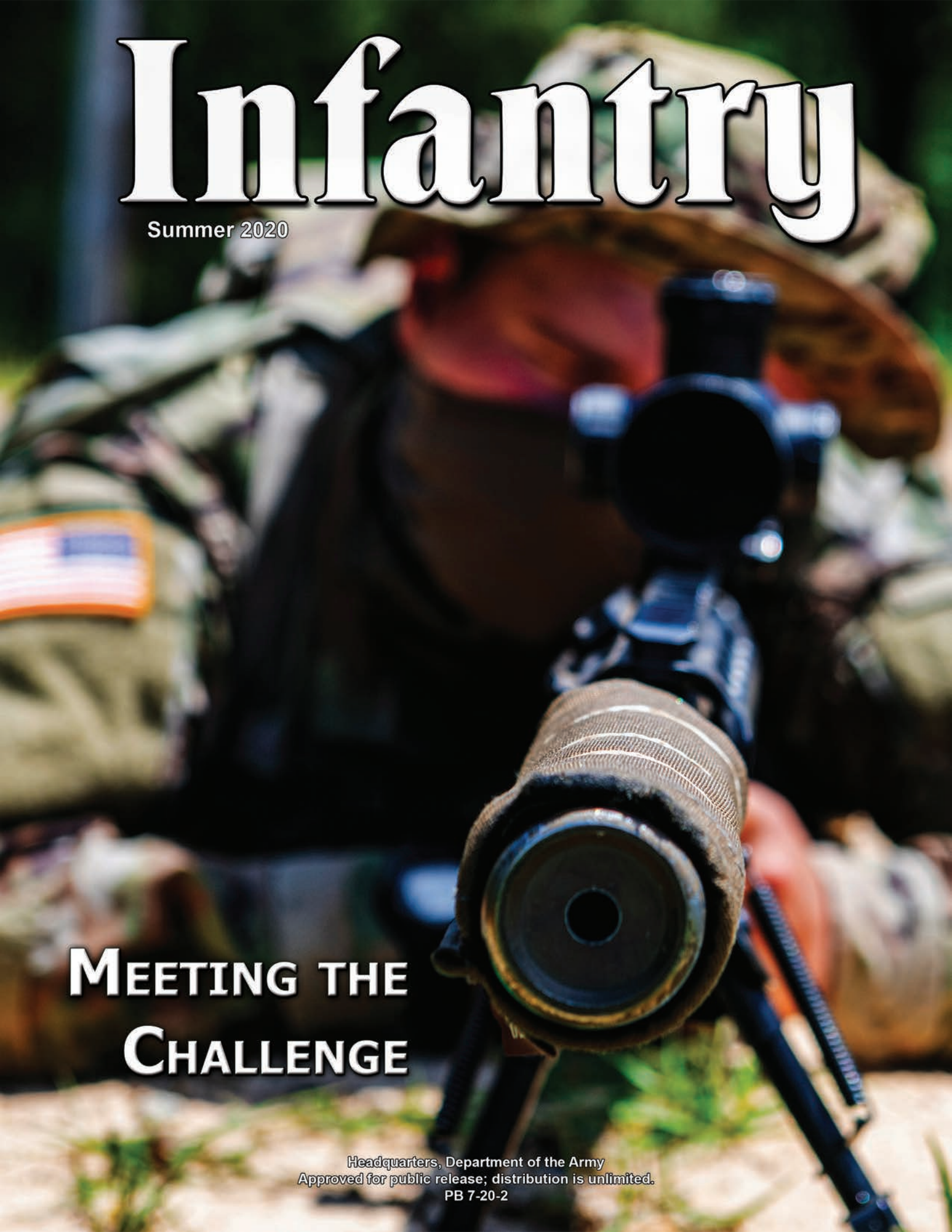
Infantry

Summer 2020



Meeting the Challenge

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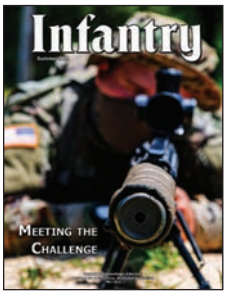

FRONT COVER:

A sniper student dry fires his rifle during training at the U.S. Army Sniper Course at Fort Benning, GA. During the COVID-19 pandemic, Soldiers practice safety while ensuring correct execution of the training. (Photo by Patrick A. Albright)

BACK COVER:

A sniper with the 1st Battalion, 27th Infantry Regiment "Wolfhounds," 2nd Infantry Brigade Combat Team, 25th Infantry Division, scans for targets during a night iteration of a fire support coordination exercise on 17 November 2019 at Pohakuloa Training Area on the Island of Hawaii. (Photo by SGT Thomas Calvert)

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Commandant's Note

BG DAVID M. HODNE

Training to Standard Despite the Challenges

We all take justifiable pride in the manner in which our Army has responded to the effects of the COVID-19 pandemic. We continue to build and train our Infantry in support of our nation's worldwide commitment to our global allies and the sustainment of our shared responsibility to represent America's interests at home and abroad. Since 1 March 2020, the Maneuver Center of Excellence (MCoE) trained over 10,000 Soldiers, parachutists, officer candidates, Infantry officers, noncommissioned officers, and other students in a variety of professional military education and functional courses. The One Station Unit Training (OSUT) population numbered well over 8,000 Soldiers at outset of the COVID-19 outbreak and these units trained continuously, never halting the training of new Soldiers throughout the pandemic.

The Infantry School proactively implemented measures to ensure students' safety during training and even through their travel to their follow-on assignments. Our success can only be attributed to the unwavering commitment of leaders, instructors, cadre, and support personnel whose dedication to mission accomplishment kept them focused on the key training tasks required to sustain total Army readiness and lethality.

Lacking a vaccine, our healthcare workers across the country continue to do their best to treat both young and old infected with this virus. In addition to treatment strategies, measures such as travel restrictions, social distancing, personal hygiene measures, face masks and

Drill sergeants demonstrate the proper salute to trainees from the 30th Adjutant General Battalion (Reception) at Fort Benning, GA. The trainees practice social distancing and wear face protection in accordance to CDC guidelines.

Photos by Patrick A. Albright

Above left, a drill sergeant from the 3rd Battalion, 47th Infantry Regiment wears a protective face mask during a One Station Unit Training graduation on 24 April 2020 at Kanell Field on Fort Benning. Above right, a sniper student dry fires his rifle during training at the U.S. Army Sniper Course. Soldiers practice safety while ensuring correct execution of the training.

coverings, restriction of personal and unit movement, proactive unit command information programs, and other measures have proven helpful. The MCoE approach to mitigating COVID-19 has been both systematic and comprehensive, drawing upon the elements and strategies that were effective in earlier pandemics and relied on shared information and collaboration, both internal to the Department of Defense and across federal and state agencies.

The Army's plan to deal with COVID-19 guides on an azimuth that is defined by one principle that epitomizes the profession of arms: discipline. Since March, the steady spread of COVID-19 has moved across American towns, cities, and states with little resistance. In the locales where our country saw the greatest successes — as defined by lower infection and death rates — health professionals' guidance including social distancing, personal sanitation, wearing of face masks, restriction of movements, and other prudent guidelines were more scrupulously followed. Central to our continued training in the context of a pandemic is our emphasis on individual discipline. Adhering to the standards of personal conduct to keep yourself and those around you safe remains essential to all that we do. This should also be intuitive to Soldiers, who consistently maintain the highest standards of discipline to maintain combat effectiveness and ensure safety every day.

A Soldier begins the slide for life on the first day of the Benning Phase of Ranger School as a Ranger instructor monitors his process.

The Infantry School continues to sustain training on all of our mission essential courses. Some of our courses deferred at the height of the pandemic will resume, but we cannot ignore the possibility of a resurgence of COVID-19 in the fall. Readiness and lethality remain our watchwords. We will continue to train Soldiers and leaders to be ready to close with and destroy the enemy when called.

I am the Infantry! Follow me!

Back to the Future:
Unit Training Management

GEN PAUL E. FUNK II

Training and Doctrine Command's (TRADOC) ultimate responsibility to the Army and the nation is to build readiness — for the force of today and the multi-domain operations (MDO) capable force of tomorrow. Central to this responsibility is not only providing trained Soldiers and leaders, but Soldiers and leaders who can continue to train our operational forces. It is vital that these Soldiers and leaders understand and practice unit training management (UTM).

While UTM is clearly defined in our doctrine (Army Doctrinal Publication [ADP] 7-0, *Training*, and Field Manual [FM] 7-0, *Train to Win in a Complex World*), it has atrophied in our current generation of field grade officers, company grade officers, and senior NCOs, primarily due to lack of practical experience during their formative years. It is incumbent upon us to place a renewed emphasis on the education of this critical Army population — both formally and informally — to drive the tenets of UTM back into the force.

The Army Force Generation (ARFORGEN) Effect

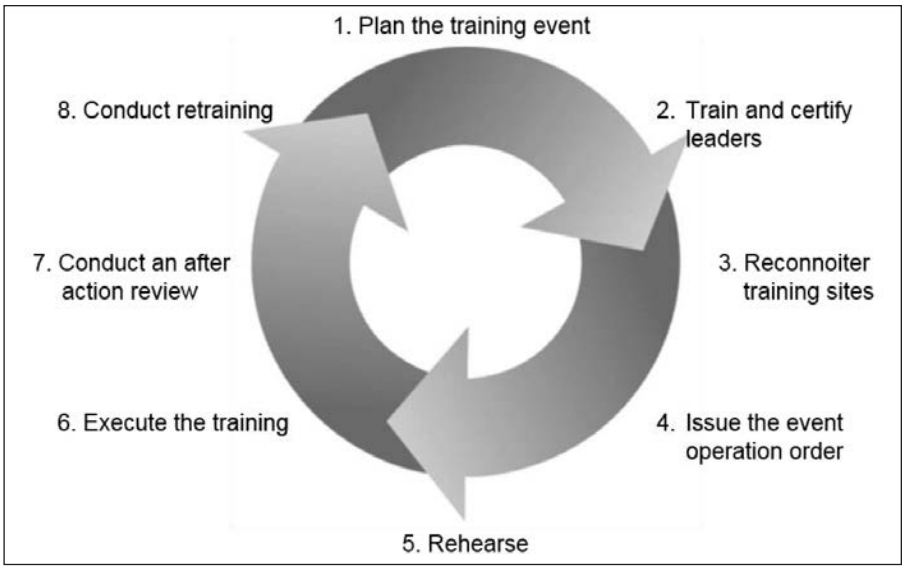
The year 2001 marked the beginning of the longest period of continuous warfare in our country's history. Operations Enduring Freedom and Iraqi Freedom stretched the force at unprecedented levels, requiring multiple deployments and a strict, centrally managed force generation process that ensured units were trained and ready to deploy. Enacted in 2006, ARFORGEN was a phased readiness model designed to provide ready forces on a specific schedule to meet the required demand. ARFORGEN met the requirements of the time, but a byproduct of this centralized process was the atrophying of UTM skills in a generation of officers and NCOs. ARFORGEN and the supporting manning timeline was so stringent that training schedules were effectively dictated top-down so that brigade combat teams could meet all of the required gates for certification and deployment within the allotted time. Junior commanders were not required to analyze training shortfalls, nor were they required to have commanders' dialogue to determine priorities. They were handed a task list, resources, and told when and where they needed to be to knock down the next target on their particular path to deployment.

Let us now fast-forward to the present. The leaders who experienced this readiness assembly line are now operations officers, operations NCOs, and battalion commanders. During nearly two decades of deployments, these leaders routinely dealt with the utmost complexity under arduous conditions. They are now faced with equally complicated problems — only the fight is much different. The Army has readjusted its manning cycles to one that is more equitable across units. There is much greater competition for Combat Training Center rotations, so brigades can go multiple years without a Forces Command-directed culminating training event. Simultaneously, the fielded force is transforming into the Army of the future — one with MDO capabilities that requires training on all of the tasks previously understood as mission critical as well as tasks to support new capabilities that are being developed daily. Management of these myriad tasks and requirements necessitates an organized, deliberate approach — an operational approach. In this case, in order to move into the future, we must look back to the past — to UTM.

UTM within the Army Leader Development Model

The fundamentals of UTM have generally remained unchanged over time. While some of the verbiage is different — Army Training and Evaluation Program (ARTEP) is no longer used — other terms survived — Training and Evaluation Outlines (T&EO) — and yet others are new — Combined Arms Training Strategies (CATS). The existing problem, however, is that we as an Army are not well-versed in our own doctrine. The first step in going "back to the future" is to instill in the current generation of leaders the fundamentals of UTM. TRADOC has identified this shortcoming and is attacking it head on in our professional military education (PME) programs. From the Basic Officer Leader Course (BOLC) to the Pre-Command Course (PCC) for our commanders, our commissioned officers receive a total of 59 hours of formal

instruction on UTM. Similarly, our warrant officers receive 25 hours of instruction across three PME courses, and our NCOs receive approximately 30 hours of instruction across their six PME courses. This is enough to teach the fundamentals of doctrine to the leaders and future leaders of our Army, but it is not enough to become experts in the science, much less the art, of training management. The Army Leader Development Model is predicated on three pillars of learning — education, training, and experience — across three domains — institutional, operational, and self-development. The formal instruction mentioned above is almost exclusively education and exists in the institutional domain — the purview of TRADOC. To reinstitute UTM as a core competency requires full-immersion in the other two pillars of learning across the remaining two domains.



FM 7-0

Eight-Step Training Model

First, leaders can gain the doctrinal knowledge of what is supposed to happen through institutional education and self-development, but true understanding will only be achieved through training, leader development, and execution in the operational domain. In order to educate our leaders on UTM, we cannot just pay lip service to it, we have to live it. It must be enforced, practiced, and part of how we do business every day. In an era of immediate feedback and constant change, this can be very difficult, but it is doable. An essential component is the commanders' dialogue. I have often heard young leaders state that they would be much more effective if they only knew the priorities of their boss. While deployed, we routinely interacted with leaders at echelon at a higher frequency so that every member of the team understood priorities, targets, messages, intelligence, logistics — virtually everything. In the training environment, the commanders' dialogue is the doctrinal construct for leaders at every level to prioritize and nest the many tasks they are required to accomplish — both individual and collective — with their higher echelon leadership. ADP 7-0 describes the commanders' dialogue as a "continuous dialogue with their higher and subordinate commanders about training priorities, techniques, resources, and results." The key is actually conducting the dialogue; being disciplined enough to place it on the training calendar as a scheduled event and sticking to it. We all need guidance in order to row in the same direction.

Second, leaders can continue to build a UTM environment by enforcing the Eight-Step Training Model. This is the framework over which all training is built and is a requirement for consistent training success. The Eight-Step Training Model is a blueprint — a fill-in-the-blanks model for leaders at every level to ensure completeness in planning, preparation, execution, and assessment. It is based on the Troop Leading Procedures (TLPs), which we all learned as young officers or enlisted Soldiers and utilize for everything we do operationally. Perhaps for this reason, we assume that our subordinates know and understand the benefits of using this tool. Make it explicit; trust but verify; and teach your subordinates the importance and the benefits of this structured approach to training, just as you teach them utilization of the TLPs for operational missions.

Third, do Army things in an Army way. The Combined Arms Center maintains a network of tools under the umbrella of the Army Training Management System (ATMS) to assist us in carrying out our training obligations. The Army has standardized mission-essential task lists (METL) that simplify the process of identifying the tasks on which we will train. The key is disciplined use. While we love PowerPoint and Outlook, these programs are not integrated training solutions — ATMS and its supporting suite of applications are, and they can be easily accessed through the Army Training Network (ATN). If we enforce the use of Army systems, then we will reap the results of the synergy that comes from their built-in integration. Imagine how great it would be for the long range calendar to be integrated with the daily training schedule; for identified training tasks to be automatically linked to the training schedule, where proficiency can be updated upon completion of training; this is the reality of the ATMS — but we must enforce its use.

Finally, and perhaps most importantly, exercise temporal discipline. One of the most violated principles of UTM that I have observed over the years — and have violated myself on occasion — is that of the time horizon. Every echelon has a time horizon to which it is supposed to adhere. Higher echelons have longer horizons than shorter, but discipline is the key to success. At the brigade and battalion level, timely training guidance is absolutely essential. Equally as important, however, is respecting the subordinate unit's time. From a true UTM perspective, the company is the level at which we most often focus, where the training lock-in time is six weeks out (for Regular Army units). Quite often, however, we become paralyzed when an event out of our control — at a higher echelon — interrupts our training schedule. For that

reason, company training meetings are the center of gravity for UTM. We cannot allow interruptions to have a negative effect, and we resolve these at company training meetings. Remember that training schedules are priorities of work tied to a timeline — key to this is the word **priorities**. If priorities are understood up and down the chain of command, then it will be easier to adapt and overcome the externalities that interrupt our planned training. Take advantage of the time you have to accomplish your priorities. Think in terms of multi-echelon training — nest your unit's training inside of higher-echelon training events that "invade" your white space. This is the art to training management, and something we all must master because time is our greatest limiting factor. Therefore, it is incumbent that we as leaders maintain our respective time horizons; publish our training guidance to communicate our priorities; hold training briefs to ensure understanding of our priorities; and approve, lock in, and, when necessary, adjust training events at company training meetings to achieve our priorities.

Great Units Master the Basics

Effective training is decisive to maintaining readiness in our Army. Like combat operations, planning, preparing, executing, and assessing training is complex and should follow the operations process — in this case the process of UTM. Unfortunately, the demands of the Global War on Terrorism dictated a readiness model that effectively stripped us of our proficiency in UTM. We are charged with providing the Army and the nation a trained and ready force and maintaining the capability of that force through training. We must understand training — the art of analyzing and thinking about it as well as the science of managing it – to achieve this imperative. I often say that great units master the basics, and training management is no different. Remember that training is a journey, not a destination. By embracing the fundamentals of our doctrine through education in our institutions and refining them through training and building experience in the operational force, we will regain this important proficiency. Through the disciplined execution of UTM, we will gain and maintain readiness in the fielded force and set the conditions for our transformation to the MDO capable force of the future.

Leave the jersey in a better place than you found it!

Photo by SPC Justin W. Stafford

Paratroopers assigned to the 2nd Brigade Combat Team, 82nd Airborne Division rehearse firing a Carl Gustaf recoilless rifle during the blank iteration of a combined arms live-fire exercise in support of Swift Response 19 in Novo Selo Training Area, Bulgaria, on 24 June 2019.

GEN Paul E. Funk II assumed duties as the 17th commanding general of the U.S. Army Training and Doctrine Command (TRADOC) at Fort Eustis, VA, on 21 June 2019. As TRADOC commander, Funk is responsible for 32 Army schools organized under eight Centers of Excellence that recruit, train, and educate more than 500,000 Soldiers and service members annually.

GEN Funk has commanded at every level, company through corps, including assignments with: A Company, 2nd Battalion, 32nd Armor Regiment, 1st Brigade, 3rd Armored Division, Kirch-goens, Germany; Headquarters and Headquarters Company, 4th Battalion, 67th Armor Regiment, 3rd Brigade, 3rd Armored Division, Kirch-goens; 1st Squadron, 7th Cavalry Regiment, 4th Brigade, 1st Cavalry Division, Fort Hood, TX; 1st Brigade Combat Team, 1st Cavalry Division, Fort Hood; 1st Infantry Division, Fort Riley, KS; and III Armored Corps, Fort Hood.

GEN Funk's combat and operational experience includes six deployments in support of Operations Desert Shield and Desert Storm, Operation Iraqi Freedom, Operation Enduring Freedom and Operation Inherent Resolve. His operational assignments include serving as an observer controller with the Live-Fire Team (Dragons) at the National Training Center, Fort Irwin, CA; squadron operations officer, 1st Squadron, 3rd Armored Cavalry Regiment, Fort Carson, CO; regimental operations officer, 3rd Armored Cavalry Regiment, Fort Carson; division operations officer, 1st Cavalry Division, Fort Hood; chief of staff, III Corps, Fort Hood; deputy commanding general, Combined Arms Center for Training, Fort Leavenworth, KS; deputy commanding general (maneuver), 1st Infantry Division, Fort Riley; and assistant deputy chief of staff, G-3/5/7, Washington, D.C.

His Joint assignments include serving as chief, Joint Exercise Section J-37, North American Aerospace Defense Command (NORAD), U.S. Space Command, Peterson Air Force Base, CO; deputy commanding general (maneuver), Combined Joint Task Force-1, Afghanistan; commander, Combined Joint Forces Land Component Command-Iraq, Baghdad, Iraq; and commander, Combined Joint Task Force - Operation Inherent Resolve, Baghdad.

GEN Funk holds a Bachelor of Arts degree in speech communications from Montana State University and a Master of Science degree in administration from Central Michigan University. He is a graduate of the Armor Basic Officer Leaders and Advanced Courses, the Command and General Staff College, and completed his Senior Service College as a fellow at the Institute of Advanced Technology, University of Texas at Austin.

Editor's Note: *This article first appeared in the Spring 2020 issue of* ARMOR.

Soldier Tactical Power:
The Key to Cross-Domain Maneuver

LTC RYAN IRWIN
MAJ EDWARD (TED) HALINSKI

The battery life issue is not new to the modern battlefield. Take for instance, an experience coming out of the Special Warfare Signals Intelligence (SIGINT) Course (SWSC) that the 1st Special Forces Command conducts quarterly. (This Special Operations course teaches the basics of tactical SIGINT to Special Forces SIGINT teams known as SOT-As.) According to after action reviews from a recent class, SIGINTers left perhaps their most capable piece of SIGINT kit (referred to here after as SYSTEM to protect the actual name) in garrison for the duration of their culminating exercise because of its limited battery life. Instead, they opted to take less capable equipment for the simple reason that the SYSTEM would last no more than a few hours during a week-long training exercise.

