



ARMOR

Maneuver Journal

SHIFTING TO LARGE-SCALE COMBAT OPERATIONS



ARMOR

The Professional Bulletin of the Armor Branch, Headquarters, Department of the Army, PB 17-20-3

EDITOR IN CHIEF
LISA ALLEY

COMMANDANT
BG KEVIN D. ADMIRAL

ARMOR (ISSN 0004-2420) is published quarterly by the U.S. Army Armor School, McGinnis-Wickam Hall (Bldg. 4), Suite W142, 1 Karker Street, Fort Benning, GA 31905.

Disclaimers: The information contained in **ARMOR** represents the professional opinions of the authors and does not necessarily reflect the official Army, U.S. Army Training and Doctrine Command or U.S. Army Armor School position, nor does it change or supersede any information presented in other official Army publications.

Manuscripts and their accompanying figures become government property and public domain upon receipt in **ARMOR** editorial offices. (The ideas within the manuscript remain the author's intellectual property and may be reused by the author, but the work itself — the particular expression of the ideas — passes to public domain upon receipt of the manuscript.) **ARMOR** staff will make necessary grammar, syntax and style corrections on the text to meet publication standards and will redesign illustrations and charts for clarity and to standards as necessary. **ARMOR** staff may coordinate changes with authors in the interest of ensuring that content remains accurate and professionally developmental. As a non-copyrighted government publication, no copyright is granted if a work is published in **ARMOR**, and in general, no copyrighted works should be submitted for consideration to publish. On occasion, however, **ARMOR** may wish to publish copyrighted material, and in that instance, individual authors' copyrights will be protected by special arrangement.

As the primary purpose of **ARMOR** content is the professional development of Armor Branch soldiers, **ARMOR** focuses on materials for which the Armor School has proponentcy: armored, direct-fire ground combat systems not serving primarily as infantry carriers; weapons used exclusively in these systems or by CMF 19-series enlisted Soldiers; miscellaneous items of equipment which armored and armored cavalry organizations use exclusively; training for all 19-series officers and CMF 19-series enlisted Soldiers; and information concerning the training, logistics, history and leadership of armor and armored cavalry units at a brigade/regiment level and below, to include threat units at those levels.

Distribution: Approved for public release. Distribution is unlimited. Official distribution is made as one copy for each armored brigade headquarters; armored cavalry regiment headquarters; armor battalion headquarters; armored cavalry squadron headquarters; reconnaissance squadron headquarters; or armored cavalry troop, armor company and motorized brigade headquarters of the U.S. Army. In addition, Army libraries, Army and DoD schools, HQDA and Army Command staff agencies with responsibility for armored, direct fire, ground combat systems, organizations and training of the personnel for such organizations may request two copies by sending a request to the editor in chief.

Reprints: **ARMOR** is published by the authority of the Chief of Staff, U.S. Army, and is in the public domain except where copyright is indicated. **ARMOR** requests that reprinted material carry credit given to **ARMOR** and the author. Direct inquiries to Editor in Chief, **ARMOR**, McGinnis-Wickam Hall (Bldg. 4), Suite W142, 1 Karker Street, Fort Benning, GA 31905.

Features

- 5 Combined-Arms Teams in the Offense: Maximizing Lethality by Mixing Formations**
CPT Sean T. Martin and CPT Robert A. Francis
- 14 A New Combined-Arms Approach for the Armored Brigade Combat Team**
Steven A. Yeadon
- 22 Integrated Squads in the 6x36 Reconnaissance Formation**
CPT J.D. Moore
- 26 The All-Weather Reconnaissance and Security Asset: The Cavalry Scout**
CPT Nathan Sitterley
- 30 Reforge the Broken Saber: Evolving the Infantry Brigade Combat Team's Cavalry Squadron to Win the Recon Fight Part I**
SGT Christopher Broman
- 37 10 to 80: A Refocused Approach to Mobile Gun System Maintenance for Stryker Brigade Combat Teams**
LTC Rafael J. Morrison, MAJ Nicholas G. Barry and 1LT John D. Formica
- 42 Why Cavalry Officers Should Have Their Own Branch**
CPT Nicholas M. Charnley
- 48 A Way of Improving Training and Readiness Oversight**
CPT Timothy Sweeney and LTC Brennan Speakes
- 51 Royal Flush: Commanders and Fire-Support officers Use Echelonment of Fires to Dominate Fight**
MAJ David A. Saxton
- 56 Mission Command (Building Responsive, Flexible Teams)**
MAJ Jim Plutt Jr.

Departments

- 1 Contacts**
- 2 Chief of Armor's Hatch**
- 4 Gunner's Seat**
- 59 Book Reviews**
- 61 Featured Unit: 75th Cavalry Regiment**



By Order of the Secretary of the Army:

JAMES C. MCCONVILLE
General, United States Army
Chief of Staff

Official:

KATHLEEN S. MILLER
Administrative Assistant
to the Secretary of the Army

2017406

Armor School Points of Contact

ARTICLE SUBMISSIONS: Articles can be submitted as email attachments to usarmy.benning.tradoc.mbx.armor-magazine@mail.mil. For all submissions, please include a complete mailing address and daytime phone number.

SUBMISSION POLICY NOTE: We ordinarily do not print articles that have been submitted to, and accepted for publication by, other Army professional bulletins. Please submit your article to only one Army professional bulletin at a time.

GRAPHICS AND PHOTOS: We will accept conventional photo prints or electronic graphic and photo files in no less than 300 dpi PNG or JPG format. (Please do not send photos embedded in PowerPoint and Word.) If you use PowerPoint for illustrations, please try to avoid the use of excessive color and shading. If you have any questions concerning electronic art or photo submissions, contact the Editor in Chief.

UNIT DISTRIBUTION: To report unit free distribution delivery problems or changes of unit address, email usarmy.benning.tradoc.mbx.armor-magazine@mail.mil; phone DSN 835-2698 or commercial (706) 545-2698. Requests to be added to the official distribution list should be in the form of a letter or email to the Editor in Chief.

EDITORIAL MAILING ADDRESS: U.S. Army Armor School, ATTN: *ARMOR*, McGinnis-Wickam Hall (Bldg.4), Suite W142, 1 Karker Street, Fort Benning, GA 31905.

REPRINTS: *ARMOR* is published by authority of the Chief of Staff, U.S. Army. Material may be reprinted, provided credit is given to *ARMOR* and to the author, except where copyright is indicated. Request all organizations not affiliated with the Department of the Army contact *ARMOR* for reproduction/reprinting permission. Inquiries may be directed to Editor in Chief, ATTN: *ARMOR*, McGinnis-Wickam Hall (Bldg. 4), Suite W142, 1 Karker Street, Fort Benning, GA 31905.

ARMOR MAGAZINE ON-LINE: Visit the *ARMOR* magazine Website at www.benning.army.mil/armor/eARMOR/.

ARMOR HOTLINE — (706) 626-TANK (8265)/DSN 620: The Armor Hotline is a 24-hour service to provide assistance with questions concerning doctrine, training, organizations and equipment of the armor force.

