances. What they are committed to are the ideas of converging capabilities across the joint force with continuous integration across multiple domains.

Second, we cannot do this alone. The armed services can win battles and campaigns, but winning wars takes the whole of government. It helps the entire effort if our interagency partners are comfortable with and conversant in our warfighting concepts and doctrine. As highlighted to me by a former ambassador at a recent forum, talking in terms of operations instead of battles brings together those who want to

get things done – whether they are civilians or the military.

And third, it is never just about the fight. When it comes to combat, there is no one better than the combined weight of the U.S. military and our allies and partners. However, the operating environment is evolving and nation-state-level competition has re-emerged, as evident by recent actions by both Russia and China. Our national defense strategy highlights the importance of winning the “competition” that precedes and follows conflict. However, our use of *multi-domain battle* seemed to indicate our concept was only for the conflict phase. While there are battles within competition, winning them is pointless if they are in isolation to the larger context of deliberate operations supporting national strategy.

“MDB” served its purpose – it sparked thinking and debate, and it created a foundation. But what we need now is “MDO,” and the next revision of the concept to be released this fall will reflect this change.

Language is important. It conveys meaning. This change is not cosmetic – it is about growing an idea to its greatest potential to change the way we fight today and to ensure overmatch against our adversaries of tomorrow. To do this, we need clarity and alignment across the joint force, whole-of-government inclusion and perspective that reinforces our need to compete effectively outside periods of armed conflict. Changing the name does not do this by itself, but it communicates a clear vision of what we need to accomplish and where we are headed.

GEN Stephen Townsend commands U.S. Army Training and Doctrine Command, Fort Eustis, VA. Previous

assignments include commander, XVIII Airborne Corps, plus service with 505th Parachute Infantry Regiment, 21st Infantry Regiment, 31st Infantry Regiment, 75th Ranger Regiment, 82nd Airborne Division, 7th Infantry Division (Light), 10th Mountain Division (Light), 2nd Infantry Division and 101st Airborne Division (Air Assault). His key staff assignments include service as a planner and operations officer at battalion, brigade, division and joint-task-force levels. At U.S. Pacific Command, he was the J-5 strategy and plans officer for China and later served as special assistant to the commander. At U.S. Central Command, he was the executive officer to the commander. On the Joint Staff, he was the director of the Pakistan-Afghanistan Coordination Cell. GEN Townsend’s combat and operational experience includes Operation Urgent Fury, Grenada; Operation Just Cause, Panama; and Operation Uphold Democracy, Haiti. During Operation Iraqi Freedom, he led 3-2 Stryker Brigade, Task Force Arrowhead, on offensive operations across Iraq during “the surge.” He served four tours in Afghanistan during Operation Enduring Freedom, culminating as commander, 10th Mountain Division (Light). Most recently, GEN Townsend led all U.S. and multi-national troops fighting the Islamic State in Iraq and Syria as commander, Combined Joint Task Force-Operation Inherent Resolve. GEN Townsend holds a bachelor’s degree, two master’s degrees, the Air Assault Badge, the Master Parachutist Badge, the Ranger Tab, the Combat Action Badge and the Combat Infantryman’s Badge with star.

ACRONYM QUICK-SCAN

MDB – multi-domain battle
MDO – multi-domain operations

Reconsidering Division Cavalry Squadrons

Part I: A Problem with a Proven Solution

by MAJ Nathan Jennings

(Editor's note: This is the first in a four-part series that describes the problem, history and potential solutions for the U.S. Army's lack of dedicated division-level ground reconnaissance-and-security capacity.)

The U.S. Army embraced brigade-centric modularity in 2004 and began to divest its ability to conduct forceful reconnaissance and security at division and corps levels.¹ In a marked change from the cavalry structure it had predominantly employed since World War II, the institution decisively concentrated its capacity – in the form of mechanized, motorized and aerial scouts – to fight for information and provide freedom of maneuver at lower tactical echelons. This reorganization eliminated the division-cavalry squadrons (DivCav) and armored-cavalry regiments (ACRs) that had served as the “eyes and ears” of two- and three-star tactical commanders for more than 60 years in favor of a larger quantity and diversity of squadrons assigned directly to brigade combat teams (BCTs).²

Despite the benefits of modularity, the resulting transformation created capability gaps in the Army's ability to answer information requirements during joint operations. As argued by LTG H.R. McMaster, who commanded 3rd ACR in Iraq in 2005, “Trends in armed conflict that include all domains contested; increased lethality and range of weapons; complex and urban terrain; and degraded operations all argue for increasing importance of reconnaissance-and-security capabilities at all echelons.”³ This problem, which coincided with shifts in institutional focus to large-scale counterinsurgency (COIN) campaigns in Southwest Asia, has become acute as adversary states design challenging area-denial networks to dissuade forced-entry operations.

Army divisions in particular have lost the ability to aggressively shape their maneuver with dedicated reconnaissance-and-security formations. When

planning and executing diverse ranges of offensive, defensive or stability actions in expeditionary theaters, two-star commanders must now rely on, and thus commit, assigned brigades to conduct necessary zone, route and area reconnaissance tasks, and screen, guard and cover (with significant augmentation) missions that DivCav previously performed.⁴ As LTG Stephen Twitty, who commanded 1st Armored Division, reported to Army Chief of Staff GEN Mark Milley after a warfighting assessment exercise in 2015, this “reliance on BCTs” has challenged the division's ability to “shape the deep fight.”⁵

Given the unlikelihood of recreating permanent DivCav due to resource constraints and preferences for standardized modularity, the institution can explore more creative options for providing higher-echelon reconnaissance-and-security capacity through doctrinal solutions. As an expedient option, it should consider establishing a series of customized organizational templates for the purpose of temporarily detaching, training and enhancing BCT cavalry squadrons to specifically answer division or joint-task-force commanders' information requirements. The resulting cavalry task force, when empowered as a direct reporting element with cross-domain capabilities, offers the potential to provide internally resourced, tactically effective and readily available scouting capability at the two-star level.⁶

Similar to the Army's emerging excursion concept – where a corps temporarily assigns entire BCTs to conduct reconnaissance and security – tailored cavalry task forces, assembled from assets typically controlled by a division, would provide, as Twitty recommends, the “re-establishment of division-level reconnaissance capability” with the “means to achieve an air-ground layered reconnaissance and information plan necessary in today's complex operating environment.”⁷ Designing these templates could range from enhancing a single squadron with graduated capabilities to reorganization of entire

brigades. Incorporating both historical insight and contemporary operational assessment. The cross-domain construction would balance lethality, operational reach, covertness, versatility and integration of emerging technologies to create agile and versatile scouting formations.

DivCav background

The long evolution of U.S. Army's DivCav squadrons mirrored the conceptual tensions that shaped all American cavalry practices since initial mechanization. The first debate, which eventually led to their demise, centered on questions about where to concentrate mounted scouting formations in the echeloned order of battle. In a marked contrast with its current brigade-centric structure, the Army predominantly favored assignment of reconnaissance-and-security elements at division and corps levels from 1940 to 2004. While corps controlled cavalry groups – and later regiments – to enable their maneuver, divisions owned a variety of direct-reporting and dedicated “recce” squadrons according to mechanized, motorized, light, airmobile and airborne profiles to accomplish the same.⁸

The second discussion that defined the evolution of division-level cavalry stemmed from changing opinions on how and why to arm and employ them. This unending debate resulted in 70 years of vacillation over optimal inclusion of wheeled and mechanized scouts, heavy armor, attack and scout aviation, indirect fires and light infantry according to desired stealthy or forceful capabilities.⁹ As early as 1942, MG Charles Scott, who observed the British Eighth Army in North Africa on behalf of the U.S. Army, noted that “reconnaissance must be organized to fight in execution of its mission, to fight for time to send information in, and to fight for time for the main body to properly utilize the information.”¹⁰ Army leaders would frequently ignore this prescription in favor of fiscal savings and greater strategic mobility during subsequent decades.

World War II exploded as the Army's formative experience in conducting both wheeled and tracked reconnaissance operations. By 1945 it deployed 13 mechanized squadrons and two armored reconnaissance battalions to support heavy divisions, and 42 wheeled reconnaissance troops to support infantry divisions across Europe. Simultaneously, the institution created 13 mechanized-cavalry groups with two squadrons each to enable corps operations. While squadrons and groups possessed a mix of Willy's jeeps, M8 Greyhound armored cars, M2 half-tracks and M5 Stuart and M24 Chaffee light tanks, infantry division scouts mostly relied on dismounted Soldiers, cars and jeeps. The Pacific theater saw more limited cavalry employment while featuring residual horse-mounted actions like 126th Cavalry Regiment's storied charge on the Bataan Peninsula in January 1942.¹¹

The performance of America's mechanized cavalry against German, and to a lesser extent, Japanese combined-arms forces cemented its status as a distinctive sub-branch in its rapidly modernizing army while leaving questions about optimal employment. Studies 48 and 49 of the post-war European Theater of Operations (ETO) Board, which assessed organizations and tactics respectively, found that while division squadrons spent 13 percent of their time on reconnaissance missions and 24 percent on security missions, they allocated 63 percent of their efforts to other combat tasks requiring greater lethality.¹² One squadron commander lamented that they had to "fight to obtain information in practically every case."¹³ This reality contrasted sharply with wartime doctrine that predicted stealthy opera-

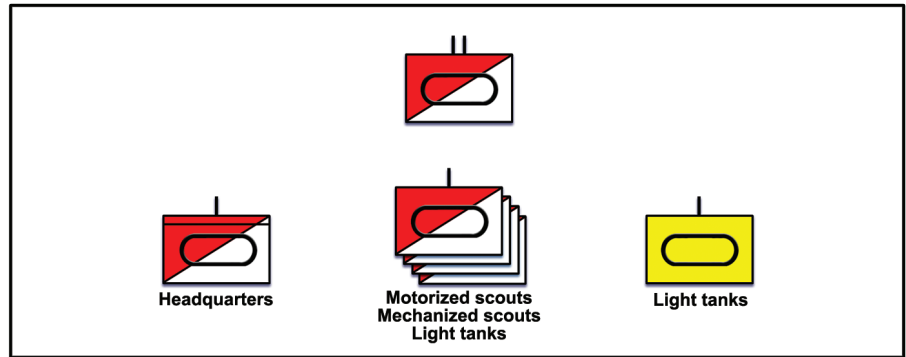


Figure 2. Reconnaissance battalion, armored division, Pentomic.

tions for mounted scouts.

The Army retained its tiered cavalry structure after World War II despite massive demobilization in 1948 and 1949. Based on the ETO Board's findings, it strengthened the few remaining squadrons and troops in the armored and infantry divisions – temporarily renamed battalions and companies – with wheeled scouts, light tanks and mechanized-infantry teams integrated at the platoon level. This reorganization emerged under the Pentomic transformation, which catalyzed a force-wide restructuring to allow dispersed survival on nuclear battlefields while allowing greater dismounted capacity for security operations and requiring less *ad hoc* augmentation during offensive maneuvers. The inclusion of tanks, though minimal, reflected intent to conduct aggressive reconnaissance, lethal counter-reconnaissance and survivable guard missions against more numerous Soviet forces.¹⁴

DivCav development did not occur in isolation of other echelons after the global war. While the Army initially reorganized its cavalry groups as constabularies in West Germany, it soon created the 2nd, 6th and 14th ACRs

(Light) to enable corps operations when tensions heightened with the Warsaw Pact. As described by historian and veteran U.S. Army officer Stephen Bourque, these "combined-arms organizations" were structured to "operate along wider frontages and at greater depths ... reacting expeditiously to opportunities or crises, all in extended battlespace." The initial three ACRs, and the 3rd and 11th regiments that followed, would gain in armament throughout the Cold War and achieve outsized success in Vietnam and the First Gulf War.¹⁵

The Korean War from 1950 to 1953 severely tested U.S. Army expeditionary reconnaissance limitations. With infantry-centric divisions providing most of the combat forces due to the restrictive terrain and a dearth of available heavy units in the theater, their light wheeled-cavalry companies, rather than mechanized reconnaissance battalions, would learn hard lessons against a larger combined-arms foe. Though scouts in 7th Infantry and 1st Cavalry Divisions in particular provided critical security under trying conditions with aging World War II-era platforms, they suffered from poor training, inadequate firepower, overtasking and high attrition. However, their overall performance in difficult terrain prompted institutional interest in providing infantry divisions a full reconnaissance battalion.¹⁶

Combined-arms integration

From 1962 to 1964 the Army revamped its divisions, and their associated cavalry formations, under a transformation program called Reorganization Objective Army Division (ROAD) to allow greater tactical and strategic flexibility. The modifications added Patton-series

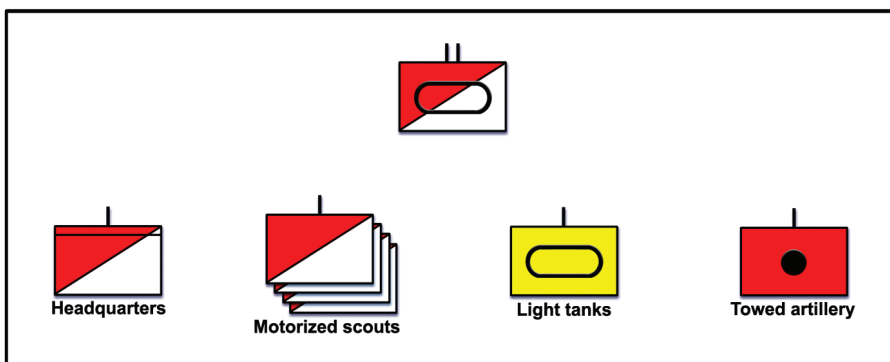


Figure 1. Mechanized reconnaissance squadron, World War II.

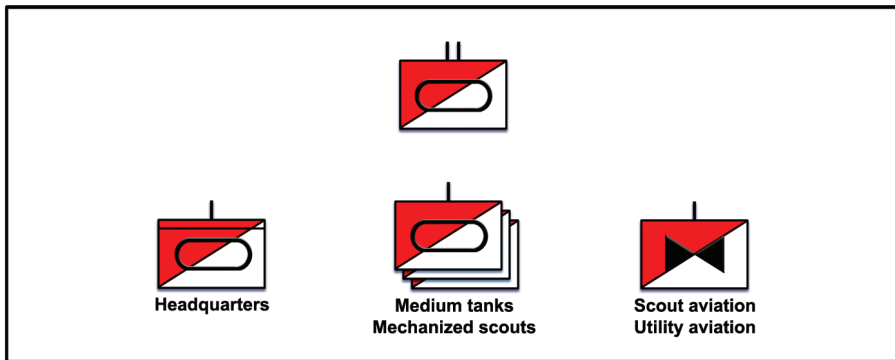


Figure 3. H-series DivCav squadron, ROAD.

medium tanks and M1114 Armored Reconnaissance Vehicles, new information-collection technologies and, most importantly, a large rotary-wing troop to expand observation frontage. The new airmobile divisions received air-centric squadrons to support longer and faster movements, while airborne divisions received light wheeled squadrons. A long-lasting administrative aspect of ROAD included realigning the dispersed cavalry units under historical regimental lineages.¹⁷

The H-series squadrons of the 1960s thus provided Army divisions with scouting formations that possessed a greater balance of mobility, protection and firepower. As described by Field Manual (FM) 17-35, *Armored Cavalry Units, Armored and Infantry Divisions*, in 1957, the changes armed two-star commanders with a “closely integrated team of combined arms capable of conducting virtually any type of combat action.”¹⁸ While heavier armor allowed more aggressive reconnaissance, the air-cavalry troop greatly expanded operational reach. Yet despite the advantages of organic close air support, higher commands frequently detached the rotary wing for separate purposes, thereby limiting squadron effectiveness.

The new ROAD squadrons’ combat test came not on the plains of Europe against the Warsaw Pact forces they were designed to counter but in the jungles of Vietnam against a more irregular opponent – the Viet Cong. Though Army Chief of Staff GEN Harold K. Johnson initially professed the “limited usefulness” of cavalry armed with M48 Patton tanks and new M113 Armored Personnel Carriers in Indochina, the Army eventually deployed six

cavalry squadrons and one cavalry regiment – in addition to 10 mechanized infantry and three armor battalions – as the conflict intensified.¹⁹ LTG Donn A. Starry, who assessed the effectiveness of U.S. mounted forces against the Viet Cong and North Vietnamese Army, said armored cavalry “emerged as powerful, flexible and essential battle forces” in both “close combat” and “pacification and security operations.”²⁰

Throughout the late 1970s and early 1980s, the Army again reorganized its combat divisions under the Division 86 and then Army of Excellence (AoE), initiatives designed to leverage fiscal, manpower and logistical efficiencies across the force. While the changes mostly impacted infantry divisions, the heavy-division squadrons, after some uncertainty, lost their tanks and reorganized their helicopters into two smaller air troops. They also moved from reporting directly to the division commander to inclusion within divisional aviation brigades. Despite their adoption of heavily armed and armored Bradley-variant M3 Cavalry Fighting Vehicles (CFVs) beginning in 1981, J-series squadrons were now

equipped for only moderately contested information collection against peer adversaries.²¹

Proponents of the J-series argued that the squadrons’ likely position behind larger cavalry regiments in the Army’s doctrinal order of battle would compensate for less firepower while disincentivizing employment of scouts as assault troops. Though officers like Starry cautioned against misusing squadrons as maneuver battalions because they were “the central core of the reconnaissance team,” other cavalry champions like MG Robert Wagner countered that they needed “tanks for hard combat capability” and that “reconnaissance requires armor.” MG Thomas Tait, then commandant of the Armor Center, agreed in *ARMOR* in 1987 when he aimed “to provide the squadron commander with a third ground cavalry troop” and “put the tanks back in the division cavalry.”²²

Even as American heavy cavalry lightened its profile, mounted scouts in the infantry divisions underwent similar alterations. In keeping with AoE prioritization of strategic mobility, the light squadrons adopted an air-centric profile with two air troops and a single ground troop equipped with unarmored humvees. Airborne divisions requiring deeper and faster reconnaissance received another aviation troop. The 82nd Airborne Infantry Division, as an anomaly, intermittently included air-droppable M551 Sheridan Armored Reconnaissance Airborne Assault Vehicles and wheeled Light Armored Vehicle-25s (LAV) throughout the 1980s and 1990s to allow modest anti-armor capability.²³

The First Gulf War in 1991 provided the proving ground for AoE forces. Since

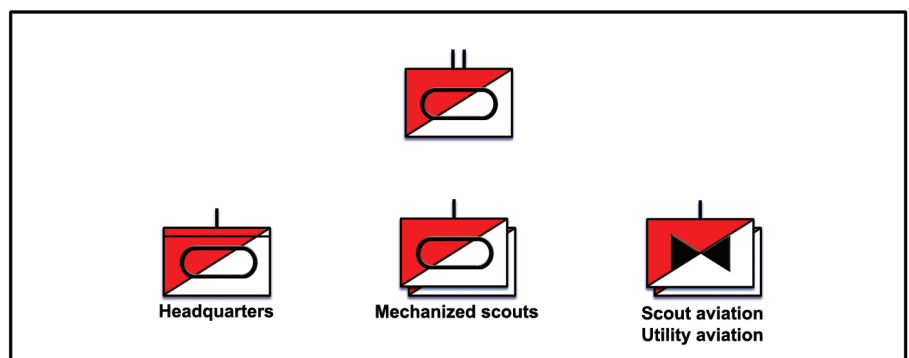


Figure 4. J-series DivCav squadron, AoE.