> "The actual op went well, but the mandatory inclusion of the SYSTEM was not realistic due to the fact (it) only lasts up to 4 hours on a single charge and we had no additional batteries. It basically became dead weight and something I wouldn't have taken on an actual 48-hour operation."

> "The SIGINT Operations Team-Alpha (SOT-As) knew the limitations of the SYSTEM and decided it was not a viable platform for operations. None the less, instructors stamped their feet and 'strongly suggested' that we go out with all the assets available to us. After about four hours of collection, it was a chunk of metal wasting space in a ruck."

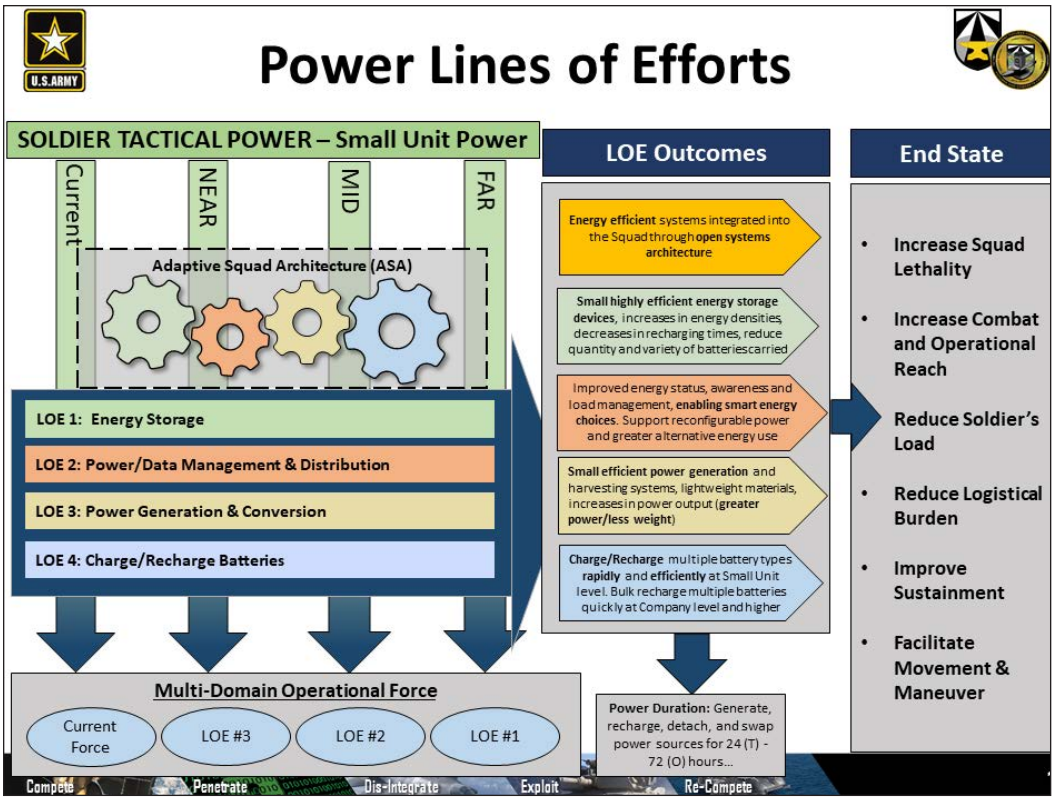
At no point during the field portion was the SYSTEM, from a SIGINTer's perspective, a viable option because of its battery life. The BA-5590 battery lasts about four hours, which means for a 48-hour exercise, the team would need 12 BA-5590s. For seven days, 42 batteries would be needed per three-man element. Each battery weighs 3 pounds, which would mean SIGINTers would have to carry 126 pounds of BA-5590s per team. From an Infantryman's perspective, SIGINTers leaving this SYSTEM in garrison would be like an Infantry platoon leaving the M240 machine gun in garrison when on a week-long patrol because it only had 20 rounds of ammunition.

This power dilemma is not, however, unique to the SIGINT community. It is the exact same dilemma that Soldiers will face in a multi-domain operations fight if the Army does not adopt a coherent strategy to address it while making the right technological investments. To exacerbate this issue, maneuver brigade combat teams are planning to fight with a cross-domain maneuver construct where resupply is no longer guaranteed. Simply stated, for the Army to be successful in the future fight, the Soldier must have more efficient power systems that provide a more robust energy supply than ever before.

To fully understand the need for investments in power technologies for the dismounted Soldier, one must understand the Infantry's purpose. The mission of the Infantry is to close with the enemy by means of fire and maneuver in order to destroy or capture him, or to repel his assault with fire, close combat, and counterattack. The Infantry will engage the enemy with combined arms in all operational environments to bring about his defeat. In simple terms, the Infantry destroys the enemy and holds terrain. In order to accomplish its missions, the Infantry must be able to sustain itself for up to 72 hours, independent of resupply. A key consideration during those 72 hours is the Infantry's advanced technologies that provide it overmatch on the battlefield. Think sensors, laser, night vision devices, and the like. The Achilles heel of these capabilities is their power demand.

Currently, dismounted squads are able to sustain themselves for approximately 12 hours in a combat environment without the need for additional batteries. Beyond 12 hours, without the ability to recharge batteries, squads would be required to carry additional batteries to sustain themselves up to 72 hours before resupply. Each Soldier would be required to carry three to four Conformal Wearable Batteries (CWB) at 2.6 pounds each to meet their power demands based on Soldier technology configuration. With improvements in technology, Soldiers require more power to keep their systems running in order to successfully accomplish their mission. The gap between power available and power required will consequently increase exponentially as new equipment such as the Integrated Visual Augmentation System (IVAS), Enhanced Night Vision Goggle-Binocular (ENVG-B), and Next Generation Squad Weapon (NGSW) is added to the Soldier's kit. To put this in perspective, a Nett Warrior-configured squad would require 19 carried CWBs at 50 pounds battery weight to sustain for 72 hours, while a Close Combat Soldier-configured squad would require 60 CWBs for 72 hours at 156 pounds in carried batteries.

To address this issue and many others external to the Soldier, the Army Futures Command created the Army Power and Battery Strategy with Soldier Tactical Power (STP) as its cornerstone. The strategy defines STP as an



organic, rapidly deployable, lightweight system that stores, generates, manages, and distributes energy at the small unit level and using the Adaptive Squad Architecture (ASA) to integrate components. The strategy further identified four lines of effort (LOEs) that must work together to supply the Soldier with the right amount of energy on the battlefield. Those LOEs are:

1) Energy Storage;
2) Power/Data Management and Distribution;
3) Power Generation and Conversion; and
4) Charge/Recharge Batteries.

It is important to note that at least in the near term, it will take solutions from all the LOEs to meet the Army's energy demands.

Incorporating new power technology into the Soldier platform in an efficient manner is critical in order to prevent power from becoming the critical limiting factor for Soldier lethality. For LOE 1, Energy Storage, the military decided to pursue lithium ion technology as the right solution for battery power needs. While there have been new advances combining silicon anodes with lithium ion batteries and changing the internal configuration of the batteries (cell structures) that have yielded increased power densities, there are limits to what our current battery technologies can deliver. This fact, coupled with the growing power demand, will require Soldiers to carry more batteries. The more batteries a Soldier carries will, however, result in increased Soldier load that leads to a decrease in the Soldier's performance.

One possible solution to the Soldier load problem, in the context of LOE 3, Power Generation, is a fuel cell. Fuel cells are electrochemical devices that convert chemical energy, cleanly and efficiently, into electrical energy. They can provide a lightweight, wearable power generation system to recharge Soldier-carried batteries while "on-the-move." This concept could reduce Soldier load and address the ever expanding energy needs of the Soldier and squad. The Army is currently evaluating three types of fuel cells:

1) The Jenny 600S, Jenny 1200, and Emily 3000, Direct Methanol Fuel Cell (DMFC);

2) The Honey Badger, 20 Watt & 50 Watt, Reformed Methanol Fuel Cell (RMFC), which runs on windshield wiper fluid; and

3) The Alane-based (Aluminum Hydride), (Dry Fuel) Wearable Fuel Cell.

These systems are being assessed in the Army Expeditionary Warfighter Evaluation (AEWE) 2020 at Fort Benning. The Combat Capabilities Development Command - Soldier Center and Command, Control, Computers, Communications, Cyber, Intelligence, Surveillance and Reconnaissance (C5ISR) Center are conducting a comparative analysis and testing of the various fuel cells at Aberdeen Proving Grounds, MD, to determine power generation and charging abilities as well.

In conclusion, to ensure the success of the Soldier on the future battlefield, Soldier Tactical Power solutions must provide energy in an efficient and quick manner with an increased duration. As every major Soldier Lethality Cross Functional Team initiative requires an STP enabler, it is essential that the Army adheres to its Power and Battery Strategy while acknowledging that there is no silver bullet solution for the Soldier in the near term. Lithium ion technologies and fuel cells are two technologies that, when coupled together, may produce the right amount of energy at the right time for the Soldier. The Army must continue to invest in these technologies, and others like them, to ensure the Soldier can continue to close with and destroy the enemy.

LTC Ryan Irwin currently serves as chief of the Soldier Systems Branch, Maneuver Capabilities Development and Integration Directorate (MCDID).

MAJ Edward (Ted) Halinski currently serves as lead project officer with the Soldier Systems Branch.

Revising the MDMP for Mission Command

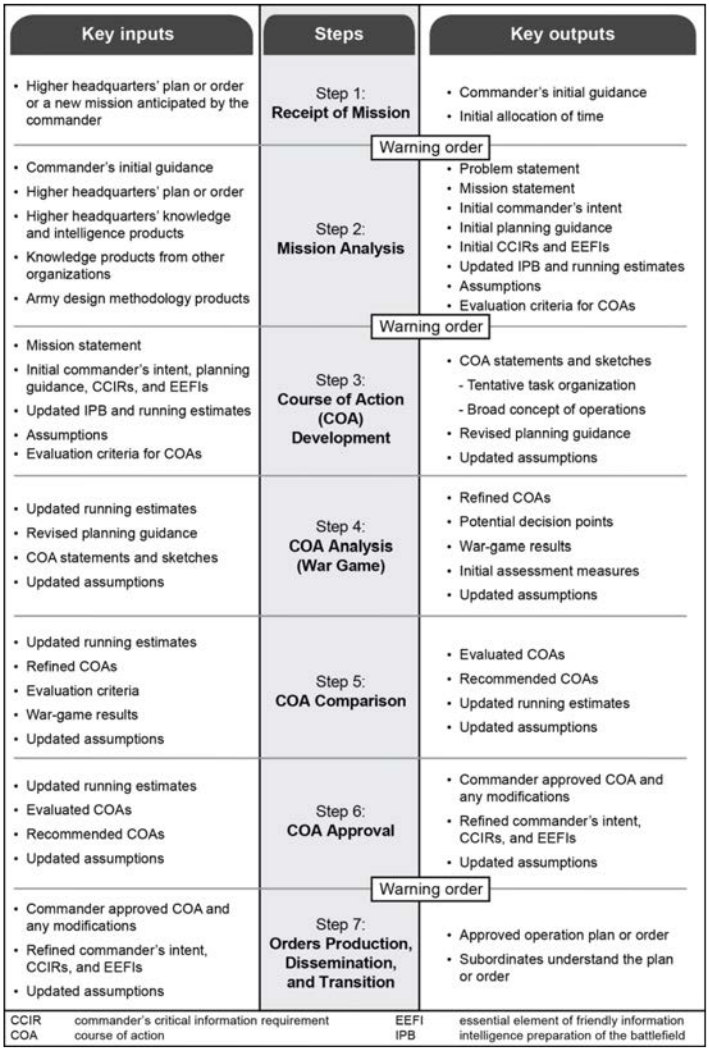
CPT JOE ATWELL

War is a complex endeavor against a living and thinking enemy. This enemy, who has its own plans and desires to win, adds to the complexity of combat operations and gives credence to Helmuth von Moltke the Elder's assertion that "No plan survives contact with the enemy."[1] The complexity of war is an enduring aspect of its nature. Today we try to use technology (Joint Capabilities Release, Command Post of the Future, Joint Battle Command - Platform, etc.). However, experience has shown that no matter how much technology we develop to lift the "fog of war," Carl von Clausewitz's friction will continue to exist.[2] In order to mitigate the fog of war's impact, we need to change how we plan and invest in our commanders, staffs, and future commanders.

Today commanders at the battalion level and higher use the military decision-making process (MDMP) to plan training and combat operations. The MDMP consists of seven well-defined steps with clear inputs and outputs for each step (see Figure 1).

This highly structured nature makes it easy to teach, learn, and use. According to Field Manual (FM) 6-0, *Commander and Staff Organization and Operations*, the MDMP is designed for handling well-structured problems, but it can be used for medium-structured problems, if iterated.[3] The FM also states, "Performing all steps of the MDMP is detailed, deliberate, and time-consuming."[4] To add to the time-consuming nature of the MDMP, users have a tendency to become hyper focused on finding the unattainable perfect plan over the one that will work, moving away from General Patton's maxim that "A good solution applied with vigor now is better than a perfect solution applied 10 minutes later."[5] We must move away from a process that is designed for well-structured problems in a linear and time-consuming system when warfighting is complex in nature — making it therefore a potentially ill-structured problem.

The MDMP, founded on a classic/analytical decision-making model, is ill-suited for a complex environment such as warfighting and should be replaced with a heuristic-based model such as the Recognition Primed Decision Model.[6] A heuristic-based model is usually more effective in a complex system and easier to implement than a highly structured model like the current manifestation of the MDMP.[7] In order to improve our ability to improve tactical planning above the company level, I propose a two-pronged approach focusing on decision making and the planning process. These are the backbone of the MDMP: the commander making a decision on a course of action (COA) and then planning it with the staff. A complete overhaul of the process is necessary in order to provide our commanders and staff with doctrine that enables rapid decision making which is better suited to a fast-paced environment. We cannot produce a flexible plan capable of adapting to the situation on the ground if the decision-making process is slow, clunky, and ill-suited for 21st century warfare.



FM 6-0, *Commander and Staff Organization and Operations*

Figure 1 — Key Inputs and Outputs of the Military Decision-Making Process

Decision Making

The flaw in the decision-making aspect of the MDMP

lies with its basis on a linear model. Linear systems only work if there are no unknown variables, such as operating a machine or purchasing food at a grocery store. However, this is never the case in a complex system such as a combat environment, an environment with many interconnected known and unknown variables. In order to improve the Army's approach to decision making, we must address the gaps in its professional military education (PME) and the doctrinal decision-making model.

The first step to change is how to educate our officers and prepare them for making decisions in combat. Officers need to be comfortable with uncertainty. Incorporating Complexity Theory into the PME curriculum at the Captains Career Course level has the potential to improve a leader's grasp of a combat environment.[8] This field of study focuses on understanding how complex systems (such as a combat environment, business, etc.) evolve, act, and perform.[9] Complexity Theory is vital in our PME to enable future battalion and brigade staffs and company commanders to make more informed decisions based on real-time information. The understanding of and comfort with uncertainty helps staff and commanders make more informed decisions about how to interpret and act within a combat environment.[10] Ultimately this will lead to commanders and staffs accepting that they cannot fully understand a complex system and that in order to win on today's battlefields, decentralized decision making is indispensable.[11]

The second task is to improve the model upon which we make decisions. Under current MDMP doctrine, the Army uses classic/analytical decision making.[12] Utilizing this model, an individual analyzes a problem and arrives at a decision through several sequential steps. This model demands linear thinking, disregarding the need for an understanding of the environment as a whole.[13] It produces a single answer that is applicable only to a single, well-defined problem (for example, buying a car). A model like this is ill-suited for making decisions in complex environments like combat.

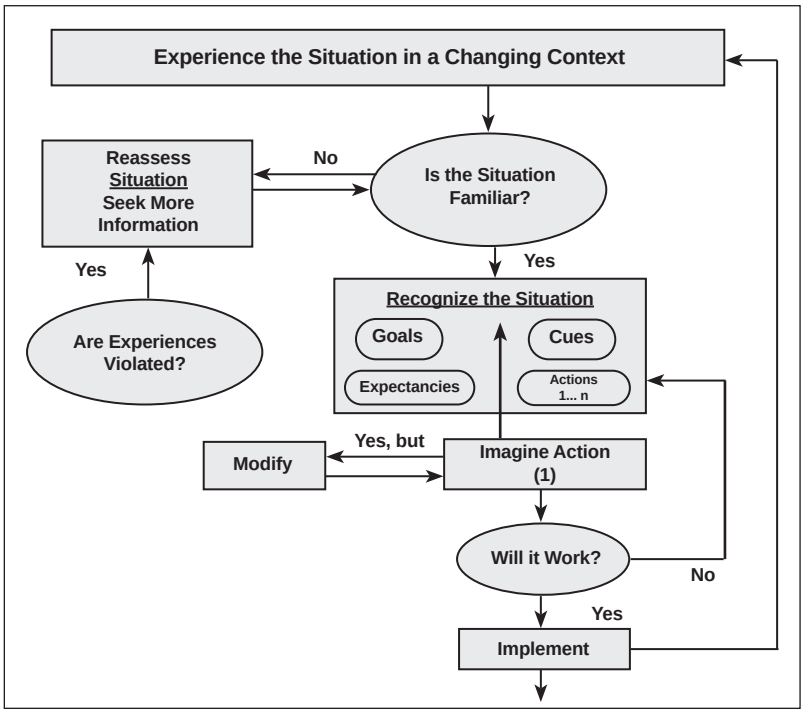
A more promising decision-making model is the Recognition Primed Decision Model which MAJ Wilson Shoffner explored in his 1999 School of Advanced Military Studies (SAMS) monograph (see Figure 2).[14]

This model is reliant on heuristics that the decision maker has developed over time through his or her experiences.[15] While heuristics are not guaranteed to produce the correct decision, they are significantly less time consuming than the current decision-making methodology. In a test of the Recognition Primed Decision Model, more than 85 percent of the decisions made were made in less than one minute.[16] The current form of the MDMP takes hours if not days to complete. Within this time frame, how much could change in an operating environment that voids our assumptions and drastically changes our understanding of our situation? The reduction in time required to make a decision is the result of a decision maker's experience, resulting in a leader's cultural bias being the limiting factor rather than the time lost and subsequent variable changes during said time.

Ultimately, using the Recognition Primed Decision Model allows us to have a faster OODA (observe-orient-decide-act) Loop by producing a good plan now instead of the possibility of a better plan later. If leaders are abhorrently inexperienced and naïve, they may not have built their own heuristics to aid in problem solving. However, this can be mitigated by revamping tactics education and continuing to select officers for command positions after serving in select key developmental (KD) positions at the previous grade. Field grade commanders should have developed some heuristics from their experiences as a field grade and company grade commander and staff officer.

In order to overcome this drawback, the Army can use PME to give leaders experience they might otherwise only gain through holding a position. One option for this is to rely heavily upon war gaming, such as tactical decision exercises (TDEs), as a means to solve problems and build experience. TDEs offer students the ability to tackle a problem in a time-constrained environment and then defend their chosen COA against peer and instructor scrutiny. TDEs and war gaming offer leaders the ability to make bold decisions and see the results in a low-risk environment. While war games are not a perfect analog for a combat environment, they enable decision makers to start building their heuristics and can encourage our leaders to take bold actions in a safe situation instead of settling for a safe and uninspiring plan.

Figure 2 — Recognition Primed Decision Model



MAJ Wilson A. Shoffner, "The Military Decision Making Process: Time for a Change"

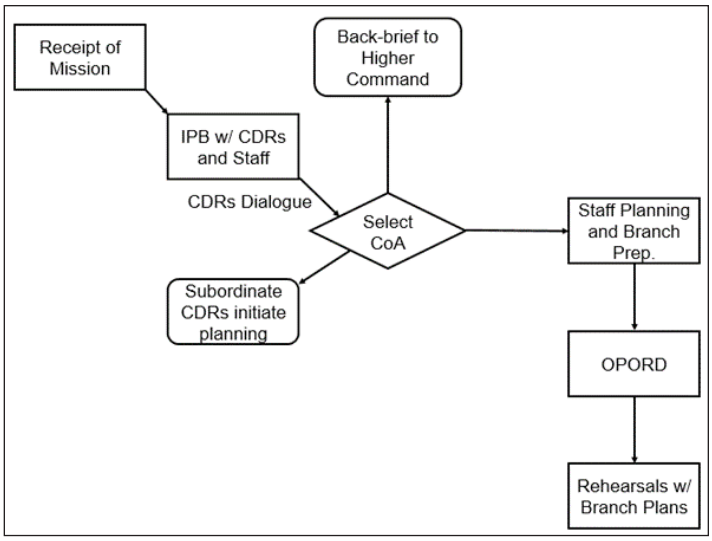


Figure 3 — New Planning Method Incorporating Decision Point Tactics

Planning

One of the main problems with how the MDMP is implemented is that it produces one, and only one, COA for detailed planning. This plan is inherently fragile because it is designed in a linear system but is to be applied in a complex combat environment. A plan produced in this manner is rigid and does not account for the enemy's vote, significantly decreasing the plan's value over time and especially after first contact.[17] In addition to a fragile plan, the process utilized to arrive at the plan is time intensive, which limits the amount of time for subordinate units to prepare while also providing the enemy ample time to render the plan less effective.