ARMOR Editorial Office

Editor in Chief

Lisa Alley (706) 545-9503
Email: lisa.a.alley8.civ@mail.mil DSN 835

Deputy Editor

Gary A. Jones (706) 545-8701
Email: gary.a.jones33.civ@mail.mil DSN 835

Covers, Art Support, Tanks of the World Feature

Jody Harmon (706) 545-5754
Email: jody.a.harmon.civ@mail.mil DSN 835

U.S. Army Armor School

Commandant

BG Kevin D. Admiral (ATZK-DF)
(706) 545-2029
Email: kevin.d.admiral.mil@mail.mil DSN 835

Deputy Commandant

COL Sean W. Barnes (ATZK-DF)
(706) 545-2029
Email: sean.w.barnes3.mil@mail.mil DSN 835

Armor School Command Sergeant Major

CSM Tony T. Towns (ATZK-CSM)
(706) 545-3815
Email: tony.t.towns.mil@mail.mil DSN 835

194th Armored Brigade

COL Dawson A. Plummer (ATZK-BAZ)
(706) 626-5969
Email: dawson.a.plummer.mil@mail.mil DSN 620

316th Cavalry Brigade

COL Peter C. Glass (ATZK-SBZ)
(706) 626-8670
Email: peter.c.glass.mil@mail.mil DSN 620

Office, Chief of Armor

George DeSario (ATZK-AR)
(706) 545-1352
Email: george.desario.civ@mail.mil DSN 835

Army Capability Manager-Armored Brigade Combat Team and Reconnaissance

(CDID TCM-BCT-MC)
706.626.2444
Promotable LTC Jason H. Rosenstrauch
Email: jason.h.rosenstrauch.mil@mail.mil DSN 835

Army Capability Manager-Security Force Assistance Brigade

(ATZB-CIG)
706.545.5054
COL Anthony Judge
Email: anthony.g.judge.mil@mail.mil DSN 835

CHIEF OF ARMOR'S HATCH

BG Kevin D. Admiral
Chief of Armor/Commandant
U.S. Army Armor School



What Are We Doing to Make Sure We Remain Mission Ready?

As part of our legacy as Soldiers, we have dealt with hardship, adversity and trying times from Concord to Ar-racourt to Baghdad. Readiness remains the Army's top priority. More than ever, as Armor and Cavalry leaders, our personnel and equipment have to be prepared to fight and win our nation's wars. Being mission ready is arguably the commander's greatest responsibility, both to the nation and

to the Soldiers we lead.

My top priority is ensuring that our Armor and Cavalry leaders and Soldiers receive the best institutional training available regardless of the operating environment. As I study both the Army as a whole and the current COVID-19 challenges, I'm reminded that the Army does not stop moving because of a difficult environment or

challenging conditions. Our leaders have the responsibility to continue to develop Soldiers daily. Operational readiness does not take a pause because of rough conditions. Recently, GEN Paul Funk, U.S. Army Training and Doctrine Command commander, stated, "Training during crisis shows our adversaries that we are always ready."

The current operating environment, and future environment when we mitigate the COVID impacts, will require adaptive leaders that can break with a "business as usual" approach and develop innovative ways to train without unnecessary risk to the force or the mission. The construct I use to drive the Armor School centers on asking "What is the problem, and what must we do to shift from the current to future endstate?" Figure 1 is the Army Design Methodology that graphically depicts the process.

Our current problem is, "What actions are we taking to ensure we're mission ready given today's operating environment?" There are multiple broad, general actions to resolve the problem, and all of them will increase our operational readiness.

We can dedicate time and effort toward distributed leader-development programs to prepare to send leaders to professional-military-education courses and improve our leader readiness. We can focus on maintenance in

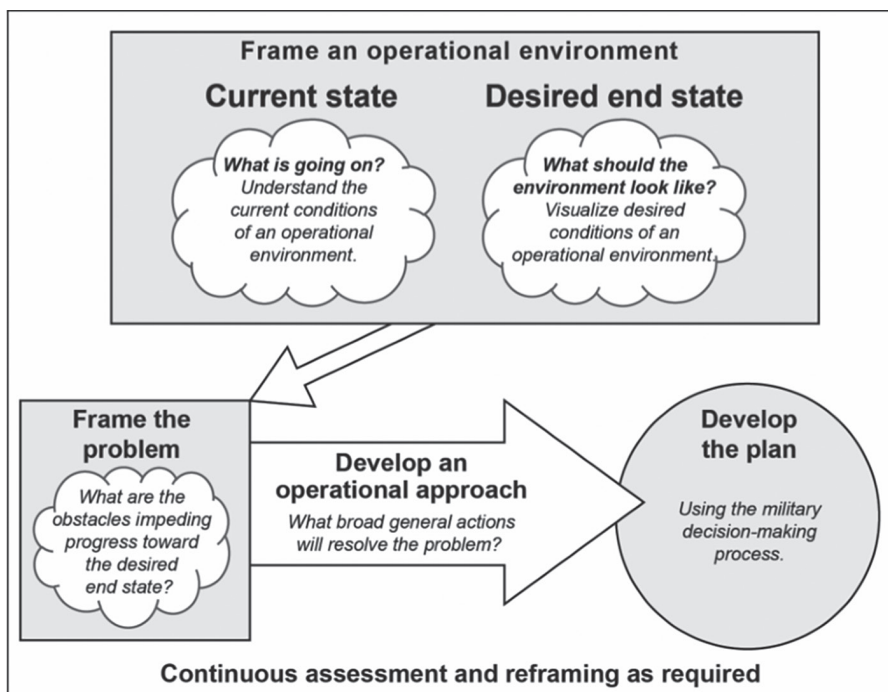


Figure 1. Army Design Methodology. (From Army Doctrinal Publication 5-0, *The Operations Process*: Figure 2-4. activities of Army design methodology)



1st Cavalry Division
@1stCavalryDiv

#Greywolf Troopers are slowly getting back to training while still maintaining proper distancing and sanitation.

#FirstTeam #LiveTheLegend #CavLethal



7:15 PM · May 11, 2020 · Hootsuite Inc.

12 Retweets 75 Likes



Red Knight 6, Commander, 1-81 AR @RedKnightHQ66 · May 11

Enforcer Company studying machine guns and pistols, Armored Fighting Vehicle Identification, and Ammunition Identification in the company area.



1 22



TRADOC_DCG @TradocDCG · May 14

This is how you adapt to COVID conditions. I smell a "switched on" NCO, and an engaged chain of command. said the impressed DCG.
@DogFaceSoldier @broadcastmike @TRADOC @FORSCOM

Dysha Barcliff @BarcliffDysha · May 14

Executed Operation OO7 today, @mac_tremblay initiative. 7 hours of outdoor training/activities. Urban Land Navigation. #NewNormal #ProtectTheForce @USAGHumphreys



2 3 34



Red Knight 6, Commander, 1-81 AR
@RedKnightHQ66

Live Engine Bay training for our 91M Bradley Fighting Vehicle System Maintainers at the Bradley Training Division, OTD 1-81 AR BN. #ArmorReady



11:50 AM · Apr 30, 2020 · Twitter for iPhone

2 Retweets 12 Likes



Figure 2. Examples of social-media posts on continuing training during Coronavirus-19 conditions.

the motorpool or complete services to improve our equipment readiness. Ranges are available, and social distancing is easy to practice in austere environments. Look no further than the myriad of posts on social media (Figure 2) of different units and centers of excellence continuing to train and validate the future Soldiers and leaders of this nation. We can ensure that Soldiers are taking care of their families and leaders are promoting family readiness during a particularly angst-filled time.

The plan is only as good as the people executing it. I encourage you and your formations to continue to look for ways to improve your combat readiness – personnel, equipment, training, leader and family. When others shut down, the U.S. Army continues to be the stalwart defender of the nation. Are you still Armor Ready?

Lastly, in May we farewelled CSM Kevin J. Muhlenbeck with a combined change of responsibility/retirement ceremony. CSM Muhlenbeck has been a tremendous asset to the U.S. Army

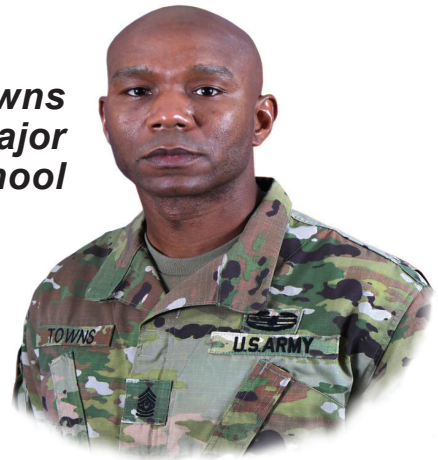
Armor School and our Army, and will be missed. He's worked closely with senior noncommissioned officers across the Maneuver Center of Excellence to ensure that the Armor School delivers trained, disciplined and ready NCOs and Soldiers.