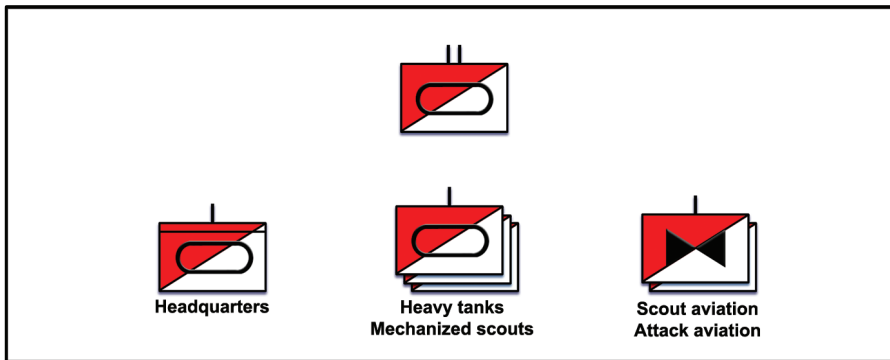


Figure 5. L-series DivCav squadron, 1995-2004.

the United States deployed several corps with armored, mechanized, light and airborne divisions to defeat the entrenched Iraqi army, the conflict featured a variety of DivCavs with varying compositions of ground and air troops. Several division commanders, anticipating an armored fight, augmented their heavy squadrons with M1A1 Abrams main battle tanks and additional AH1 Cobra and AH64 Apache attack helicopters to support M3 CFV ground scouts as “hunter-killer” teams. Throughout the short conflict, these cavalries executed doctrinal zone reconnaissance and mobile screens as they led their parent commands through the 2nd and 3rd ACRs’ forward lines to engage the Iraqi Republican Guard.²⁴

The success of squadrons with augmented armor in Operation Desert Storm once again shifted the reconnaissance debate in favor of maximal fighting capability. MAJ Joseph Barto, who served as executive officer of 2-4 Cav in 24th Infantry Division (Mechanized) during the campaign, later attested that their “organic tank and cavalry fighting vehicle mix” perfectly fulfilled “the division commander’s requirements – all the time and under all conditions.”²⁵ LTG Frederick Franks, commander of VII Corps, likewise believed he “needed armored – read tanks – reconnaissance in the [DivCav] squadron.”²⁶ Soon after, the Army restructured DivCav as L-series types that closely mirrored ACR squadrons with greater inclusion of heavy tanks and attack aviation.²⁷

21st-Century evolutions

The American-led invasion of Iraq in 2003 featured the final combat action by U.S. Army division-level cavalry. The

3rd Squadron, 7th Cavalry Regiment, led 3rd Infantry Division (Mechanized) in a high-tempo reconnaissance-in-force from Kuwait to Bagdad that validated the L-series pairing of M1 Abrams tanks and M3 CFVs. The air-centric squadrons of 101st and 82nd Airborne Divisions simultaneously provided security for infantry forces. However, as noted by historian John McGrath in his 2008 work, *Scouts Out*, 3-7 Cavalry’s relative overmatch as a combined-arms team “sometimes made it more valuable as an additional maneuver force than as a reconnaissance element.”²⁸ As before, disagreements over optimal cavalry employment would catalyze yet another transition.

Beginning in 2004, the Army adopted a modular design that transferred many tactical capabilities from corps and divisions to BCTs. This transformation included, despite 3-7 Cavalry’s recent performance, the elimination of all DivCav to allow expanded combined-arms capability in each brigade. The new BCT squadrons organized without organic tanks or aviation while including a dismounted infantry company in the light squadrons. The

resulting predominant reliance on lightly protected M1114 humvee trucks and moderately protected M1127 Stryker Reconnaissance Vehicles – with only limited M3 CFV density in armored BCTs – once again optimized the cavalry force for stealthier observation. The reorganization of the final ACR in favor of three lightly armed and short-lived battlefield surveillance brigades in 2011 completed the demise of Army scouting organizations that had traditionally teamed scouts with tanks and aviation.²⁹

As during previous transitions, the lightened cavalry force – which aimed to offset diminished organic lethality with new surveillance and target acquisitions technologies – came under withering criticism over the next decade as the Army prioritized COIN campaigns in the Middle East.³⁰ Then, in 2015 and 2016, as the institution refocused on nation-state competition in East Europe, East Asia and Mesopotamia, it increased the cavalry’s tactical flexibility in the armored BCTs by replacing humvees with more M3 CFVs and adding a tank company to each squadron. The Stryker scouts likewise assumed ownership of the Mobile Gun System and anti-armor companies in their brigades. COL Matthew Van Wagenen, who commanded 3rd Armored BCT, 1st Cavalry Division, predicted that the “enhanced reconnaissance structure” would likely “offset some of the losses in force structure.”³¹

These latest reorganizations illustrate the transitions that have defined the ever-changing form, identity and purpose of American cavalry since mechanization. Since World War II, the Army’s mechanized, wheeled and aerial

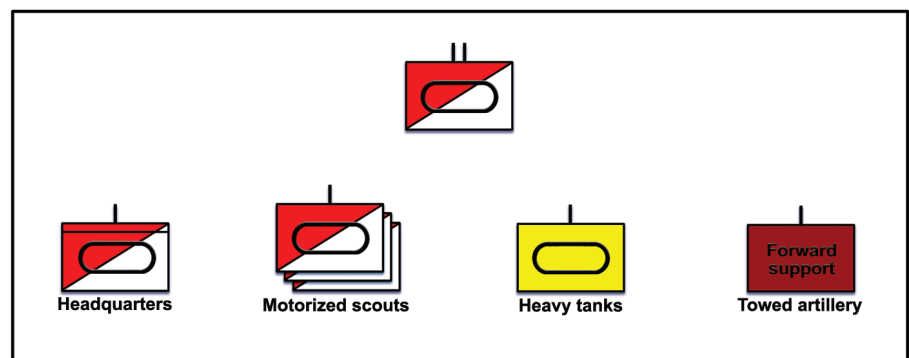


Figure 6. Cavalry squadron, armored BCT. (FM 3-20.97, *Cavalry Squadron*, Washington, DC: Government Printing Office, May 2016)

scouts have vacillated between optimization for stealthy and forceful reconnaissance while often receiving *ad hoc* capabilities to negotiate emergent wartime challenges. After aligning its mounted reconnaissance assets at divisions and corps levels for more than 60 years, the institution has decisively concentrated them at lower tactical echelons in the 21st Century. This evolution has led to an inadequacy where divisions commit subordinate brigades to fulfill their doctrinal imperative to “conduct reconnaissance-and-security operations in close contact with the enemy and civilian populations.”³²

Part II of this series will employ the case study of 1st Squadron, 4th Cavalry Regiment, in Vietnam to examine this enduring mandate in the most challenging of tactical landscapes.

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ACRONYM QUICK-SCAN

ACR – armored cavalry regiment
AoE – Army of Excellence
BCT – brigade combat team
CFV – Cavalry Fighting Vehicle

COIN – counterinsurgency
DivCav – division cavalry
ETO – European Theater of Operations

FM – field manual
ROAD – Reorganization Objective Army Division

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Brigade Deep Battle 2.0:

Light-Cavalry Solution to Operationalizing Deliberate Unmanned Aerial Vehicle/Fires Teaming in Support of Brigade Deep Fight

by CPT Joseph D. Schmid

Military professionals throughout the globe have witnessed Russia's ability to systematically project "annihilation fires," leveraging nascent unmanned aerial vehicles (UAV) teamed with massed rocket and cannon artillery during the ongoing Russo-Ukrainian conflict. The debilitating effects of the Russian UAV/fires teaming was detailed in the article "Russia's New Generation Warfare" by Phillip Karber, president of the Potomac Foundation, and Joshua Thibeault, a member of the Russian New Generation Warfare Study Team. "Ukrainian units have observed up to eight Russian UAV overflights per day," Karber and Thibeault wrote. "The increased availability of overhead surveillance combined with massed area fires [produced] ... approximately 80 percent of all casualties."¹

Russian UAV/fires teaming served the dual purpose of instantly attriting whole battalions of Ukrainian mechanized infantry and had the uncanny effect of disrupting the Ukrainian observe, orient, decide, act (OODA) loop decision cycle.²

To put this in perspective, imagine a U.S. combined-arms brigade (CAB) "in a three-minute period ... [suffering] a Russian fire strike, destroying two mechanized battalions with a combination of top attack munitions and thermobaric warheads."³ Following the almost instantaneous loss of two mechanized-infantry battalions, the imagined CAB would likely no longer be able to perform basic warfighting functions. Consequently, its remaining combat power could no longer successfully close with and destroy a comparatively sized adversarial near-peer formation. This troubling observation from the Russo-Ukrainian conflict has hastened U.S. UAV interoperability, especially at echelons above battalion.

UAV/fires teaming

Training exercises, both real and virtual, have led to improvements in U.S. organic UAV/fires teaming. During Exercise Rim of the Pacific (RimPac) 2016, the Marine Corps' UAV squadron 3 (VMU3) tested its RQ-7B Shadow's (UAV used for reconnaissance, surveillance, target acquisition and battle-damage assessment) ability to perform a traditional call for fire. MAJ Jarrod Larson, executive officer of VMU-3, commented, "One of the things we're designed for that we do really well is that forward-observer role. ... We can go very deep in the battlespace and call for fire with either artillery fires or with other aircraft. [Then we] relay those targets to either the ground controllers or actually control and observe those fires ourselves."⁴

The VMU3's RQ-7B Shadow became yet another sensor proficient in providing rapid targeting data for responsive artillery strikes based off the target-selection standards recommended by a fire-support coordinator.

Larson's UAV/fires scenario was internalized by the 25th Infantry Division Artillery (DivArty) after it coupled manned/unmanned teaming (MUM-T) with traditional lethal fires to generate a paradigm for the purpose of maximizing lethality and target handoff in a contested division deep area (between the division coordinated firing line (CFL) and the fire-support coordination line). The initial concept, originally developed by MAJ Bobby Sickler, MAJ David Henderson and John Hansen in their article, "Deep Battle 2.0: An Integrated Division Deep Fight," was "broken into four distinct phases: shape, find, destroy and accomplish the mission."⁵

During the shape phase, the DivArty tactical-operations center (TOC) reduced "the enemy air-defense posture to a level acceptable to employ rotary-wing aviation with a relative level of freedom of maneuver."⁶ Kinetic strikes,

usually in the form of M26 rockets fired from high-mobility artillery rocket systems, exploited targeting data acquired by the organic Gray Eagle UAV to destroy adversarial air-defense assets.

"The find and destroy phases took place in a continuous loop within the engagement area," wrote Sickler, Henderson and Hansen.⁶ Lethal indirect fires were employed for targets such as adversarial long-range artillery, light-skinned vehicles, command-and-control nodes and target-acquisition radars. Armored targets were passed to rotary wing.

With this system of systems, it's key to note that one umbrella organization, the 25th DivArty, colocated both the UAV asset able to transmit targeting data and the firing unit able to rapidly receive the target, compute firing data and fire. During fiscal years 2016-17, this construct was validated in many command-post exercises such as Yama Sakura 71, Talisman Saber and Ulchi Freedom Guardian, culminating in 25th DivArty's Warfighter 2017 performance. Key to success was the colocation of the Gray Eagle feed directly adjacent to the fire-control element, contributing to rapid lethal responsiveness upon target identification.

Keeping in mind the advantages of the UAV/fires teaming portrayed in this article while exploiting 3rd Brigade's recent experience during its Joint Readiness Training Center (JRTC) 18-04 rotation, I will portray how the incorporation of deliberate UAV/fires teaming may have increased 3rd Squadron, 4th Cavalry Regiment's ability to project combat power deep within our own heavily contested brigade deep-fight area. Drawing on past experiences gained as a troop fire-support officer (FSO) as well as a DivArty battle captain, I will isolate certain "Division Deep Battle 2.0" characteristics and apply them to the brigade deep fight in an effort to synchronize dynamic

UAV target-acquisition efforts with a light-cavalry squadron's tactical-control (tacon) artillery battery.

Ultimately I will argue for the establishment of a deliberate UAV/fires cell inside the 3-4 Cav TOC able to act as an umbrella organization, coupling UAV target-acquisition efforts with a tacon fire-direction center (FDC). I believe the realization of these arguments will set the necessary conditions for 3-4 Cav to impose catastrophic disruptive fires focused wholly on dynamic targets, presenting real-time threats between the forward-line-of-troops and the division CFL.

Friction points

During our unit's (3-4 Cav) recent 18-04 JRTC rotation, I believe two phases of the battle presented unique friction points that would have benefited from the incorporation of deliberate UAV/fires teaming. These events included 3-4 Cav's initial advance into the engagement area in support of 3rd Brigade's forward-passage-of-lines (FPOL) and its screen of 2nd Battalion, 27th Infantry Regiment, during the defense. During Scenario 1, 3-4 Cav's establishment of 3rd Brigade's FPOL, the squadron retained tacon of one M119A3 105mm howitzer battery, which generally received calls for fire (CFF) from fire-support teams (FISTs). The FIST teams used traditional observation techniques, and they were colocated with their respective cav troops. CFFs were initiated on dismounted platoon-size elements or lightly-skinned adversarial vehicles, often after making initial contact. Overall, any remnant forces the cavalry squadron encountered were destroyed or retrograded. The screen resulted in a successful FPOL with its sister units, 2-27 Infantry and 3rd Battalion, 25th Infantry Regiment. However, in the process, adversarial forces were allowed to make initial contact with ground elements of 3-4 Cav.

LTC Scott Pence, commander of 5th Squadron, 73rd Cavalry (Airborne), recounts from his JRTC experience that "the opposing forces used light humvees to quietly and slowly occupy dismounted observation points, gain visual contact and harass the rotational unit with indirect fires."⁸ Therefore the

underlying problem was allowing the enemy to gain a position of relative advantage, which granted them the ability to collect positional information on our most forward formations. We were unable to maintain a favorable stand-off distance between ourselves and advancing adversarial forces. Conversely, adversarial forces imposed favorable stand-off distances in the latter stages of the battle as 3rd Brigade established a defense with two infantry battalions abreast and 3-4 Cav screening forward.

All attempts to ascertain enemy force posture and movement were frustrated. Our efforts to conduct surveillance within the brigade deep fight along likely avenues of approach were routinely denied, resulting in rotary and fires' inability to initially disrupt advancing columns of mechanized infantry and armor. The failure to project disruption fires within the brigade deep fight during the defense led to increased attrition of our maneuver battalions during their direct engagement. This failure stemmed from our collective inability to bypass the enemy's disruption zone in an effort to acquire targets behind the forward edge of battle area. Both circumstances, the initial entry of 3-4 Cav and the brigade's defense, highlight an inadequate ability to routinely project coordinated disruptive lethal fires into the brigade deep fight during key elements of the battle.

Consequently, we'll now transition to

blending select characteristics of Henderson's Division Deep Battle 2.0 theory with emerging cavalry doctrine to generate the conditions needed for rapid lethal fires within the brigade's contested deep fight, synchronized by an aggressive light-cavalry squadron TOC, acting as a UAV/fires umbrella organization.

In an article titled, "The Return of Cavalry: A Multi-Domain Battle Study," Armor Branch majors Jennings, Fox, Taliaferro, Griffith and Trottier said, "It has become increasingly vital for advance ground elements to integrate indirect, aerial ... and informational fires to dynamically shape battlefield outcomes."⁹

The incorporation of deliberate UAV/fires teaming during 3-4 Cav's establishment of 3rd Brigade's FPOL could have potentially shaped the battlefield more in our favor. Imagine, upon FPOL establishment, all squadron RQ-11 Ravens were leveraged to observe pre-planned likely avenues of approach. Cav small unmanned aerial systems (SUAS) Raven teams would traverse three to four kilometers in front of their troop formations, effectively extending the likelihood of observing the adversary for the purpose of dynamic targeting. Think of the Raven section, possibly teamed with a troop FIST, as a multi-domain battle (MDB) version of the combat observation and lasing team of the early 2000s that "augmented the platoons for an additional



Figure 1. Artillery like the M119A3 105mm howitzer helps shape the battlefield.



Figure 2. The Raven SUAS extends the likelihood of observing the adversary and targeting them.

target acquisition capability.”¹⁰

Brigade Deep Battle 2.0 simply takes a Vietnam-era aerial observer concept and repackages it for today’s modern technology to maximize UAV/fires teaming within a light-cavalry squadron. As the adversary attempts to probe the FPOL site, each troop’s Raven acquires targets triggering the operator’s CFF. All CFFs are centralized within the 3-4 Cav fires-and-effects coordination cell (FECC) located either inside or slightly offset from the 3-4 Cav TOC. Similar to 25th DivArty’s technique of colocating the Grey Eagle feed with the fire-control center, one of the tacon artillery fire-direction centers will be either inside or slightly offset from the 3-4 Cav TOC directly adjacent to the 3-4 Cav FECC. This sensor and shooter colocation will promote responsive UAV/fires teaming and grant the FDC enhanced maneuver situational awareness, something battery and platoon FDCs have collectively struggled to achieve.