In order to make the Army's planning process better suited for complex systems, the MDMP's replacement must produce a plan that gives maximum flexibility to subordinates with optionality for the senior commander; optionality is the ability to choose a new COA but not being required to.[18] This will make the resulting plan more resilient in the complex combat environment.

For our commanders to issue highly flexible plans we need to change the development process. Our planning doctrine is based on the science of control and driven from the top down with some bottom-up refinement. We need to change course and flip the emphasis to bottom-up refinement. This would be accomplished by the processes seen above in Figure 3:

1. Intelligence Preparation of the Battlefield (IPB)

All commanders and staff in the organization would participate in IPB, allowing all stakeholders to have a thorough understanding of the situation. This must be a full reverse warfighting function IPB, with every warfighting function represented. In order to facilitate shared understanding of the situation, this step should be allocated as much time as possible.

2. Commander's Dialogue

After gaining an understanding of the situation, the senior commander uses the Recognition Primed Decision Model to lead a dialogue with his subordinate commanders. The purpose of this dialogue is to identify possible enemy and friendly COAs and leverage all of the participants' heuristics, gained from their experiences, in order to decide on a COA quickly. This dialogue lays the groundwork for branch plans, allowing the organization to rapidly react to the complex environment it is operating in. Staff members must be present for this dialogue so they know potential branch plans and understand how the commander visualizes the battlefield.

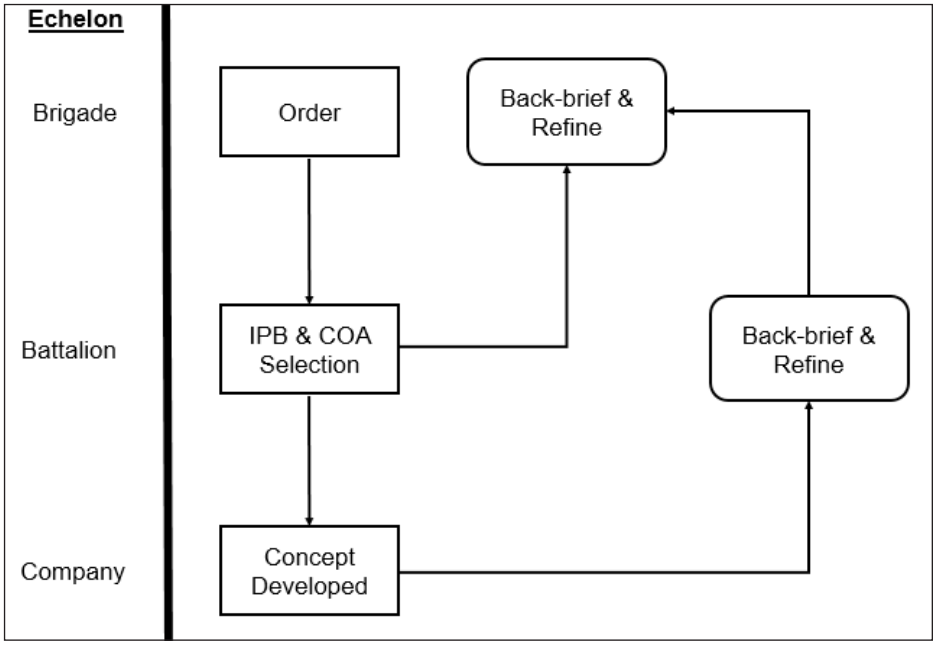
3. COA Selection

The senior commander selects a COA and provides the staff and subordinate commanders with the unit's mission/objective, intent, tasks, and purposes. The subordinates then develop their concept and report back to the senior commander. During the back brief, the senior commander makes the modifications necessary to ensure the shaping operations support the decisive operation and that the unit's mission will be accomplished (see Figure 4). This is similar to how Germany's Bundeswehr creates tactical plans and is well nested within the principles of mission command.[19]

4. Staff Planning and Branch Preparations

The commander's staff then takes the subordinate plans and uses decision point tactics (DPT) to achieve optionality for the commander. The DPT method of planning was developed at the National Training Center (NTC) in response

Figure 4 — COA Selection and Refinement at Echelon



to the inadequacies identified in the MDMP.[20] The resulting plan from DPT is highly flexible because it is a base COA, which the commander has already approved, with multiple "decision points" for the commander based off conditions on the ground. At these decision points, the commander can re-allocate resources, change the task and purpose of subordinates, or change nothing as the conditions dictate. By having a loose plan with multiple options to exploit opportunities as they present themselves, the commander gains a position of relative advantage over the enemy.

A side effect of optionality is that it offers the commander the opportunity to create a "Black Swan" event. A Black Swan event is an unpredictable event, which completely disrupts a system.[21] Black Swan events tend to be bold actions taken when the enemy presents exploitable opportunities. Historic examples of Black Swans are: World War I, 9/11, economic bubbles, and whoever is number one on the *New York Times'* best seller list. These Black Swan events have the potential to significantly disrupt the enemy and force them to react to our plan.

As with any decision, there are risks associated with revising the MDMP. Under this framework, there is the risk that fewer details will be fully worked out and not all coordinations (vertically and laterally) will have been made. Additionally, the proposed changes would require significantly more communication up, down, and laterally to ensure shared understanding, although this could be mitigated with additional standing operating procedures and familiarity with the senior commander's heuristics. Finally, depending on how long the IPB, commander's dialogue, and COA selection take, subordinate commanders could be pulled away from their formations for an extended period of time.

Conclusion

The current operating environment is fast paced — too fast and complex for our current MDMP doctrine. In its current manifestation, the MDMP is too slow and top-down driven to enable our commanders to fight and win in a complex world. Our classic/analytical decision-making model is ill-suited for combat, a complex environment, and should be replaced with a heuristic-based model such as the Recognition Primed Decision Model. Once the commander has decided how to approach the mission/objective, planning needs to be driven from the bottom up, with refinement from the top. This method of planning will create a more flexible plan and ensure that subordinates have bought in to the mission/objective. The commander's staff can then use DPT to help the commander determine decisions that may need to be made as the battle develops.

These changes will be difficult to implement at first; we will be undoing how we have approached planning since 1968.[22] That is three full generations that we will need to overcome. However, war is not a static environment; the situation at hand does not remain unchanged for long, so why does our decision-making process not reflect the dynamics of the modern battlefield?

The current operating environment is fast paced — too fast — and complex for our current MDMP doctrine. In its current manifestation, the MDMP is too slow and top-down driven to enable our commanders to fight and win in a complex world. Our classic/analytical decision-making model is ill-suited for combat, a complex environment, and should be replaced with a heuristic based model such as the Recognition Primed Decision Model.

Notes

[1] Daniel J. Hughes, *Moltke on the Art of War: Selected Writings* (NY: Presidio, 2009), 92.

[2] Donald Vandergriff and Stephen Webber, ed., *Mission Command II: The Who, What, Where, When, and Why, an Anthology, Volume II* (CreateSpace: Independent, 2018), 124-128.

[3] FM 6-0, *Commander and Staff Organization and Operations* (2016), 4-1.

[4] Ibid, 9-4.

[5] Charles M. Province, *The Unknown Patton* (NY: Random House, 1983), 165.

[6] MAJ Wilson A. Shoffner, "The Military Decision Making Process: Time for a Change" (monograph, School of Advanced Military Studies, 1999).

[7] Nassim Taleb, *Anti-Fragile* (NY: Random House, 2012), 11.

[8] COL Thomas X. Hammes, *The Sling and The Stone: On War in the 21st Century* (Minneapolis: Zenith Press, 2006), 287.

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[10] Hammes, *The Sling and The Stone,* 285.

[11] Ibid, 285.

[12] Shoffner, "The Military Decision Making Process," 18.

[13] Ibid, 19.

[14] Ibid, 23.

[15] Ibid, 23.

[16] Ibid, 25.

[17] Taleb, *Anti-Fragile*, 11.

[18] Ibid, 174.

[19] Vandergriff and Webber, *Mission Command II.*

[20] LTC Peter Palmer and CPT Jim Crider, "Decision-Point Tactics," *CTC Quarterly Bulletin*, no. 97-4 (January 1997): 1.

[21] Nassim Taleb, *The Black Swan* (NY: Random House, 2010), xxii.

[22] Shoffner, 6.

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Beyond the Line of Departure:

A Battalion Commander's Task and Purpose

LTC KIRBY (BO) DENNIS

A recent RAND report entitled "Reducing the Time Burdens of Army Company Leaders" offers thoughtful recommendations to consider in the pursuit of effective time management. Perhaps most notably, it underscores the need for "clarity of purpose and task" in order to "define and concentrate effort" for company-level leaders.[1] This is a well-founded recommendation and one that applies to leaders at all levels and in all environments. For those in positions of battalion command, the delicate balance of managing the myriad daily tasks that consume time with those personal responsibilities that are essential to organizational success exists just the same. To be sure, devoting time and attention to the latter can be difficult, as the pressures associated with the former can often rule the day. This article broadly asserts that battalion commanders must prioritize those responsibilities that are critical to mission accomplishment in training and combat. More specifically, battalion commanders should devote concentration and thought to their personal tasks that are essential to unit success beyond the line of departure.

Army doctrine effectively outlines a battalion commander's responsibility during the planning process; however, after the line of departure is crossed, that role is open to much more interpretation. On this score, history can be instructive. In the classic work *Men Against Fire*, S.L.A. Marshall asked commanders to think about their role with respect to influencing Soldiers once a battle is joined. More recently, LTG (Retired) Hal Moore offered his thoughts on a commander's mindset in a 2010 interview, stating that "it's incumbent upon any commander leading men into harm's way to beat his brains out, ahead of time, to figure out that one thing — and every other element he can come up with, too. I instinctively think ahead. I run scenarios before things happen. I plan ahead for things I know are coming — and, more important, for what I don't know is coming."[2] Moore's vivid introspection provides the contextual basis for those in battalion command to consider in assessing their own critical responsibilities once a scheme of maneuver is initiated. Commanders appropriately have license to define their role on the battlefield in accordance with their training, experience, and philosophy. With this in mind and based on personal experience, I offer perspective on what could, and perhaps should, be the focus of a battalion commander once the line of departure is crossed.

Photo by SPC Randis Monroe

Soldiers from the 1st Battalion, 66th Armor Regiment, 3rd Armored Brigade Combat Team, 4th Infantry Division, plan for a defense during decisive action rotation 15-02 at the National Training Center at Fort Irwin, CA, on 16 November 2014.

Actively Monitor Intelligence: The idea that the enemy gets a vote in battle is axiomatic, a notion that manifests in the often-repeated guidance to "fight the enemy and not your plan." Faced with innumerable tasks associated with decisive action operations, however, commanders may find it difficult to focus on this central task. Monitoring an enemy's reaction to friendly force activity is essential though and constitutes a "big rock" in the battalion commander's proverbial rucksack. A battalion commander's staff most certainly plays a vital role in tracking intelligence developments, confirming or denying templated enemy actions and drawing conclusions about what it all means; yet only the commander can issue guidance and adjust the overall scheme of maneuver. Moreover, the battalion commander possesses the experience and intuition necessary to place enemy activity within the larger context of higher headquarter and adjacent unit missions. As such, he or she is uniquely positioned to influence friendly activity based on his or her perception of enemy behavior. Without question, the tenets of mission command — whereby subordinate leaders are empowered to make decisions based on enemy action and in accordance with the commander's intent — will guide effective units as well as enable subordinate commanders to react decisively to a thinking enemy. Nevertheless, the battalion commander's role in evaluating and interpreting intelligence developments, and subsequently adjusting a unit's tactical plan, is central to success.

Revisit Assumptions and Adjust Restraints/ Constraints: Assumptions are a material component to any plan, and indeed, are reserved for battalion commander approval at the outset of any planning process. Despite our desire to affirm the assumptions we make through friendly courses of action, enemy action often confirms or denies their validity. Indeed, Combat Training Centers (CTCs) are effective in training battalions in part because of their complex environments — in which a creative enemy force tests the soundest of assumptions. In my experience at the Joint Readiness Training Center (JRTC) at Fort Polk, LA, my assumptions were often invalidated by events that I least foresaw and when I least expected them. What do you do if another unit does not progress in accordance with the published timeline, the aviation task force is delayed during force insertion, or the logistics battalion does not deliver fuel at the expected time? Without question, preparing for these contingencies must occur as part of the planning process — yet a battalion commander or staff cannot prepare for every possible eventuality. Thus, once the line of departure is crossed, the commander must constantly review those assumptions that are essential to mission success, hedge against potential failure if certain assumptions do not materialize, and of course, react decisively to meet the brigade commander's intent. In a similar vein, battalion commanders must keep self-imposed restraints and higher headquarters constraints at the forefront of their mind. Given the opposition force's creative nature, commanders should regularly re-visit those tactical moves that their units must do and cannot do.

Oftentimes, commanders feel compelled to report when they are in direct contact with the enemy but not necessarily when they are out of contact. Yet for the battalion commander, a report that indicates a lack of enemy presence or activity is often just as important as a report from a unit in contact, as it may confirm or deny a specific enemy course of action.

Dialogue with Subordinate Commanders: Commander-to-commander dialogue is crucial to mutual understanding — a truism firmly established within the doctrine of mission command. Without question, providing subordinate commanders the time and space to develop the situation is essential — yet battalion commanders must prioritize regular communication to preserve their own space to make decisions. Oftentimes, commanders feel compelled to report when they are in direct contact with the enemy but not necessarily when they are out of contact. Yet for the battalion commander, a report that indicates a lack of enemy presence or activity is often just as important as a report from a unit in contact, as it may confirm or deny a specific enemy course of action. Commander-to-commander dialogue is a cornerstone of the Army profession, thus putting this particular recommendation in the common-sense category. Nevertheless, a battalion commander with the wherewithal to facilitate regular and meaningful dialogue with subordinate commanders beyond the line of departure will inevitably see the battlefield more clearly.

Track the Adjacent Unit and Higher Headquarter Fights: As a general rule, a battalion commander's focus is 90 percent down and 10 percent up. Said another way, battalion commanders spend the majority of their time on their organization and devote a lesser degree of attention on the business of their higher headquarters. After the line of departure, this dynamic should invariably change. Successful battalion commanders actively track the progress of their higher headquarters and adjacent units with energy and attention, motivated by the brigade commander's overall intent for a given operation. To be sure, brigade commanders manage their fight in a similar manner to battalion commanders — but with a higher degree of complexity. As such, brigade commanders likely view their subordinate commanders' perspective as critically important, for it facilitates their own visualization. Incumbent to a battalion commander's responsibilities then is applying attention to the brigade's fight as well as communicating the battalion's situation. A battalion commander who can translate his or her battlefield perspective into tactical deductions for the brigade commander truly enables success and represents the highest degree of performance. In the end, understanding how the enemy reacts to a battalion commander's plan is critical to the brigade

Photo by SGT Roger Jackson

LTC Dennis Rohler, commander of the 529th Support Battalion, talks with a forward arming and refueling point team in Iraq on 28 May 2019.

commander's understanding of his or her own scheme of maneuver. The commander who understands this will be able to effectively make recommendations, and perhaps, preserve the brigade commander's flexibility and decision space.

Weigh the Reserve: In battle, and specifically when one loses the advantage of initiative, battalion commanders can put their unit at an advantage over the enemy with "fires, reserves, placement of key leaders, and [the expenditure] of Soldiers' lives."[3] Since the employment of the reserve is solely within battalion commanders' purview, visualizing its role at a battlefield inflection point or as "insurance against stagnation" must be at the forefront of their mind.[4] More specifically, battalion commanders must ensure that planning priorities for the reserve are specific and achievable, and that they remain valid after the line of departure. As Moore indicated in his 2010 interview, the ability to respond to unforeseen and unlikely scenarios is a critical commander responsibility, and the reserve represents an asset that enables effective action in the face of uncertainty or a determined enemy. In addition to ensuring that the staff adequately forecasts reserve contingencies and validating reserve force readiness during rehearsals, battalion commanders must think about the conditions that would lead to the employment of this force. To be sure, this constitutes a specific battalion commander responsibility that requires regular attention after the line of departure.

Practice Sensible Skepticism: Above all else, battalion commanders must exercise what former Chairman of the Joint Chiefs of Staff GEN Martin Dempsey refers to as "sensible skepticism."[5] Whether at a CTC or in combat, battalion commanders find themselves awash with information — radio reports, personal observation, intelligence feeds, real-time surveillance, and the like. While many argue that the character of warfare has changed in recent years, all agree that the time-tested Clausewitzian concept of fog will always remain. As such, commanders must inject their personal experience and intuition — their sensible skepticism — in situations where information may be unreliable or incorrect. This, according to GEN Dempsey, enables units to stay ahead of a thinking enemy and facilitates effective decision making by the commander.

In *Men Against Fire*, Marshall summarized his view of command by writing that "60 percent of the art of command is the ability to anticipate; 40 percent of the art of command is the ability to improvise… to rule by action instead of acting by rules."[6] While the above-mentioned recommendations most certainly do not constitute a comprehensive list, they aim to address the sentiment that Marshall expressed more than 70 years ago. Moreover, they seek to provide battalion commanders the clarity of task and purpose that the aforementioned RAND report calls for. In the end, a battalion commander's time and focus are combat multipliers for an organization in battle; therefore, it is imperative to define those tasks that only a battalion commander can accomplish in the heat of battle. Battalion commanders who devote time and attention to this endeavor will wisely embrace history's call for those in command to think carefully about their role beyond the line of departure.

Notes

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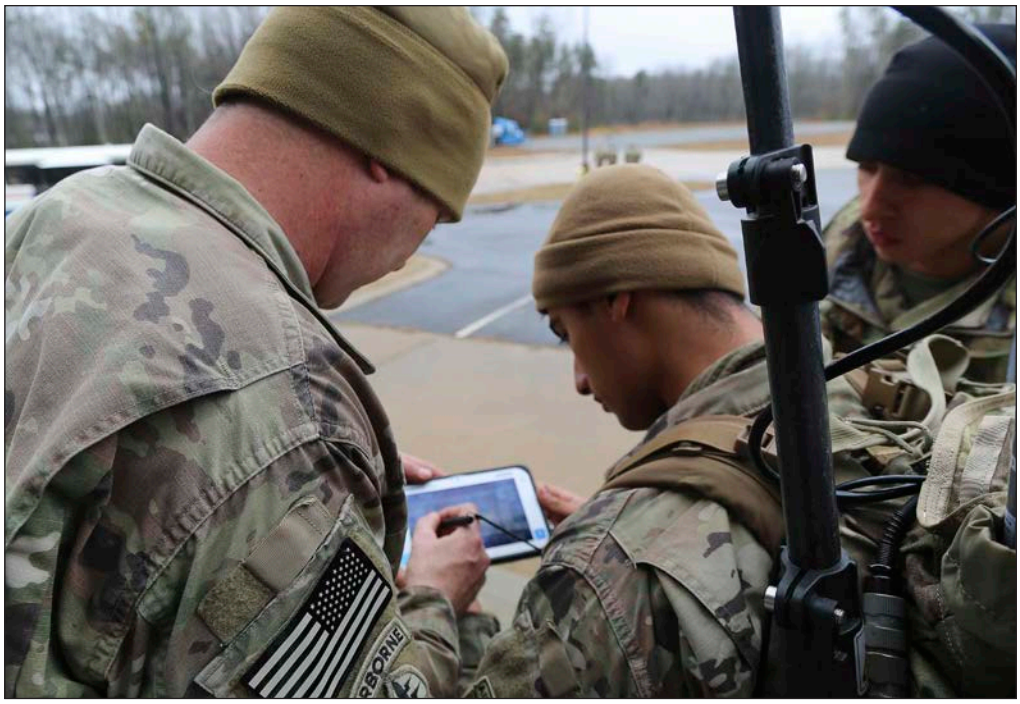
‘Break, Break, Break, Clear the Net’

Understanding How Communications Enable Cross-Domain Maneuver While Conducting Multi-Domain Operations

CPT RUSSELL THORN

“Shoot, move, and communicate” is a maxim that’s been a staple within military vernacular for decades. While these three words all continue to undergo their own respective evolutions within today’s multi-domain operations construct, the most complex and multifaceted transformation of the three is “communicate.” GEN Stephen J. Townsend’s July-September 2018 article on the recent doctrinal update of AirLand Battle to multi-domain operations highlights the complex transformation of communications in the digital age.[1] In addition to emphasizing the importance of communications on the modern battlefield, his article promulgates the need for cultural changes in how military leaders must now view the contemporary operational environment. GEN Townsend further emphasizes how communications — specifically our language — shapes a leader’s intent and the overall approach that the U.S. military takes toward maintaining overmatch against our adversities. This call for leadership to both examine and evaluate dictates that the traditional lens with which we view the very idea of “battle” must shift.[2] As part of this shift, the role that communications plays in tactical operations contributes even more to mission success or failure, and in some instances can even play a decisive role. While GEN Townsend’s article communicates with intent to influence our own formations, leaders must also remember that potential adversaries are also attempting to use communications to shape the viewpoints and plans of others.



Photos courtesy of author

Members of Charlie Troop and Military Intelligence Company, 1st Squadron, 73rd Cavalry Regiment, conduct MOS cross-training during the Asymmetric Warfare Group Contested Micro Experiment.