I'm looking forward to seeing the great things that CSM Tony Towns will bring to the table as the new Thunderbolt 7. CSM Towns is joining us from 1st Armored Brigade Combat Team, 1st Armored Division, Fort Bliss, TX.

Forge the Thunderbolt!

GUNNER'S SEAT

CSM Tony T. Towns
Command Sergeant Major
U.S. Army Armor School



Thanks to Armor, Cavalry Soldiers, Leaders, Families for Sacrifices, Dedication to Duty, Service to Nation

I am truly honored to be the 27th U.S. Army Armor School Command Sergeant Major and deeply appreciate the opportunity BG Kevin D. Admiral, Chief of Armor, has given me. In the coming months, I will be looking at ways the Armor School can improve training and better serve you. We will have an opportunity to ensure that the Soldiers who come into the Armored Force are prepared for large-scale combat operations across our Army upon arrival to their brigade combat teams.

I'd be remiss if I did not thank the Soldiers and leaders I have served with over the last 25 years, specifically while assigned in 1st Armored Brigade Combat Team, 1st Squadron, 14th Cavalry Regiment; 3rd Squadron, 1st

Cavalry Regiment; and 4th Squadron, 2nd Cavalry Regiment. The extensive list of exceptional leaders and Soldiers and their numerous accomplishments over the years are beyond measure.

I'm looking forward to my time back at Fort Benning, GA. I've been in the operating force for many years, serving as an M1A1/A2 Abrams armor crewman; tank driver, loader, gunner and commander; platoon sergeant; operations noncommissioned officer; cavalry troop and headquarters and headquarters troop first sergeant; operations sergeant major; squadron and brigade command sergeant major. I'll use Gunner's Seat to share my experience, information, insight and the state of the Armor Branch, including training challenges during the

pandemic and the measures to overcome them. Please don't hesitate to contact me if you have any questions or concerns on a subject related to Cavalry and Armor.

I also want to thank all of you and your families for your sacrifices, dedication to duty and service to our nation. Every day I am amazed at the great things our Cavalry and Armor Soldiers and leaders accomplish around the world. You are the best of the best!

In closing, I want to thank CSM Kevin Muhlenbeck for the outstanding leadership he displayed and the standards he established not only as Thunderbolt 7 but during his entire career. Best wishes to you and "Team Muhlenbeck" as you embark on the next phase of your life.

Forge the Thunderbolt!

Combined-Arms Teams in the Offense: Maximizing Lethality by Mixing Formations



by CPT Sean T. Martin and
CPT Robert A. Francis

Otto von Bismarck once said, “Fools say that they learn by experience. I prefer to profit by others’ experience.” Like Bismarck, the U.S. Army can draw lessons about the deployment of armored brigade combat teams at the National Training Center. Brigades learn crucial lessons on the battlefields of Erdabil Province, where the price of failure is pride instead of blood.

In more than a year of fighting in Erdabil Province, Demon Mechanized-Infantry Battalion (MIBN) has conducted many attacks to penetrate or seize pieces of key terrain. We’ve found that operating as cohesive combined-arms teams is paramount to success.

During offensive operations, combining arms at the company level and below maximizes lethality by mixing formations of platforms that have complementary capabilities to act as “hunters and killers”; provide ground-force commanders with the assets necessary to both isolate with armor

and rapidly seize terrain with dismounts; and pair peer leaders with diverse experiences and perspectives from the Infantry and Armor Branches.

MIBN structure

The MIBN is the core maneuver formation of the brigade tactical group (BTG). The BTG operates with three MIBNs, a tank-company reserve, a combat-engineer company, an anti-armor troop and a modified reconnaissance battalion (Figures 1a and 1b). MIBNs are formed by a habitual relationship between infantry and armor companies, where the two company commanders alternate leading the formation as the MIBN commander. A similar relationship exists at the platoon level to form the mechanized-infantry company (MIC).

The smallest maneuver element in the MIBN is the mechanized-infantry platoon (MIP), typically comprised of one main battle tank (MBT) and two *boyevaya mashina pekhoty* (BMP)-3s, commonly referred to as opposing-force (OPFOR) surrogate vehicles (OSVs) (Figures 2a and 2b). The

task-organization of mixed assets down to the MIP level allows MIBN commanders to use the strengths of both platforms to mitigate the weakness each have individually. Also, each MIP and MIC has the same task-organization and is prepared to seamlessly assume the mission of their adjacent units.

Unit employments

The key difference between the task-organizations of the Donovan formations and U.S. combined-arms teams is the integration of formations down to the lowest level possible. In Army Techniques Publication (ATP) 3-90.1, the Abrams and Bradley Fighting Vehicles (BFVs) remain independent platoons (Figure 3). Teams are either an armor-company team with two tank platoons and one BFV platoon or a mechanized-infantry company team with two BFV platoons and a tank platoon. This means a tank platoon cannot effectively assume a BFV platoon’s mission to seize terrain. In the same way, a BFV platoon is less effective at isolating the objective from enemy armor.

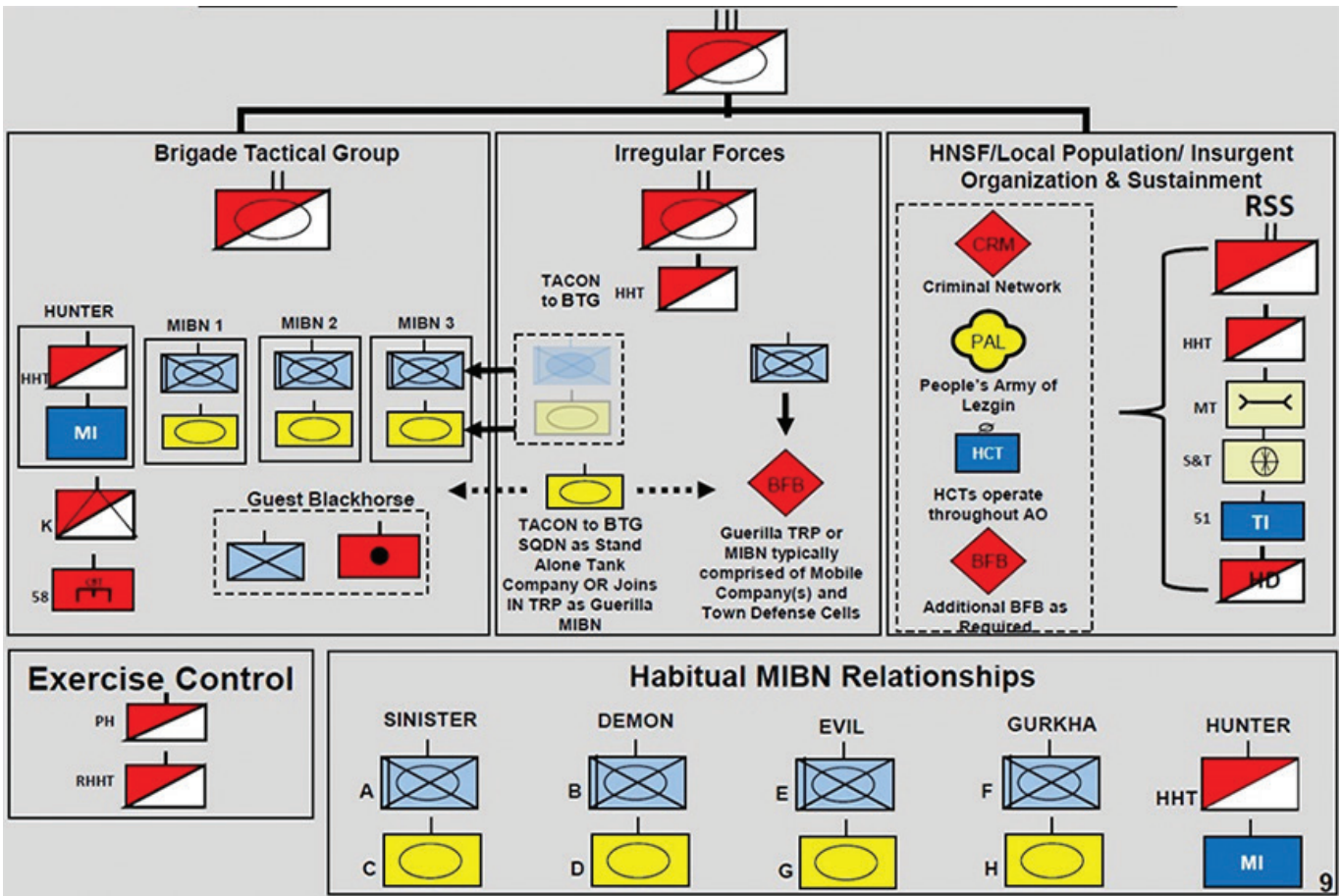


Figure 1a. Rotational task organization.