The idea of exploiting SUAS as portrayed here is not new. CPT Christopher M. Brandt, commander of Headquarters and Headquarters Troop, 3rd Squadron, 89th Cavalry Regiment, makes use of this emerging concept in his article, “The Future of Unmanned Systems in Cavalry Squadrons.”¹¹ He opens with a vignette in which small cavalry teams, not unlike the Raven/FIST combination advocated previously, infiltrate adversarial lines to generate calls for fire. He writes, “At the press of a button, the drone lazies the target, and it delivers a set of triangulated set of coordinates to the enemy position. ... Artillery begins raining down on the unsuspecting [enemy] troops.” Brandt’s scenario illustrates the enhanced lethality of cav SUAS infiltration teams coupled with a tacon indirect-fire asset and the impact this can bring to the brigade deep fight.

Cav SUAS potential

The cav SUAS infiltration teams have the potential to enhance the

comprehensive layering of indirect and rotary-wing weapon systems using forward-positioned Ravens under centralized control of 3-4 Cav’s TOC to engage in MUM-T with the 25th CAB’s rotary-wing assets. The dedicated tacon artillery battery would provide the cav’s long reach into the brigade deep fight, targeting advancing infantry dismounts, light-skinned technical vehicles and especially any air-defense artillery threat attempting to deny freedom of maneuver to friendly rotary-wing assets. As armored targets present themselves, cav SUAS infiltration teams use MUM-T by sharing targeting data with 25th CAB.

Remnant forces that survive the initial artillery disruption fires may continue to advance toward 3-4 Cav troop positions. However, these adversary forces are still tracked by cav SUAS infiltration teams so they can be engaged by 120mm mortars. Any other remnant forces of these two targeting cycles will be severely attrited and dispatched by .50-caliber machinegun and/or M240B machinegun fire.

This echelonment of fire coordinated by 3-4 Cav and supported by 3-7 Field Artillery (FA) is what creates a wood-chipper-like scenario, ensuring the maximum lethality of all weapons systems while maintaining an appropriate stand-off range between forward cav elements and advancing adversarial forces. Now transpose the previously described system onto both the FPOL and the brigade defense scenarios we encountered in JRTC. I’d argue that by first introducing, then enacting the Brigade Deep Battle 2.0 theory, 3-4 Cav teamed with 3-7 FA and rotary elements of 25th CAB can achieve greater destructive lethality.

Advanced synchronization

In conclusion, the Brigade Deep Battle 2.0 theory is simply “a way” to achieve enhanced synchronization among a light-cavalry squadron, SUAS and its tacon artillery battery. By layering indirect assets teamed with SUAS infiltration teams, we maximize windows of opportunity to attrite advancing adversarial forces while simultaneously granting increased survivability to forward-positioned cav units. This system

can project the destruction observed within Russian UAV/fires teaming onto adversarial forces seeking to disrupt 3-4 Cav objectives. And finally, by integrating air, land and cyber domains within UAV/fires teaming, 3-4 Cav can nest more firmly within the Army's emerging MDB concept.

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ACRONYM QUICK-SCAN

AFAR – field-artillery regiment
CAB – combined-arms brigade
CFF – call for fire
CFL – coordinated firing line
DivArty – division artillery
FA – field artillery
FDC – fire-direction center
FECC – fires-and-effects coordination cell
FIST – fire-support team
FPOL – forward-passage-of-lines
FSO – fire-support officer
JRTC – Joint Readiness Training Center
MDB – multi-domain battle teaming
MUM-T – manned/unmanned teaming
OODA – observe, orient, decide, act
RimPac – (Exercise) Rim of the Pacific
SUAS – small unmanned aerial system
Tacon – tactical control
TOC – tactical-operations center
UAV – unmanned aerial vehicle
VMU3 – Marine Unmanned Aerial Vehicle Squadron 3



Figure 3. A Soldier launches an RQ-11 Raven launch as part of Allied Spirit VIII.

Learning from Combat-Training Centers: Lessons in Small Unmanned Aerial Systems Employment for High-Intensity Conflict at Squadron Level

by CPT Peter L. Kerkhof and
LTC Steven E. Gventer

Two Ukrainian mechanized battalions were destroyed July 9, 2014, by an intense artillery barrage near the town of Zelenopillya.¹ The battalions had been observed, identified and targeted through the use of small drones. Independent analysis later assessed that BM-21s sitting nine kilometers away had launched the bombardment.

The Ukrainian losses were devastating and sent a shock through the country's political and defense establishment. This event, together with the Russian invasion of Crimea, served as a

wake-up call to many in the U.S. government and military that the threat of high-intensity conflict was back in earnest.

In Europe, the Joint Multinational Readiness Center (JMRC) rapidly adapted to account for this threat by emphasizing small unmanned aerial systems (SUAS) threats and massed artillery fire in its training scenarios. However, one persistent trend JMRC has observed over the past three years is that rotational training units (RTU) have struggled to respond to this training stimulus.²

In early 2017, as 2nd Squadron, 2nd

Cavalry Regiment, prepared for deployment to the Suwalki Gap as the first North Atlantic Treaty Organization (NATO) enhanced-forward-presence (eFP) battle group – established to deter aggression on NATO's eastern flank – the unit knew from two recently completed JMRC rotations that, like the RTUs, the squadron's SUAS capability was not performing adequately relative to the threat. During mission analysis, it became clear that in the event of a crisis, 2/2 Cav would be the first element in contact and would have to fight without brigade intelligence, surveillance and reconnaissance (ISR) support.



The unit made the critical realization, informed by the Ukrainian experience and underscored by the lethality of the opposing forces (OPFOR) at JMRC, that high-intensity conflict required different organizational arrangements for SUAS than the counterinsurgency (COIN) fights the Army has been in for the last decade-and-a-half. By adapting employment concepts and organizational constructs, and using lessons-learned from JMRC rotations, 2/2 Cav consolidated its SUAS and created an effective reconnaissance, surveillance and target-acquisition capability during the eFP deployment. This experience led to valuable lessons-learned that can benefit other units in both combat-training center rotations and future deployments.

SUAS in COIN vs. high-intensity conflict

By early 2017, 2/2 Cav had recently completed two JMRC rotations – Allied Spirit 4 and Allied Spirit 5 – separated by a four-month deployment to the Baltic states as part of Operation Atlantic Resolve. Based on the unit’s experience at Allied Spirit 4, the squadron established a sustained command emphasis on SUAS. By Allied Spirit 5, the number of trained operators had dramatically increased, and during the rotation, the unit’s SUAS flight hours were substantially higher. Yet the

squadron still did not achieve the desired effects for reconnaissance and intelligence collection (IC).

It became clear there was a gap between the capability of the systems and the way they had been employed, in particular the RQ-11B Raven. The Raven is a line-of-sight (LoS)-controlled aircraft that can range up to 10 kilometers and has a 60-90 minute flight time. It can be hand-launched and then recovered through a crash landing from nearly any open area. It has a stabilized camera that provides a 10-digit grid to the center of the field of view and can transmit this view to the operator and any One-Station Remote Viewing Terminal (OSRVT) in range. The Raven can operate in visibility and ceiling requirements that would ground larger platforms, such as the Shadow. Finally, the Raven flies so low and has such a small radar cross-section that it’s less vulnerable to air defense. In sum, Raven is a highly mobile system that, in decent weather, and a contested environment, can provide quality full-motion video and targetable data anywhere within 10 kilometers of the user.

Despite its advantages, in practice, 2/2 Cav had not been able to fully leverage this capability. During Allied Spirit 4, Operation Atlantic Resolve, Allied Spirit 5 and the early days of the deployment to Poland, troops managed their

own SUAS system training and employment. This is the established practice for how to use the RQ-11B Raven system as described by journal articles in *Infantry* and *ARMOR* magazines.³

This is understandable after the Army’s COIN experience over the past 15 years. Having a Raven at an isolated outpost was the only way for a company-level formation to have its own reconnaissance asset at isolated combat outposts in Iraq or Afghanistan. Battalions could rely on abundant theater-level ISR for whatever collection they needed.

However, the operational environment and threat are different today. In the case of 2/2 Cav, the squadron would fight together in a relatively compact front, and the contact with enemy forces would be a matter of days, not months. Troop-level UAS doctrine and practice simply did not suit the requirements for the squadron in the “new” high-intensity environment.

Consistent with prior practice, 2/2 Cav’s troops all located their Raven system within their troop command post (CP). But their CPs were usually located in a covered and concealed position to increase survivability. This negated two of the features Raven teams needed: an open area for launch and recovery, and terrain that provided good LoS to their target area. Also, having the Raven system at the troop CPs added another link in the chain of reporting, delaying the reaction to whatever the Ravens observed.

The upshot for the squadron was that the troops’ Ravens were always included in the squadron IC plan, but little was expected or received from them because they were rarely airborne and rarely reported. The squadron needed to change the organization of SUAS systems to fully exploit the Ravens’ capabilities.

Consolidation

The solution was to consolidate the management of SUAS teams at the squadron level for training and exercises. The 2/2 Cav created a SUAS section consisting of two SUAS teams, each equipped with a ground-control system (GCS), multiple RQ-11B airframes and multiple SUAS operators. Each team would have four Soldiers and a



Figure 1. An RQ-11B Raven, an SUAS employed by 2/2 Cav, is launched by a Soldier in Iraq. (U.S. Army photo)



Figure 2. British, Romanian and U.S. Soldiers discuss operating procedures for their eFP battle group during the defensive phase of the multinational field-training exercise that was part of Saber Strike 17 in Bemowo Piskie, Poland, June 14, 2017. Saber Strike is a U.S. Army Europe-led multinational combined-forces exercise conducted annually to enhance the NATO alliance throughout the Baltic region and Poland. (U.S. Army photo by SGT Justin Geiger)

humvee with enough communications capability to talk on the squadron command and fires net.

When the squadron deployed for exercises, the team would be tasked directly by the S-3 based on the IC plan the S-2 had developed. The team would then be controlled via the squadron fires net by the squadron fire-support officer (FSO). The goal of consolidation was to fully leverage 2/2 Cav's SUAS systems to be able to answer priority information requirements (PIRs) and provide observation for sustained and accurate fires on enemy forces.

This consolidation solved several problems. The largest problem was location. As with almost every system that every army has ever used, terrain is the biggest employment consideration. The establishment of separate teams gave 2/2 Cav's SUAS the flexibility and mobility to fly from the best location to have LoS on their airframe as it surveilled the target and to be able to launch and recover their airframe. This was achieved without putting the troop CPs at risk and eroding the troop commander's ability to fight.

It also solved the problem of communication. By establishing them as a separate entity with a direct link to squadron fires, the reporting chain was flattened. This increased visibility of what

the SUAS was seeing and increased the speed at which the asset could be used to answer PIRs and acquire targets.

The consolidation of the SUAS systems at the battalion/squadron level went against established doctrine and the way Ravens had been employed in combat for more than a decade – since their fielding in 2006. The move also deprived company/troop commanders of a critical reconnaissance capability as well as badly needed manpower. There would be disadvantages and unintended consequences. Consolidation was a good idea on paper, but 2/2 Cav needed to test the concept in practice to justify the downsides.

Testing

In May and June 2017, 2/2 Cav participated in two NATO exercises in close succession: Puma 17 and Saber Strike 17. Both exercises included a force-on-force (FoF) exercise against host-nation units playing the OPFOR, one in Poland and the other in Lithuania. These exercises provided the perfect opportunity for 2/2 Cav to test the concept of a squadron SUAS section.

Puma 17 was a four-day FoF. Each night the squadron held an ISR synch meeting to allocate airspace and discuss the collection plan. The S-2 provided an update on the enemy situation and

anticipated course of action (CoA) for the next day. The squadron S-2 and FSO deconflicted airspace and time, and the S-2 then briefed the IC plan to the SUAS teams. When the teams understood their airspace, named areas of interest (NAI), what indicators they were looking for and their flight times, they departed and prepped for their mission.

At this point, 2/2 Cav was not as comfortable assuming risk in where the SUAS teams were deployed, so they stayed within one to two kilometers of the squadron tactical-operations center. This prevented them from getting into the fight in the initial phase of the FoF. In the latter half of the FoF, the fight moved closer. Following the IC plan, the SUAS team using the RQ-11B Raven conducted a seven-kilometer sortie and found two companies of *Boyeva Mashina Pekhoty* (BMPs) and one platoon of T-72s. The enemy had consolidated after the previous day's actions in preparation for continuing the attack the next day. This answered the PIR about enemy composition and disposition and then allowed the squadron to call for fire and have significant effects on the enemy force.

In Saber Strike 17, 2/2 Cav deployed a squadron (-) task force from Poland to Lithuania to participate in a two-day FoF. The task was to conduct a guard on the perimeter of a wet gap crossing. The 2/2 Cav's area of operations was a small piece of a 30 kilometer x 50 kilometer maneuver-rights area in central Lithuania. The squadron S-2 rapidly developed enemy CoAs (ECoAs) based on the brigade S-2's products and then an IC plan. The squadron staff then coordinated with the brigade to open a restricted operating zone for UAS operations.

The squadron SUAS section, now equipped with one RQ-20 Puma, then deployed to good local terrain that facilitated LoS to their tasked NAI. The next morning the UAS team launched their airframe and conducted an 11-kilometer, 90-minute sortie. On this sortie, they observed an enemy BMP platoon at the NAI they were tasked with. This confirmed the ECoA, provided early warning for the troop commander who was deployed forward and allowed 2/2 Cav to request brigade fires

to destroy the enemy platoon.

Saber Strike and Puma demonstrated that consolidating UAS worked. In two exercises with different OPFOR and different terrain, the UAS section achieved the desired effects. The UAS section was able to effectively follow the IC plan, answer the commander's PIRs and perform as a highly effective observer for accurate fires.

Refining solution

After 2/2 Cav validated consolidation, the next step was to man, train and equip the UAS section appropriately. The squadron manned the section using two Raven master trainers and six soldiers from the rifle and headquarters troops who were mission-qualified Raven operators. The section then acquired two more pieces of custom equipment. The first was an extendable mast to raise the antenna's height. Through experimentation in different types of terrain, it became clear that being able to raise the directional antenna three to five meters in the air would increase link quality at extended ranges.

The second piece of custom equipment was a power converter. This allowed the teams to charge the UAS airframe battery and the GCS battery while flying. Initially, charging batteries pre-mission was enough, but once teams became more proficient and began to run near-continuous flying operations, charging during missions became necessary.

The squadron also coordinated more specialty training: fire-support coordination exercises (FSCXs) to integrate with squadron and troop fires, and weekly proficiency flights with specific goals. The UAS operators conducted a week-long call-for-fire class with the squadron FSO, using the Call for Fire Trainer so all the UAS operators would be capable of acting as an observer for fires.

The squadron also had the UAS operators attend the company-intelligence-support team class to give them a better understanding of IC and the threat. This specialty training helped develop a better understanding of the fight for the junior infantry and armor noncommissioned officers and Soldiers who were assigned as UAS operators.

Next, the squadron developed a training lane with troop FSOs and the UAS section. During the situational-training exercise lane, the troop FSO was in control of the UAS and used it to find and track the "OPFOR" and then call for fire while receiving the UAS video on the troop's OSRVT. This event in particular helped build the confidence of troop FSOs and the UAS section in their effectiveness and capability.⁴

For their proficiency flights, the teams focused on two specific goals: emplacement time and sortie distance. After every proficiency flight, master trainers were instructed to record the time from when they parked to when their airframe was in the air, and then time on station. The next exercise was to attempt to fly to the maximum range that they could for each sortie (this required booking airspace in advance). These two metrics may not seem important at first blush, but they are the two primary factors that dictate the SUAS team's effectiveness.

The emplacement-time metric focused the teams on refining and smoothing out their setup so they could do it quickly and efficiently, which meant they were on station faster with less downtime and more consistently. The range forced the team to conduct better microterrain analysis and get in the habit of picking the best ground for their mission. Elevation and trees are huge factors; where the team parked the system with respect to the woodland and elevation dictates how far they can fly.

Final tests

At the end of 2/2 Cav's deployment to Poland, the squadron conducted a final exercise: Dragon 17. Once again, the UAS section was deployed to support. These teams were immensely successful. In this four-day FoF, they flew 20 flight hours and 31 sorties. They also acted as the observer for 13 fire missions that destroyed more than 20 enemy vehicles. The 2/2 Cav received the team's reporting over the frequency-modulation net and dynamically retasked them as needed. Furthermore, troop commanders and FSOs received the feed on their OSRVTs and reporting on the squadron fires net. This provided them with better

situational awareness and early warning. The team consistently provided timely intelligence to answer PIRs and performed as an effective observer for fire missions.

The final validation of the consolidation of SUAS concept was at Allied Spirit 8, another exercise at JMRC. As the unit prepared for the exercise, it was clear that this would be a much more demanding test of the system. Hohenfels Training Area (HTA) is small (only seven kilometers x 14 kilometers) compared to the Joint Readiness Training Center and the National Training Center but makes up for it with rolling hills and deep valleys that compartmentalize the fight. The small size of HTA also compresses the airspace available, making airspace management a challenge for RTUs. Also, JMRC is home to 1-4 Infantry, U.S. Army Europe's professional OPFOR. JMRC prides itself on placing RTUs under multiple forms of contact at all times and stressing unit systems to the point of failure.

For the rotation, 2/2 Cav fielded two squadron UAS teams, each with three soldiers; one humvee; a GCS; and Puma and Raven SUASs. Each team was led by one of the Raven master trainers. These teams worked for the squadron and then coordinated with the nearest troop for local security.

Despite challenging weather conditions, 2/2 Cav flew 21 hours during Allied Spirit 8; most RTU battalions fly less than one hour. In comparison, 1-4 Infantry flew 31 hours with their Raven systems.⁵ The section answered PIRs, served as an observer for fire missions and supported maneuver throughout the exercise. Employing the SUAS section during the defense was particularly challenging. Weather on several days restricted the flight of SUAS systems when the OPFOR elements made contact. However, when 2/2 Cav received the OPFOR's main attack, the UAS section was able to get eyes on the enemy exploitation force and serve as an observer for troop mortars.

In the offense, the SUAS section was much more successful. The UAS section answered the commander's PIR of determining the enemy's defensive positions during multiple sorties. UAS observed OPFOR emplacing obstacles in

an occupied town, which allowed 2/2 Cav to disrupt this OPFOR activity with indirect fires. The UAS section also pinpointed multiple enemy reconnaissance elements in the unit's security zone, cued by audible contact from the scout platoon and ground moving-target indicators. This allowed 2/2 Cav to destroy or suppress enemy recon elements and establish a security zone.

The UAS section also identified enemy battle positions oriented on 2/2's planned avenue of approach. This intelligence changed the squadron's assessment of the enemy's defense and change the scheme of maneuver.