Communicating in the Contemporary Operating Environment (OE)

The digital age provides the modern-day Soldier with a multitude of digital options enabling instantaneous real-time communications. Additionally, digital communications can provide a single user with the dynamic capability to rapidly and widely influence. Today’s standard smart phone enables service members to send and receive standardized report formats, operational graphics, and free text messages; participate in group messages better known as “group chats;” and display photos or video feeds to a countless number of people and social groups. Adding to the complexity is the seemingly infinite number of messaging services and social media mediums.

Soldiers often disseminate information using messaging media or social media platforms without an understanding of the “maximum effective range” of the medium or platform. This is compounded by the fact that these digital communications occur without an awareness of the potential information fratricide that can occur from digital messaging or data transmission. Most Soldiers lack a comprehensive understanding of how these messaging and social media platforms transmit and receive voice and data. This lack of awareness of the “how” voice and data are transmitted is further exacerbated by a lack of awareness of “who” potentially monitors these mediums and platforms. These factors lend to a scenario which can allow for rapid exploitation by an adversary, resulting in catastrophic effects on friendly formations.

Just as with the considerations for employment of weapon systems, communication platforms emit a signature on the electromagnetic spectrum (EMS) which must be accounted for. All Soldiers, rank and position being immaterial, must be aware of these signatures and have an ingrained understanding that peer/near-peer adversaries may possess abilities to detect, target, and potentially exploit several types of communication platforms and arrays.

Take a moment to consider how much your formation utilizes computers, radios, tablets, and smart phones for conducting daily operations, both in the garrison environment and during tactical operations. Next, consider how much your formation utilizes chats, video, and other social media platforms for the routine tasks which encompass these daily operations. Finally, consider how much your formation uses mediums and platforms as a means of seeking out information and gaining knowledge, as well as utilizing them for simple entertainment or recreation. Like land, sea, or air, cyberspace has numerous hazards, obstacles, and scenarios which can unfold to result in significant negative consequences for your formation.

In the digital age, "communicate" is something the Army continues to evaluate and examine. High-tech communications and navigation equipment are tremendous tools that offer pinpoint precision and clarity, provide real-time situational awareness, assist with command and control, and facilitate movement and maneuver. There is little doubt that the Department of Defense will continue to seek out and develop state-of-the-art high-tech digital means of communicating. Along with the search for material advancements for communications and navigational hardware, the Army has also addressed the non-material aspect of digital age communications which we must also address.

Recognizing that digital advancements are one of the critical catalysts which have triggered a metamorphosis on the modern battlefield, Field Manual (FM) 3-0, *Operations*, was updated in October 2017. FM 3-0 now describes the sometimes contentious and complex relationship the U.S. Army has within the space cyberspace domains. Paragraph 1-35 states: "Rapid development in cyberspace and the EMS presents continuous challenges. While Army forces cannot defend against every kind of intrusion, commanders and staff must take steps to identify, prioritize, and defend the most important networks and data. They must also adapt quickly and effectively to an enemy and adversary presence in these networks."[3]

Paragraph 2-164 further states: "Army forces must retain the ability to shoot, move, and communicate during large-scale combat operations when space-based capabilities are denied, degraded, or disrupted. Training and rehearsing combat skills and ensuring the availability of analog alternatives to space (or cyberspace) enabled systems is critical to successfully persisting in the chaos and friction of modern, large-scale combat operations. Units must train to operate with widespread denial, degradation, or disruption of friendly space capabilities."[4]

When the implications of what FM 3-0 states are examined, an interesting dichotomy appears. Recognizing that space/cyberspace is an expanding domain which can result in impacts with equal and perhaps even greater implications than land, sea, and air, doctrine explicitly dictates that U.S. Army formations should be well versed in operating using analog alternatives.

Further examination of the complexity of the space/cyberspace domains has also resulted in the necessity for

Cyberspace in the Multi-Domain Extended Battlefield

FM 3-0, Operations

formations which can conduct cross-domain maneuver. FM 3-0 alludes to this necessity in paragraph 1-35 stating: "Cyberspace and the EMS will grow increasingly congested, contested, and are critical to successful operations. Army forces must be able to operate in cyberspace and the EMS, while controlling the ability of others to operate there."[5]

Assessing Communications Culture and conducting Cross-Domain Maneuver

The International Centre for Defense and Security publication *Russian Electronic Warfare Capabilities 2025* and the article "Victory without Casualties: Russian Information Operations" outline several areas and examples of Russian Federation strategy to influence and affect activities through the integration of electronic warfare and information operations as "force multipliers."[6] Further reinforcing GEN Townsend's comments regarding communication, both pieces hint that these force multipliers are part of a larger Russian Federation approach to both large-scale combat operations, as well as achieving objectives in operations just below the threshold of armed conflict. These "force multipliers" have been enabled on a wide range of platforms. These platforms can range from traditional military hardware such as fixed wing fighter jets all the way to common everyday communications and messaging mediums, social media platforms, and other spheres of influence which communicate a variety of messages, all driving towards a common endstate. This diverse approach presents a complex dilemma that can be presented by potential adversaries and suggests an implied requirement that U.S. formations' operating procedures and overall unit culture must be assessed and addressed.

A scout observer from the 1st Squadron, 73rd Cavalry Regiment prepares to emplace a high frequency radio antenna during the ACME.

With awareness for this implied requirement, the Asymmetric Warfare Group (AWG) set out to conduct just such an assessment. In March 2019, Paratroopers from C Troop and the Military Intelligence Company (MICO) of the 1st Squadron, 73rd Cavalry Regiment, 82nd Airborne Division, participated in the AWG Contested Micro Experiment (ACME). The ACME was a unique experience which placed the Paratroopers of 1-73 CAV in an OE replicating the hybrid warfare threat experienced by forces in the U.S. European Command (EUCOM) area of responsibility.

Among the many areas highlighted by the ACME was the incredible potential for cross-domain maneuver. The Paratroopers of C Troop and MICO developed a unique task organization consisting of Infantry, Signal, Electronic Warfare, and Intelligence Military Occupational Specialties (MOSs). This unique formation went beyond the idea of elements of a dismounted reconnaissance troop simply integrated with "enablers" under the command and control of an Infantry command team. Moreover, Paratroopers within the task organization possessed both a basic understanding of the duties and capabilities of every MOS within their task organization and a rudimentary ability to execute these duties and provide these capabilities. By the end of the ACME, the C Troop and MICO formation demonstrated the ability to conduct cross-domain maneuver while conducting multi-domain operations.

The unique hybrid OE of the ACME provided the Paratroopers of C Troop and the MICO with firsthand exposure to the overall importance and vast complexity of communicating in an OE featuring a hybrid threat. These Paratroopers learned that communications can influence and shape the battlefield prior to any kinetic action even being taken. During the ACME, communication systems and standard operating procedures became decisive to the overall success or failure of Paratroopers' ability to conduct reconnaissance and surveillance, as well as execute cross-domain maneuver. Conversely, the ACME demonstrated that when critical facets of communications platforms are ignored or employed recklessly, hybrid adversaries can use communication systems and standard operating procedures against U.S. forces.

ACME highlighted the importance of disciplined, intentional communications plans. Early in the exercise, hybrid adversaries were able to exploit emissions by the C Troop and the MICO cross-domain formations for intelligence purposes.

As the ACME progressed, the dismounted reconnaissance teams, MOS-specific radio-telephone operators (RTOs), and troop sniper sections refined the overall unit communications

architecture. By implementing a new communications plan by the later portions of ACME, the Paratroopers were able to remain virtually undetected during execution of reconnaissance and surveillance as well as the initial phases of their ground maneuver plan. This in turn resulted in a rapid tempo that kept the hybrid adversary off balance and allowed freedom of movement and maneuver throughout later stages of the ACME.

Electronic warfare specialists partnered with a sniper team from the 1st Squadron, 73rd Cavalry Regiment to enable cross-domain maneuver during the ACME.

As the Paratroopers of C Troop and the MICO further progressed through the ACME, the success of the Paratrooper cross-domain formation was predicated by a strict adherence to two specific communications procedures. The first was a return to traditional tactics, techniques, and procedures (TTPs) generally associated with analog systems, basic soldiering skills, and utilization of field craft taught in courses such as the U.S. Army Ranger School, the U.S. Army Sniper School, and the Reconnaissance and Surveillance Leader Course (RSLC). The second procedure was a strict adherence to the use of reporting windows along with adherence to principals of mission command at all leadership echelons from the troop commander and first sergeant all the way to the most junior dismounted scout and intelligence analyst.

Application of ACME Lessons Learned

The ACME took place at the Asymmetric Warfare Training Center (AWTC), a facility offering a dynamic and unique OE through the use of enhanced realistic training. While the cross-domain maneuver conducted at AWTC provided the Paratroopers of C Troop and the MICO with tangible and measurable results — the communications lessons they learned along with the TTPs they developed and further refined — are transferable to any unit and training environment.

A great deal of success against a hybrid adversary occurs during intelligence preparation of the battlefield (IPB). It is critical that those conducting IPB develop a thorough understanding of all communications arrays, detection measures, and trends. While conducting terrain analysis, leaders must also examine the EMS. Does the OE have dense urban terrain, which features a vast array of layered communications networks and multiple systems, or in contrast does the OE feature rudimentary technology in austere locations with little to no preexisting communications networks and arrays? Next, a complete and holistic examination of the enemy's capability to detect, conduct reconnaissance and surveillance, and target your communication and mission command platforms must be performed. Finally, an examination of the effects that natural terrain and man-made structures have on communications, both digital and analog, must occur. This will enable leaders to build a robust communications architecture with several options to choose from as the ground situation changes or evolves.

A thorough understanding of your unit's own communications systems is both a beneficial and necessary requirement during multi-domain operations. Possessing a basic understanding of the associated signature(s) emitted by frequency modulation, high frequency, tactical satellite, and digital communications platforms should be a requirement for anyone who employs these various platforms. Noise level on the EMS, transmission duration, transmission signature, encryption level(s), and potential for the enemy to render effects against friendly units are factors which must be considered when communicating.

A layered approach to a unit's communications plan must extend beyond a generic overarching approach to the communications primary-alternate-contingency-emergency

(PACE) plan at each respective echelon. Instead, a PACE plan for each echelon should be considered when overlapping with the enemy situational template (SITTEMP), linear and vertical distances between friendly units, and the frequency with which an echelon needs to communicate with its superior, adjacent, and subordinate elements. Finally, consideration for communications at each stage of the tactical operation should be weighed. Both the risk to the mission and the risk to the force may greatly change throughout the various phases of the operation. Movement, reconnaissance, and posturing for future kinetic actions may be the primary focus during the initial phases of an operation. The success of these initial events can hinge on the ability to remain undetected by a potential adversary. Conversely, the later stages of an operation may feature dynamic kinetic action through combined arms maneuver. Communications during combined arms maneuver may have far less risk of exploitation by a hybrid adversary due to the focus of the actual maneuver by both friendly and enemy forces.

Consideration for analog techniques which emit a limited or nonexistent digital signature must be the pillar of a unit's communications plan within an OE featuring a hybrid threat. In order to mitigate the potential for a peer/near-peer adversary to detect, target, and exploit communications, digital platforms and radio transmissions should be employed in a mindful manner with a respect for the signature(s) they emit. The Paratroopers of C Troop and MICO experienced great success with TTPs which centered on hand and arm signals, VS-17 panels, communication windows, whistles, and face-to-face meetings. While several of these TTPs already existed within the C Troop tactical standard operating procedure (TACSOP), they became the staple of the Paratroopers' force protection and command and control plans during the ACME. Moreover, these techniques are a matter of necessity for survival in an OE with a hybrid threat. When digital or radio transmissions were employed, they were done with a holistic view and assessment, thus enabling a shared common understanding for the second and third effects of using such mediums.

Finally, complete integration of all warfighting functions throughout all phases of the tactical operation is a necessity to unit success. Delegation of certain tasks and authorities to capable subordinates and other trusted agents can free leaders up to focus on relationship building and ensuring that their units are integrating service members not organic to the formation. Leadership from C Troop at all echelons greatly benefited from the diverse skill set the human intelligence collectors, electronic warfare specialists, MOS-specific RTOs, and intelligence analysts provided throughout the ACME. Complete integration of them into the reconnaissance and sniper teams to establish a formation capable of cross-domain maneuver helped establish a lexicon shared by all and shape a common operating picture for every Paratrooper immaterial of rank, branch, and MOS.

Conclusion

The above listed considerations were captured in a unique training environment that is unfamiliar to most units outside of Combat Training Center rotations. While an environment like this may be unique, Army leaders must consider the very real threat and capabilities that peer/near-peer adversaries currently possess. A concerted effort must be made to replicate this dynamic environment while training at any respective duty station.

Simple techniques can be employed to teach our junior leaders and squad-size formations the importance and value of adhering to the principals outlined in FM 3-0, as well as the lessons mentioned above. Leaders can ingrain a sense of realism in the formation by conducting tough and punishing mass casualty events. Those who are caught bringing their cell phones to a tactical training event, conduct an excessive amount of transmissions, conduct excessively long transmissions, and chose not to use encryption should experience hard and painful lessons now, so that our formations can avoid learning lethal lessons in the future.

Finally, leadership must capture these simple TTPs in the unit TACSOP. Unit leadership must ensure that the TACSOP is a frequently read, accessible, and rehearsed document. Units must place the TACSOP's contents into frequent practice in order to ingrain the principal of adherence into Soldier schema. While the communication TTPs in use may require change which coincides with the latest hardware advancement or digital trend, the strict communications reminiscent of with tactical SOPs form the foundation of unit success and skill. Practicing communication discipline which emulates the tactical discipline found at Ranger School, Sniper School, and RSLC is what will ultimately ensure mission success and will save lives while conducting multi-domain operations on a future battlefield against a hybrid adversary.

Notes

[1] GEN Stephen J. Townsend, "Accelerating Multi-Domain Operations: Evolution of an Idea" *INFANTRY* Magazine, July-September 2018, https://www.benning.army.mil/infantry/magazine/issues/2018/JUL-SEP/PDF/7)Townsend-Evolution.pdf.

[2] Ibid.

[3] Field Manual (FM) 3-0, *Operations*, October 2017.

[4] Ibid.

[5] Ibid.

[6] Roger N. McDermott, "Russia's Electronic Warfare Capabilities" International Centre for Defense and Security, September 2017; T.S. Allen and A.J. Moore, "21st Century Political Warfare: Victory without Casualties: Russian Information Operations," U.S. Army War College Quarterly *Parameters*, Spring 2018.

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Rucksacks Vs Expectations:

Are Expectations for Expeditionary Operations Realistic?

CPT ROBERT MICHAEL HERB

Having units ready to deploy at any time and able to move at a moment's notice is a constant talking point in the Army. "Fight tonight," "If it doesn't fit in a rucksack, it doesn't go," or "You've got to be expeditionary" are numerous buzz phrases and messages heard across the Army. This article will discuss the recent realities of expeditionary operations and ways to be successful in them; it will also introduce a discussion of expectations and capabilities within mission sets.

Despite numerous phrases being thrown around, the Army does not define expeditionary operations for itself. We rely on the broad definition in the *Department of Defense Dictionary of Military and Associated Terms*, which defines an expeditionary force as "[a]n armed force organized to accomplish a specific objective in a foreign country."[1] By that standard, we have executed expeditionary operations for decades. The Marine Corps Training Command states: "The term 'expeditionary' implies a temporary duration with the intention to withdraw from foreign soil after the accomplishment of the specified mission. The term 'expeditionary' also implies austere conditions and support. This does not mean that an expeditionary force is necessarily small or lightly equipped, but that it is no larger or heavier than necessary to accomplish the mission. Supplies, equipment, and infrastructure are limited to operational necessities; amenities are strictly minimized."[2]

This definition provides a better reference for expeditionary operations, but it is not an Army definition. So, what do we need to do to be successful in an ambiguously defined operational environment?

Recent Realities

Fight tonight is a great slogan, but is it feasible? During Operation Inherent Resolve (OIR), units moved with their partnered force across Iraq to help ensure the defeat, destruction, and eradication of the Islamic State of Iraq and Syria (ISIS) from Iraq. A small element moving 50 kilometers with commonly utilized equipment in theater was feasible in a day and ready to fight that night; however, a task force repositioning 300 kilometers could take weeks to accomplish, as vehicle and container movement requests, hazardous material (HAZMAT), class V, and flights for personnel all

Paratroopers assigned to the 1st Battalion, 503rd Infantry Regiment, 173rd Airborne Brigade, prepare to load a U.S. Air Force C-130 at Aviano Airbase, Italy, during an emergency deployment readiness exercise on 23 February 2019.

Photo by SGT Henry Villarama

Photo by SSG Austin Berner

A group of Soldiers from the 1st Battalion, 503rd Infantry Regiment, 173rd Airborne Brigade, disembarks a CH-47 Chinook helicopter during an exercise in Croatia on 16 May 2019.

take time to process. Units deployed to Africa are often tasked to detach platoons and sections to locations outside of current country boundaries, which takes commensurate effort. The process of moving an element vast distances is often associated with deployment into theater and back to home station. However, jumping countries or hundreds of miles within a country has very similar requirements. Certifying HAZMAT, container paperwork/inventories, and aircraft or contracted ground convoys are just some of the considerations units must account for conducting jumps.

The Army has a vast experience in executing stability operations from fixed enduring locations, as well as establishing and retrograding these locations. Although the Army trains in a Decisive Action Training Environment (DATE), we often still deploy to execute stability operations or support a partnered force or nation. A 14-17-day DATE rotation at a Combat Training Center (CTC) offers extreme challenges and is necessary to ensure units are ready to face the harsh conditions of warfare. However, during most CTC rotations, the sustainment required is relatively minimal for the maneuver forces, and it is very feasible for a light maneuver unit to live out of a rucksack with limited trains. Casualty evacuation is often the biggest logistical problem for a light infantry unit during a CTC rotation. Excess equipment and shipping containers are rarely moved during a DATE rotation, which allow units to become more agile and mobile for the short duration of the exercise. Army doctrine for logistical operations to support DATE or stability operations is well developed and understood. Air, shore, and rail bridges bring classes of supply to depots that are then pushed or pulled to the forward units. This takes time to develop, and the ability to receive classes of supply during expeditionary operations will be slower than most experienced during Operations Enduring Freedom (OEF), Resolute Support (ORS), Iraqi Freedom (OIF), or similar operations.

During OIR, organic unit equipment was slow to arrive in theater. The steady stream of personnel, equipment, and repair parts that veterans of OIF remember was no longer in place or reconstituted. The mission set called for a scalable military force to train, advise, assist, accompany, and enable (TA3E) the Iraqi military, with a large focus on assisting through joint fires and accompanying them down to Iraqi battalion headquarters level. The massive U.S. military infrastructure that once existed in Iraq was not there, and in some cases, organic rolling stock and containers were not received by their units for months. Certifying HAZMAT for movements, requesting contracted semi-trailers to move containers and rolling stock long distances, and obtaining flights were limiting factors in repositioning forces.

What It Takes

An expeditionary force must be projected from a secure area that can provide support. A temporary perimeter is sufficient and can provide a location for excess equipment, containers, recovery assets, classes of supply, and medical support as necessary. Enduring locations provide this effectively, but they are not a requirement. For the elements executing the operations outside of the secured locations, there are a lot of shortfalls in terms of organic equipment. Power generation is a huge challenge. A light infantry company has 1-kilowatt generators as part of the Net Warrior system. These are great for charging AN/PRC-154 Rifleman Radios but not sufficient for operating a command post capable of providing timely and accurate reports and the flow of information often expected. Army 5-kilowatt generators are excessively large and heavy. The MEP-802a weighs more than 800 pounds while the Rapid Equipping Force issues a 5-kilowatt that's roughly a quarter of that size. A 5-kilowatt generator is sufficient to run computers, light sets, battery chargers, and upper tactical internet (TI) systems expected of a command post in the current operational environments.

Over-the-horizon communication redundancy should be a priority when building an expeditionary element. The sad truth is many times civilian applications have been substituted for Army systems. Training on Army systems used in theater should not first occur in theater; yet this is often the case. The flow of information needs to occur, and the transition points from lower TI to upper TI are essential to planning. The capabilities of small, portable upper TI systems are outstanding, but proficiency takes time and repetitions that should occur before deployments. Communications capabilities and system transitions must be planned and rehearsed to be successful; both the expeditionary element and those receiving the report must be part of this effort. Upper TI systems provide easy communication on multiple platforms at the same time to quickly disseminate mass information and provide data for a large common operating picture of the area or theater. Phone calls, emails, secure chat rooms, and the almighty PowerPoint are all expected and capable through upper TI systems.

Planning and resourcing the equipment you identify as essential must be part of tailoring an expeditionary element and should be clearly communicated up and down.

Lastly, the ability to quickly adapt to the mission set, tailor an element and its equipment, and move equipment across a wide range of platforms is essential. Repositioning forces is part of an expeditionary mission, whether it's a change of mission, retrograde to a secure location, or a jump across the country. Moving containers, certifying HAZMAT and sling loads, palletizing equipment, or contracting to move equipment are some factors to consider for this.

Rucksacks

Living out of a rucksack is a common occurrence in training for most maneuver elements and the sustainers with them. During DATE rotations at CTCs, units execute this throughout the training exercise and they are expected to. Conducting expeditionary operations out of a rucksack is absolutely feasible and probably more accurately reflects what the term should mean; however, the operational cost may or may not be acceptable.