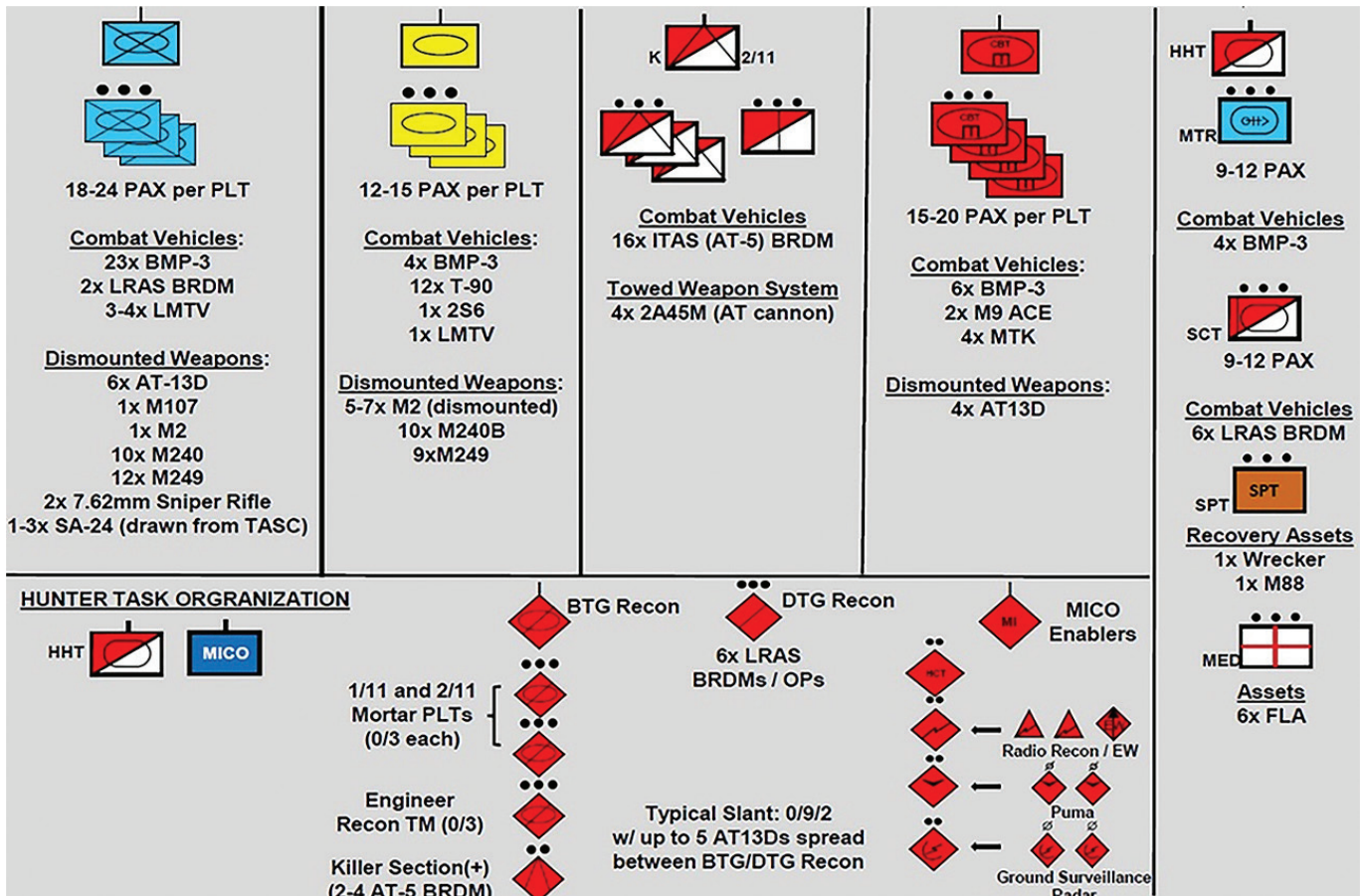


Figure 1b. List of assets available by troop/company.

The MBT and BMPs work to maximize each other's strengths while helping to mitigate vulnerabilities. Typically the MBT conducts most of the "killing" in the offense while the BMPs lead the formation and "hunt" or identify targets for the MBT to engage. This provides a mix of capabilities down to the MIP level across the formation. In the offense, MIBNs will typically task-organize forces into a combat-reconnaissance patrol, fixing force, assault force and exploitation force (Figure 4).

It is important to note that adversary BMP-3s are capable of transporting dismounted infantry. Within the MIBNs, OSVs do not replicate that capability. As a result, BMPs are employed forward of MBTs as internal fixing forces down to the MIP level. They lack the armored protection of an MBT but are capable of destroying or suppressing light armored targets at ranges exceeding the MBT's capabilities. The high rate of fire of the BMPs' 30mm cannon allows engagements of light armored targets out to 2.5 kilometers.

The platform also employs the AT-10 missile system to engage heavily armored targets out to four kilometers but remains exposed during the engagements. MBTs use the time and space created by the BMPs to maneuver to destroy targets with the 125mm main gun (Figure 5).

Attacks can either be enemy- or terrain-focused. However, as we are required to replicate a battalion-sized element with only two troop-/company-sized elements, Demon MIBN rarely conducts enemy-based attacks. When tasked with a terrain-based objective, it's essential for the attacking force to possess enough combat power to both isolate with armor and rapidly seize terrain with dismounts. The combined-arms team, with its various capabilities, is a perfect fit for an isolation force.

While moving to the objective, BMPs act as the lead vehicle or element. The BMPs will identify and fix threats for MBTs to maneuver on within direct-fire range. Once the enemy mounted combat power in the objective's vicinity has been destroyed, dismounts rapidly move forward, clear enemy

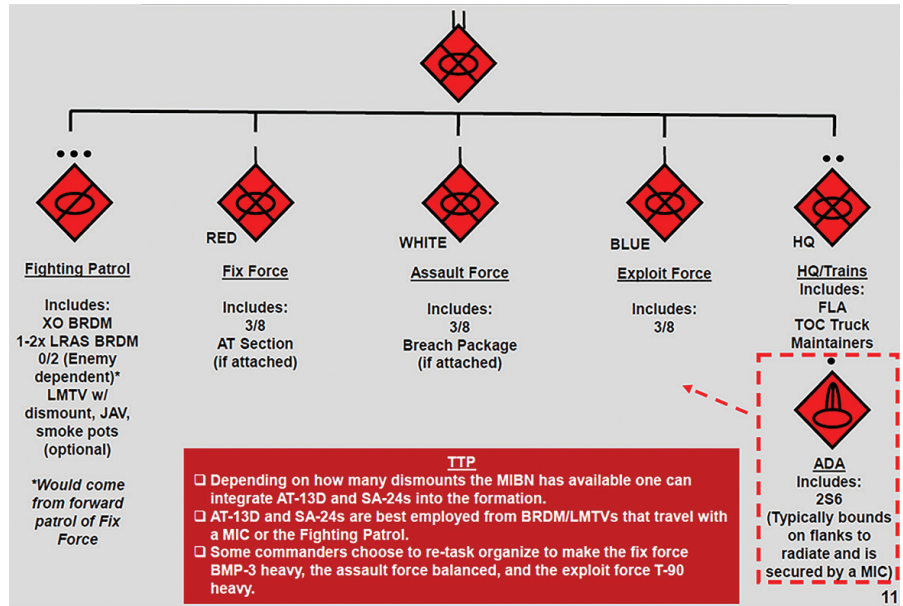


Figure 2a. Example of a MIBN task organization.