Conclusion

Consolidating 2/2 Cav's SUAS platforms as a squadron asset proved successful. It dramatically increased the squadron's ability to conduct reconnaissance and surveillance. The 2/2 Cav became much more effective at concentrating its forces at the decisive point and placing sustained and accurate fires on the enemy. The sacrifice of two to three Soldiers from the troops and the loss of their organic SUAS systems was paid back with an increased capability that benefited the squadron and troop fights.

This would not have succeeded without sustained command emphasis. The creation of this section was not insignificant in resources and time. Without the continued support from squadron leadership, the friction in creating this section could have prevented success.

The echoes of the artillery barrage at Zelenopillya and the Russian invasion of Crimea have caused the U.S. Army to rethink how to prepare for high-intensity conflict. JMRC's commitment to faithfully replicating that threat through the aggressive use of UAS systems and fires have provided an invaluable training stimulus. The 2/2 Cav's experience at Allied Spirit 4 and Allied Spirit 5 drove the unit to innovate and become more lethal. By the end of Allied Spirit 8, 2/2 Cav had definitively turned the tables: the squadron UAS were just as effective as the OPFOR's. The 2/2 Cav would not experience its own Zelenopillya.

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ACRONYM QUICK-SCAN

BMP – Boyeva Mashina Pekhoty
CoA – course of action
COIN – counterinsurgency
CP – command post
ECoA – enemy course of action
eFP – enhanced forward presence
FoF – force-on-force
FSCX – fire-support coordination exercise
FSO – fire-support officer
GCS – ground-control system
HTA – Hohenfels Training Area
IC – intelligence collection
ISR – intelligence, surveillance and reconnaissance
JMRC – Joint Multinational Readiness Center
LoS – line-of-sight
MI – military intelligence
NAI – named area of interest
NATO – North Atlantic Treaty Organization
OLC – oak-leaf cluster
OPFOR – opposing forces
OSRVT – One-Station Remote Viewing Terminal
PIR – priority information requirement
RTU – rotational training unit
SUAS – small unmanned aerial system
UAS – unmanned aerial system

Tactical Application of Army Design Methodology: GEN Eisenhower's Response to World War II German Ardennes Offensive

by MAJ Amos C. Fox

The U.S. Army exists to solve problems, whether that be to fight and win the nation's wars, provide humanitarian assistance, or any other number of problem sets. However, the Army does not act without first planning. Because of this, the Army conducts conceptual and detailed planning to enable it to accomplish a given mission. While the military decision-making process (MDMP) and troop-leading procedures are used for detailed planning at tactical levels, the Army Design Methodology (ADM) provides Army leaders an excellent tool for conceptual planning at all levels of war. ADM enables its practitioners in understanding and visualizing problems of all types, and to craft an operational approach to move beyond the current problem toward a desired future state.

This article explains the utility of ADM while highlighting the doctrine and theory upon which it is written, and then briefly surveys GEN Dwight D. Eisenhower's actions immediately following the German Ardennes offensive of 1944 to illustrate ADM in a real-world scenario.

Author Nassim Taleb provides an excellent starting position for understanding ADM's utility. "Unless we concentrate very hard, we are likely to unwittingly simplify the problem because our minds routinely do so without our knowing it," writes Taleb.¹ With that in mind, ADM's primary utility resides in its ability to assist the practitioner in avoiding oversimplification in relation to a given problem set, regardless of the problem's character. Similarly, Army doctrine supports this concept, stating that ADM is "[a] methodology for applying critical and creative thinking to understand, visualize and describe unfamiliar problems and approaches to solving them."²

ADM as framework

ADM contributes to sense-making and problem-solving by providing a framework to comprehensively think about

the situation. The framework, while not a formal step-action drill, consists of interdependent activities which include framing an operational environment, framing the problem and developing an operational approach. Reframing – or revisiting previous thoughts, deductions or templated actions – is a vital component of ADM and is the predominate driver of ADM's symbiotic character.

The first activity of ADM instructs the practitioner to frame the operational environment. In doing so, the practitioner "[s]eeks to understand what is going on and why and what the future operational environment should look like."³ Environmental framing assists the practitioner in seeing beyond their own self- and socially-constructed reality. Environmental framing assists leaders in understanding how one's "here" can be someone else's "there" and that reality is subjective, thus "one-size fits all" thinking should be avoided when examining the characteristics of the environment.⁴

Taking this idea a step further, ADM helps overcome the traps of randomness, or the absence of knowledge, through the meticulous process of environmental framing.⁵ Defense consultant Douglas Macgregor argues that leaders must begin framing the environment by asking first-order questions – who are we fighting, where are we fighting and how are we fighting – to understand the environment in which one is operating.⁶ Army doctrine provides a number of other heuristics to assist the practitioner, including brainstorming, mind-mapping, meta-questioning, questioning of assumptions and the use of the "four ways of seeing."⁷ The result of environmental framing is a definition of the current state and the endstate, both of which are represented graphically and through a written narrative.⁸

Following environmental framing, the designer must frame the problems that stand between the current state and the desired endstate. These problems,

which require resolution, provide the nucleus in which the operational approach develops. The problem frame, like the environmental frame, is articulated through a graphic and a narrative.⁹ The Army acknowledges three types of problems – well-structured, medium-structured and ill-structured – their defining characteristics being how each varies in relation to the problems' perception, solution, execution and necessity for adaption.¹⁰ Problem framing employs the same tools and techniques as environmental framing to develop a problem statement. The problem state is a succinct statement that captures the essence of the problem at hand. Using the outputs from environmental and problem framing, the design practitioner transitions to developing an operational approach.

The operational approach, or the broad general actions that must be completed and associated objectives that must be met to arrive at the desired future state, provides the basis for planning guidance used during MDMP. The operational approach – which is not a course of action (CoA) – is most often expressed through the use of the elements of operational art. Furthermore, it provides "[f]ocus and boundaries for the development of CoAs during the MDMP."¹¹ Following the completion of ADM's three primary activities, it is good practice to reframe to ensure all outputs of ADM are in harmony with one another.

The concept of reframing is a vital component in ADM. Reframing is the process used to check progress, verify the direction of the plan, revisit previous facts and assumptions that drove the planning effort, and account for entropy – the gradual tendency for things to lose efficiency over time and devolve toward chaos.¹² Reframing is continuous and monitors "[t]he operational environment and progress toward obtaining endstate conditions and achieving objectives."¹³ Army doctrine suggests reframing when assessments show a lack of progress, vital

assumptions are proven invalid, major events (positive or negative) occur, a change in mission or the endstate occurs, or whenever the commander or planning team deems it necessary.¹⁴

Eisenhower and Battle of Bulge

One of history's better-known examples of reframing and ADM is found in Eisenhower's response to the German winter counteroffensive of 1944, or what became known as the Battle of the Bulge. Eisenhower's actions serve as both an example of ADM but also a mental model for thinking about how to apply ADM within an organization.

In what historian Carlo D'Este labeled a "last-ditch gamble," Hitler sprang the Ardennes offensive "[t]o destroy all Allied forces north of a line running from Bastogne to Antwerp" and to "compel the Allies to sue for peace."¹⁵ The offensive, launched Dec. 16, 1944, caught the Allies by surprise by slashing through the Ardennes Forest with four army groups toward Antwerp.¹⁶ In doing so, the torrent of the German attack pinned Allied forces in the vital road network at Bastogne. The lightning German attack stunned GEN Omar

Bradley, commander of 12th Army Group, whose force absorbed the preponderance of the attack. The attack all but annihilated the Bradley's 106th Infantry Division and 28th Infantry Division, while other units, such as 2nd Infantry Division and 14th Cavalry Group, fought to hold on.¹⁷

To make matters worse, the attack occurred when 12th Army Group possessed no operational reserve. This forced Eisenhower to mobilize the strategic reserve (101st Airborne Division and 82nd Airborne Division) as a temporary stop-gap to provide time in which to hastily develop a thorough response.¹⁸ During the process, the German salient continued to grow, encircling Bastogne and all but trapping 101st Airborne within the city.¹⁹

On Dec. 19, Eisenhower summoned a trusted team of subordinate commanders, staff officers and advisers to Verdun to conduct what is known today as the ADM. Eisenhower and his planning team discussed the situation, developing both an environmental frame and a problem frame while defining the Allied current and desired future state. The team agreed that the Germans attacked with several army

groups through restricted terrain, in inhospitable weather, creating a large salient in the Allied lines around Bastogne. If action was not taken soon, the Germans possessed the ability to complete their penetration while annihilating Allied forces along the way. Therefore, the Allies had to stop the German attack while regaining their balance to push the Germans back to their previous starting position.

During ruminations on an operational approach, LTG George Patton said he could pivot his Third Army 90 degrees to the north, move the 100 miles from Lorraine to Bastogne and attack the underbelly of the German salient – all while weathering the hardships of a bitter western European winter.²⁰ After deliberation, more conceptual planning and reframing, Patton's recommendation was approved.²¹

As a result of the approved operational approach and its derivative detailed planning, 4th Armored Division of Patton's Third Army broke through the German salient Dec. 26.²²

ADM key to success

The 4th Armored Division's rendezvous with 101st Airborne Division at

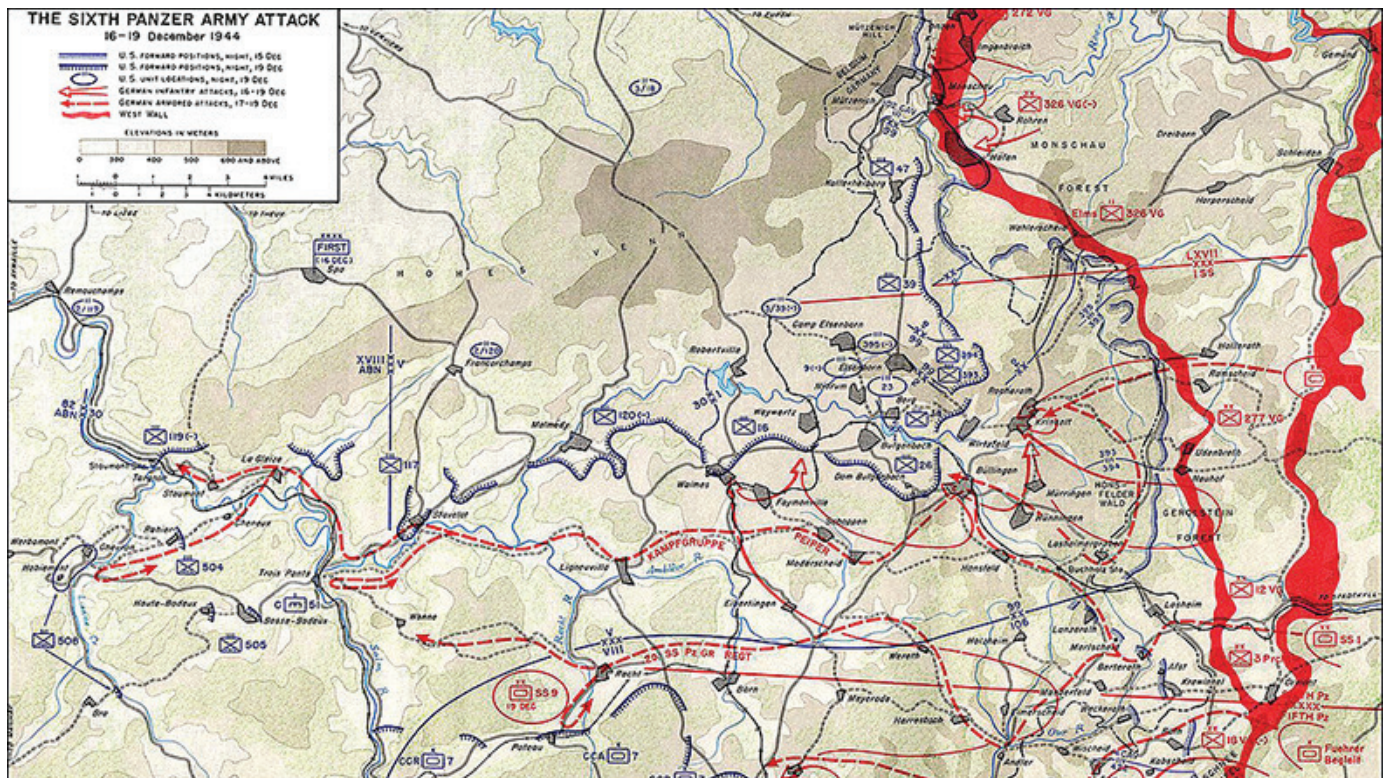


Figure 1. GEN Dwight D. Eisenhower used a tactical application of today's Army Design Methodology to counter the Nazis' Ardennes Offensive during the Battle of the Bulge.

Bastogne was the first indicator of success, but more importantly, it demonstrates the tangible results of Eisenhower's ADM exercise at Verdun. The 4th Armored Division's success – a harbinger of operational victory at the Battle of the Bulge – was a direct by-product of effectively framing the environment, framing the problem and devising a comprehensive operational approach that drove detailed tactical planning for subordinate formations.²³ The process was highlighted by creative and critical thinking in which the senior commander and his trusted lieutenants successfully understood, visualized and described the situation at hand and subsequently developed a broad set of actions to move from the current state to their desired endstate.

Lastly, when dealing with ADM, it is instructive to harken back to the old cavalryman, Patton, who writes, "The best is the enemy of the good. By this I mean that a good plan violently executed now is better than a perfect plan executed next week"²⁴ – Patton's idea being that one must not allow the pursuit of perfect information derail the planning process. The practitioner of ADM must know when and where to apply brackets around the problem. If done correctly, ADM greatly enhances the practitioner's ability to understand, visualize and describe a problem set while developing a comprehensive operational approach to drive detailed planning. ADM is a versatile and effective tool all planning teams must be comfortable employing.

History provides many examples of ADM, including Eisenhower's planning conference at Verdun Dec. 19, 1944. To take it a step further, Eisenhower's conference provides a mental model that demonstrates how to implement and execute the practice of ADM.

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¹³ ATP 5-0.1.



Figure 2. Infantrymen fire at German troops in the advance to relieve the surrounded paratroopers in Bastogne. (From United States Army in World War II's pictorial record, *The War against Germany: Europe and Adjacent Areas*)

¹⁴ Ibid.

¹⁵ Carlo D'Este, *Patton: A Genius for War*, New York: Harper Perennial, 1995.

¹⁶ GEN of the Army Omar N. Bradley, *A Soldier's Story*, New York: The Modern Library, 1989.

¹⁷ Antony Beevor, *Ardennes 1944: The Battle of the Bulge*, New York: Viking Publishers, 2016.

¹⁸ Ibid.

¹⁹ B.H. Liddell Hart, *The German Generals Talk*, New York: Quill Publishing, 1979.

²⁰ Carlo D'Este, *Decisions in Normandy*, New York: Konecky and Konecky Books, 1983.

²¹ The author acknowledges the lack of detail regarding the operational approach – this is intentional and a byproduct of keeping the article focused on the utility of ADM, and not necessarily on the

product it produced. More of the major actions included temporarily reassigning upward of half of Bradley's 12th Army Group to Field Marshal Bernard Montgomery's 21st Army Group to allow Bradley to singularly focus on cleaning up his front before receiving those forces back from Montgomery. A number of counter-offensives from 12th Army Group and 21st Army Group were conducted also, seeking to augment the effects wrought from Third Army's attack in the south.

²² D'Este.

²³ The author acknowledges this is a simplification of how the operational-level fight unfolded. Detailed information was intentionally omitted to keep the article focused on the utility of ADM for tactical purposes.

²⁴ LTG George S. Patton Jr., *War as I Knew It*, New York: Houghton Mifflin, 1995.

ACRONYM QUICK-SCAN

ACR – armored cavalry regiment
ADM – Army Design Methodology
ATP – Army training publication
CoA – course of action
MDMP – military decision-making process



Figure 3. Generals Omar N. Bradley, Dwight D. Eisenhower and George S. Patton in Bastogne, early 1945. (U.S. Army photo)

Synthetic Training Environment: Army's Future to Include 'Train As We Will Fight, Where We Will Fight'

by COL Jay Bullock

After a year-long tour in Iraq, my unit was at Camp Virginia, Kuwait, waiting to start the long process of returning to the United States. As we reflected on our time as a military transition team in Baquba, we thought about how to capitalize on our experiences and hard lessons-learned, and use them to our advantage for the next rotation.

Of course the unit would train at our installation's urban-operations facility; conduct company, battalion and brigade certification exercises; live-fires; and the mandatory National Training Center (NTC) rotation, but how could we ensure the unit was ready for the enemy we would face? Since our deployment, Soldiers' experiences prompted Army senior leaders to assess the current training aids' ability to ensure readiness. This article is an assessment of those and a description of the future Army training environment.

Our current simulations do not allow us to train as we fight or train where we fight. The Integrated Training Environment (ITE), the Army's current training environment, has made significant strides providing a training capability but is a mix of different non-systems training devices that were all developed separately over the last 35 years. They are connected by live, virtual, constructive integrating architecture that can only deliver a semi-integrated training environment.

This partial integration of separate systems results in a very complex federation of capabilities that are expensive and can't keep pace with technology, thus can never fully train our formations to meet current and future threats. ITE lacks enough realism, interoperability, affordability, reliability, adaptability and availability necessary to prevent, shape and win as a part of the joint force in the multi-domain operational environment (OE).

ITE also cannot adequately replicate emerging threats and conditions such as electronic warfare, cyber, space,

megacities and simultaneous operations in a multi-domain OE. Terrain and database development is extremely costly and time consuming, currently taking up to nine to 12 months for engineers to deliver new terrain. ITE requires extensive lead times – up to 120 days – to plan, prepare and execute a training exercise due to complex database set-up and integration between environments.

As many of the Soldiers in the Army have experienced the regimen of deployment, followed by a short dwell, followed by another deployment, and so on and so on and so on, our inability to represent the complexity of the OE translates into increased risk during the initial days of a deployment. As a unit prepares to deploy, it conducts training at its home station, followed by some kind of combat-training center (CTC) rotation to become certified on their core tasks before deployment. Unfortunately, neither our home-station training nor CTCs truly represent the complexities of the OE our units find themselves in once they arrive in theater.

I am not suggesting the training is bad – on the contrary, it is very good – but there are levels of complexity and gaps in realism like weather, terrain, altitude, human dimensions, cultural, religious, enemy and, of course, fear, which all can be represented more accurately. This led to what was commonly referred to a few years ago as "the first 90 days," which was correctly described as the most dangerous time for Soldiers. The enemy capitalized on this transition period as units acclimated to their new environment and conducted aggressive attacks on our formations.