Air movement is much simpler, and HAZMAT certification requirements are negated, as personnel with rucksacks in laps require very little to conduct air movements. They are easy to scale, and sustainment requirements can be reduced to classes I, V, and batteries for radios. A scalable force of Soldiers operating out of rucksacks is an extremely reactive force when given the assets to move them wherever the mission requires. A 300-kilometer jump for personnel with rucksacks can happen within hours of the aircraft allocation. They are also more mobile than a dismounted element with upper TI and power generation, which may be severely restrictive unless it has vehicles.

There are a lot of positive things that can be attributed to living out of a rucksack; however, it comes at a high cost of information flow. Upper TI systems along with the generators and class III required to run them will not fit in a rucksack along with the packing list to sustain the warfighter. Satellite (SATCOM), high frequency (HF) , and frequency modulation (FM) radios are easily carried and employed from a rucksack. SATCOM channel availability, lack of proficiency with HF voice and data employment, and required FM proximity are all limiting factors. Command post battle tracking is restricted to analog products. Pictures and small files are possible to transfer through HF, but easy communication to quickly disseminate mass information and provide and receive a large common operating picture of the area or theater is lost. Senior leaders are accustomed to and often expect to have available vast quantities of data about units, and living out of rucksacks would reduce that.

Living out of a rucksack and executing operations is not only feasible but trained on by maneuver units in the Army. However, mass data and information flow at a cost of more equipment and sustainment efforts versus more flexibility with less information and more effort to build common operating pictures for everyone.

What We Need to Do

First, as an Army, we need to define expeditionary operations for ourselves. We say words have meaning, but in this case, we use buzz words more than quantifiably desired

Photo by SPC Ryan Mercado

Soldiers assigned to the 2nd Brigade Combat Team, 82nd Airborne Division wait for guidance during an emergency deployment readiness exercise on 5 August 2018.

Photo by SFC Zachary Vandyke

Equipment assigned to the 1st Brigade Combat Team, 82nd Airborne Division is loaded into an aircraft bound for the U.S. Central Command area of operations from Fort Bragg, NC, on 4 January 2020.

results. A definition does not need to restrict capability sets or limit expeditionary operations to rucksacks, but without a candid discussion and a defined parameter, we fail to provide any frame of reference for what is now just buzz words.

Second, current power-generation capabilities are a major challenge that needs to be addressed. The systems required to operate a command post that provides the flow of information and reports expected, requires increased power generation for some units or better generators. A compact 5-kilowatt generator that can be moved by two people would be ideal for most command posts.

Third, training needs to build confidence and proficiency in Army communication systems that will be employed. Reinforced planning for transitions between lower and upper TI at echelon is essential. Prioritizing mobility schools for unit mobility officers, HAZMAT personnel, sling load inspectors, air movement officers, field ordering officers, and pay agents all help increase an element's capability. Many of these are requirements at a company or battalion level, but having qualified Soldiers as part of every expeditionary element is a huge increase in capability.

Finally, without a realistic discussion of capabilities and desired effects, an organization is failing to adequately prepare itself. This includes commanders at all levels providing realistic expectations about operational capabilities and requirements. Current operational environments allow for the expectation of mass data and information flow across a formation to be met through upper TI systems. Repositioning a unit in 24 hours is not a reality with these systems. Unless we are willing to part with that or in a peer-contested environment, conducting operations out of rucksacks is not a realistic expectation. A realistic and candid conversation about the mission set's reality and expectations for operations can establish firm expectations and intent to plan and scale as needed.

Notes

[1] *Department of Defense Dictionary of Military and Associated Terms,* 78.

[2] The Basic School Marine Corps Training Command Amphibious Operations I & II Student Handout, Basic Officer Course.

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The Bradley Reconnaissance Fighting Vehicle

CPT ZACHARY J. MATSON

"The bayonet has always been the weapon of the brave and the chief tool of victory."

— Napoleon Bonaparte

The Infantry community has no shortage of critics of the M2 Bradley Fighting Vehicle (BFV). Ranging from the size, speed, lethality, comfort, or the perceived antiquity of the platform, critics of one of the most lethal vehicles ever employed by the U.S. Army find a home in the crowd. However, the Bradley is not only undeserving of such criticism, but it fulfills the role put forth by its inception in both doctrine and combat. The M2 BFV is lethal and mobile, effective in both combat and reconnaissance, and useful across the spectrum of conflict ranging from peacekeeping to large-scale combat operations (LSCO). The M2 BFV platform effectively fulfills the role of a reconnaissance vehicle.

Despite advances in technology, the fundamentals of combat remain consistent. In the 2015 Army Operating Concept, LTG H.R. McMaster described the timeless characteristics of war as a human, political, uncertain contest of wills.[1] This enduring definition of the nature of warfare transcends the abstract and theoretical level and applies through all levels of war: strategic, operational, and tactical. Timeless principles of war also include actively fighting to determine the strength, composition, and disposition of a thinking enemy who actively practices deception. Because of this dynamic competition in the recon/counter-recon fight, reconnaissance units have always had to fight for information. In addition to actively fighting for information, the pressing forces of time and space on both forces, the pace of mechanized combat and the timeless nature of warfare have the majority vote in the outcome of armed combat.

Despite commanders' attempts to reign in the outcomes of battles, when two human opponents meet head-to-head in high-intensity conflict (HIC), the characteristics of warfare that LTG McMaster mentioned come to light. The 1973 Arab-Israeli War revealed that lightly armored reconnaissance formations were not survivable on the modern battlefield.[2] Western observers of the Arab-Israeli conflict took note and used that example to drive the development of one of the Army's "Big Five" modernization efforts — the M2 BFV. The M2 had its trial by fire in Operation Desert Storm (ODS). ODS was the first conflict for U.S commanders to demonstrate their attempt at digitized battlefield control. The Blitzkrieg maneuvers by allied armored and mechanized forces validated the BFV as both a reconnaissance and fighting

Soldiers assigned to the 2nd Armored Brigade Combat Team, 3rd Infantry Division maneuver a Bradley Fighting Vehicle during a training exercise at Drawsko Pomorskie Training Area, Poland, on 6 June 2020.

Photo by SGT Evan Ruchotzke

vehicle. After action reviews revealed that information developed too quickly to pass all the way to brigade and above commanders, so tactical leaders exploited the initiative and fought on. The tempo set by the very nature of armed combat outpaced the ability of command and control systems, thus revealing again a defining characteristic of reconnaissance in modern warfare: Reconnaissance formations must actively fight for information.[3]

Essential to framing a vehicle fit for a reconnaissance task is first understanding the fundamentals of reconnaissance. FM 3-90-2, *Reconnaissance, Security, and Tactical Enabling Tasks*, lists these fundamentals:[4]

- Ensure continuous reconnaissance
- Do not keep reconnaissance assets in reserve
- Orient on the reconnaissance objective
- Report information rapidly and accurately
- Retain freedom of maneuver
- Gain and maintain enemy contact
- Develop the situation rapidly

Photo by SSG Elizabeth Tarr

Soldiers assigned to 1st Battalion, 68th Armor Regiment, 3rd Armored Brigade Combat Team, 4th Infantry Division, conceal a Bradley Fighting Vehicle in wooded terrain on 20 January 2017 in Poland.

The BFV fulfills all of these fundamentals. History reveals time and again that reconnaissance formations are engaged in the fight for the duration of maneuver, are best used forward in the fight to answer the commander's priority intelligence requirements (PIRs), and require the lethality to develop the situation and the mobility to retain freedom of maneuver. The BFV receives criticism that its size and noise make it unsuitable for conducting reconnaissance; however, the fundamentals of reconnaissance, as well as countless historical examples, reveal a reconnaissance fight that is fast-paced, deadly, and loud. Listed below are the common criticisms and counter-arguments for the BFV as a reconnaissance platform:

Too Loud

As discussed, the characteristics of LSCO reveal a reconnaissance fight that is dynamic and chaotic. The Army designed the Bradley for this exact purpose, and its battlefield performance validates its efficiency. While observations at the Combat Training Centers (CTCs) are invaluable, it must be acknowledged that brigades do not fight alone, and the results of those experiences need to be cross-checked with after action reviews from combat. The BFV also maintains a "silent watch" capability which allows the crewman to use the commander's independent viewer (CIV) while the vehicle is turned off.

Too Tall

At a minimum, platoon leaders are responsible for conducting map reconnaissance as part of the troop leading procedures (TLPs). Map reconnaissance identifies intervisibility (IV) lines that allow masking vehicle movements, as well as templating enemy direct fire weapon systems placement. When BFVs conduct a movement to contact or a reconnaissance patrol to answer PIRs, an effective technique is to dismount Soldiers before an IV line and peek over the top with optics. While time consuming, confirming an enemy situation before exposing the BFV fulfills the principle of making contact with the smallest force possible. The BFV is also capable of using the TOW and conducting observation with the CIV in the turret defilade position, making it lethal to any enemy ground element while in the defense as well as reducing the signature of the platform.

Too Big

A similar concern to the "too tall" argument; this criticism argues that the Bradley is too big to effectively hide. Again, the Bradley can both be hidden out of line of sight (LOS) behind IV lines, in between trees, in the open with camouflage nets, or anywhere you can fit it. The mobility of the Bradley is superior to even the Stryker, especially in muddy terrain such as that in Eastern Europe, and the BFV can get to more places than any other Army fighting vehicle. Strict adherence to formations while concealing the BFV should

be the last concern with the first concern as security. Crews are responsible for conducting active and passive steps to conceal the vehicle, and NCOs are responsible for enforcing these measures.

The Army continues to refine its modified table of organization and equipment (MTOE) to better prepare itself for LSCO.[5] Lessons from the CTCs and the "6x36" Force Design Update (FDU) to scout platoons in the armored brigade combat team (ABCT) recognize the need to switch the M3A3 Cavalry Fighting Vehicle (CFV) with the M2A3 Infantry Fighting Vehicle to accommodate for more dismounted soldiers.[6] While scout platoons in all formations are moving to this "6x36" formation, the greatest benefactor of this FDU is the scout platoon in the ABCT. This FDU gives the commander flexibility of conducting multiple types of reconnaissance in accordance with his recon guidance with the M2 as the foundation of the formation. The six M2s create a capable offensive and rapid option, while the 36 Soldiers offer a more deliberate and stealthier option. The mechanized platform that infantrymen are familiar with conducts reconnaissance tasks better than the CFV. The M2 holds more dismounts than its cavalry brother, and allows more flexibility to the scout platoon leader to employ a variety of reconnaissance formations and techniques. Along with the commander's reconnaissance guidance (CRG), scout platoon leaders conducts their own mission analysis according to METT-TC (mission, enemy, terrain and weather, troops and support available, time available, and civil considerations). The M2-equipped scout platoon in the "6x36" configuration has the flexibility and lethality for any mission. The M2 is lethal, mobile, and fast, making it an ideal reconnaissance platform. Doctrine has always supported it, and history proves it to be an effective vehicle in many roles, unworthy of such unfounded criticism and worthy of praise for its battlefield performance and capabilities.

Notes

[1] LTG H.R. McMaster, "The Army Operating Concept: Continuity and Change," *Military Review*, 2015.

[2] John J. McGrath, *Scouts Out! The Development of Reconnaissance Units in Modern Armies* (Fort Leavenworth, KS: Combat Studies Institute, 2008).

[3] Curtis D. Taylor, "Trading the Saber for Stealth: Can Surveillance Technology Replace Traditional Aggressive Reconnaissance," The Institute of Land Warfare, Association of the United States Army, September 2005.

[4] Field Manual (FM) 3-90-2, *Reconnaissance, Security, and Tactical Enabling Tasks*, 22 March 2013.

[5] Cavalry Squadron Universal Operational and Organizational Concept, Volume III, Standard Scout Platoon (6x36). Headquarters, Department of the Army, 10 February 2017.

[6] COL William C. Lindner, "Branch Update," given to resident Command and General Staff College students, 1 August 2018.

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Photo by PFC Shelton Smith

Soldiers from 1st Battalion, 18th Infantry Regiment, 2nd Armored Brigade Combat Team, 1st Infantry Division, dismount a M2 Bradley during platoon live-fire qualifications on 18 December 2017 at the Novo Selo Training Area in Mokren, Bulgaria.

The Army's Hidden Gems: Geospatial Engineers

CPT MICHAEL A. BURKEEN

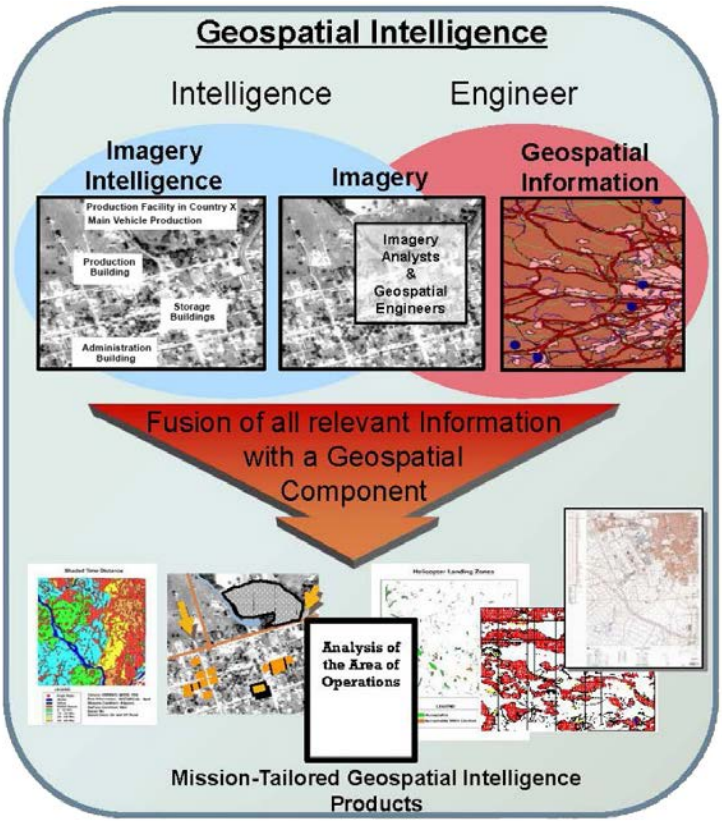
"In a fight between a bear and an alligator, it is the terrain which determines who wins."

— Jim Barksdale

Geospatial engineers are a powerful combat multiplier… if only we knew where to find them. Because the Army's geospatial engineer teams (GETs) operate no lower than the echelon of a brigade combat team (BCT), junior officers and NCOs can go half their career without ever being introduced to a 12Y (geospatial engineer) or 125D (geospatial engineering technician); and yet it is the platoons and companies on the ground who need most to understand and control the terrain to win their battles. Since 500 B.C., Sun Tzu and every successful military leader have recognized the importance of terrain analysis. Thankfully, we have geospatial engineers who can provide a common operating picture (COP) and mission-tailored visualization products that are essential to mission success.

Unfortunately, far too many of us military leaders and planners view geospatial engineers as "just map guys," leaving the full potential of their capabilities underutilized. Most Soldiers are familiar with standard geospatial intelligence (GEOINT) products such as topographic line maps and joint operational graphics (air). Fewer are familiar with tailored GEOINT products such as:

- Hydrology analysis: shows operational impacts of water within an area of operations
- Surface material: depicts areas based on types of soil at its surface
- Viewshed analysis: shows areas of direct observation from a given point
- Fly-through: provides 3D terrain visualization from an observer's point of view
- Urban tactical planner: displays key aspects of urban terrain
- BuckEye: provides downloadable, unclassified, high-resolution 2D and 3D imagery

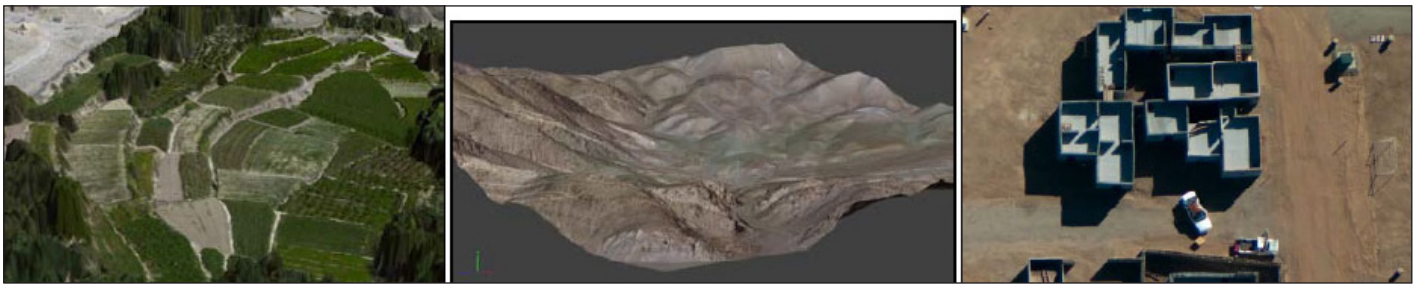


Army Techniques Publication 3-34.80, *Geospatial Engineering*

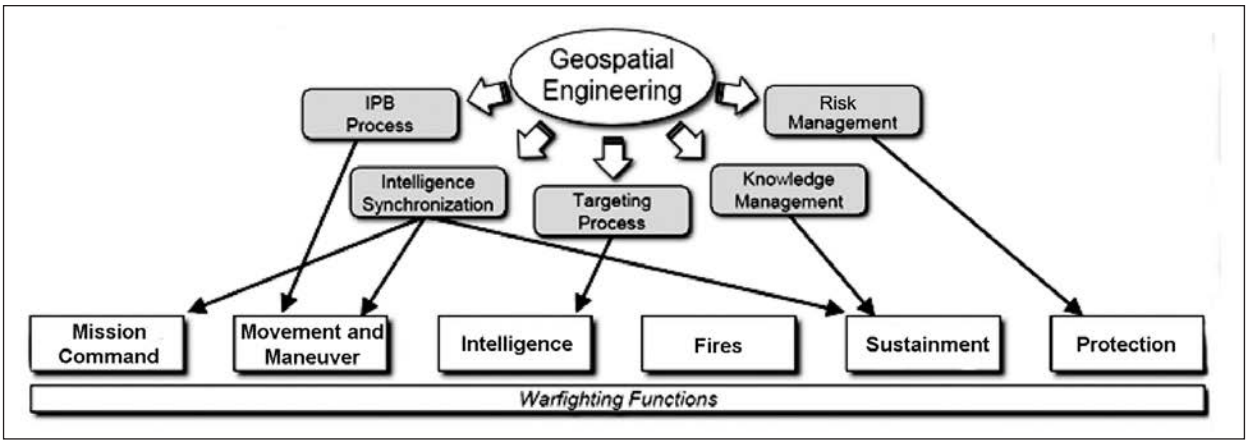
Figure 1 — Elements of Geospatial Intelligence

While the above examples are a small glimpse into the capabilities geospatial engineers can provide, it is the integration of a fourth dimension — time — that makes them truly unique. GEOINT such as coherent change detection and pattern analysis allow for more dynamic and interactive geospatial products and provide our warfighters with a more realistic picture of the operating environment. Commanders and staff leveraging their geospatial engineers are more

Figure 2 — Examples of BuckEye Products



Courtesy of Army Geospatial Center



Army Techniques Publication 3-34.80, *Geospatial Engineering*

Figure 3 — Integration of Geospatial Engineering Across the Warfighting Functions

capable than ever before to accurately predict the future within their area of operation.

While the Army's past movement of geospatial engineers out of the S3 shops and into the S2 shops provided a much-needed improvement to the [imperative] partnership between the engineer regiment and military intelligence community in producing GEOINT, there is a major downside to that decision. The COP development is still owned by the S3 shop (perhaps rightly so, due to friendly locations and movement). However, GETs within a BCT have (given proper imagery intelligence support) everything they need to create excellent COPs; they just aren't getting a seat at the table anymore. Other examples of our underrepresented geospatial engineers can be seen elsewhere across the force such as units with reconnaissance and surveying instrument sets (known as ENFIRE kits) that collect dust; the consolidation of multiple technical specialties into a single MOS (12Y); the separate training of engineers at Fort Leonard Wood, MO, and imagery analysts at Fort Huachuca, AZ; and the push for these capabilities to be handled at the lower unit level through capabilities such as Command Post of the Future (CPOF) or Joint Capabilities Release (JCR). While the premise behind CPOF, JCR, and other self-sufficient approaches are critical to mission command, self-reliance, and communication, it is the improper reading and interpretation of their geospatial data by untrained Soldiers that can yield results that are at least unsatisfactory or at worst fatal.

Consistent changes in the complexity of our environment, technological advancements, and the increased capabilities of our enemies force us to compete in every domain, with all warfighting functions, in order to accomplish our mission objects with effective combat power. Fortunately, geospatial engineering spans all warfighting functions, and military leaders that leverage their geospatial engineers will have a COP that spans the continuum of geographic space. Whether operating in the strategic support area or the deep maneuver area, leaders and staff that maximize the human potential of their 12Ys and 125Ds will undoubtably control the terrain.

U.S. Army photo

The ENFIRE program modernizes and expedites the collection and dissemination of reconnaissance, construction, facilities planning and project management data for U.S. Army and U.S. Marine Corps engineers.