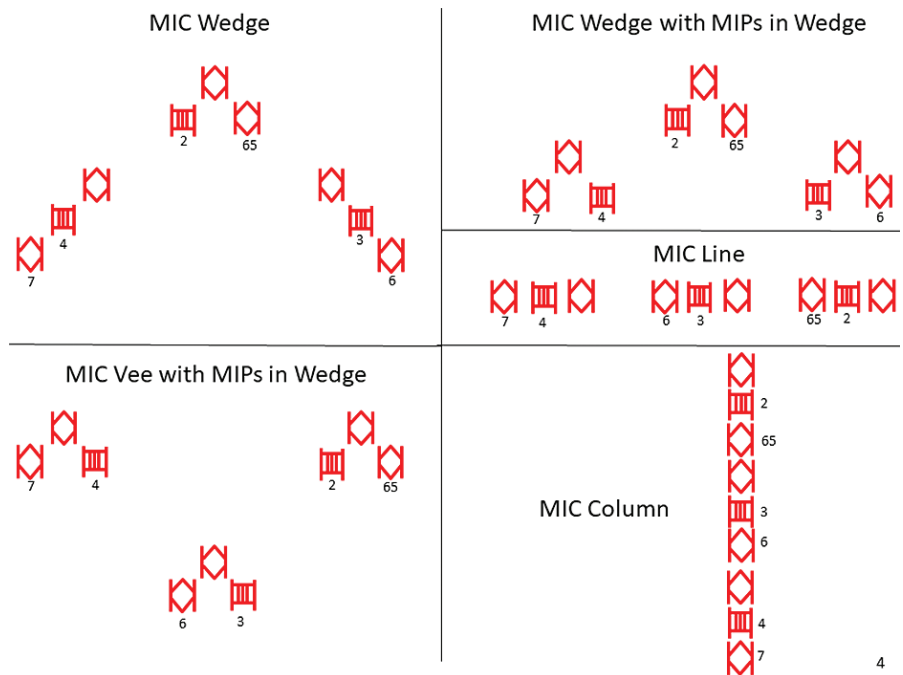


Figure 2b. Demon MIBN MIC formation SOP.

fighting positions and seize terrain. Using dismounts that are part of the same organization – under one ground-force commander's direct operational control – ensures smoother coordination between the isolation force and dismount elements, allowing more rapid employment of dismounts once conditions are set.

The synchronization of the exploitation force is especially critical when attempting to dismount on the objective. While the dismounted element is seizing terrain, the isolation force uses

its mounted platforms and weapon systems within the MIPs to maximize direct-fire controls along enemy reinforcement avenues of approach by orienting its missiles from BMPs on canalizing terrain at the maximum engagement line, while MBTs cover avenues requiring more rapid rates of fire on larger formations.

An example of an attack with a terrain-based objective is a mission that Demon MIBN conducted to seize Brigade Hill. Demon MIBN had defended the Colorado Wash for 48 hours before the

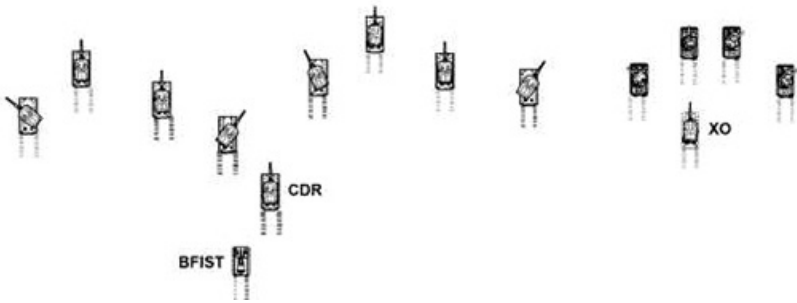


Figure 3. Depiction of company team in line, platoon wedges (from ATP 3-90.1, Figure 2-4).

attack. The day of the attack, the enemy assessed in the area of operations (AO) was two platoons of BFVs defending in the vicinity of Brigade Hill, with two dismounted-infantry platoons defending Brigade Hill itself. As mentioned, MIBNs do not maintain an internal dismounted-infantry force, requiring the BTG to provide a company of dismounted infantry in four Light Medium Tactical Vehicles (LMTVs) and a platoon of smoke trucks to Demon MIBN to enable the attack.

The MIBN commander task-organized the unit into four company-sized elements. Two MICs were tasked to attack along Route Eagles and Route Queens, respectively, to fix combat power on the north and south sides of Brigade Hill. The third MIC was tasked to attack along Route Hendrix using the smoke platoon's concealment to secure a foothold for the infantry to dismount on the objective's west side. The task of the dismounted-infantry company was to seize Brigade Hill (Figure 6).

The mission was successful for a number of reasons. The two MICs on Eagles and Queens attacked simultaneously and established attack-by-fire (ABF) positions to fix the BFV platoons in the vicinity of Brigade Hill. There were minimal losses on both sides, but the fixing forces prevented the BFVs from effectively engaging the third MIC, which attacked about five minutes later.

This third MIC continued along Hendrix with concealment from the smoke platoon and the four LMTVs of dismounts close behind, in trail mode, arriving at Brigade Hill with no losses and quickly establishing a foothold for the infantry to establish a dismount

point. The third MIC continued to suppress the enemy dismounted platoons as the friendly infantry consolidated for its dismounted attack. The infantry Soldiers established communications with the MIC at Brigade Hill and systematically cleared through the complex terrain, calling for the MIC to suppress, shift and lift fires ahead of their advance (Figure 7).

Ultimately, the dismounted company was able to destroy the two dismounted platoons on Brigade Hill while only losing a squad. This is a prime example of how combined-arms maneuver, using strengths to make up for weaknesses of each asset, resulted in a successful attack.

A second example when Demon MIBN executed a mission to seize a piece of key terrain was an attack to seize Hill

910. During the attack to seize this hill, Demon MIBN altered the traditional MIBN task-organization by dismounting 3rd Platoon from Blackjack Troop, sacrificing the manning of six BMPs. In addition to the MIBN's two remaining MICs (three MBTs and six BMPs each), a tank platoon (three MBTs) and one dismounted-infantry platoon, a platoon of smoke trucks was attached for the mission. Also, a section of two Killer Troop anti-armor *boyevaya razvedyvatelnaya dozornaya mashina* (BRDMs) would be operating in the area.

Prior to execution, Demon MIBN was preparing for a BTG attack scheduled 24 hours later. To execute this attack, Demon would conduct forward-passage-of-lines through another MIBN to attack to seize Hill 910 and then conduct a relief-in-place with a dismounted-infantry platoon from the dismounted-infantry company.

Demon MIBN initiated movement through the Central Corridor and established an attack position in Hidden Valley. Once the BTG gave the order to attack, the MIBN travelled along Route Queens to Brigade Hill and then maneuvered north toward Hill 910. The first MIC fixed the south side of the objective, while the second MIC isolated Hill 910 from reinforcements in the Colorado Wash (Figure 8).