These training gaps are what the Synthetic Training Environment (STE) team has been focused on for the last few years: reducing these 90 days, representing a realistic environment and eliminating ITE's disadvantages. The Army's future training capability is STE. STE will be a single, interconnected training system that enables units from

squad through Army Service Component Command (ASCC) to train in the most appropriate domain: live, virtual, constructive and gaming – or in all four simultaneously. The training capability will enable Army units and leaders to conduct realistic multi-echelon/multi-domain combined-arms maneuver and mission-command training, increasing proficiency through repetition.

Imagine the power of a program that allows the entire unit to immerse itself into its future OE multiple times before it deploys. With STE, that is exactly the type of training we want Army units to go through before they leave the safety of their home station. A Soldier, squad, platoon, company or higher echelon could conduct virtual reconnaissance, rehearsals and exercises on the terrain in which they are about to go fight.

Now imagine even further that we could execute missions in near-real-time that the current deployed unit had just executed against the same enemy. STE will give Army units the opportunity to do this and more. Taking this concept one step further after a unit deploys, imagine taking this program into theater to conduct reconnaissance, planning and rehearsals for current and future operations. Simultaneously, units at home station could participate (passively) in the deployed unit's mission planning and rehearsals by meeting them in STE virtually.

If we apply another example to the regionally aligned forces (RAF), STE could help those units train for current operations at their RAF locations and maintain readiness with their parent organization at home station. The concept envisioned is while a unit is task-organized, the unit's organic components can meet inside STE virtually and conduct training to maintain readiness on their collective and mission-essential-task-list tasks, thus allowing them to more quickly move into live training after they physically come back together.

STE will deliver the next generation of synthetic collective trainers for armor,



Figure 1. STE relationships.

infantry, Strykers, combat-aviation brigades and other platforms. These air and ground Reconfigurable Virtual Collective Trainers (RVCT) will be low-overhead and less costly than legacy collective simulators. This enables the Army to simultaneously train brigade task forces and below on tasks required to accomplish their warfighting functions. This multi-echelon collective training will be delivered to geographically distributed warfighters at the point of need for both current and future forces.

What we envision is a capability that allows all units to conduct collective training in a virtual environment from squad to battalion level. These virtual trainers would be transportable to allow units to take the trainer with them to the point of need, which could include company orderly rooms, home-station armories and/or the unit's deployed location. The trainers are reconfigurable, which would allow them to be used as a mechanized-infantry platoon one day and a tank platoon the next. The flexibility comes from the use of open-architecture One World

Terrain (OWT), augmented/virtual reality and Universal Serial Bus-derived controllers that allow for quick and simple reconfiguration.

A potential-use case for the RVCTs is to be used by a mechanized-infantry company to conduct collective training before it deploys to NTC. As the unit goes through the orders process, it is determined that this company will be task-organized with a tank platoon and during execution of a deliberate-attack mission at NTC will receive an assortment of enablers to conduct that mission. That tank platoon as well as enablers would be able to use their RVCTs to meet the company team in OWT to conduct rehearsals and virtual exercises before deploying to the CTC.

Building on this use case, imagine this same mechanized-infantry company is now deployed to Estonia as part of the RAF in Europe. It would take its RVCT with it as a way to conduct exercises and mission rehearsals. Again, the company is task-organized as it deploys to Europe. That company team would be able to conduct exercises as well as

maintain readiness by being able to link to its detached mechanized-infantry platoon to conduct virtual exercises. This ability to conduct training as a pure mechanized-infantry company has positive implications on its ability to maintain its readiness.

Of course, there is never a replacement for live training; however the unit's ability to train together in a virtual environment will help mitigate its time apart and lessen the amount of time it will need to train together once redeployed.

ITE was never able to achieve this level of effectiveness in training units prior to deploying to Iraq and Afghanistan. We were unable to provide this level of realism in our legacy virtual or constructive trainers. However, we have learned those lessons and understand we need to break the paradigm of how we train in simulations. We have the ability both as an organization and the technology to create a new environment that provides a capability to train from the squad to ASCC level. STE provides our units the ability to train as

they would fight where they would fight. STE has the power to revolutionize how the Army trains and maintains readiness.

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brigade executive officer, 3/4 BCT, Operation Iraqi Freedom (OIF) 10, Nasirya, Iraq; S-3/executive officer, 4-10 Cavalry, OIF 07-09, Baghdad, Iraq; and military transition team, 3/4 BCT, OIF 05-06, Khalis, Iraq. His military education includes Command and General Staff College. COL Bullock holds a bachelor's of arts degree in public administration from Stephen F. Austin University and a master's of arts degree in public administration from Western Kentucky University.

ACRONYM QUICK-SCAN

ASCC – Army Service Component Command
BCT – brigade combat team
CJTF – combined joint task force
CTC – combat-training center
ITE – Integrated Training Environment
NTC – National Training Center
OE – operational environment
OIF – Operation Iraqi Freedom
OWT – One World Terrain
RAF – regionally aligned force
RVCT – Reconfigurable Virtual Collective Trainer
STE – Synthetic Training Environment

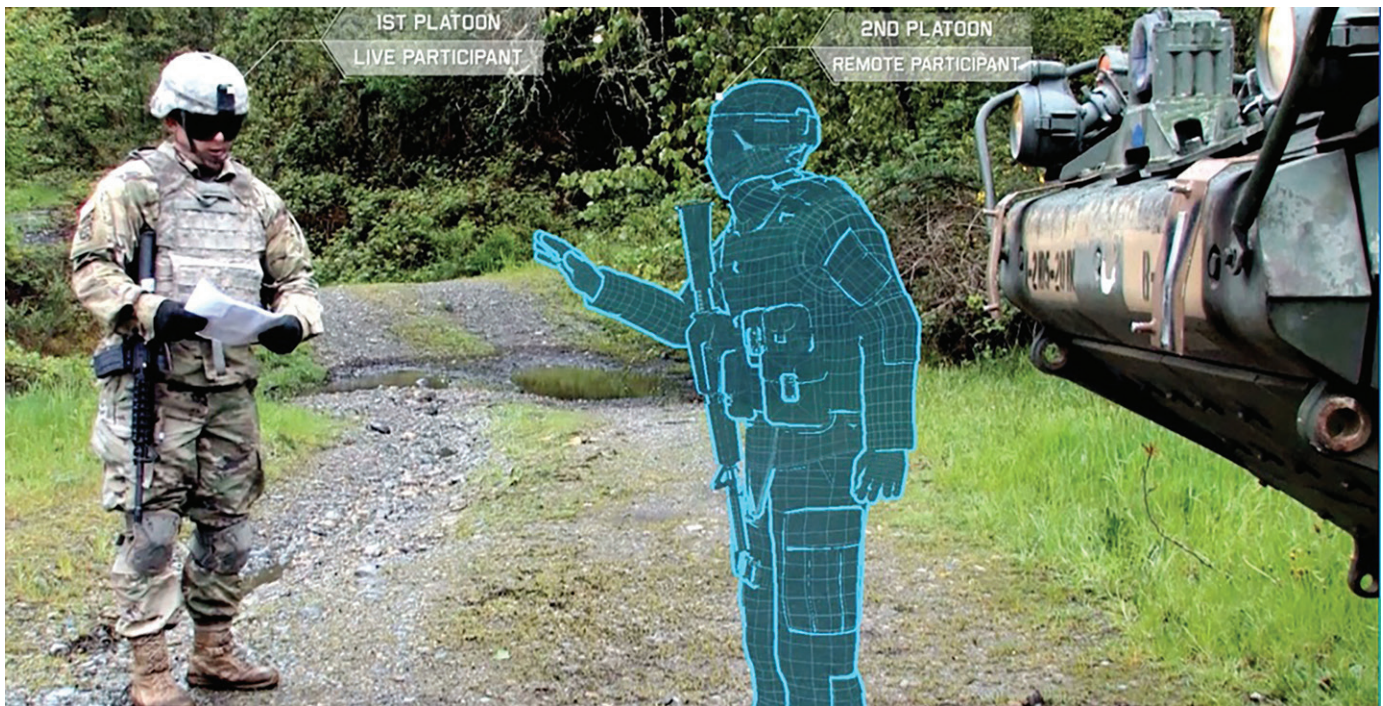


Figure 2. A Stryker vehicle commander interacts in real time with a Soldier avatar that is operated remotely from a collective trainer. U.S. Army Research Laboratory, University of Southern California's Institute for Creative Technologies, the U.S. Army Combined Arms Center and the Program Executive Office for Simulation, Training and Instrumentation are working together to develop a synthetic training environment that links augmented reality with live training — one of several of the U.S. Army Research, Development and Engineering Command efforts that link to the Army's modernization priorities. (U.S. Army photo)

A Lean, Expeditionary Shop Stock Listing

by 1LT Samuel C. Skillman

For the Soldiers of an armored brigade combat team (ABCT) to achieve the kind of readiness required to fight at a moment's notice, they must opt to streamline sustainment. If not, the burden of it will drag them down.

During deployment in support of Atlantic Resolve, 2nd Battalion, 70th Armor Regiment, learned valuable lessons about streamlining maintenance processes to meet the Army's stated goal of readiness, specifically concerning the shop stock listing (SSL). In January 2017, 2-70 Armor had 857 lines of SSL. Battalions across 2nd ABCT, 1st Infantry Division, all averaged 700-800 lines of shop stock. The prevailing logic for SSL management was "Keep everything! We might need it someday."

Yet an SSL that large is impractical. Organic assets do not support movement of a large SSL or splitting it to support units operating in different locations. Most SSLs have duplicate or useless items across multiple companies, taking up much-needed space. For

example, one company had a generator that was for a howitzer, but that unit had no howitzers. Keeping an SSL managed with this philosophy is inefficient and actively prevents the unit from maintaining readiness and tactical maneuverability.

The reason this philosophy has flourished is a fundamental misunderstanding about what SSL does for a company. The fundamental purpose of an SSL is not to immediately fix everything in a company that might break someday. Instead, the SSL's purpose is to solve most vehicle breakdowns quickly so companies can accomplish the mission.

To do this, the SSL should be lean, efficient and deliberately managed. The SSL must be limited by usefulness and space available for transport and storage. It should be comprised of three groups of items: deadlining items; low-reliability parts and diagnostic spares. These items can be determined by asking the following three questions:

- **Will this part bring up a vehicle right now?** The SSL should consist of items that address major deadlining faults like generators and starters. This question eliminates minor

deficiencies: faults that are inconvenient but not deadlining like heaters or mirrors. These type of faults can wait for resupply without affecting the mission.

- **How often does this part break?** The SSL needs to be customized for the fleet of vehicles it serves and the maintenance trends those vehicles show. We found that items like solenoids and generator shafts break at an astounding rate in our tanks during field operations. This demand analysis prompted us to add these items immediately to SSL.
- **Can it be taken for next-level repair locally?** For tanks and Bradleys, line-replaceable units (LRU) are computer units that are the heart of the vehicles' electrical systems. They are the common culprits for vehicle breakdowns. They can be taken for next-level repair within the brigade



instead of being replaced. Therefore, our SSL contains diagnostic spares for these parts so the vehicle can continue the mission with the spare while the LRU is fixed.

Under previous management procedures during Exercise Allied Spirit VII, 2-70 Armor was unable to move all its SSL into the training area. Instead, it was forced to take a cross-section of parts and was ineffective in maintaining the fleet when resupply was unsuccessful. The unit was also not able to split the SSL to support a company detached to another battalion.

These issues underlined a major failure in our bloated SSL. To be effective and maneuverable on the battlefield, the SSL was cut down to what the company could carry – from 170 lines per

company to 50. At 50 to 60 lines per company, commanders and maintenance managers can scrutinize all parts on the SSL and make decisions to improve the effectiveness of repair capabilities. Each company can also move independently from support units with organic equipment to transport the SSL. This allows a company to execute a deployment-readiness exercise and be prepared to deploy anywhere in the world while still maintaining the kind of combat power that wins wars all over the globe.

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Course. 1LT Skillman has a bachelor's of science degree in computer science from the U.S. Military Academy, West Point, NY.

ACRONYM QUICK-SCAN

ABCT – armored brigade combat team
LRU – line-replaceable units
SSL – shop stock listing

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FROM THE SCREEN LINE

Enhance Disciplined Initiative to Enable Mission Success: Commander's Reconnaissance Guidance

by CPT Anthony D. Capozzi

Greetings from Observation Post (OP) Harmony Church. Observations of students within the Department of Reconnaissance and Security (R&S), mixed with combat-training-center trends, show that the application of commander's reconnaissance guidance (CRG) and commander's security guidance is an area where cavalry squadrons and scout platoons need to improve. In this installment of "From the Screen Line," guidance beyond doctrine will be developed.

When a plan meets first contact during execution, organizations must maintain flexibility and be prepared for an operational environment of unprecedented ambiguity and speed. With that in mind, leaders must set subordinate troops up for success to accomplish the brigade or higher commander's intent. That begins with understanding the higher commander's intent. Once understood, the squadron executes the military decision-making process (Field Manual (FM) 6-0) or rapid squadron planning (Chapter 2, Army Technical Publication 3-20.96). At the conclusion, the squadron develops its mission statement comprised of the commander's intent nested in purpose with the higher commander, the CRG, operations graphics and a synchronization matrix from the squadron. All are linked and collectively provide subordinates with the tools to operate with disciplined initiative.

Maneuver elements are intimately familiar with the aforementioned essentials for mission execution, but CRG is unique to cavalry operations. It is often misused or misunderstood by those who perform these important roles, but CRG is vital to the planning and execution of cavalry operations.

Commander's recon guidance

Focus, tempo, engagement/disengagement and displacement criteria are critical components subordinates need to plan and execute. CRG's purpose is to enable flexibility to develop the situation and provide adequately detailed guidance to accomplish stated reconnaissance within a required timeframe (FM 3-98).

Following is an example of a simple narrative form of CRG from a squadron commander (SCO) to a troop commander that will be referred to throughout the rest of the article:

*Troop B, your focus is threat to find company-sized battle positions, indicating the enemy main battle zone. Your tempo is forceful and deliberate, using bounding movement technique beyond the probable line of contact, and collecting detailed information about enemy battle positions and engagement areas. Engage enemy reconnaissance elements with AT systems and disengage when faced with 3/7 [three tanks/seven BMP2s]. Bypass dismounted teams without AT systems and hand over to TF scout platoons. Displace east along PL Blue to provide early warning for potential enemy counterattack from the northeast and establish OP 21 to observe NAI 205.*¹

Focus

According to FM 3-98, the *focus* helps narrow the scope of operations to get the information most important to develop the situation; it is the information most important at the time. It is comprised of four categories: threat, infrastructure, terrain and weather effects, and society.

A commander and staff further refine the focus into *reconnaissance*

objectives, which must be of such importance that they directly support the endstate defined in the commander's intent or information requirement that greatly assists satisfying a priority intelligence requirement (PIR) (FM 3-98). A reconnaissance objective is a terrain feature, geographic area or an enemy force about which the commander wants more information (FM 3-98).

A cavalry unit's *displacement criteria* is often linked to the reconnaissance objective. As in the preceding example, the displacement criteria for company-sized battle positions should be the unit's reconnaissance objective. It should be threat-focused but also refined to provide subordinates with the specific enemy element or capability within the focus; in the example, the commander refined the *threat* to company-sized battle positions.

In summary, the focus enables the cavalry element to prioritize information-collection assets to satisfy reconnaissance objectives and meet the higher commander's intent.

Tempo

This is often the most confused portion of CRG. *Tempo* is comprised of two mutually exclusive categories: *level of covertness* and *level of detail* (FM 3-98). The terms that describe the level of covertness are *stealthy* or *forceful*.

Another way to think of covertness is *signature*. The mission may sometimes dictate a low signature or stealthy level of covertness. A different mission may dictate a high signature or forceful tempo.

Both tempos may also be used by two platoons in the same troop during a given mission. For example, one platoon may be tasked to remain undetected when performing

	Rapid	Deliberate
Forceful	<p>Detail of information required</p> <ul style="list-style-type: none"> Limited information requirements Mission timeline emphasizes prompt collection <p>Scout's signature</p> <ul style="list-style-type: none"> Overt movement is acceptable Direct and indirect fire contact will not hinder or may even enhance collection efforts 	<p>Detail of information required</p> <ul style="list-style-type: none"> Extensive information requirements Mission timeline allows comprehensive collection <p>Scout's signature</p> <ul style="list-style-type: none"> Overt movement is acceptable Direct and indirect fire contact will not hinder or may even enhance collection efforts
Stealthy	<p>Level of information required</p> <ul style="list-style-type: none"> Limited information requirements Mission timeline emphasizes prompt collection <p>Scout's signature</p> <ul style="list-style-type: none"> Covert movement is required Direct and indirect fire contact will hinder collection efforts and/or freedom of maneuver 	<p>Level of information required</p> <ul style="list-style-type: none"> Mission-completion time enables detailed collection Extensive information requirements <p>Scout's signature</p> <ul style="list-style-type: none"> Covert movement is required Direct and indirect fire contact will hinder collection efforts and/or freedom of maneuver

Table 1. Four possible reconnaissance tempos. (Excerpt from *CALL manual Reconnaissance and Security Commander's Handbook*)

reconnaissance on several named areas of interest (NAI) (most likely *stealthy*), while the other may be tasked to operate with a higher signature (most likely *forceful*) to bring the enemy above his detection threshold.

The terms that describe the level of detail for information collection are *rapid* or *deliberate*. The level of detail provides subordinates with guidance on the amount of information required to report to their higher headquarters. When a level of detail for information collection is rapid, it is limited to a certain prescribed list of indicators that contribute to answering PIR. When subordinates receive a tempo and the level of detail is deliberate, they're required to report on all tasked indicators that support answering PIR. These terms are not defined by speed, but the nature of a rapid or deliberate level of detail suggests the amount of time subordinates may need to satisfy tasked information requirements.

There are only four possible combinations for tempo: *stealthy and deliberate*, *stealthy and rapid*, *forceful and deliberate* or *forceful and rapid*. (Table 1, adapted from Table 1.1 from the *Reconnaissance and Security*

Commander's Handbook published by the Center for Army Lessons Learned (CALL).) These terms, when used properly in conjunction with focus and the form of reconnaissance, provide clarity to subordinates on the "how to" of reconnaissance. However, commanders may take the liberty to elaborate on those terms and provide more guidance on how they envision their subordinate scouts to operate on the battlefield.