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Increasing Your Unit's Javelin and ITAS Proficiency

CPT JOHN PAI

Today's commanders and combat leaders employ the deadliest high-caliber weapon systems that have ever existed. Combat arms branches continue to increase their lethality, preparing for the forthcoming mechanized fight. We train to win the first battle of the next war. The operational force has returned focus to large-scale combat operations and is prepared for the great power competition with strategic competitors such as Russia and China. U.S. Army leaders at the company level and below are vital contributors to this environment. The infantry company has at least one of two anti-armor capabilities, one being the Javelin Close Combat Missile System. The other is the Improved Target Acquisition System (ITAS) which fires the tube-launched, optically-tracked, wire/wireless-guided (TOW) missile. Leaders ranging from team leader to commander must know how to employ these powerful armaments in a tactical environment. In this article, I will cover the institutional course that provides heavy weapons training, the functional training trends that course instructors have observed, and a proposed training plan for units that wish to increase their Javelin and ITAS proficiency.

Heavy Weapons Leaders Course (HWLC)

The U.S. Army Training and Doctrine Command (TRADOC) offers this two-week course at Fort Benning, GA, which is designed to train leaders on how to adaptively employ heavy weapon systems. HWLC is available to Soldiers in the ranks of sergeant through first lieutenant. Classroom instruction covers the M98A2 Javelin system, M41 ITAS with the TOW missile, M3 Carl Gustaf, and basic machine-gun theory that applies to the MK-19 and M2. HWLC is the only institutional course in the U.S. Army that executes in-depth hands-on training on the Javelin weapon system. While the course is not

A Soldier with Charlie Company, 2nd Battalion, 504th Parachute Infantry Regiment, 82nd Airborne Division, fires a Javelin missile at enemy targets during decisive action rotation 19-08.5 at the Joint Readiness Training Center at Fort Polk, LA, on 29 July 2019.

Photo by SGT Michelle U. Blesam

Photo by SGT Mary Katzenberger

An Infantryman with the 3rd Battalion, 7th Infantry Regiment, 4th Infantry Brigade Combat Team, 3rd Infantry Division, operates a tube-launched, optically-tracked, wire-guided (TOW) missile Improved Target Acquisition System in a mobile Collective Skills Trainer on 15 May 2012 at Fort Stewart, GA.

designed to certify gunners, it does enable graduates to plan, resource, and lead training on these weapon systems within their respective brigade combat teams (BCT). Students with the Military Occupational Specialty (MOS) 11B (Infantryman) graduate with a B8 additional skill identifier (ASI), marking themselves as proficient users and employers of the TOW missile.

Functional Training Trends

HWLC cadre observe and assess training trends after each class iteration. During Fiscal Year 2019, Delta Company, 1st Battalion, 29th Infantry Regiment, graduated 247 students from HWLC with a 100-percent graduation rate. Thorough exam seminars, extensive retraining, and clearly communicated actions, conditions, and standards for each terminal learning objective (TLO) contribute to historically high graduation rates. Although the annual course failure rate is miniscule, HWLC instructors discovered a distinct trend across the seven resident and seven mobile training team (MTT) classes conducted that fiscal year: The students reported minimal home-station training on the Javelin and ITAS weapon systems.

The target audience and the majority of HWLC students are staff sergeants and sergeants first class who are already assigned to a heavy weapons unit. However, direct feedback from students during class discussion, end-of-course critique results, reports from observer-coach-trainers (OCTs) at Combat Training Centers (CTCs), and communication with organizations during MTT executions all act as anecdotal evidence suggesting a functional training gap. CPT Jason Valadez, a senior OCT with the Joint Readiness Training Center (JRTC) Operations Group - Task Force 3, stated that during his time observing trends in 2019 at Fort Polk, LA, 45 percent of rotational training units (RTUs) had at least one HWLC graduate in each heavy weapons company. He also observed that the average Infantryman had a limited amount of knowledge on Javelin and anti-armor weapon employment.

Fortunately, HWLC instructors produce unit trainers who can create and implement an ITAS and Javelin training program at their unit. HWLC also encourages units to utilize the systems available to them on their installation. All major and large-scale installations have a Training Audiovisual Support Center (TASC) on site. These training support centers provide training aids, devices, simulators, and simulations, especially for the M98A2 Javelin and M41 ITAS.

Training at Home Station: A Way Ahead

In the same way many units have successfully implemented the Integrated Weapons Training Strategy (IWTS) in accordance with Training Circular (TC) 3-20.0, home stations must also integrate a Javelin and ITAS training program into their maneuver training to increase unit lethality. I will discuss resources for training and a three-day training method that units can execute in their footprint, similar to the Javelin and ITAS training in HWLC.

Regarding trainers, HWLC conducts classes with a 1:6 instructor-to-student ratio (ISR). Units, such as heavy weapons companies, should maintain this ISR for their home-station training to maximize instructors' ability to assist and better train students during practical exercises. In terms of equipment, TASC can provide the Javelin and ITAS Basic Skills Trainer (BST) and the Field Tactical Trainer (FTT) necessary for heavy weapons training (see TC 7-21.10, *Infantry and Weapons Company Guide to Training Aids, Devices, Simulators, and Simulations*).

Leaders who have been part of an RTU at one of the Army's three CTCs may be familiar with the FTT. The FTT is a Multiple Integrated Laser Engagement System (MILES)-compatible, fully integrated, three-dimensional, force-on-force or force-on-target training device. For example, the Javelin FTT combines the Command Launch Unit (CLU) with the simulated Javelin round and uses a laser transmitter to simulate engagements during training exercises. The FTT student station provides visual, aural, and physical cues that Javelin and ITAS gunners experience when employing the weapon. TASC can also provide the BST, a computer-based, indoor training computer that is used to train and qualify gunners on these weapons

systems. In accordance with TC 3-20.0 for individual gunners, units can create a three-day heavy weapon system training plan under the IWTS model.

Day 1 begins with preliminary marksmanship instruction and evaluation (PMI&E) and simulations. The instructors provide weapon characteristics and target engagement criteria through presentation and utilization of the BST. Students execute PMI and simulation tables (Tables I and II under Gate 4 of the IWTS training cycle).

Day 2 includes drills, zero, and practice. Instructors incorporate the BST and FTT to execute Tables III, IV, and V under Gate 4. Students will demonstrate the ability to configure, program, boresight, and execute proper engagement procedures on the FTT/BST.

Day 3 concludes with qualification. Instructors test the Soldiers' ability on the FTT to determine probability of a successful engagement in a simulated engagement area. Live-fire qualification is unlikely due to unit budget restraints, but Soldiers can still qualify Table VI on the FTT/BST. Additionally, I recommend that instructors implement a comprehensive written exam that covers the components and purpose of the M98A2 and M41.

Photo by CPT Justin Wright

Soldiers from the 3rd Battalion, 187th Infantry Regiment, 3rd Brigade Combat Team, 101st Airborne Division (Air Assault), fire the TOW missile system during a live fire at Fort Campbell, KY, on 24 October 2018.

U.S. Army photo

An NCO guides an Expert Infantryman Badge (EIB) candidate through firing procedures on the FGM-148 Javelin during EIB training at Joint Base Lewis-McChord, WA, on 16 October 2019.

Conclusion

Infantry companies across various BCTs are capable of deadly and immense firepower against armored threats. If leaders want to maximize their direct fire capabilities, they must integrate Javelin and ITAS training into collective training tasks where team, squad, and platoon leaders can implement the lethality of heavy weapons in a tactical environment. Leaders should utilize recent HWLC graduates to assist and train operators in accordance with the IWTS model to improve proficiency and the overall lethality of the unit. I encourage units to send at least one weapons squad leader per company to HWLC. For more information, contact the HWLC operations section at (706) 626-3250 or Delta Company, 1-29 Infantry Regiment operations at (706) 544-6392.

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From Appomattox to the Argonne:

Appreciating a Changing World's Impact on Readiness

MAJ JESSE BURNETTE

With the latest publication of Field Manual (FM) 3-0, *Operations*, and its reorientation towards near-peer threats, two schools of thought have emerged concerning how the U.S. Army should prepare for the next war: those who concur with FM 3-0 and the threat posed by near-peers and those who still see relevance in limited wars akin to the Global War on Terrorism (GWOT). Case in point, the January 2019 edition of *Military Review* contained the two following articles that represented these opposing positions concerning the sagacity of the latest FM 3-0: "Field Manual 3-0: Doctrine Addressing Today's Fight" and "Emerging U.S. Army Doctrine: Dislocated with Nuclear-Armed Adversaries and Limited War."[1]

However, these two varying views on the United States' most pressing threat are not mutually exclusive. In both cases, threats from near-peer and non-state actors are the United States' future challenges until the political risk of terrorism diminishes. Moreover, the timing — the context of the competitive fervor — is as equally important as the threat of hostilities posed to the United States by China, Russia, or non-state actors. Ironically, the U.S. Army was in a similar boat of balancing a changing world and a changing threat a century ago. The solution that would have been best then — fully appreciating the totality of the changing times' implications on future combat along with emerging threats — is just as fitting now.

The Information Age is the catalyst driving our changing times which the United States and other developed countries have not seen since 1914, when the Industrial Age reached full froth in the 20th century. World War I (1914-1918), with all the horrendous blood-letting that it entailed, showcased the impact of advances in transportation, communication, and lethality of weaponry on the conduct of modern war. Had the U.S. Army holistically analyzed the Industrial Revolution's impact on the American Civil War (1861-1865), the Franco-Prussian War (1870-1871), and the Second Boer War (1899-1902), its readiness for the First World War would have been different. The Industrial Revolution's impact on these three wars becomes the lens through which to view the maturation of the Information Age and the context of today's threats. In other words, to attempt B.H. Liddell Hart's 1929 recipe for distilling the practical value of military history: "throw the film of the past through the material projector of the present onto the screen of the future."[2]

To follow Hart's recommendation as implied above, this article charts the development of three inventions during the Industrial Revolution which impacted three wars leading up to World War I and how the U.S. Army failed to fully account for the changing world a century ago. Similarly, this work explores contemporary technological trends, evolving threats, and recent Army doctrine to view readiness for future combat.

The Industrial Revolution

The products of the Industrial Revolution — the enhanced means to do more in better fashion with less manpower — were foundational to the future conduct of war. Professor and author Peter Stearns' *The Industrial Revolution in World History* succinctly captures the impact of the Industrial Revolution on world affairs. Great changes in thought, deed, and practice — like the Industrial Revolution — often span centuries and come in waves. These waves often interact with yet other waves of either complementing or competing changes as history proves. Stearns cites the 1760s-1960s as the range of the Industrial Revolution and notes that the core of the period "consisted of the application of new sources of power to the production process, achieved with the transmission equipment necessary to apply this power to manufacturing."[3] The result, as Stearns concludes, became a paradigm change in both the output of goods and that of the individual worker predicated on the revolutions in "technology and in the organization of production."[4]

Most salient to the professional soldier was the Industrial Revolution's influence on the conduct of war. The developments in transportation, communication, and weapons were the three most impactful — though certainly not all-encompassing — developments of the Industrial Revolution on the battlefield. More telling, these technological innovations were used in concert to achieve a single aim — primacy. For example, the late-1860s British venture in China demonstrated that steam-powered vessels could sail upstream or against the wind and deposit a force armed with repeating rifles, and which could communicate over-the-horizon via the telegraph.[5] Like most changes, none of the above three developments occurred overnight but were decades in the making, and they could have been accounted for through doctrinal innovation before the outbreak of a major conflict between industrial powers. But they were not.

Photos and artwork from the Library of Congress Prints and Photographs Division

Men with the Army of the Potomac's Telegraph Construction Corps put up wire in April 1864.

With the advent of George and Robert Stephenson's Rocket steam locomotive in the 1830s, steam power held sway in the transportation arena until fossil fuels mixed with internal combustion engines in the early 1900s to provide more reliable propulsion means.[6] Nevertheless, the ability to move soldiers and material quickly by rail was abundantly clear to Western societies by the 1840s and was indeed a viable option for most industrialized countries by the 1850s. Even Imperial Russia, considered a late adapter of industrialization by other Western nations, enjoyed a major rail line connecting Moscow to St. Petersburg by 1851.[7]

In parallel with the locomotive's ascension to transportation supremacy, the telegraph revolutionized the transfer of information. On 1 May 1844, the telegraph reached a crescendo, dating back to William Sturgeon's 1825 electromagnet, with the first news dispatch sent via electric telegraph using Morse Code.[8] The quest to expedite the flow of information has not ebbed since.

While lines of communication were shortened, the range of arms was stretched during the Industrial Revolution. Firearms, artillery, and explosives experienced a similar sea change that increased their accuracy, lethality, range, and rate of fire. The arms industry, more than any other single industry, most benefited from the advances in organization, metallurgy, science, machinery, and manufacturing combining the breadth of the Industrial Revolution into a single product. The pace of innovation in the arms industry was steady from 1760-1850; industrial powers transitioned from smooth-bore muzzle-loading weapons to rifled variants projecting exploding ordnance. By the 1860s, constant, incremental improvements gave way to exponential growth in the arms industry. Mass-produced repeating rifles used self-contained cartridges, which led to the eventual creation of the early machine guns.[9] By the 1880s, with the advent of smokeless powder, the arms industry was yet again revolutionized around the lethality afforded by this propellant.

The American Civil War (1861-1865)

The American Civil War was the world's first taste of nascent industrial war at scale. For generations following the war, the Army recounted the daring nature of the Confederate Army's extraordinary victory at Chancellorsville in May of 1863 and its stunning defeat at Gettysburg that same July. Generals Ulysses S. Grant and William Tecumseh Sherman's determined campaign and General Robert E. Lee's Fabian strategy in the final 18 months of the war are all too familiar even today. So are the war's commonly told lessons that relegated many Napoleonic practices to obsolescence. The potency of long-range rifled muskets and repeating arms, the indispensability of railroad networks and their supporting manufacturing base, commanders being directed by their chiefs through wire, and the necessity of rapidly erecting earthworks in the face of such improved means of war were harbingers predicting future war as a defender's paradise.

What is so apparently held today was only believed by a scarce few, but influential leaders' (chiefly Generals Grant and Emory Upton) efforts to reform the Army following the Civil War largely fell on a deaf Congress.

Grant's career exemplifies the difficulty in learning to recognize a changing battlefield. Famed military historian J.F.C. Fuller said that Grant's lack of appreciation of the adverse effects of modern weapons meeting antiquated tactics was "tantamount to applying a whip to a locomotive."[10] Written shortly before his death and after the Franco-Prussian War, Grant offered a prophetic warning in his memoirs: "To maintain peace in the future it is necessary to be prepared for war… growing as we are, in population, wealth and military power, we may become the envy of nations which led us in all these particulars only a few years ago; and unless we are prepared for it we may be in danger of a combined movement being some day made to crush us out."[11]

General Upton had the courage to quickly adapt to the reality presented by these new weapons, favoring dispersed troops using well-aimed fire over the bayonet. He also reformed the Army's doctrinal writings to match this important evolution in firepower. Historian Stephen Ambrose recounted that as early as the Wilderness Campaign of 1864, Upton sought the development of a new drill system that allowed the attackers to maximize firepower while minimizing exposure during the offense through the use of skirmishers, or small probing units, bent on forcing the early deployment of the enemy.[12] In concert with his doctrinal innovation, Upton advocated for the adaptation of breech-loading weapons. The underpinning of Upton's suggested reforms was the notion that a large standing army, not ad-hoc citizen soldiers, was required to secure the nation's defense.[13] Unfortunately, before Upton's reforms could fully penetrate the hardened minds of the nation's leaders, the

Army lost prestige in the wake of Reconstruction and economic woes. The Army went the entire year of 1877 without pay.[14] From 1877-1917, the United States fought two conflicts that undermined Upton's influence in changing Army doctrine to prepare for the future — the Indian Wars and the Spanish-American War — neither of which required a large standing modern Army to win.

Franco-Prussian War (1870-1871)

In five short years following the American Civil War, the world saw another example of early industrial war. The Franco-Prussian War of 1870-1871 is a footnote in the American psyche, and in the aftermath of the two World Wars on the European continent, has become so for many European countries save France. The same can be said of the American Civil War to the Europeans of the era. Fought with no standing army or general staff on either side, it was no surprise to Europeans that a decisive outcome during the American Civil War remained elusive.[15] Given the Franco-Prussian War's short duration, many scholars, like Yale's Rachel Chrastil, argue that Prussia was merely the instrument of France's defeat; France's real weakness was its dysfunctional political system and the people themselves who favored peace over continued struggle.[16] There is a measure of truth in this argument; how a country, as a whole, views potential adversaries shapes the conduct of antebellum readiness and prosecution of war itself.

Prussia out-administered, more so than outfought or innovated, the French in the Franco-Prussian War. Prussia had done the same with Austria in 1866 and Denmark in 1864, on the path to German unification following the failed attempt in 1848. That is not to say that the Prussian conduct during their wars of unification was error free. As historian Michael Howard concluded in *The Franco-Prussian War*, the Prussian army was not gifted with unique insights into the techniques of new warfare. In all Prussian reform areas — railway organization, mobilization of reserves, training and coordination of the three main arms (infantry, artillery, and cavalry) — Prussia committed her fair share of mistakes in all three unification wars attempting to embrace industrial advances.[17] The difference, according to Howard, is that the adversaries committed far worse missteps. More importantly, the Prussians — through their newly established general staff under the vaunted chief, Helmuth Von Moltke — possessed a body of hand-selected officers to "apply to the conduct of war a continuous intelligent study, analyzing the past, appreciating the future, and providing commanders in the field with an unceasing supply of information and advice."[18]

France failed to see the Prussians as a threat on the scale of adversaries like the Austrians, Italians, or the British. The French credited German success in the two previous wars to the Prussian breech-loading needle gun, an egregious error on the part of the French who felt once again at parity with the Prussians with the adoption of their own breech-loading variant, the 1866 Chassepot which outranged the Prussian needle-guns.[19] Few French leaders saw past this myth to see that the special ingredients to Prussian victory lay in the ability to train a short-service conscript army, mobilize said army rapidly, and transport it in an orderly fashion with all needed supplies and enablers to critical points.[20] Emperor Napoleon III, the nephew of the infamous Bonaparte, sought to place France and the Second Empire on firmer war-footing, but his efforts were thwarted by a combative French general staff which resisted reforms and significant legislative budget cuts from 1869-1870. Nevertheless, by July 1870, the French Chief of the General Staff LeBeouf reported to the French government that the French army was ready for war. France had adequate stocks of ammunition, clothes, food, and Chassepots, and by the standards of the day, France was prepared for a war with an army formed and trained in like fashion; however, France failed to realize it was on the eve of an entirely new age of warfare and outnumbered 417,366 to Prussia's 1.2 million trained soldiers.[21]

This print illustrates a battle in January 1871 between Prussian infantry (advancing from the left) and French forces (retreating to the right) in the Lisaine River valley with the Château de Montbéliard in the distance.

On 19 July 1870, France impetuously declared war on Prussia over claims to the Spanish throne — a grievance the Prussian Chancellor Otto Von Bismarck nurtured from spark to flame. In a series of unrelenting convergent blows, the Prussians surrounded Paris by 19 September 1870 and forced a complete surrender by 26 February 1871 — an eight-month war that cost France the provinces of Alsace and Lorraine along with her national pride.[22] Prussian victory was secured not through technology — the French Chassepot canceled the German superiority in artillery — but through the superior organization, education, and trained manpower. The small social-conscious militaries — more concerned with prestige than potency — the world over should have noticed their irrelevance after France's defeat. Indeed most did, leading to the creation of nations-in-arms, whose populations

were both trained and capable of being mobilized to do their master's bidding in the obtainment of quick but decisive ends.[23] Lost in the brevity of the war, and the decisiveness of early Prussian victories, was the bitter struggle fought by Leon Gambetta that bedeviled the Prussians after their victory at Sedan.[24] Gambetta's resistance foretold, given the right circumstances, that the defender still held the advantage. The United States, however, missed all of the lessons of the war.

The Second Boer War (1899-1902)

The Second Boer War (1899-1902) is yet another example of a war uninformed by much forethought about technology on the battlefield. The tightening grip of British imperialism over the South African Dutch settlers (referred to as Boers), whose ancestors had been in the area since 1652, can be cited as the bannered cause for war.[25] The discovery of gold in greater South Africa served as the impetus for the British to increase their colonial efforts — annexing Transvaal in 1877 — much to the dismay of the resident Boers. The first Boer War of 1880-1881 saw the Boers gain their independence under Transvaal's first president, Paul Kruger; however, the British had successfully isolated the Boers from the Indian Ocean by surrounding them with British colonies.[26] On 11 October 1899, the Boers responded by invading British Natal which the British met with alacrity, thinking the war would be over by Christmas.[27]

Wars seldom go as planned, and the Second Boer War was no exception. Professor Fransjohan Pretorius of the University of Pretoria in South Africa described the ebb-and-flow nature of the war: At first, set-piece battles prevailed throughout the campaign. The Boers besieged Ladysmith in Natal along with Kimberley and Mafeking in the Cape Colony against staunch British relief efforts over five months. The Boers used their advanced knowledge of the terrain to ambush and defeat British forces at Stormberg, Magersfontein, and Colenso by December 1899. However, Boer overt resistance crumbled when the British relieved Ladysmith, Kimberley, and other beleaguered garrisons. The British under General Lord Frederick Roberts had the Boers on the run. Many Boers surrendered or were otherwise enticed to bandwagon with the British against Boer resistance, which selected the asymmetrical approach of attacking British supply lines. The guerrilla phase of the war pitted the British and the South African collaborators against the Boer "bitter-enders." When General Herbert Kitchener succeeded Roberts as the British commander, he brought increasingly harsher methods. First, he instituted a deprivation policy to deny food and shelter to the bitter-enders, which entailed burning farms and crops. Second, and most controversial, Kitchener erected concentration camps to separate the guerrillas from their popular support. Both tactics eventually led to the war's conclusion by 1902.[28]

Britain's lessons from the Boer War were mixed. On the one hand, the British overhauled their ability to wage a prolonged war with the creation of a chief of the general imperial staff along with enhanced organizational measures to both project and sustain a large force far from the British Isles in concert with increasing the sizes and numbers of the standard field guns.[29] On the other hand, the central lesson from British

Lord Roberts' infantry crosses the Zand River in South Africa. Note the balloon in the background that was watching ahead for the Boers.

setbacks during the war — that advances in modern weaponry favored the defender over the attacker — was discounted. Instead and counter-intuitively, the British doubled down on the decisiveness of the frontal attack and officially codified the tactic as the form of maneuver of choice in the 1912 Field Service Regulation.[30] Nevertheless, it was high velocity and capacity, smokeless powdered rifles and machine guns used in concert with trenchworks that worked to the advantage of the defender, a fact that was replaced with the British myth that the Boers were simply better shots and more cunning than their British adversaries.[31] The result was a more capable and empowered shepherd to lead the masses of ignorant sheep to the slaughter.