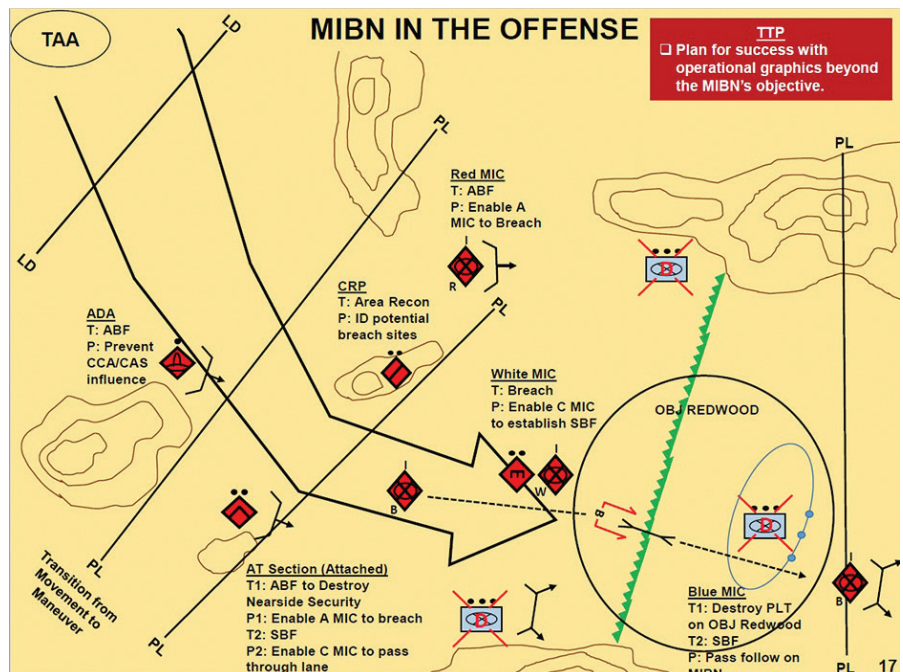


Figure 4. Typical concept sketch for employment of MIBN in the offense.

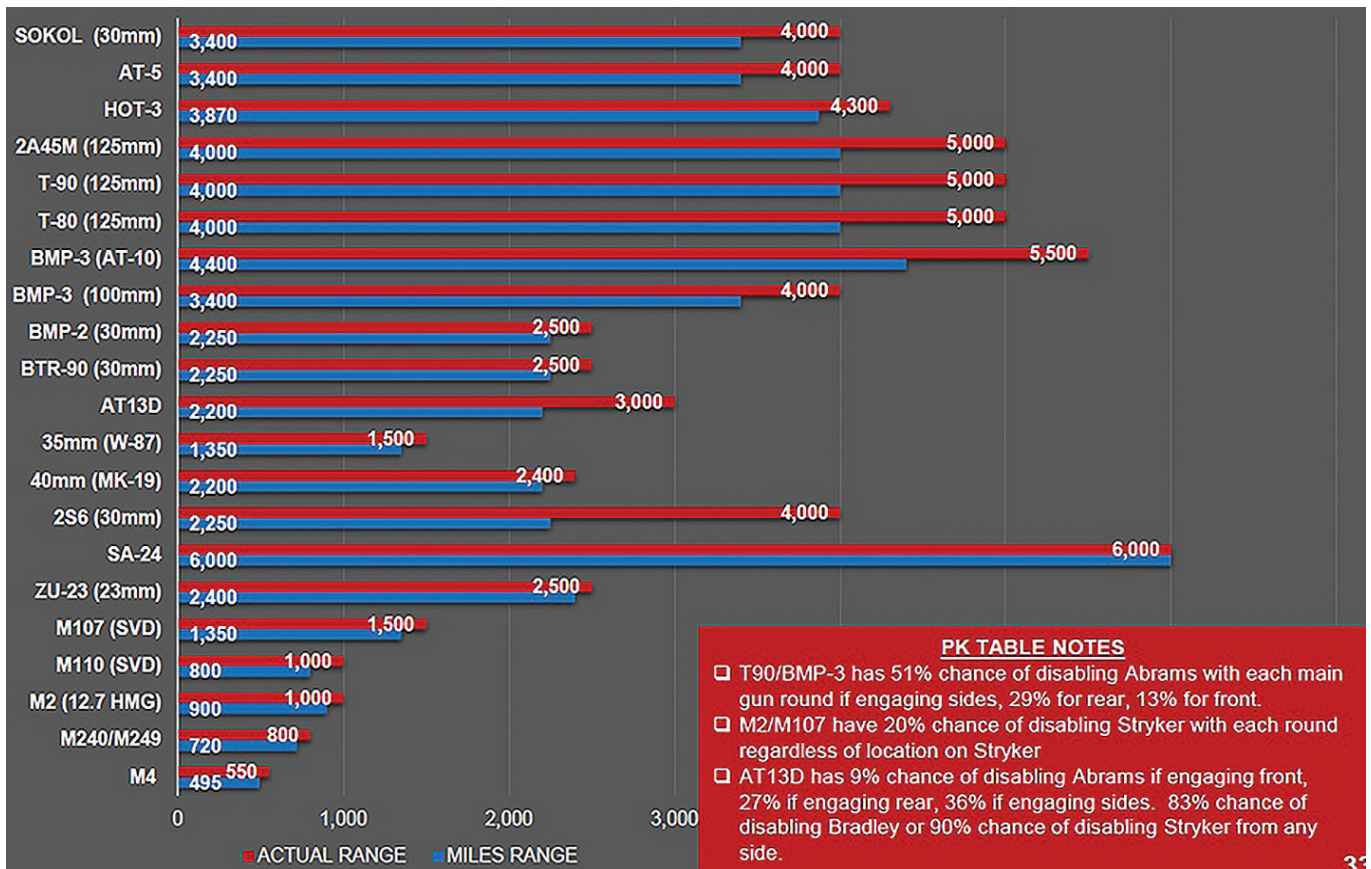


Figure 5. OPFOR weapon capabilities, both actual and Multiple Integrated Laser-Engagement System (MILES). Key: SOKOL = OPFOR helicopters replicating Hind attack helicopters. AT-5 = vehicle-mounted AT missile. 2A45M = AT towed cannon. T-90/T-80 = MBTs. BMPs 2/3 = infantry fighting vehicles. BTR-90 = wheeled armored personnel carrier. AT-13D = dismantled AT missile. W-87 = 35mm automatic grenade launcher. Mk-19 = 40mm automatic grenade launcher. 2S6 = tracked self-propelled anti-aircraft weapon. SA-24 = shoulder-fired anti-aircraft missile. ZU-23 = 23mm anti-aircraft auto-cannon. M107 = 50-caliber Dragunov sniper rifle. M110 = 7.62mm Dragunov sniper rifle. M2 = 50-caliber 12.7mm heavy machinegun. M240B/M249: 7.62mm machinegun and 5.56mm machinegun, respectively. M4 = 5.56mm carbine.

The second MIC conducted a battle handover with the Killer Troop section in the vicinity of Traffic Circle and began clearing deadspace while the anti-armor section provided overwatch. The MIC and anti-armor section continued alternating bounds while clearing deadspace for each other until they had destroyed a platoon of Abrams in the eastern edge of the Washboard and established a blocking position on the eastern entrance to the Colorado Wash, effectively isolating Hill 910 from reinforcements to the west. The tank platoon then maneuvered with the support of the first MIC and smoke trucks to destroy a platoon of BFVs defending the west side of Hill 910 and a platoon of BFVs defending to the east and southeast of the objective.

Once the fixing element and tank platoon had achieved enough

suppression of the objective, smoke trucks continued to provide concealment as the dismantled platoon maneuvered forward and dismantled on the south side of the objective. Third Platoon dismantled on the objective, then cleared north across Hill 910, destroying a platoon of enemy dismantles and Javelin observation posts (OPs) using small arms and hand grenades (Figure 9). Once the hilltop was clear of enemy, 3rd Platoon established a hasty defense with Javelins and destroyed another section of BFVs west of the objective.

Once all enemy combat power in the area was destroyed, Demon MIBN called forward a second MIBN to escort a dismantled-infantry platoon to conduct relief-in-place. After conducting relief-in-place on Hill 910, Demon MIBN withdrew to the support zone to continue preparations for the next

BTG attack.

Leader development

Another critical benefit of the combined-arms team is mixing leaders. By pairing peer leaders with different experiences and perspectives from the Infantry and Armor Branches, organizations can benefit from subject-matter experts with specialized maneuver training from both the mounted and dismantled perspectives. The armor officer may not be as familiar with employment of sniper and Javelin OPs. The infantry officer is not likely to be as familiar with berm drills and movement formation drills. By pairing these two complementary leaders, the formation gains the knowledge from two perspectives for planning and executing operations.