In the preceding narrative example of the SCO's reconnaissance guidance to Troop B, he elaborates beyond simply two terms to provide clarity by saying, "Your tempo is forceful and deliberate, using bounding movement technique beyond the probable line of contact and collecting detailed information about enemy battle positions and engagement areas."

Security-guidance tempo

Commander's security-guidance tempo is described with two terms that dictate duration of operation: *short* or *long*. A short-duration tempo is defined as an operation of less than 12 hours, while a long-duration operation lasts more than 12 hours. This tempo

enables subordinate troops to plan the number of OPs to establish. A short-duration tempo tells subordinates to establish more OPs due to minimal sustainment concerns. A long-duration tempo tells subordinates to take the sustainment and rest plan into consideration, which translates to fewer OPs.

Although FM 3-98 defines *security tempo* using the terms *short* and *long*, it may be beneficial for commanders to also consider reconnaissance tempo to provide further clarity when subordinate elements adhere to security fundamentals and perform continuous reconnaissance throughout the security operation.

Engagement/disengagement criteria

Engagement criteria establishes minimum thresholds for engagement (*lethal* and *nonlethal*) (FM 3-55). Engagement/disengagement criteria can either be *restrictive* or *permissive* (FM 3-98). To disengage from direct fire, you must first be engaged; otherwise, it may be viewed as bypass criteria. When discussing engagement criteria, all forms of contact must be considered.

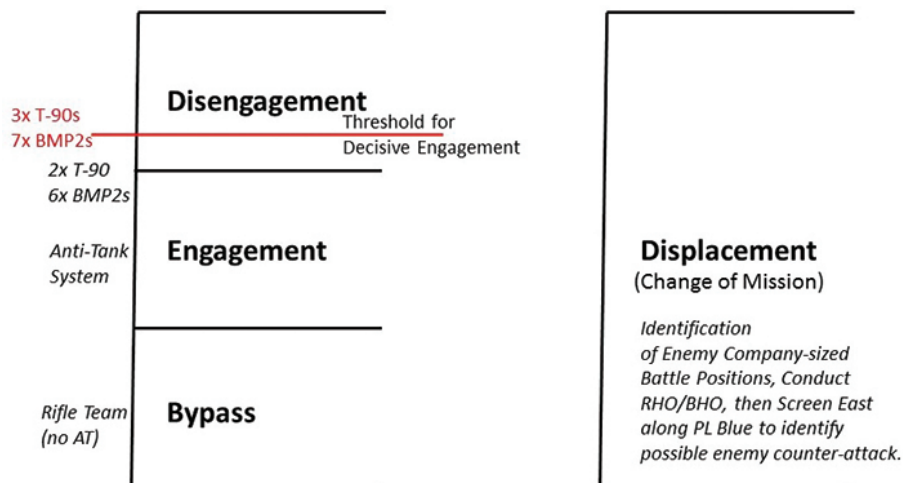


Figure 1. CRG.

For brevity purposes, I will focus on direct-fire contact. Following is a simple example to aid conceptual understanding.

In this example, an SCO provides guidance to a subordinate troop. This particular troop is a Troop B in an armored cavalry squadron. It retained both Bradley Fighting Vehicle (BFV) scout platoons (six BFVs x 36 scouts) and received one platoon of Abrams tanks under tactical control to accomplish its forceful and deliberate reconnaissance-in-force to identify enemy company battle positions. The SCO and staff specified that if this troop is in direct-fire contact with three T-90s and seven BMP2s (highlighted in red font on Figure 1), given the current relative combat power analysis, they will become decisively engaged; therefore, the SCO has determined their threshold for decisive engagement.

In an effort to ensure that his subordinate commander can retain freedom of maneuver, the SCO provides the Troop B commander with a disengagement criteria of two T-90s tanks and six BMP2s. The SCO is comfortable with Troop B engaging an element with an anti-tank (AT) system but does not care to eliminate an adversary team without an AT system, choosing a rifle-team bypass criteria instead. However, once contact is gained, there is an implied task to maintain that contact per the fundamentals of reconnaissance; the unit must have a plan to hand over that contact when gained to another element, preferably a combined-arms battalion's scout platoon or an adjacent

troop within the squadron.

Displacement criteria

This defines triggers for planned withdrawal, passage of lines, battle handover or reconnaissance handover between units (FM 3-98). Conditions are event-driven (PIR satisfied), time-driven (latest time information is of value) or threat-driven (OPs compromised) (FM 3-98). Simply put, displacement criteria is a change of mission.

In the preceding example, the cavalry unit can begin displacement once it identifies enemy company-sized battle positions. However, the cavalry unit must maintain contact until an appropriate battle handover or reconnaissance handover is complete with an adjacent or the supported unit.

Conclusion

CRG is only one component, albeit a critical one, to the successful execution of R&S operations. Doctrine is a guideline, but our force must effectively use the doctrinal terminology in current circulation to execute R&S operations when in close contact with the enemy and a civilian populace. The ability for commanders to describe and scouts to understand the commander's R&S guidance creates the shared understanding necessary to shape the battlefield to achieve a relative advantage.

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ACRONYM QUICK-SCAN

AT – anti-tank
BCT – brigade combat team
BFV – Bradley Fighting Vehicle
BHO – battle handover
BMP2 – *Boyeva Mashina Pekhoty 2* (second-generation Russian amphibious, tracked infantry fighting vehicle)
CALL – Center for Army Lessons Learned
CLC – Cavalry Leader's Course
CRG – commander's reconnaissance guidance
FM – field manual
NAI – named area of interest
OP – observation post
PIR – priority intelligence requirement
PL – phase line
R&S – reconnaissance and security
RHO – reconnaissance handover
RSLC – Reconnaissance and Surveillance Leader's Course
SCO – squadron commander
TF – task force

course director, Cavalry Leader's Course (CLC); commander, Troop B, 5th Squadron, 73rd Cavalry Regiment, 3rd Brigade Combat Team (BCT), 82nd Airborne Division; plans officer, 5-73 Cav, 3rd BCT, 82nd Airborne Division; and scout-platoon leader, Troop A, 6th Squadron, 4th Cavalry Regiment, 3rd BCT, 1st Infantry Division. His military schools include CLC, Army Reconnaissance Course, RSLC, Ranger Course, Jumpmaster Course, Basic Airborne Course and the Air-Assault Course. CPT Capozzi holds a bachelor's of arts degree in human geography from the U.S. Military Academy, West Point, NY, and a master's of science degree in organizational leadership from Columbus State University. His awards and badges include the Bronze Star Medal, Combat Action Badge and the Senior Parachutist Badge. CPT Capozzi deployed for Operation Enduring Freedom (2011) and Operation Inherent Resolve (2015).

Notes

¹ The example is not a checklist but a narrative explaining how a commander visualizes the reconnaissance fight while using key components of CRG in the narrative.

BOOK REVIEWS

Buttoned Up: American Armor and the 781st Tank Battalion in World War II, Westin Ellis Robeson, College Station, TX: Texas A&M University Press, 2017, with photographs, maps, footnotes and index, 262 pages, \$45.

The aftermath of World War I left various military thinkers and practitioners in a quandary. How does an operational force maneuver on a battlefield scarred with trenches, mines and natural obstacles? Part of the answer was to be found in the newly designed tank. However, employment during World War I amply demonstrated the limitations of British, French and German tanks. The question remained: What is the best way to employ this system? The interwar period allowed all the previous combatants to evaluate and to craft their own responses to this basic question.

Westin Ellis Robeson presents a detailed look at how the U.S. Army approached the employment of tanks on the World War II battlefield. His focus is on the separate tank battalions of World War II, specifically 781st Tank Battalion, and its use by the Seventh Army during the campaigns across Southern France and Germany. He divides his work into three parts. Part I covers the development of the tank and armored doctrine during World War I. Part II addresses the reaction of American planners to German armored operations. Part III concludes with a detailed examination of separate tank battalions and their value in various combat operations.

Robeson begins by detailing the post-World War I schools of thought regarding tank operations. Basically, Britain developed two types of tanks. One was a slow moving, heavily armored tank to support walking infantrymen, and the other was a fast moving, lightly armored vehicle capable of breaking through and routing enemy forces. Americans looked at the tank as an infantry-support weapon. It would provide firepower to the infantry. Unfortunately, for both Britain and America,

the Germans built an armored force around a combined-arms approach that relied on speed, reliable communications equipment and firepower to overwhelm an opposing force. The early successes of the Germans left little doubt that American pre-war armor doctrine needed to be revised.

The author then reviews the experimentation that led to the creation, testing and employment by the United States of armored divisions. Originally, an armored division was structured around one infantry and two tank regiments for a total of some 300-plus tanks. By 1942, it became evident that this structure was too large to be employed effectively. While the First, Second and Third Armored Divisions already overseas retained their original structure, all subsequent divisions contained three tank and three infantry battalions. This required roughly half the tanks allocated to the first three armored divisions. While this proved to be a correct move, the lack of armored support for infantry divisions presented a challenge that was met by forming independent or General Headquarters (GHQ) tank battalions. By the end of the war, there would be 65 independent tank battalions in the Army's force structure. They would be employed in a manner not foreseen prior to their entering combat.

A common tank battalion structure was employed. Regardless of assignment to either an armored division or as an independent tank battalion, each battalion consisted of three Sherman tank companies containing 17 tanks each, a light-tank company of 17 Stuart tanks, a service company and a headquarters company. Within the headquarters company a reconnaissance, mortar and logistics platoon supported battalion operations. Also, several 105mm M4 Shermans were placed throughout the battalion to supplement the already considerable organic firepower.

While detailing the problems and successes of this organizational transition, Robeson addresses the development of anti-tank forces and the M4

Sherman tank program. Detailed discussions are presented regarding the development of various engines for the Sherman and the effectiveness of the 75mm main gun. These details supplement a text that places a great deal of relevant points before the reader while avoiding meaningless minutiae.

Given this foundation, the author then moves onto the combat employment of 781st Tank Battalion. While assigned to 7th Army, the 781st was never employed as a battalion. Rather, during its eight months of combat, the battalion witnessed its tank companies being attached to five divisions. In most cases, a given tank company sent individual platoons to support regiments within the assigned division. As Robeson notes, this was in spite of separate armored battalion doctrine which "stressed that such units should be deployed *en masse*, rather than broken up and dispersed on independent missions. But this theory never fully materialized in the field, where geography and infantry commanders dictated otherwise." Here, maneuver commanders demonstrated the flexibility and responsiveness that characterizes combined-arms operations.

This is a well-researched, highly detailed, fast-reading work. Complex subjects such as Sherman engine design and performance, tank-ammunition armor-penetration studies, design improvement for the light tank and detailed reviews of tactical engagements are captured in a fluid writing style. This is a book that will appeal to a wide audience seeking to enhance their knowledge of a vital but often overlooked tactical asset of World War II.

RETIRED COL D.J. JUDGE

Valley of the Shadow, Ralph Peters, Forge Book: New York, 2015, \$9.99 (mass-market paperback).

There are those of us who only think of Ralph Peters as the angry writer castigating both left and right for its failure to properly prosecute the War on

Terror. Those of the Fulda Gap era remembered when he burst on the scene with **Red Army**, the mirror image of Tom Clancy's **Red Storm Rising**. Peters has written two well-received works of fiction on the American Civil War in the east. Although enjoyable reads, when it came time to downsize for the final Army move since the Army no longer gave one a professional-book moving waiver, Peters' books were donated. Why? They just didn't "reach" some place within my Soldier's soul. Yet I eagerly awaited this book that rages from Washington, DC, in the summer of 1864 to Cedar Creek.

Valley of the Shadow centers in part on a cast of has-beens, castoffs from their respective armies. We see the future author of **Ben-Hur**, Lew Wallace, cast in the role of buying time with a scratch force of Union soldiers at Monocacy, trying to buy time for forces to arrive in Washington from Petersburg. Wallace is still trying to recover from his alleged failures at Shiloh, a stigma he never lives down. We see Jubal Early, a generally unpleasant man, called by Lee "My Bad Old Man," trying to replicate the moves of Stonewall Jackson in the valley and capture the Federal capital. We have John Gordon, seemingly sent from the Army of Northern Virginia to both get "seasoning" and perhaps to serve as Lee's eyes and ears. Last but not least, we have the up and coming Union general, Phil "Little Phil" Sheridan.

Peters captures much of Early's essence, perhaps as well as any non-fiction work on Early I've read. Peters understands at some instinctual level that Early was perhaps a great division commander who knew how to maneuver and get the most out of his men. When it came to higher-level command, though, and this in an era of pre-staff, Early tended to flounder. He was an excellent man to give a plan to and allow him to execute it with some latitude, because you could expect him to carry it out violently. When it generally comes to the art of strategy, aside from the brilliant campaign that nearly captured DC, Early seems adrift and unable to come up with a coherent strategic campaign plan. Yet there is more to him, and Peters captures that as well – Early's ideological fervor and a

sense that Early, unlike Lee, understood this was a new type of war, one of total war, which is why we see Early with an ear cocked throughout to Union opinion. Early in a sense reached the same conclusions of Sherman and Sheridan on how the war needed to be waged, though he was not quite as ruthless yet and he lacked the striking power to affect it.

Custer is introduced just as we would imagine – boyishly enthusiastic and simply wanting to smash 'em up. Peters seems to take note of the alleged ongoing military purge of its warrior caste by highlighting this aspect of Custer. Both the political correctness and the ongoing social engineering made for safe officers, but they were hardly the warrior caste we need in time of war. By extension Peters tells us we need those types, like Custer and Patton, for when we need them, they won't be there.

What was compelling about this book is I developed an affinity for the characters early on, to include the historic ones. In his previous books, I was never actively engaged by the characters but here, Peters brings people to life, no mean feat in ground that has been endlessly plowed, particularly successfully by Jeff Shaara. **Valley of the Shadow** is, if the reader will pardon my pun, beyond a shadow of a doubt Peters' finest work to date. Peters brings to life a critical period of the American Civil War that is generally overlooked. Peters' ability as a former Army officer allows him to put the Early-Wallace-Sheridan campaign in the Shenandoah River Valley into the rich historical perspective it deserves. **Valley of the Shadow** is a must spring or summer evening's read.

(Editor's note: ARMOR as a professional bulletin does not normally publish reviews of novels, but Peters' novels have relevant lessons in leadership. Peters, who retired from the U.S. Army as a lieutenant colonel, served in 1st Battalion, 46th Infantry Regiment, then part of 1st Armored Division.)

LTC (DR.) ROBERT G. SMITH

MacArthur's Coalition: U.S. and Australian Operations in the Southwest Pacific Area, 1942-1945, Peter J. Dean,

Lawrence, KS: University of Kansas Press, 2018, with maps, footnotes and bibliography, 476 pages, \$27.67.

Joint Publication 3-0, **Joint Operations**, defines coalition warfare as "an *ad hoc* arrangement between two or more nations for common action." It is generally viewed as a short-term solution to a given military challenge. During World War II, the United States and Australia entered into a coalition that neither side had anticipated or planned for prior to 1942. In that year, GEN Douglas MacArthur arrived in Australia fresh from his escape from the Japanese forces then conquering the Philippines. He wanted to lead the force back to recover the Philippines. To accomplish that task, he needed the materiel and manpower assets of both the United States and Australia. How this incredibly difficult undertaking was accomplished is the subject of Australian author Dr. Peter J. Dean's latest work on World War II in the Pacific.

Dean organizes his work around key themes and areas of study. He evaluates Allied strategy and the military organizations of both countries, along with details on each nation's military command-and-control procedures. This is an analytical narrative of an extremely complex subject matter focusing on a little-known area of the world. Strategic, operational and tactical movement in New Guinea and Papua demanded a unique combination of strategy, intelligence, training and logistical operations to be successful. Neither coalition partner had the ability to perform the task alone; they needed each other to defeat the Japanese.

The book divides the subject matter into five parts. Part I addresses the pre-World War II assumptions of various nations – specifically, the American reliance on retaining the Philippines as a base of operations for attacks against Japan. The United States war plans were known as the Rainbow Plan with colors designated for specific areas of concern. Thus, War Plan Orange covered potential operations in the Pacific against the Japanese. At the same time, Australia aligned its national

interest with those of Great Britain. Under this approach, the large British naval base in Singapore would provide sea and land forces to protect its Pacific colonial possessions as well as Australia and New Zealand. Both Australia and New Zealand would provide manpower to supplement the British effort. This was referred to as the Singapore strategy.

Complicating the pre-war planning was the 1939 declaration of war by Great Britain against Germany. This action witnessed Australia and other British dominions supplying land forces to support British operations in North Africa and Greece. Trained troops were fighting far from Australia as world events changed. The Japanese attack on Pearl Harbor caused the collapse of both pre-war strategic approaches as the loss of the Philippines and Singapore forced Australia and the United States to enter into a coalition of convenience to ensure their survival.

As war began in the Pacific, Dean enters into Part II of his book, where he explains the effects of the American strategic approach that gave first priority to military actions against Germany. The Pacific was a secondary theater of operations. This led to the creation of two major American commands in the Pacific. The Navy and Marine Corps would plan and conduct operations within the Pacific Ocean Area under the command of ADM Chester Nimitz. At the same time, the Army, led by MacArthur, would drive toward the Philippines in the Southwest Pacific Area (SWPA). Inevitably, this structure saw a constant competition for resources between the American commanders. Because of this resource-constrained environment, MacArthur quickly appreciated that pending the arrival of American men and materiel, he would require Australian land forces to implement his operational plans. The battles conducted within SWPA by a combination of Australian and American ground, air and sea forces from 1942 to 1943 are thoroughly examined and provide fascinating insights on doctrinal and leadership conflicts between the two nations.

Parts III and IV of the book cover the

highs and lows of this unique coalition of forces. While detailing the bond formed between the Australian and American forces at the operational and tactical levels, Dean examines the conflicts at the strategic level in detail. The role personalities play and their effect on lower-level plans and operations is effectively conveyed by the author.

Part V concludes the work. Here, the coalition of convenience suffers mightily as large American forces arrive in SWPA and leave little for the Australian forces to do beyond participating in meaningless backwater operations.

Dean presents a well-balanced examination and discussion of coalition warfare. This work offers many points for maneuver commanders to consider, study and discuss. The value of political support is well illustrated, for example, by the cordial relationship between the Australian prime minister and MacArthur. At the same time, the stormy association of GEN Thomas Blamey, the commander and chief of Australian forces, and MacArthur threatened to tear the coalition apart at various times during the war. How these difficulties are surmounted, often by subordinates who work in harmony, should prove insightful as a guide for current and future coalition operations by maneuver commanders.