The U.S. Army Experience in the First World War

In the immediate years prior to entering World War I, the U.S. Army of 1917 is analogous to today's Army in that it was a small expeditionary force, tailored for constabulary duties with its most recent experience being low-intensity combat in Latin America, the Philippines, and Mexico. To say that the Army failed to learn, adapt, and innovate from 1865 to 1917 is wholly wrong — but the Army was unable to grasp the totality of the changing world. The Army myopically centered its reforms around the rifleman — an error that resulted in 116,516 men killed and more than 258,000 wounded in six months of combat (28 May-11 November 1918).[32] In October 1917, General John "Black Jack" Pershing, commander of the American Expeditionary Forces (AEF), made clear he aimed to break the deadlock of the trenches with open warfare, stating, "The rifle and bayonet remain the supreme weapons of the infantry soldier… the ultimate success of the Army depends upon their proper use in open warfare."[33] The reality was much less sanguine. Upon arrival to a training camp in France in late 1917, a Soldier from the U.S. 105th Infantry recalled a

British instructor, noting with tears in his eyes, "My God! This is Kitchener's army all over again." Which like Kitchener's force in 1916, the AEF was vibrant but wholly unprepared for the crucible of industrial warfare that awaited it.[34]

The AEF's combat record as a whole is mixed; some divisions adapted to the brutal realities of World War I combat better than others. Mark Grotelueschen's *The AEF Way of War* examined the conduct of four different divisions — the 1st, 2nd, 26th, and 77th — charting how each balanced existing doctrine with the war's circumstances. Grotelueschen summarized four organizational impediments that hindered the sharing and transforming of unit lessons into greater doctrinal change. First, Pershing's headquarters (GHQ) never ceased emphasizing the prewar rifleman-centric doctrine. Second, the open-warfare doctrine was premised on nonexistent technologies, training, and capability. Thirdly, GHQ failed to reconcile the proper nature of firepower vis-à-vis artillery and rifleman, favoring the latter until war's end. Fourthly, GHQ's version of open warfare called for aggressive instead of nuanced plans.[35]

Post First World War Industrial Revolution Reconciliations

Grotelueschen's four concerns were noticed in the United States and elsewhere. German General Hans Von Seeckt established nearly 57 different committees to study the German army's conduct during the First World War. Seeckt clearly defined the purpose of these committees by stating, "It is absolutely necessary to put the experience of the war in a broad light and collect this experience while the impressions won on the battlefield are still fresh, and a major portion of the experienced officers are still in leading positions."[36] The new doctrine of Blitzkrieg — "emphasizing surprise, judgment, speed, and exploitation of an enemy's momentary weaknesses" — was born.[37]

The U.S. Army's experience was similar. In 1919, General Pershing established the Lewis Board, named after its chairman, Major General E.M. Lewis, to consider "the lessons to be gained from the experiences of the recent war and to determine how they affect the tactics and organization of the Infantry."[38] The Lewis Board's findings concluded that "decisive results can only be accomplished by the offensive, wherein the coordination between artillery, mortars, tanks, and aircraft attached to the infantry in coordinated teams to overcome strong defenses."[39] In short, combined arms maneuver became the sinew for modern means and to achieve legacy ends.

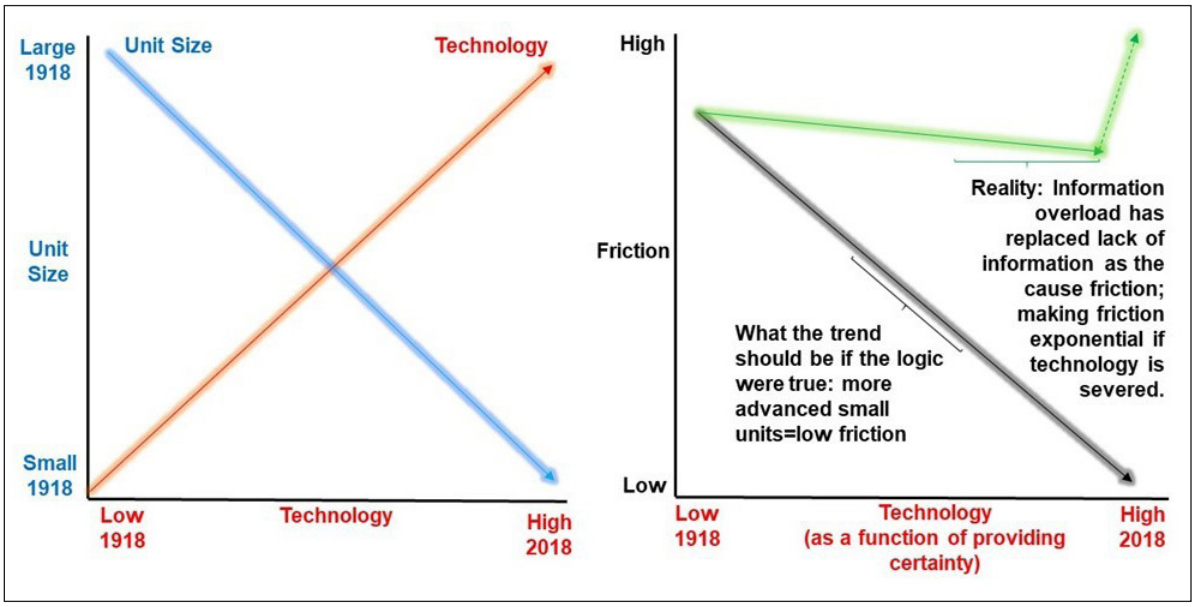
The Information Age and the Next War

Today's publications — military and civilian alike — are obsessed with articulating and predicting the implications of the Information Age on the future. Common themes stress a multi-domain environment stitched together with a nexus of low cost but advanced technology that implies the need to safeguard systems of old, like the Global Positioning System (GPS), for fear of instantaneous degradation at the opening of the next war.[40] Artificial intelligence (AI) and information operations intending to deceive adversaries are two other common themes. The underlying fear, in a word, is friction. In the past century, friction was born of uncertainty. Technology was invented to lessen that uncertainty, and to a large degree if appropriately used, it reduced friction born of uncertainty.

Contemporary trends chart a path for friction replacement, where information overload inadvertently induces friction. Moreover, as we become increasingly reliant on technology, we forget the fundamentals. In the past era, technological advances were mainstays; there was no uninventing the train, machine gun, or radio. Sure, these modern implements could be destroyed, but they could also be replaced. In present parlance, the same can be said of the internet or any other connectivity-driven device; however, connectivity itself — the intangible — once lost, would instantaneously put us back to the 1900s. Then what? How does one survive? The chart on the next page shows two themes: On the left, as technology and capabilities increased over time, the size of troop formations decreased; and on the right, that as technology increases, friction should but does not always decrease.

U.S. Army Center of Military History

A Vickers machine-gun team from Company B, 115th Machine Gun Battalion, 30th Division, prepares to engage in Bibeauville, France, on 19 October 1918.



How Technology Affects Unit Size and Friction

To confound this further, the persistent threat of terrorism and the desire to maintain global influence complicates our prioritization efforts to meet the challenges of the Information Age but compels us to act in places like Syria, Iraq, Africa, Afghanistan, etc. According to the Council of Foreign Relations, as of 10 April 2019, there were 18 problematic areas worldwide characterized as presenting significant or critical impacts for United States' interests.[41]

The solution is twofold: The Army must remain at the cutting edge of technology — that is having the latest systems and knowing how to operate them — while at the same time, firmly investing in the time-proven practices of combat in modernity to best our would-be near-peer adversaries. Secondly, the Army cannot afford to make the mistake of the post-Vietnam era and squander lessons learned from the most recent war. Now more than ever, the Army has to fight exceedingly well in high- and low-intensity combat.

The Great Debate: Readiness for What?

It could be argued that trying to optimize for polar opposite challenges is wrongheaded. Some argue for selecting the most threatening challenge and direct the abundance of one's resources against combating it. The October 2017 FM 3-0 ostensibly does just that, stating, "Today's operating environment presents threats to the Army and joint force that are significantly more dangerous in terms of capability and magnitude than those we faced in Afghanistan and Iraq. Major regional powers like Russia, China, Iran, and North Korea are actively seeking to gain a strategic positional advantage."[42] The manual states further in the introduction: "In 2001 and 2003 the U.S. conducted two offensive joint campaigns that achieved rapid initial success but no enduring political outcome, resulting in protracted counterinsurgency campaigns in Afghanistan and Iraq. The focus of Army training and equipping shifted from defeating a peer threat to defeating two insurgencies and the global terrorist threat."[43]

Getting back to those two January-February 2019 *Military Review* articles, one lauds FM 3-0's virtues while the other offers pause for its lack of attention towards nuclear weapons and asymmetrical threats. "Field Manual 3-0: Doctrine Addressing Today's Fight," as one of the article's titles implies, suggests both the timeliness and appropriateness of the new manual, concluding, "We, as Army professionals, must learn, speak, and exercise doctrine grounded in today's fight. Doing this can only better serve the Army to answer the changing complexities of warfare. This will no doubt provide the direction for tomorrow's concepts and the Army beyond 2040. The rapid publication of FM 3-0 illustrates the present need for doctrine to serve as an engine of change for today's Army to successfully operate."[44]

The second article, "Emerging U.S. Army Doctrine Dislocated with Nuclear-Armed Adversaries and Limited War," argues that FM 3-0, as currently written, is myopic and ill-suited to addressing all potential future challenges: "If the U.S. Army cannot develop concepts and operational methods for the limited warfare environment of the future, then the service risks losing its utility to resolve many political conflicts. Without realistic potential solutions, U.S. political leaders should avoid employing the Army unless the interest in question is so vital that a nuclear exchange is an acceptable risk."[45]

The anomaly is that the authors of these three works (FM 3-0 and the two articles in *Military Review*) are not wrong in their respective conclusions. One cannot overlook the near-peer threat, especially in the contemporary environment; however, the preponderance of those 18 areas of concern from the Council of Foreign Relations are more akin to the GWOT than Desert Storm, which also cannot be overlooked. The more prudent approach is to adhere to the lessons of the last epoch transition, casting the most far-reaching net of understanding derived from recent combat experience and changing realities born of circumstance and technology, as the lodestar to guide our readiness for future combat. This is far

too daunting of a task to place on a single publication — even one as well-written and timely as FM 3-0.

Conclusion

The U.S. Army remains between the rock-and-the-hard place of presently engaging with GWOT-type threats while preparing to confront Russia and China, endeavoring not to forsake readiness to meet one challenge in efforts to prepare for the other.

Yet the gauntlet for both has been laid down during an epoch transition. Field Marshall Ferdinand Foch, commander of the allied forces at the end of the First World War, poetically concluded that in combat "to make a little possible, one must know much."[46] The knowledge for today's Army centers on understanding the ramifications of the Information Age on the implements of war so that we better understand the grammar of the next engagement. Like the last epoch transition, developments born of the Industrial Era remain; however, the connective tissue that binds how we use our present machinery — connectivity — presents a weakness that one must assume will be attacked. Once connectivity is lost, all that remains is what one knows to accomplish the task. The sensible solution resides in appreciating the fact that a transition period is afoot which requires a balanced view of the past century of combat with present trends and realities. Industrialized ways and means, not fully appreciated by most countries, directed the conduct of World War I during the last transition. As great powers compete, no one can predict with certainty the next field of competition. However, the advances of the Information Age will certainly increase the speed of the game. Technology alone is no guarantee for victory nor is outmoded practices and machines hurled at an advanced foe. Future victory is best assured by those that fully safeguard their technological advances, while rapidly embracing the most promising new innovations, yet remain firmly grounded in the battle-proven methods of the last century to win the big and small wars alike.

Notes

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[46] Faulkner, *The School of Hard Knocks*, 80.

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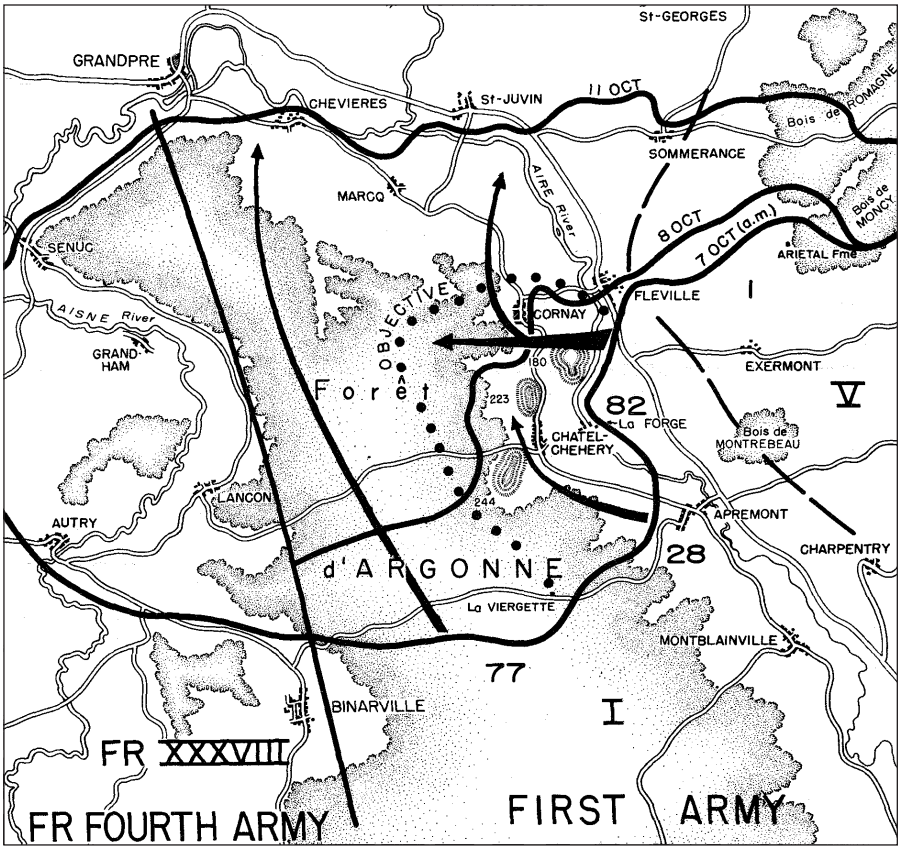
Forgotten Soldiers:

The Other 16 at Chatel-Chéhéry

JAMES GREGORY

During the Meuse-Argonne Offensive on the early morning of Tuesday, 8 October 1918, near the village of Chatel-Chéhéry, France, a 17-man patrol from Company G, 2nd Battalion, 328th U.S. Infantry Regiment, 164th Brigade, 82nd Division, American Expeditionary Forces (AEF), moved through a foggy and devastated battlefield with the mission to out-flank the German lines. While advancing towards the enemy, these Americans surprised a large contingent of German soldiers and captured many of them after a short but bloody engagement that came at a cost of six Americans killed in action and four wounded in action.



United States Army in the World War, 1917-1919, Military Operations of the American Expeditionary Forces

Plan of Attack of U.S. I Corps, Meuse-Argonne Operations, 7 October 1918

Even though the patrol suffered greatly in the firefight, only one member received national acclaim and the lion's share of recognition for his actions that day — PFC (acting CPL) Alvin C. York.[1] He was credited with single-handedly capturing 132 German prisoners and killing more than 25. For his actions that morning, York was initially awarded the Army Distinguished Service Cross (later upgraded to the Medal of Honor), the French Military Medal, and French Croix de Guerre, WWI w/Palm, the Italian War Merit Cross, and other foreign decorations for valor. However, Alvin York was not alone that day. The 16 other men who were there with him during the engagement played a very important role in the fight as well. However, their stories have largely been neglected or forgotten by both authors and military historians alike. Some of them, such as CPT (acting SGT) Bernard Early and PVT (acting CPL) Otis B. Merrithew, accomplished or assisted with the deeds that York was credited with. Eventually, some received acknowledgment of their roles that morning, but others did not.

There were many acts of heroism performed by countless AEF servicemen while in the French Theater of Operations in 1918. Unfortunately, many, if not most, of these have been lost to history. This is exactly what happened to the other 16 Infantrymen there at Chatel-Chéhéry, France, with York. The battle's succession of events and even its very location are constantly argued by historians. It is impossible to tell a complete and accurate tale of this engagement due to the discrepancies in affidavits, both American and German. In 1929, CPT Henry Swindler discovered that "the statements of various people concerned are quite conflicting" when trying to commemorate the battle.[2] Therefore, this article uses the rule of consensus. In reading the various accounts of the American survivors through interviews and affidavits, if at least three men agreed on an event, it is included. The focus is on the accounts of the other men besides York to gain a new perspective into the battle. For the Germans, I had access to the report translated by the U.S. Army War College in 1936. This document conflicts with other German statements, showing the deeper complexities of recreating the battle. Nevertheless, this decision created a story that I feel more accurately retells the battle than has previously been told.

The other 16 Soldiers who played a part in the fight were:

CPL (acting SGT) Bernard Early
CPL Murray L. Savage
PVT (acting CPL) Otis B. Merrithew (who served under the alias **William Cutting**)[3]
PVT Percy Peck Beardsley
PVT Patrick J. Donohue
PVT Maryan Edward Dymowski
PVT Thomas Gibb Johnson
PVT Joseph Stephen Kornacki (frequently spelled as Konotski)
PVT Mario Muzzi
PVT Michael A. Sacina
PVT Feodor Sok
PVT Carl Frederick Swanson
PVT Nedwell 'Fred' Wareing
PVT Ralph Weiler
PVT George W. Wills
PVT William E. Wine

PVT Otis B. Merrithew (aka "William Cutting")

Photos courtesy of Merrithew Family and Dave Kornacki

PVT Joseph S. Konotski taken in 1929

Early on the morning of 8 October, men of the 328th U.S. Infantry Regiment were ordered to push through the Argonne Forest near the village of Chatel-Chéhéry. From their jump-off positions, they began their attack at approximately 0600 while advancing into a thick ground fog. They advanced with the 164th Brigade, consisting of the 327th U.S. Infantry Regiment on the right flank, the 328th U.S. Infantry Regiment in the center, and the 110th U.S. Infantry Regiment (from the 55th Brigade, 28th Division, AEF) on the left flank, all advancing towards their objective. Unfortunately for the Americans, the preceding artillery barrage and the expected advance of the 110th U.S. Infantry Regiment never materialized.[4] Nonetheless, the Americans continued to advance with little resistance for about 700 meters when suppressing enemy machine-gun fire from the front and both flanks enveloped the 328th U.S. Infantry Regiment.

While leading his platoon from the front, 2LT Kirby Stewart was hit in both legs from a burst of enemy machine-gun fire. With both legs completely shattered, the determined lieutenant crawled forward and encouraged his men to continue the attack until another bullet struck him in the head, killing him instantly. The command of the platoon then fell to the platoon sergeant, SGT Harry Parsons.[5] After surveying the situation, Parsons ordered Early, an acting sergeant, to lead three squads around the left rear flank of the enemy to silence those positions.[6]

At around 0800, the 17-man patrol advanced through the valley and woods to get in behind the German lines. Early was in charge of the patrol. Savage oversaw the squad with Dymowski and Weiler. Merrithew led his squad with Wareing, Sok, Sacina, Donohue, Wills, and Wine. York was in command of a Chauchat automatic rifle squad consisting of Swanson, Muzzi, Beardsley, Kornacki, and Johnson.[7]

After advancing about 150 yards, they came across a small stream where they halted and listened for movement in the underbrush. Sensing the presence of someone, one of the men shouted out requesting identification. After a few tense moments, a German soldier darted from his hiding place. Shortly after, another rushed out. The Americans fired their weapons but missed as the lead German tripped and both finally made it to the cover of the woods. After waiting a few minutes, Early split his force into smaller groups and continued the advance forward.

They advanced slowly until Early's group stumbled upon a German encampment. These enemy soldiers belonged to the Prussian 210th Reserve Infantry Regiment and had laid down their weapons to eat breakfast, putting them in no hurry to do anything or be on alert.[8] Early's squads converged around the unsuspecting Germans and opened fire. Approximately 15 Germans immediately fell. Seeing that the Germans were unarmed, Early ordered the men to cease fire. This surprise firefight caused the Germans to surrender to the men, believing they were a part of a larger American force. The Germans were tired after hiking all night to their positions, and the morale of the troops was very low at this point in the war. *The Journal of the 2nd Landwehr Division*, the German unit present at the battle, states that "our men gradually have lost every vestige of morale."[9] Among the first men captured were Lieutenants Paul Vollmer, who is often cited as a German major by the Americans, Karl Glass, and Fritz Endriss, who had been inspecting their company's defensive positions. They were closest to York and sent to join the rest of the prisoners.