Not only does this Donovanian framework for combined-arms teams allow

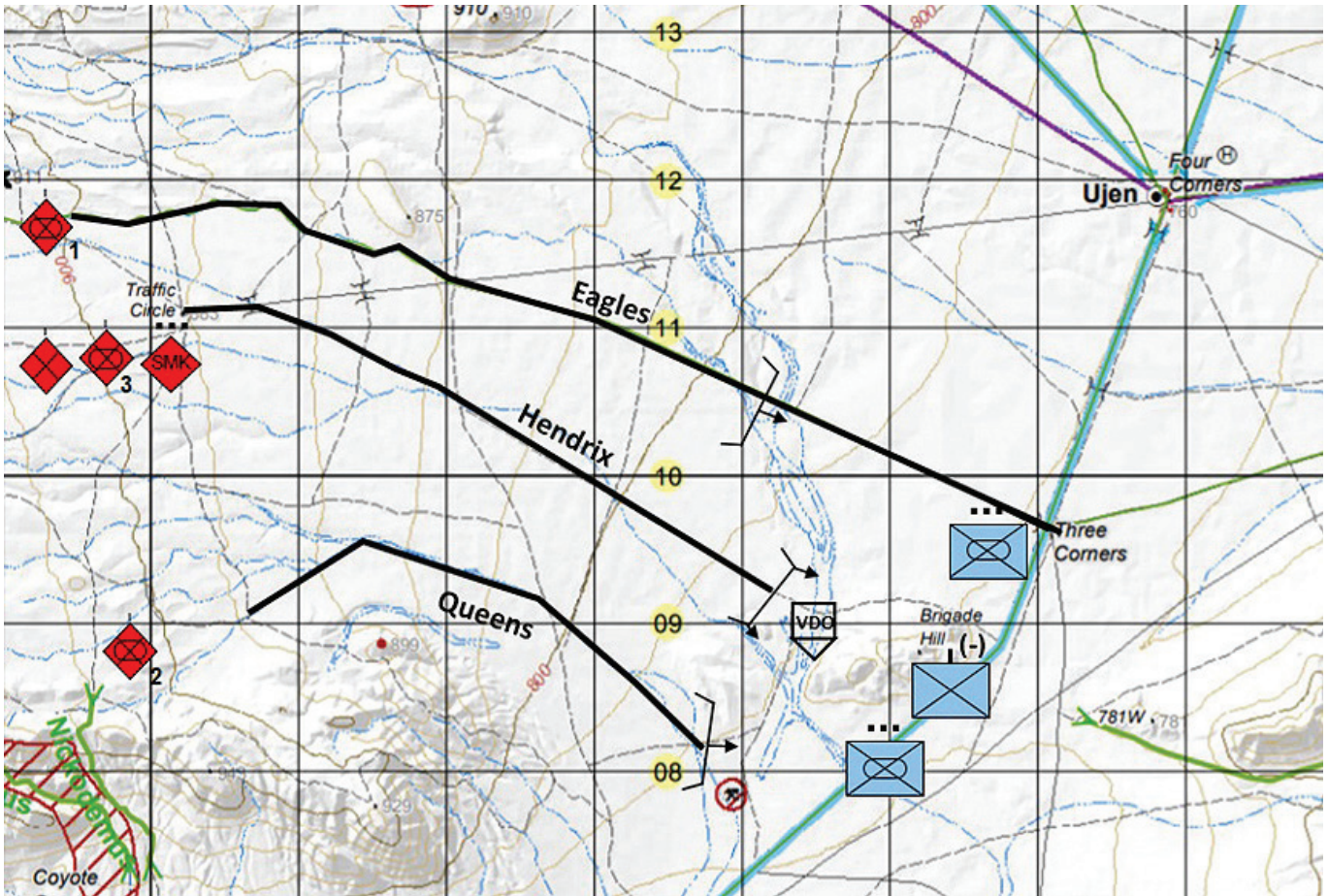


Figure 6. Attack to seize Brigade Hill.

varied perspectives, but it also allows a peer relationship with clearly delineated planning and reporting duties (Table 1). By splitting duties into MIBN 6/65 and MIC 6/65, leaders are able to command these larger formations even more effectively than if they operated independently as U.S. combined-arms teams without a peer counterpart. It is arguable that the MIBNs operate more effectively due to their command group comprised of two captains, two first sergeants and two first-lieutenant executive officers running the command post (CP).

In Demon MIBN, when the formation is static or less dispersed, the two captains form a tactical-actions center comprised of two BRDMs. When the MIBN is dispersed to the point that terrain degrades communication or when the MIBN is attacking, the captains will attach themselves to two separate elements to maintain overall mission command of the formation. In this way, Demon MIBN can and has effectively conducted operations in the

Siberian Ridge and Northern Corridor simultaneously with a separation of 15 kilometers' straight-line distance

across complex terrain.

Beyond the obvious benefits of dispersing key leaders across the

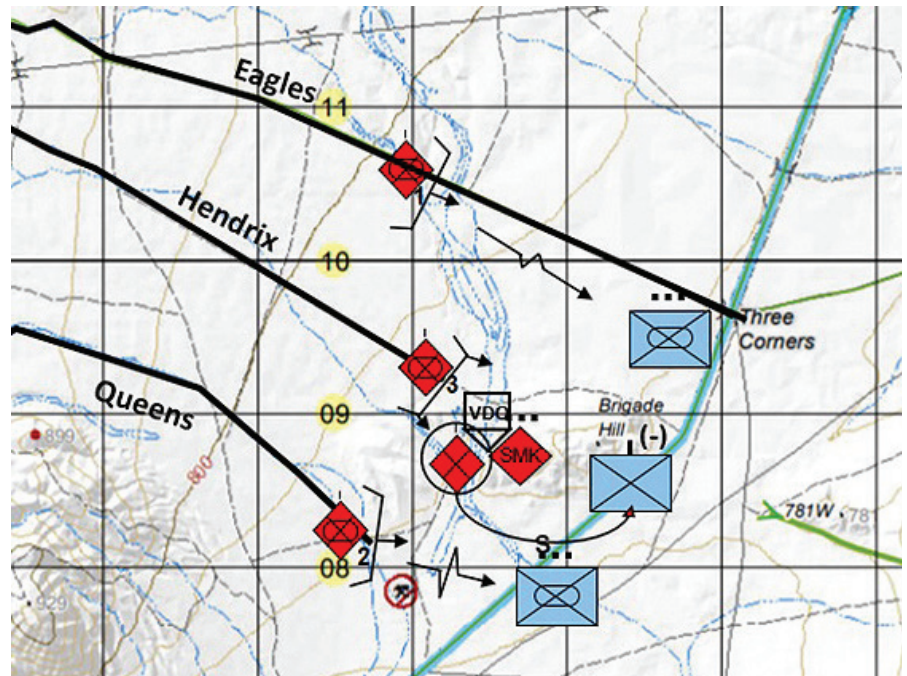


Figure 7. Seizure of Brigade Hill.

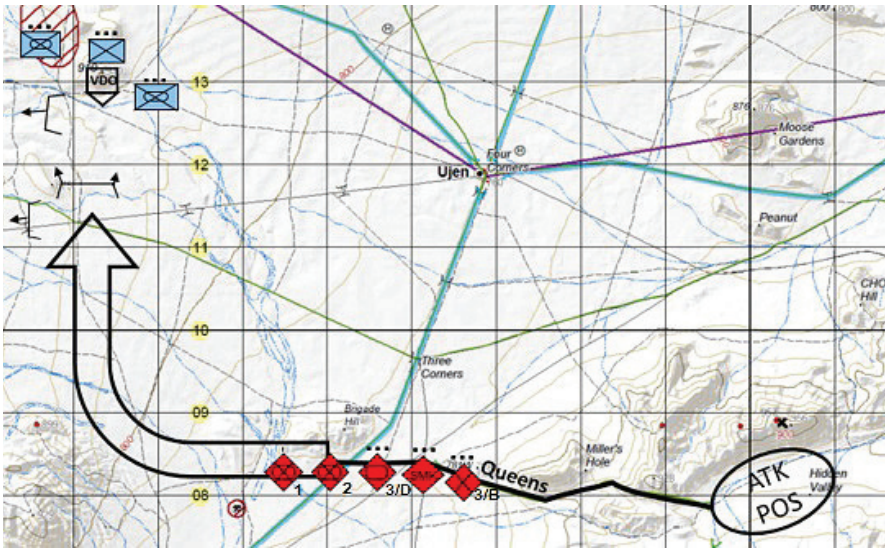


Figure 8. Attack to seize Hill 910.