This is a well-written book that objectively examines a little-appreciated area and aspect of World War II. It should appeal to, and enlighten, readers interested in expanding their knowledge of events in SWPA.

RETIRED COL D.J. JUDGE

Waterloo the Campaign of 1815: Volume I: From Elba to Ligny and Quatre Bras, John Hussey, Barnsley, S. Yorkshire: Greenhill Books, c/o Pen & Sword Books Ltd., 2017, 736 pages, \$42.94.

The prelude to and the conduct of the Battle of Waterloo truly bridges an era, for here was a new beginning, the promise of a Napoleon who vowed to behave within the accepted European order. Waterloo served as an end to an era with Napoleon's final defeat and the collapse of any internal support for

Bonapartism. Waterloo serves as a bridge to a century of peace, as the great powers determined under the auspices of the Congress of Europe that they would ensure no such threat along the likes of Bonapartism would arise again. Hussey's ***Waterloo Volume I*** lovingly details this almost-overnight resurgence of the Napoleonic Empire but pays considerable attention to the cracks in that facade.

Hussey sets up the Waterloo campaign and Napoleon's return from Elba by his adroit handling of the critical context of the 1814 campaign and Napoleon's first abdication. Seldom does one see a deposed leader returning to power so fast under these circumstances as Napoleon did within a year. Hussey relates to us that the Bourbon Restoration was a near-textbook example of how to do everything wrong in consolidating power. The Bourbons managed to alienate large parts of the French population and, more importantly, the former Napoleonic army. Hussey touches upon the fact that Napoleon's return to power was built upon the support of mid-level officers and soldiers and not upon his former marshals.

This thesis in one sense speaks to the eagerness of why the allied powers wanted to crush the restoration of Bonapartism, fearing both the revolutionary and imperial fervor it sparked. Hussey details the herculean task confronting Bonaparte and of his efforts in re-establishing power. In this, the 100 Days Campaign, Bonaparte's legendary energy would serve him well. However, Hussey notes that Bonaparte's former marshals and members of his government failed Napoleon time after time. His marshals had aged and now wanted to live the good life, wanting no more life in the saddle.

In a sense, Hussey's eye for details of the death by a thousand cuts to Napoleon in terms of energy wasted by dealing with administrative matters better handled by clerks helps the reader understand the mistakes that would happen later. But for Napoleon, we sense the most important failure would come in the re-establishment of a large-enough trained army to face the overwhelming coalition.

Hussey gives even the reader

unfamiliar with the period more than a thumbnail description of the main figures arrayed against Napoleon – old and familiar foes. First is Prussian Field Marshal Gebhard von Blucher, who despite believing he was pregnant by an elephant, was the scourge of the French. He was an offensive-minded general who – no matter how often knocked down – would set himself on you again. Blucher, though, had major internal issues with his own staff and generals, who greatly mistrusted their allies, particularly the British and Wellington. The British were viewed with suspicion – perhaps in this reviewer’s estimation a holdover still from the era of Frederick the Great, when British gold rented Prussian manpower to fight their continental battles.

Then, of course, there is the wild card of Wellington, who had defeated many of Napoleon’s marshals and generals in Spain. Until the 100 Days Campaign, Wellington and Napoleon had never faced each other. We see time and time again Napoleon disparaging Wellington’s abilities, failing to heed the advice of those who had fought against and lost to Wellington in Spain.

A theme Hussey returns to repeatedly that dominates all Napoleon’s decision-making is the fact that like in Orwell’s *1984*, France had seemingly been at war since 1792. Manpower, horses and fresh, good leadership were all in short supply. Both in the disaster of the 1812 Russian Campaign, where at least 120,000 horses perished, and the long 1813 campaign, Napoleon had exhausted his cavalry arm. The immediate impact was that this arm of decision – so important to the trifecta of combined arms adroitly handled by Napoleon in battle after battle – was now but a shadow of its former glory. As well, the loss of so many horses made every other aspect of campaigning difficult, from moving artillery quickly on the battlefield to making logistics far more problematic, as the resources were simply not there in abundance.

Hussey excels at subtly advancing his core concept that all of Napoleon’s decisions and attempts at work-arounds to compensate for the lack of most everything was fueled by his lack of time. All of his decisions are examined not in

a vacuum of what he could have done but against what were the realistic options Napoleon had within his power to execute. The frontal assault at Ligny? Not the best choice of tactics, but when viewed in terms of time and the need for an overwhelming victory to unhinge the coalition against him, it makes sense.

If nothing else, Hussey subtly leads us along those types of pathways, instructing us on the range of the probable Napoleon could have chosen vs. wild, speculative armchair quarterbacking. However, if Hussey perhaps needed to summarize anything, it is the impact of French Marshal Michel Ney’s failure to move on and seize the critical crossroads of Quatre Bras. Its second- and third-order effects could have easily been broken out again, for the reader might not have fully picked up how this impacted Waterloo. Perhaps Hussey does so in Volume II.

Hussey’s first volume is without peer for its overall treatment of the Waterloo campaign. It is simply unfathomable to imagine anyone holding themselves out as a serious student of Napoleonic history to pass this work by, for in terms of scope, readability and a simple-but-comprehensive account for many facets of the campaign, this book is without peer.

Coalition warfare is all the rage in the modern era, and in exploring the topic, Hussey details the complexities of waging coalition warfare while keeping your eye firmly on your own national objectives. Hussey’s work forces the reader to desire to possess and read the second volume.

LTC (DR.) ROBERT G. SMITH

We Few, U.S. Special Forces in Vietnam, Nick Brokhausen, Havertown, PA; Casemate Publishers, 2018, 360 pages, no maps or photographs, \$32.95.

Nick Brokhausen inserts his personal experiences, observations and thoughts with precision in *We Few, U.S. Special Forces in Vietnam* between two poetic and appropriate quotes extracted from William Shakespeare’s Henry V: “*But we in it shall be remembered; we few, are happy few,*

we band of brothers for he today that sheds his blood with me shall be my brother” and “*We are but warriors for the working day; our gayness and our gilt are all besmirch with rainy marching in the painful fields.*”

Brokhausen delivers an insightful and captivating perspective of his assignment as the “One-One” or assistant team leader with Reconnaissance Team (RT) Habu under the Military Assistance Command Vietnam-Studies and Observations Group (MACV-SOG), in Command and Control-North (CCN) Region of Vietnam during 1970.

Brokhausen communicates a series of descriptive short stories that isolate the individual personalities of RT Habu’s members, adjacent recon teams and the recon company leadership. Those familiar with the movies *Apocalypse Now* (United Artists, 1979), *Platoon* (Orion Pictures, 1986) or *Casualties of War* (Columbia Pictures, 1989) will recognize the humaneness aligned with serving in ground combat units during the Vietnam War. He clearly articulates a disdain for the North Vietnamese Army, Viet Cong and those who threatened fellow warriors. He expresses the emotional aspects that challenged the mind and body of Americans, Montagnard tribesmen, Vietnamese and Chinese Nungs serving in the RTs. His commitment, competence, candor, compassion, courage and care for “brothers in arms” offers an opportunity to “get to know” everyone as they co-existed in the operational environment.

Brokhausen’s injection of humor replicated antics choreographed in two American situational comedies, *McHale’s Navy* (1962-1966) and *M*A*S*H* (1972-1983). The amusing and foolish behavior demonstrated or displayed by the members of RT Habu generated an occasional quaint smile or lengthy outburst of laughter. Their pranks, tomfoolery and antics during stand-down time, recovery operations and rest/relaxation periods communicated the importance of leaders affording Soldiers the opportunity to “blow off steam” while tacitly enforcing regulations, policies and standards. It is highly unlikely that today’s Soldier would attempt any of the mischievousness or illegal behavior executed by

Soldiers in previous armed conflicts. Not because they lack the resourcefulness for entertaining themselves or others, but due to a prescriptive tolerance level by subordinates, peers and superiors.

Brokhausen interconnects anecdotal accounts of small-unit tactical engagements to provide an overview of the challenges, opportunities and risks associated with support from Joint Forces capabilities during the Vietnam War. He transmits details that activate each human sense through an imaginative response to the reproduction of a mission. He focuses on the significance of conducting training, rehearsals, pre-combat checks/inspections and after-action reviews to contribute to "mission success." His historical reflections yield a culminating event that destroys a target, seizes an objective or recovers a "brother in arms." The missions assigned to RT Habu reflect everything but a "study and observation" experiment. Perhaps the most prevailing affiliation of SOG is that the mission sets assigned to RTs required a highly skilled, experienced, educated and dedicated Soldier/team. A mission set that only a Special Operations Forces unit could accept, organize, man, train, equip, sustain and execute.

The title for this book directly links to Shakespeare's "band of brothers" prose to elegantly envelop the relationship between man and conflict. Brokhausen releases the motivation of those willing to serve in a military unit during an armed conflict. He reserves the jubilation of those who survive the hell of war. He dignifies the sacrifice of those who perish during combat and non-combat situations. He acknowledges the perverse behavior of those seeking financial or political capital from an armed conflict. He recognizes that a portion of society will navigate through day-to-day activities in or around a region or state at war. He memorializes the camaraderie that Soldiers, sailors, Marines, airmen and Coast Guardsmen enjoy advancing our national interests and national security. ***We Few, U.S. Special Forces in Vietnam*** is a recommended read for small-unit leaders and others seeking a short but entertaining non-fictional

book over a four-day weekend.

COL WILLIAM A. WYMAN JR.
U.S. Army Reserve

(Editor's note: COL Wyman is a new reviewer for ARMOR. A strategist (FA 59A), he is a branch-qualified armor, infantry and civil-affairs officer. Currently he is the Chief of Staff to the Deputy Commanding General-U.S. Army Reserve within U.S. Army Training and Doctrine Command. He previously served in the Vermont and Massachusetts Army National Guard. He is a graduate of the U.S. Army Command and General Staff College, School of Advanced Military Studies, College of Naval Command and Staff and Joint Forces Staff College, and is a student at the Air War College. He holds a bachelor of arts degree in paralegal studies from Our Lady of the Elms College, Chicopee, MA, and master of military arts and science in theater operations from U.S. Army Command and General Staff College, Fort Leavenworth, KS.)

Crusader: General Donn Starry and the Army of His Times, Mike Guardia, Havertown, PA: Casemate Publishers, 2018, 193 pages, \$32.95.

Mike Guardia's biography on GEN Donn A. Starry is a must-read for professional soldiers. ***Crusader*** is the story of the Army's most important change agent of the last half of the 20th Century. Guardia's skillful prose lends context to Starry's writings, oral histories and development as a leader. It is appropriate for a young Armor officer to write the biography of a mounted-warfare icon. No one had a greater impact on the thinking, education and training of Armor officers during the Cold War than Starry; he directly or indirectly influenced us by his leadership, tactics, practice of operational art and strategic thinking.

Starry graduated from West Point in 1948 and entered an Army that occupied Europe and Asia. It was underfunded, understrength, undertrained and underloved by Congress and the Truman Administration. His post-Vietnam army echoed his post-World War II army.

Starry's first assignment was to

Company C, 63rd Tank Battalion, 1st Infantry Division, in West Germany. His platoon had a wealth of combat experience – all his tank commanders were platoon sergeants or tank commanders during World War II. LTC Creighton Abrams, who would become the Army's Chief of Staff, was the battalion commander. Starry later served under Abrams on five occasions.

Starry performed the usual company- and field-grade command-and-staff duties of an Armor officer. In a non-branch assignment, he was a combat-arms instructor at the Army Intelligence School. During this assignment, he became concerned with the Army's stress on tactical nuclear weapons at the expense of conventional forces. This apprehension would cause him to question, in part, the efficacy of the "Active Defense" doctrine of the late 1970s and early 1980s.

After commanding 1st Battalion, 32nd Armor, in West Germany and attending the Army War College, he went to Vietnam in 1966 as a member of the Mechanized and Armor Combat Operations, Vietnam (MACOV) study group. Conventional wisdom held that armor and mechanized-infantry operations weren't feasible in Vietnam with its rainy season, rice paddies and double- and triple-canopy jungle. MACOV's findings dispelled what Starry called "mythology" and determined that mechanized and armor operations, although challenging, were possible in Vietnam.

Commanding in combat is the defining moment for any officer; it came for Starry when he took command of 11th Armored Cavalry Regiment in 1969. His true test as a commander came when the regiment, part of the United States and South Vietnam Army Task Force, invaded Cambodia to clear out North Vietnamese sanctuaries and logistics facilities along its border with Vietnam. Starry and several troopers were wounded by an enemy grenade during a fight for an airfield. He sustained shrapnel wounds, the most serious being in the abdomen. After spending 12 days in a forward hospital, Starry returned to the regiment as it was finishing the fight in Cambodia.

There are many examples of

combat-leadership lessons in the book's Blackhorse chapter. The most important addresses where the commander positions himself to visualize and command the ebb and flow of battle.

By 1973, most of the American combat troops had left Vietnam, and Starry assumed command of the Armor Center and School at Fort Knox, KY. In October of that year, the Yom Kippur War between the Arabs and the Israelis began. Starry made many trips to Israel between 1973 and 1976 and saw the results of the war's unimagined lethality, dominated by maneuver, direct and indirect firepower, and rapid attrition. Starry believed that war between the North Atlantic Treaty Organization and the Warsaw Pact would, on a greater magnitude, replicate the Yom Kippur War.

The Arab-Israeli War established the

need for a new "how to fight" doctrine. The 1976 edition of Field Manual (FM) 100-5, **Active Defense** – written mostly by U.S. Army Training and Doctrine (TRADOC) commander GEN William E. Depuy and Starry – stressed winning the first battle against enemy lead echelons but didn't address his follow-on echelons. This doctrine resulted in a firestorm; some officers called it a "die in place" attrition-based manual. When Starry took command of TRADOC in 1977 after commanding V Corps in Europe, he directed the Command and General Staff College and the branch schools to rewrite FM 100-5. He wanted a doctrine that would destroy the Pact's first echelon while simultaneously delaying, disrupting and defeating the enemy's follow-on echelons. The fundamental premise of the AirLand Battle doctrine was to extend the battlefield by striking deep with long-range fires and joint Army-

Air Force deep attacks.

Mike Guardia through his portrayal of Starry's life and times teaches that future victories emanate from the vision, courage and commitment of leaders who do in peacetime the heavy lifting of organizing, equipping and training an army. Although Starry retired eight years before the first Persian Gulf War, the Army he built won that war.

RETIRED LTC LEE F. KICHEN

ACRONYM QUICK-SCAN

FM – field manual
MACOV – Mechanized and Armor Combat Operations, Vietnam
RT – reconnaissance team
SOG – Studies and Observations Group
SWPA – Southwest Pacific Area
TRADOC – (U.S. Army) Training and Doctrine Command



U.S. Army M1 Abrams tanks of Company A, 1st Battalion, 63rd Armor Regiment, 2nd Armored Brigade Combat Team, 1st Infantry Division from Fort Riley, KS, perform a strategic convoy maneuver during Exercise Combined Resolve X at the Hohenfels Training Area in Germany May 2, 2018. Combined Resolve is a U.S. Army Europe exercise series held twice yearly in southeastern Germany to provide the Joint Modernization Command an opportunity to assess multiple concepts and capabilities. (U.S. Army photo by SPC Andrew McNeil, 22nd Mobile Public Affairs Detachment)

Functional Training Influence and Roles in Developing Unit Readiness and Organization Lethality

by COL J. Frederick Dente, LTC Don L. Canterna, CPT Chris McMaster and CPT John Pai

The U.S. Army is uniquely positioned to fight and win across multiple domains. Our Soldiers are highly trained and fit, outperforming our adversaries in the chaos of battle. Our leaders are educated and confident, outthinking our adversaries to gain a position of relative advantage. Our equipment is equal to or better than any adversary's, providing the survivability and firepower overmatch required on today's battlefields. However, all these advantages rest on one fundamental truth: that we as an Army must first dominate our enemy through precise and lethal direct fire – fires that destroy his weapons, kill his soldiers, paralyze his command and control, and ultimately break his will to fight.

The Oxford Dictionary defines lethality as "the capacity to cause death, serious harm or damage." Today many units struggle to build and maintain lethal superiority for multiple reasons. Frequent deployments, personnel turbulence and the increasing complexity of our tanks and combat vehicles make it difficult for units to build the necessary depth of technical and tactical knowledge and experience in our ranks to maximize our equipment's capabilities. Directly tied to both the Forces Command and Armor Training and Leader Development strategies, 316th Cavalry Brigade provides two lines of efforts (LoEs) that directly support the development of unit readiness and organization lethality within our formations. Both LoEs provide various courses of instruction to arm combat leaders with the skills, knowledge and abilities necessary to maximize the destructive capability of assigned equipment to deliver lethal direct fires against the enemy.

Individual and crew live-fire

For more than 43 years, master gunners have been instrumental in the development and training of live-fire competencies in the pursuit of platform lethality. In any armored or mechanized formation, the name "master gunner" is synonymous with developing excellence in a formation. The master gunner's mission is to train the unit for gunnery; he is the subject-matter expert for all weapon-system platforms and crew-served weapons. The master gunner advises commanders at all echelons and assists with the planning, development, execution and evaluation of all gunnery-related training (individual, crew and collective).

As part of the 2015 Maneuver Center of Excellence reorganization, all maneuver master-gunner programs have been centralized within 316th Cavalry Brigade under 1st Battalion, 29th Infantry Regiment. This effort has resulted in our ability to apply synergistic expertise to increase the lethality of Abrams, Bradley Fighting Vehicle (BFV), Stryker and mounted-machinegun formations across the Army. Together their expertise is being harvested to constantly update our doctrine; tactics, techniques and procedures; and programs of instruction to not only produce better-educated master gunners but assist in developing unit readiness and organization lethality within our formations.

Spring 2018 saw the early implementation of a redesigned master-gunner training strategy in support of how we integrate maneuver and live-fire requirements to develop platform lethality within our formations. To be awarded the additional skill identifier (ASI), a master-gunner candidate must now successfully complete two courses of instruction: the Master Gunner Common Core (MGCC) course and the platform-specific course of instruction.