Early then ordered York and his squad to keep the Germans under cover while the others disarmed them. The Americans lined up the Germans into two rows. The numbers vary, but the consensus of the men puts this number at 80-90 Germans who surrendered to Early's patrol. Early then searched the front rank with Merrithew searching the second. One of the officers surrendered his pistol to Merrithew as they were lining them up. Early then walked over to Kornacki

to tell him to keep close to the Germans on the march back to the American lines.[10]

Unfortunately, before he could finish his sentence, the 4th and 6th Companies of the 125th Württemberg Landwehr Infantry Regiment that were placed on the hill above the men noticed the commotion below.[11] On seeing this, they signaled the captured Germans to lay down. The prisoners immediately dropped, and the Württembergers opened fire on the unknowing squad with a single machine gun.[12]

Early fell with several wounds. Although severely wounded, he remained conscious and passed command to Merrithew.[13] Six other Americans were killed in the same machine-gun burst: Savage, Dymowski, Swanson, Wareing, Weiler, and Wine. Muzzi was wounded through his shoulder and crawled to safety. Merrithew returned fire with the other men around him but was soon wounded in the arm. Determined, he continued to fire back at the enemy using his automatic pistol. He never lost consciousness nor relinquished command of the patrol during the engagement. Beardsley took cover behind an oak tree and returned fire with his Chauchat automatic rifle, accounting for several Germans. York took cover in a clump of bushes beside a tree. Kornacki took cover as best he could and began firing with his rifle. Wills moved close to the German prisoners and used his bayonet to stop them from moving. Sok and Sacina also watched the German prisoners knowing that being close to them was the only way to avoid direct fire from the hill.[14] The Americans fought the Germans for approximately 15-20 minutes.

During this intense firefight, York, having been the farthest from the prisoners and closest to the Germans on the hill, moved into a better firing position. From his vantage point, he managed to kill several Germans while they focused their fire on the other men. Beardsley, who was near York, continued firing his Chauchat automatic rifle until he ran out of ammunition as both of his ammunition bearers had been killed beside him.[15] Beardsley then pulled out his service pistol and continued firing at the attacking Germans. Together, Beardsley and York killed or wounded several more Germans on top of the hill.

Since the other German prisoners were exposed to the fire in the open, while the Americans used cover behind trees and in holes, the German machine-gun fire wounded and killed some of the prisoners. Seeing this, Vollmer called for those still firing to cease fire and surrender. The Germans on the hill obeyed and surrendered to the Americans. Just after the initial firefight finished, German Lieutenant Max Thoma and a platoon of his men attached to the 120th Wuerttemberg Landwehr Infantry Regiment, who had been hurrying towards the shooting, burst through the woods with bayonets fixed. As soon as they erupted from the wood line, they were quickly stopped by the Americans, and Thoma had no choice but to also surrender.[16]

Merrithew was still standing and in charge of the patrol, despite having been wounded. He had three bullet holes in his helmet, his gas mask was shot off, and a can of corned beef in his back pocket was smashed by bullets.[17] He had suffered

U.S. Army Signal Corps photo

This Army Signal Corps photo taken in February 1919 shows the graves of four of the Soldiers from the 82nd Division who were killed during operations near the village of Chatel-Chéhéry, France, on 8 October 1918.

a few wounds to the left arm but only one severe enough to require an operation.[18] Merrithew ordered his men to line up the prisoners into column of twos and march back to the American lines. At this time, Beardsley wrapped his overcoat around the wounded Early and, along with Donohue, began carrying him back towards the rear.[19] However, they quickly handed Early over to two Germans so they could better guard their prisoners.

To get back to safety, the men and their prisoners had to march through the German front line. They made Vollmer march at the front of the line with York threatening his life if he did not get the other defenders to surrender. As he walked, York held a pistol at the small of Vollmer's back. On the way towards American lines, the men encountered more German soldiers who were made to surrender by command of Vollmer. Their large mass of prisoners made them an easy target for enemy observers. An artillery barrage forced the men and their columns to rush towards the American lines. During this movement, a piece of shrapnel caught Donohue in the left shoulder.[20]

When the patrol exited the woods and arrived back to American lines, they ran into other members of Company G, including 1LT Joseph A. Woods, battalion adjutant of the 2nd Battalion, 328th U.S. Infantry Regiment, USAR, and Parsons. At this point, York walked at the head of the column while the other men walked along each side of the prisoners. Merrithew walked along with the column "yelling like a mad man" in charge with bullet holes in his helmet and blood running down his wounded left arm. The more seriously wounded Early was still carried by German prisoners.[21] Early was taken from the Germans and placed on a stretcher. He had a hole in his back so large his kidney was visible.[22]

Upon seeing the wounded American Soldiers arrive, Parsons took Merrithew back to the temporary 2nd Battalion aid station to have his wounds dressed. When Merrithew returned, he found that Woods had placed York in command of the prisoners and ordered him to take them back to the regimental headquarters. However, before York headed back towards the regimental rear area, Woods gave him five more men from another platoon of Company G to act as additional guards because of the large number of prisoners. Merrithew and Early accompanied the surviving members of the patrol until they reached a road. At this point, Merrithew, Early, Donohue, and Muzzi were loaded into field ambulances and taken back to the rear for further medical attention.[23]

York then took the surviving members of the patrol along with the German prisoners, 132 all told, back to the 82nd Divisional prisoner pen. Upon arriving there with the prisoners and being the only NCO, albeit an acting one, left in the group, York was credited with the capture. With the large group of prisoners and the rumors that followed afterwards, the legend of York spread throughout the entire AEF until George Pattullo, a reporter from the *Saturday Evening Post* wrote the article "The Second Elder Gives Battle" that brought widespread attention to York's actions. The other 16 Soldiers who were there with York were not given their due recognition in Pattullo's article and were all but forgotten in later versions of the story.

For the "Other 16" who were there during the engagement at Chatel-Chéhéry on 8 October 1918, four of these Soldiers — Beardsley, Kornacki, Wills, and Donohue — were officially cited for gallantry in action in General Orders No. 1, Headquarters, 164th Brigade, 82nd Division, AEF, American Expeditionary Forces, dated 4 May 1919 and were each awarded a Silver Citation Star Certificate which entitled them to place a small silver star on their WWI Victory Medal (which was later converted to the Silver Star Medal by War Department Directive, dated 19 July 1932). Sacina was also commended for gallantry in action at Chatel-Chéhéry in General Orders No. 11, Headquarters, 328th U.S. Infantry Regiment, 164th Brigade, 82nd Division, AEF for his actions on the morning of 8 October 1918.[24] Despite these recognitions in 1919, these men were still left out of the official story.

On the afternoon of Saturday, 5 October 1929, while at the U.S. Army War College in Washington, D.C., former CPL Bernard Early was (after more than 10 years and with help from the American Legion) presented the Army Distinguished Service Cross for his leadership and handling of the 17-man patrol during their attack and capture of more than 80 German

U.S. Army Signal Corps photo

Secretary of War James W. Good congratulates CPL Bernard J. Early after he received the Army Distinguished Service Cross on 5 October 1929.

prisoners of war.[25] In February of 1945, Donohue applied for and received his Silver Star. Forty-seven years after the events that occurred of 8 October 1918, Merrithew, who fought in the engagement under the alias of William Cutting, was awarded the Silver Star by MG Charles S. O'Malley in a simple ceremony held at the Post Headquarters Building, Fort Devens, MA, on the afternoon of 26 September 1965.[26]

Even with these recognitions and honors, the "Other 16" have fallen to the wayside in the legend of Alvin C. York. Those brave American Soldiers also played important parts that fall morning in the Argonne, but their roles were forgotten in iterations of the story. While it is not possible to know the exact details of the engagement, we must also discuss these men in the context of the 8 October 1918 battle to ensure a correct historical analysis.

Notes

[1] I have chosen to use their designated ranks at the time of the engagement.

[2] David D. Lee, *Sergeant York: An American Hero* (Lexington, KY: University Press of Kentucky, 1985), 39.

[3] He chose to serve under an alias so that his mother would not discover that he registered for the draft.

[4] Scott Chandler, *History of the Three Hundred and Twenty-Eighth Regiment of Infantry, Eighty-Second Division* (Atlanta: Foote and Davies, 1920), 43.

[5] Douglas Mastriano, *Alvin York: A New Biography of the Hero of the Argonne* (Lexington, KY: University Press of Kentucky, 2014), 99.

[6] History of the Three Hundred and Twenty-Eighth Infantry, 45.

[7] Michael Kelly, *Hero on the Western Front: Discovering Alvin York's WWI Battlefield*, (Frontline Books, an Imprint of Pen & Sword Books Ltd., 2018), 24.

[8] "Testimony of German Officers and Men about Sergeant York," translated by the U.S. Army War College, Carlisle, PA, June 1936, 14.

[9] Ibid, 9.

[10] "New Haven Sergeant May Share Honors of 'Greatest War Hero' with Alvin York," *Hartford Courant*, 26 September 1920.

[11] Mastriano, *Alvin York*, 105.

[12] "Testimony of German Officers and Men about Sergeant York," 19.

[13] "New Haven Sergeant May Share Honors,"*Hartford Courant*.

[14] Kelly, 57-60.

[15] "Percy Beardsley's Claim to Honors," *Hartford Courant*, 29 May 1927.

[16] "Testimony of German Officers and Men about Sergeant York," 21.

[17] "Sgt. York Heroism Shared," *Independent*, 20 September 1965.

[18] Capt. Frank E. Pike, "Clinical Record Brief," Evacuation Hospital 28, 16 October 1918.

[19] Kelly, *Hero on the Western Front*, 60.

[20] "War Hero Eager to See Himself Portrayed in Movie of Exploit," *The Evening Tribune*, 29 November 1941.

[21] "Guilford Boy Reveals Real Inside Story of Sergt. York's Heroism," *Hartford Courant*, 23 February 1920.

[22] "Georgia Buddy Says Sergeant Early Hero of Argonne Forest Engagement," *Hartford Courant*, 22 August 1935.

[23] "Merrithew Says He was Leader," *The Boston Globe*, 3 October 1929; "War Hero Eager to See Himself Portrayed in Movie of Exploit," *The Evening Tribune*.

[24] "Then and Now," *The American Legion Monthly*, Vol 2, No. 5, May 1927, 57.

[25] "Sergt. Early is Awarded Hero's Medal," *Hartford Courant*, 6 October 1929.

[26] "Sgt. York Heroism Shared," *Independent*.

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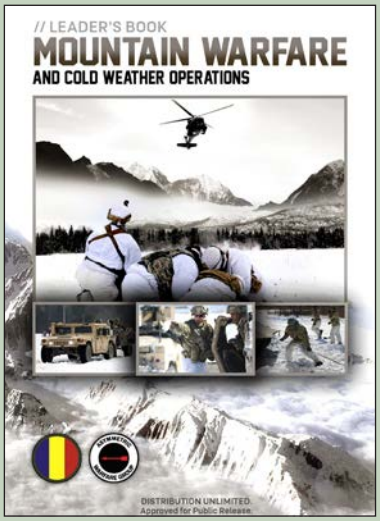


Mountain Warfare and Cold Weather Operations Leader's Book

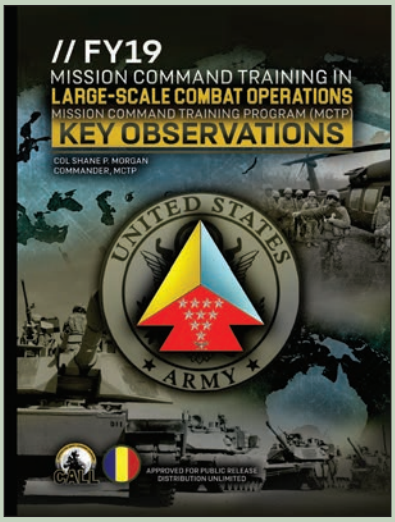
This handbook is for leader training for operating in a mountainous environment. This is the first edition of this handbook, based on first-hand observations and a review of current and past Army doctrine and tactics, techniques, and procedures (TTP) by operational advisors from or attached to the Asymmetric Warfare Group (AWG).

https://usacac.army.mil/sites/default/files/publications/AWGColdWeatherHB_041720.pdf

Mission Command Training in Large-Scale Combat Operations

The information in this bulletin includes recent observations from warfighter exercises in a large-scale combat operations environment. It provides an overview of the top seven collective trends organized by echelon of command and warfighting function.

https://usacac.army.mil/sites/default/files/publications/20-15.pdf

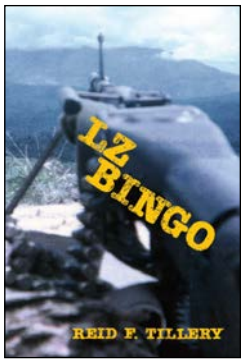


Book Reviews

LZ Bingo

By Reid F. Tillery
Melrose, FL: Collingwood Publications LLC, 2019, 293 pages

Reviewed by George Crone



LZ Bingo sees the world through the eyes of Army enlistee Bill Boe and follows his journey from arrival at basic training through the completion of his one-year tour in Vietnam. Assigned to the 4th Infantry Division's Delta Company, 1st Battalion, 14th Infantry Regiment, the day-to-day details follow Boe and his fellow 2nd Platoon Soldiers from their arrival in Vietnam in the summer of 1967 through his actual DEROS (date of estimated return from overseas) in the summer of 1968. This window of time included the February 1968 Tet Offensive by the North Vietnamese Army (NVA). The Army formed Delta Company at Duc Pho, and the author traces Boe's progression in rank from new recruit through sergeant and his ascension within the platoon from an M60 machine-gun ammo bearer up to platoon sergeant. The author successfully describes the multiple separate and distinct operations conducted by the platoon and does so by also providing an adequate historical context for both those familiar and not so familiar with the Army and the Vietnam War. This is a must read for anyone who wants to better understand the highs and lows of a one-year tour in Vietnam. Also, it is for those curious about or who only have hazy recollections of what American Soldiers did in Vietnam.

Upon arrival in Vietnam, the platoon formed at Duc Pho to conduct initial in-country training and began completing tasks such as zeroing weapons and conducting platoon patrols. Departure from Duc Pho to Chu Lai brought additional training and introduction to patrolling in hostile territory where the primary threat consisted of "Viet Cong" (VC) small ambushes and sniper and harassing fires. VC essentially blended with other Vietnamese citizens and were able to keep their identities private by threatening violence and by hurting and killing those who informed against them. Over time the nature of the platoon's threat changed from VC to NVA soldiers who were part of a more top-down structured organization and distinguishable by the uniforms they wore. Both the VC and the NVA presented dangerous enemies to defeat; however, actions taken against the NVA proved more fatal to Delta Company. Delta's most intense fighting in 1967-68 occurred on landing zones (LZs) Hardcore, Mile High, Brillo Pad, and Bingo where many of the 34 Soldiers Delta lost from 1967 to 1970 were killed in action.

Throughout the year, the platoon's missions varied from several days long search-and-destroy missions with constant exposure to potential ambushes and harassing fire, to protecting and patrolling around several LZs with constant exposure to enemy attack and mortar fire, in addition to potential ambushes and harassing fire. In contrast, the platoon also conducted relatively much safer missions such as bridge protection and overwatch to guard the inlet surrounding the island supply and cargo base at Sa Huynh (Sah Winn). Sometimes Soldiers needed to dig their fighting positions, while at other times the Soldiers occupied existing fighting positions. Consider this description of LZ Mile High: "LZ Mile High was a nasty, desolate, grim hill. The bunkers were low and smelled of mildew, with no ventilation. They were only about 100 feet from the perimeter's wire, right along the edge of where the mountain dropped off directly into the thick jungle below… No one felt secure. They knew they were in the guts of NVA territory."

My combat experience includes no small unit fighting such as that described in *LZ Bingo*; nevertheless, many elements described in the book ring true to what I know as a retiree who spent 23 years in the Army. The most important thing to a Soldier in distress is the knowledge that he can trust his buddies — and they can trust him. Boe experienced both, and the details provided describing his closest buddies bring the reader to a better understanding of that trust. Letters from home served as morale boosters whether the recipient knew the people or not. The sisters of Alpha Omicron Pi Sorority at Florida State University (FSU) adopted Boe and others in his platoon as pen pals. Letters they received were highly anticipated and, at least in Boe's case, responded to with regularity. People caring and observing traditions can make a huge difference in the day-to-day lives for deployed Soldiers. Boe's Thanksgiving and Christmas experiences in Vietnam included not only a memorable meal but also contact with a chaplain, who consistently worked his way to wherever Delta happened to be. Finally, as a Ranger School student who attended some 15 years later, it is easy to see where many of the actions taught and trained at Ranger School had been implemented in a much less forgiving environment — and why.

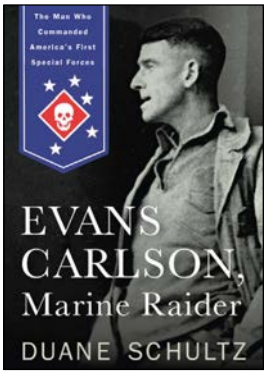
The author explains that he has known Boe for a long time, and the book grew from multiple discussions about Boe's Vietnam experience. The narrative is complemented with multiple photographs of Soldiers and places that Boe was able to capture (and keep) with his Kodak Instamatic camera. For me, the book was extremely effective at tying together actions in Vietnam that I had been exposed to through books such as *Street Without Joy* by Bernard Fall, *One Very Hot Day* by David Halberstam, and even college

texts concerning the war. Bill Boe and those like him who went to war are the real heroes of the 1960s. While many were drafted, Boe left the University of Georgia and enlisted. Similarly, the decision to support Soldiers in Vietnam by the sisters of the AOPi sorority at FSU merits special attention. The conventional wisdom at the time was for students to condemn the war effort. These young women provided time and effort to support a group of Soldiers who were doing the nation's military work. This is a quick read of a well-written story that covers a lot of ground concerning Vietnam, just like like SGT Boe and his 2nd Platoon Soldiers did in 1967-68.

Evans Carlson, Marine Raider

By Duane Schultz
Yardley, PA: Westholme Publishing LLC, 2017, 265 pages

Reviewed by
Maj Timothy G. Heck,
USMC Reserve



Few Marine leaders have engendered as much historical scholarship and debate as Marine Corps Brigadier General Evans Carlson. Duane Schultz, a prolific military history author, retells the story of Carlson, focusing on the Makin Island Raid and the Long Patrol on Guadalcanal. The work is easy to read and relatively short but it is far from complete, lacking crucial placement of Carlson's achievements in the wider context of Marine Corps operations during World War II, and is avowedly pro-Carlson. It is this personalization that, unfortunately, reduces the value of the book for scholars and practitioners alike.

The book's 19 chapters cover Carlson's early life and military career, quickly working towards the climactic operations at Makin and the Long Patrol, concluding with a brief epilogue covering Carlson's life after 1943 until his death in 1947. Using a variety of secondary sources, Schultz pulls together a portrait of Carlson as a willful, unorthodox thinker, commander, and leader who impacted how selected groups of Marines brought the fight to the Japanese during the early days of World War II.

The bulk of the work focuses on the famed Makin Island Raid (17-18 August 1942). Carlson led approximately 200 Marine Raiders on an attack on the Japanese garrison at Makin Island, debarking from submarines to raid the island in an attempt to distract Japanese forces from American landings at Tulagi and Guadalcanal. After initial encounters with the small Japanese garrison, Carlson and the majority of the Raiders were able to return to the waiting submarines and return to a jubilant reception in Pearl Harbor. Ultimately, though the raid was a successful test of Raider tactics, it accomplished little despite being feted in honors and press upon the Raiders' return.

The second largest section, covering the Long Patrol on Guadalcanal (6 November - 4 December 1942), is the book's best written section and most valuable to modern tacticians. Schultz clearly writes the story of the 2nd Raider Battalion's month-long patrol in the Japanese rear areas, focusing on the unpredictability of jungle warfare and the fortitude of the Marines. While combat with the Japanese was fierce, the jungle with its inherent diseases and hardships took a higher toll on the Raiders. At the end of the patrol, the Raiders were unofficially declared unfit for combat and given a rest for almost a year, during which time Carlson was relieved of command and transferred stateside.

Schultz is openly pro-Carlson in his writing. The result is an unbalanced assessment of Carlson as a commander or the impact of the Raiders on the Marine Corps or the war as a whole. This bias is particularly evident in the analysis of Makin, specifically with regards to Carlson's command presence and decision making. Two key issues on Makin arose. The first was Carlson's indecisiveness when confronting the Japanese. The second comes from the revelations of Major General Oscar F. Peatross in his 1992 article in *Leatherneck* Magazine, where it was revealed that a surrender proposal was prepared on 18 August 1942 by Carlson and other Raider leaders. While Schultz addresses the surrender proposal in about 10 pages, he glosses over the larger allegations that Carlson froze in command.

Overall, *Evans Carlson, Marine Raider* is an easy-to-read biography of limited scope of a complex and divisive Marine leader often seen as one of the fathers of American special operations forces. The chapters on the Long Patrol are of value to those looking to understand jungle warfare, operations behind enemy lines, and leadership in austere combat conditions. They serve useful as primers or survey texts leading to other, deeper narratives and analyses. Unfortunately, the lack of balance when presenting Carlson as a leader on Makin or in the larger scope of the Marine Corps during World War II limits the book's value.

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