Supportive of armored brigade combat team (BCT), Stryker BCT and infantry BCT formation sets, the MGCC course was developed to standardize instruction on curriculum that is non-platform-specific (i.e., common themes that have been identified throughout the separate courses). Instruction develops the student's understanding of integrated maneuver and live-fire requirements and methodologies, planning and implementation of live-fire training programs through the lens of conducting mounted-machinegun gunnery for vehicle crews. This approach ensures that all students receive the same foundation of instruction prior to learning the intricacies of their specific platform. A universal understanding of these foundational lessons result in commanders of combined-arms units receiving the same advisement from their graduates, regardless of their branch.

With the capability to produce up to 640 MGCC graduates annually, MGCC provides operational commanders the flexibility to build depth and manage their unit internal programs along three courses of action: send a Soldier to attend both the common core and platform course; send a Soldier to common core and then the platform course at a later date; or send a Soldier to only common core. The latter is beneficial to units seeking to build depth, enhance their Excellence in Armor Program or develop experts in mounted-machinegun gunnery and the Integrated Weapons Training Strategy. Building depth aids a unit's ability to send the most qualified and capable candidate back to attend the platform master-gunner course at a later date while receiving an immediate return on investment in support of Objective-T training and reporting requirements.

The second course of instruction provides a natural recycle point for students to return to the course without having to repeat all 12 plus weeks of

instruction and serves as the ASI-producing, platform-specific course of instruction for the Abrams, BFV and Stryker (Mobile Gun System (MGS), Anti-tank Guided Missile and Remote Weapon System variants). Instruction within these courses focuses on developing platform-specific maintenance, gunnery and unit-training-plan development. Graduates are awarded a platform-specific ASI, and unit master gunners establish their reputations as platform technical experts and critical planners for gunnery operations and vehicle qualifications.

Further enhancing the individual and crew live-fire LoE is the Gunnery Simulation Management Manager's Course (GSMMC), which has the capability to maximize an organization's understanding and use of blended and integrated training environments. Units use virtual and constructive training environments to supplement, enhance and complement live training, allowing units to reduce time, ammunition, simulations and range requirements. Training and education includes instruction on the simulations training-management process, Engagement Skills Trainer II, Virtual Battlespace 3, Advanced Gunnery Training System and Conduct of Fire Trainer-Situational Awareness systems. GSMMC graduates receive security/information-operations certification for their specific training platform (Abrams, BFV or Stryker MGS).

Leader development

The 316th conducts select functional training to educate and train leaders to command, lead and train maneuver formations to support the combined-arms fight. Leaders are by design uniquely positioned in their units to connect their formation to the larger unit and higher commander's intent. Personal observation of the training environment, leader actions and unit responsiveness provide unmatched situational understanding of a unit's capabilities. Institutional training and education within one of the various leader courses of instruction arm our combat leaders with doctrinally sound instruction. When combined with operational experience, the leader is provided a robust set of skills, knowledge and abilities necessary to maximize the

destructive capability of their assigned equipment to deliver lethal direct fires against the enemy.

... [S]ix leader courses [are] capable of being delivered in both resident and mobile training team training venues: Bradley Leader's Course, Stryker Leader's Course, Heavy Weapons Leader's Course, M1A2 SEP Tank Commander's Course, MGS Commander's Course and the Maneuver Leader Maintenance Course (MLMC). Each course provides a specialized capability for leaders assigned to each BCT type.

Within this LoE are six leader courses capable of being delivered in both resident and on-site (mobile training team) training venues: Bradley Leader's Course (BLC), Stryker Leader's Course (SLC), Heavy Weapons Leader's Course (HWLC), M1A2 SEP [system-enhancement program] Tank Commander's Course, MGS Commander's Course and Maneuver Leader Maintenance Course (MLMC), which is executed by 1-16 Cavalry Squadron. Each course provides a specialized capability for leaders assigned to each BCT type.

BLC is a four-week course open to sergeants through majors. Instruction centers on the BFV A3 and provides students the technical and tactical competence to fulfill a leadership position in a Bradley-equipped organization. The initial two weeks of instruction are technical-focused with training that covers the main internal functions of the BFV's hull and turret, preventive-maintenance checks and services (PMCS) and gunnery-skills training

(GST), culminating with training in the Bradley Advanced Training Systems.

The final two weeks are tactical-focused with platoon-level training that integrates the application of troop-leading procedures (TLP) while operating in the Close Combat Tactical Trainer, a live-fire exercise (LFX) and a field-training exercise (FTX). Bradley leaders depart with observably higher fundamental mechanized platoon/section-leader skills and bring their confidence in practical knowledge of the M2 platform to their next unit, alleviating the gaining unit's need to allocate time or resources for a similar level of training.

SLC is a three-week course open to sergeants first class through majors. Instruction centers on the Stryker M1126 Infantry Carrier Vehicle and provides students the technical and tactical competence to fulfill a leadership position in a Stryker-equipped unit. The first two weeks are technical-focused with training that cover the Stryker variants and organization, vehicle internal functions and external capabilities, recovery operations, PMCS and GST. The last week is tactical-focused with platoon-level training that covers TLP, vehicle employment, training in the Stryker Virtual Collective Trainer, an LFX and an FTX. Stryker leaders take away an appreciation for the maintenance of their vehicles, training of crew and section lethality, and understanding of the roles and responsibilities of junior leaders conducting mounted and dismounted operations.

HWLC is a two-week course open to sergeants through first lieutenants. Instruction covers the M98A2 Javelin system, the M41 Improved Target-Acquisition System and tube-launched, optically tracked, wire-guided missile, M3 Carl Gustaf and basic machinegun theory. HWLC is the only institutional course that executes in-depth training on the Javelin weapon system. While the course is not designed to certify gunners, the course will enable graduates to return to their organization with the ability to plan, resource and lead training on these weapon systems – a critical capability as the operational force continues to return focus to countering near-peer adversaries.

The M1A2 SEP Tank Commander's

Course is a two-week course open to promotable sergeants through lieutenant colonels. This course focuses on technical instruction, which includes crew-station duties, tank maintenance, boresighting, armament-accuracy checks, plumb and synchronization, tank weapons, live-fire accuracy screening test, GST and tank gunnery. Students are trained using conventional methods, stand-alone training devices and simulations, with execution of Gunnery Table VI as the capstone. Performance-oriented training is M1A2 SEP-focused. This course is a gunnery-systems-intensive functional course that trains the Soldier to function as an M1A2 SEP tank commander.

The MGS Commander's Course is a two-week course open to promotable sergeants through lieutenant colonels. This is a systems-intensive course that trains the student to function as an MGS commander. Instruction consists of training crew stations and duties, boresighting and synchronization, ammunition, crew maintenance, turret/hull troubleshooting and safety. Students will be trained using conventional training methods, stand-alone training devices, simulators and simulations, culminating with a live-fire exercise.

MLMC is a two-week course open to sergeants first class through captains. Unlike many resources, operational readiness is a training resource that commanders control completely and, when conducted efficiently, sets the conditions for sustained readiness at echelon. This course grew out of a capability gap recognized by Army leadership and confirmed in a November 2017 Army Inspector General report, stating that many company-grade officers across the force lacked an understanding of Army maintenance standards and how to properly develop a maintenance plan for both garrison and tactical environments. The course provides an overview on Army systems – including Global Combat Support System-Army and Federal Logistics – as well as supporting maintenance organizations such as the brigade-support battalion and supply-support activity that officers will interact with in the force. Students also conduct practical training, including command

maintenance with Soldiers, unit-maintenance standard operating procedure development and a practical exercise where they plan sustainment operations in a tactical environment.

Each of these LoEs and associated courses of instruction directly support the development of unit readiness and organization lethality. Our Army's ability to dominate the enemy across multiple domains rests in large part on the foundation of lethality. The ability to survive first contact, maneuver to a position of relative advantage and engage and destroy the enemy is predicated on the fact that our leaders and Soldiers can effectively employ their weapons and combat vehicles. As units continue to rebuild the depth of knowledge and technical excellence required to master these complex weapons, 316th Cavalry Brigade stands ready to assist in developing the technical and functional training required to build lethality that will assist your unit in its ability to decisively win the first direct-fire engagement of the next war.

COL Fred Dente's most recent assignment was as commander, 1st Squadron, 4th U.S. Cavalry, as part of a regionally aligned infantry brigade committed to U.S. African Command. Previous assignments include tank and scout platoons with 2-12 Cavalry in operational deployments to Bosnia and Kuwait; commander, A/1-63 Armor and HHC/2-2 Infantry through combat operations in Fallujah and An Najaf in Operation Iraqi Freedom II; operations officer and executive officer of 1/89 Cavalry conducting operations in Baghdad; chief of operations, 1st Infantry Division and Regional Command-East during stability and combat operations in Afghanistan; senior cavalry trainer, Cobra 07, National Training Center; strategic planner for the Secretary of the Army; executive assistant to the Secretary of Defense; and senior U.S. military adviser to the Ministry of Peshmerga in Erbil, Iraq. His military education includes the Armor Officer Basic Course, M1A2 Tank Commander's Course, Scout Platoon Leader's Course, Armor Captain's Career Course, Command and General Staff College and U.S. Army War College. COL Dente is a graduate of George Washington University (distinguished military graduate). His awards

and decorations include the Bronze Star Medal (5th award), Defense Meritorious Service Medal, Meritorious Service Medal (5th Award), Order of Saint George and Order of Saint Maurice. COL Dente may be reached at jerome.f.dente.mil@mail.mil.

LTC Don Canterna is operations officer, J-33-CT, U.S. Special Operations Command. Previous assignments include platoon leader for a combat-engineer platoon and assault-and-obstacle platoon, 4th Engineer Battalion, 4th Infantry Division, Fort Carson, CO; company executive officer, 4th Engineer Battalion, 4th Infantry Division, Fort Carson; plans officer, 1st Heavy Brigade Combat Team, 2nd Infantry Division, Camp Hovey, Republic of Korea; 1st Battalion, 508th Parachute Infantry Regiment, 82nd Airborne Division, Fort Bragg, NC; International Security Assistance Force Commander's Theater Tactical Force, Afghanistan; commander, Company B, 2nd Battalion, 75th Ranger Regiment; and battalion operations officer and executive officer, 1st Battalion, 8th Infantry Regiment, 4th Infantry Division, Fort Carson. His service includes deployments to Iraq in support of Operation Iraqi Freedom, three times to Afghanistan and Qatar in support of Operation Spartan Shield. LTC Canterna's military education includes Engineer Officer Basic Course, Ranger School, Sapper School, Infantry Captain's Career Course, Maxwell School of Citizenship and Public Affairs at Syracuse University (General Wayne A. Downing scholar), Joint Forces Staff College and Joint and Combined Warfighting School. He holds a bachelor's of science degree in biology from Rensselaer Polytechnic Institute and master's degrees in public administration and international relations from Syracuse University. LTC Canterna's awards and decorations include the Bronze Star Medal with valor device and three oak-leaf clusters, Defense Meritorious Service Medal and Meritorious Service Medal with three oak-leaf clusters.

CPT Chris McMaster commands Company B, 1st Battalion, 29th Infantry Regiment, Fort Benning, GA. Previous assignments include squadron assistant operations officer, 5th Squadron, 1st Cavalry Regiment, Fort Wainwright, AK; executive officer, Troop B, 5th

Squadron, 1st Cavalry Regiment, with deployment to Kandahar Province, Afghanistan; and scout-platoon leader, Troop C, 5th Squadron, 1st Cavalry Regiment. CPT McMaster's military schools include Maneuver Captain's Career Course, Army Special Operations Captain's Career Course, Army Reconnaissance Course, Armor Officer's Basic Course and Airborne School. CPT McMaster holds a bachelor's of science degree in international relations from West Point and a master's of science degree in organizational leadership from Columbus State University. CPT McMaster may be queried at christopher.c.mcmaster.mil@mail.mil.

CPT John Pai commands Company D, 1st

Battalion, 29th Infantry Regiment, Fort Benning, GA. Previous assignments include battalion assistant operations officer, 1st Battalion, 8th Cavalry Regiment, Fort Hood, TX, with deployment to Kandahar Province, Afghanistan; mechanized-infantry platoon leader, Company B, 1st Battalion, 8th Cavalry Regiment; and executive officer, Company B, 1st Battalion, 8th Cavalry Regiment. CPT Pai's military schools include Maneuver Captain's Career Course and Infantry Basic Officer Leader Course. CPT Pai holds a bachelor of arts degree in biblical studies and theology from Biola University. CPT Pai's email is john.s.pai.mil@mail.mil.

ACRONYM QUICK-SCAN

ASI – additional skill identifier
BCT – brigade combat team
BFV – Bradley Fighting Vehicle
BLC – Bradley Leader's Course
FTX – field-training exercise
GSMC – Gunnery Simulation Management Manager's Course
GST – gunnery-skills training
HWLC – Heavy Weapons Leader's Course
LFX – live-fire exercise
LoE – line of effort
MGCC – Master Gunner Common Core (Course)
MGS – Mobile Gun System
MLMC – Maneuver Leader Maintenance Course
PMCS – preventive-maintenance checks and services
SEP – system-enhancement program
SLC – Stryker Leader's Course
TLP – troop-leading procedures



Figure 1. Soldiers of the 316th Cavalry Brigade's Heavy Weapons Leaders Course fire for qualification on the vehicle-mounted tube-launched, optically tracked, wire-guided anti-tank missile system at Cactus Range, Fort Benning, GA. (Photo by Patrick A. Albright, Maneuver Center of Excellence Public Affairs photographer)

A Cavalry Tradition at the University of Massachusetts

by retired LTC Thomas R. Rozman

Today as one walks the University of Massachusetts campus, it is a stretch to imagine that the school, through its Reserve Officer Training Corps (ROTC) Program and cadet corps, has a noteworthy horse-cavalry tradition that spanned some 22 years. From the period immediately following World War I as Massachusetts Agricultural College until 1931, then until the beginning of World War II as Massachusetts State College, ROTC cadets who continued to commissioning, most as Officer Reserve Corps second lieutenants, commissioned into the horse-cavalry branch of the Army. The mounted tradition continued at the school in its ultimate post-World War II configuration as the University of Massachusetts in a form until the early 1960s, when the school trained officers to be commissioned in the Armor Branch.

During these years – the university being a Morrill Act land-grant school – all able-bodied male students were required to complete the first two years of the ROTC program on campus. A good number of the cadets then voluntarily continued in the last two years of the program until graduation. Upon graduation and successful completion of the pre-commissioning program, most were commissioned in the Officer Reserve Corps, a federal National Army establishment embodied in the post-World War I National Defense Act. Some cadets did acquire Regular Army commissions over these years, and National Guard commissions could be sought.

Relative to on-campus cavalry training, all the necessary equipment and cavalry mounts were maintained on the campus. Necessary logistic support was provided by Fort Ethan Allen, VT, then an active Regular Army installation and a cavalry post in the heart of Morgan Horse country some 220 miles away to the north of the University of Massachusetts. For summer training,

the cadet mounted unit would road-march the 220-mile distance to the post in Winooski, VT.

The school's Military Department's officers and noncommissioned officers, and the Regular Army officers and cavalrymen of the garrison regiment at the fort (1st Squadron, 3rd Cavalry Regiment) through much of this period provided the military instruction and training.

Dismounted training was conducted as well. The entire cadet corps could not be mounted, nor was that a feasible program to support. The logistics if basic-course cadets were included would be that of a regiment, too great of an expense for the times.

On graduation and commissioning, most of the new Officer Reserve Corps cavalry second lieutenants were assigned to 315th Cavalry Regiment, a Reserve Army cavalry regiment organized in New England. The regiment was

initially organized in 1917 during World War I at Fort D.A. Russell near Cheyenne, WY. After the war, the regiment was reorganized in the Reserve Army in New England. The cadet corps at Massachusetts Agricultural College, then Massachusetts State College, was the primary new officer feeder program for 315th Cavalry Regiment throughout the interwar period.

Interestingly, though the flesh-and-blood mounts of the pre-war period were no longer – as the college, then university, returned to regular academic operations post-war – it did remain a mounted-arm school. As mentioned, the school organized its training around the Army's newly created Armor Branch, a post-war integration of the Cavalry Branch and the World War II Tank Corps and Tank Destroyer Branch. Until the program went branch-immaterial, six M41 Walker Bulldog tanks supported the on-campus program.



Figure 1. Massachusetts State College ROTC cadet and mount in 1941.



Figure 2. A Massachusetts State College dismounted review in 1941. Note that all cadets are wearing riding britches.

Today, as one walks the university's campus, this colorful and proud mounted-arm tradition is nowhere in evidence. Given that more than a few of these cavalry alumni distinguished themselves in World War II and subsequently, this seems a misplaced oversight.

Retired LTC Tom Rozman is employed as the principle, TRR and Associates, LLC. He has served as director, Collective Training Directorate, Deputy Chief of Staff for Training, U.S. Army Training and Doctrine Command, Fort Monroe, VA; force-development officer for infantry and lethality systems,

Department of the Army Armored Family of Vehicles Task Force, Pentagon and Fort Eustis, VA; assistant G-3, 1st Armored Division, Ansbach, Germany; battalion executive officer and acting commander, 1-46 Mech, Erlangen, Germany; battalion executive officer, 2-6 Mech, Erlangen; and commander, Company A, 1-58 Mech, Fort Benning, GA. His military schooling includes Command and General Staff Officer's Course, Infantry Officer's Advanced Course, Infantry Officer's Basic Course, Parachute School and Ranger School. He holds a bachelor's of science degree in engineering from the U.S. Military Academy, West Point, NY, and a master's of business administration from the University of Massachusetts. His awards and honors include the Legion of Merit and three awards of the Meritorious Service Medal.

ACRONYM QUICK-SCAN

ROTC – Reserve Officer's Training Corps

Donovan Research Library, Maneuver Center of Excellence,

hosts Armor student papers on various subjects,

<http://www.benning.army.mil/library/content/Virtual/virtual.htm>,

and back issues of *ARMOR* magazine,

<http://www.benning.army.mil/library/content/Virtual/CavalryArmorJournal/index.htm>

— currently through 1888-1973 but building up to the early 1980s.

Some back issues are also available on e*ARMOR*,

<http://www.benning.army.mil/armor/earmor/>

315TH CAVALRY REGIMENT



The regiment is allocated to Rhode Island and Connecticut in the old seafaring section of New England, therefore the symbol of the sea-horse was adopted. The colors, yellow and black, are the colors of 64th Cavalry Division, to which the regiment belongs. The motto is a phrase given the regiment by its first Regular Army instructor, COL Francis C. Marshall of the Cavalry. The distinctive unit insignia was approved Nov. 21, 1924. It was amended to change the description Dec. 13, 1924. The insignia was rescinded March 2, 1959.

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