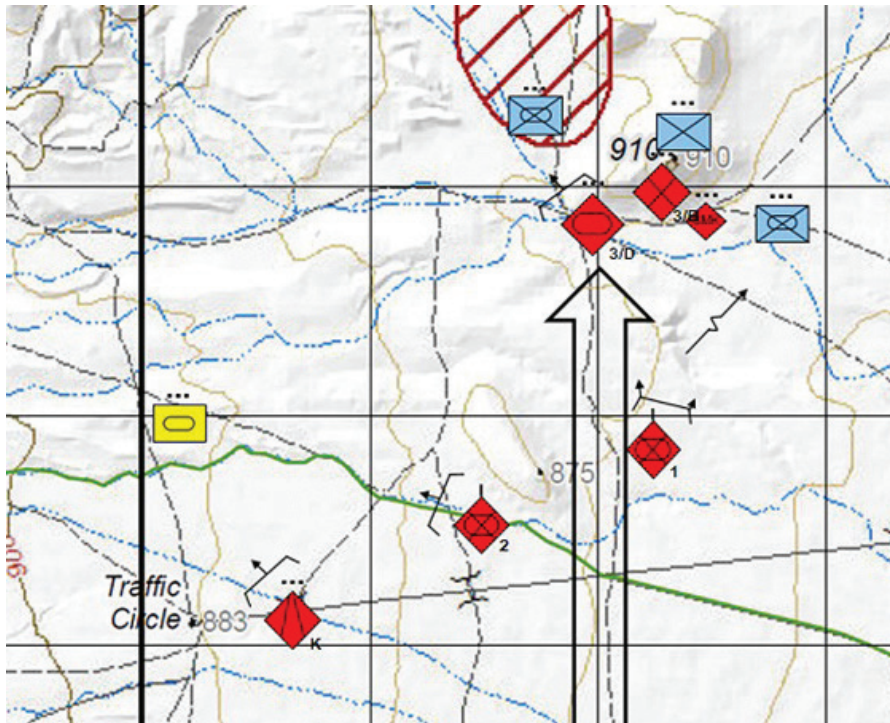


Figure 9. Seizure of Hill 910.

formation, clear delineation of 6 and 65 duties enables these leaders to focus their efforts. At the CP, this means one troop executive officer is focusing on maintenance and logistics, while the other focuses on battle-tracking and processing indirect fires. The MIBN 6 manages the fight and coordinates with adjacent units, while the MIBN 65 relays routine reports like contact and front-line trace (FLT) to higher headquarters. The commanders will rotate duties depending on their specific unit standard operating

procedure (SOP). For Demon MIBN, leadership roles rotate from rotation to rotation.

Within the MICs, each MIC has two lieutenant platoon leaders and two platoon sergeants. This means that two of the MIPs each have a lieutenant and the third MIP has two platoon sergeants (Figure 10). Once organizations regularly practice this form of co-leadership, it makes managing larger formations more seamless and effective.

The key to success is forming these habitual peer relationships. In the U.S. Army combined-arms team, platoons can be inserted and removed depending on the task-organization needed for a given mission set. The Donovan combined-arms-team structure relies on MIBNs, MICs and MIPs that have nearly identical mixed formations, all capable of conducting the same missions, but have habitual relationships and SOPs down to the lowest level to increase efficiency and avoid the inherent friction points associated with operating with adjacent units.

Throughout history, the roles of armor and infantry have fluctuated on the battlefield. At times, armored formations have acted as a support asset for their infantry counterparts. Other times, the dismounted infantry has served as local security for the armor in complex urban centers and restrictive terrain. Ultimately, the measure of success in battle depends on how well these two types of fighting forces work together to reach a shared end-state.

In Erdebil Province, the cohesive, symbiotic relationship of the infantry troops and armor companies within the Donovan combined-arms teams enables their seamless and rapid maneuver across the battlefield. In the offense, operating as combined-arms teams at the company level and below maximizes lethality by (1) mixing formations of platforms that have complementary capabilities to act as “hunters and killers”; (2) providing ground-force commanders with the assets necessary to both isolate with armor and rapidly seize terrain with dismounts; and (3) pairing peer leaders with diverse experiences and perspectives from the Infantry and Armor Branches.

CPT Sean Martin (Blackjack 6) commands Regimental Headquarters and Headquarters Troop, 11th Armored Cavalry Regiment (ACR), Fort Irwin, CA. Previous assignments include commander, Troop B, 1st Squadron, 11th ACR, Fort Irwin; executive officer, Company B, 1st Brigade, 19th Infantry, 198th Infantry Brigade (One-Station Unit Training), Fort Benning, GA; assistant battalion S-3, 1st Battalion, 36th

| | 6 | 65 | CP |
|---|--|--|--|
| Offense | <ul style="list-style-type: none"> -With lead element or greatest point of friction -Maneuvers forces -Adjacent unit coordination | <ul style="list-style-type: none"> -With trail element, second point of friction -Controls external assets (SOKOL¹/smoke) -Provides recommendations to 6 -Reports to BTG: field-litter ambulance (FLA), battle-damage assessment (BDA), slant -Resolves observer-controller (OC)/Pale Horse (PH) Detachment issues -Assumes fight if 6 dies / is out of comms -Obtains miles tracking reports from PH 6 a.m., noon, 6 p.m. | <p>MIBN 5</p> <ul style="list-style-type: none"> -Battle track / update battle boards -Fire missions -Track FLT, BDA, combat slant -Publish intelligence summary (INTSUM) <p>MIBN 55</p> <ul style="list-style-type: none"> -Tack maintenance slant -Control maintenance / sustainment |
| Defense | <ul style="list-style-type: none"> -With lead element or greatest point of friction -Maneuvers forces -Adjacent unit coordination | <ul style="list-style-type: none"> -Centrally located between FLT and TAA, second point of friction -Controls external assets (SOKOL/smoke) -Provides recommendations to 6 -Reports to BTG: FLA, BDA, slant -Resolves OC/PH Det issues -Assumes fight if 6 dies / is out of comms -Supervises CP operations -Obtains miles tracking reports from PH 6 a.m., noon, 6 p.m. | <p>MIBN 5</p> <ul style="list-style-type: none"> -Battle track / update battle boards -Maintain situational awareness of BTG operations for 6/65 -Publish INTSUM <p>MIBN 55</p> <ul style="list-style-type: none"> -Tack maintenance slant -Control maintenance / sustainment |
| Planning / tactical assembly area (TAA) | <ul style="list-style-type: none"> -Issues orders / guidance -Establishes timelines -Issues priorities of work | <ul style="list-style-type: none"> -Enforces timelines -Enforces priorities of work -Coordinates with external assets for briefing / mission planning -Supervises CP operations -Obtains miles tracking reports from PH 6 a.m., noon, 6 p.m. | <p>MIBN 5</p> <ul style="list-style-type: none"> -Battle track / update battle boards -Fire missions -Track FLT, BDA, combat slant -Publish INTSUM <p>MIBN 55</p> <ul style="list-style-type: none"> -Tack maintenance slant -Control maintenance / sustainment |

SOKOL = Opposing-force helicopters replicating Hind attack helicopters

Table 1. Demon MIBN SOP for duties and responsibilities of MIBN 6/65.

Infantry, 1st Stryker Brigade Combat Team (BCT), 1st Armored Division, Fort Bliss, TX; and rifle-platoon leader, 1st Platoon, Company C, 2nd Battalion, 5th Infantry, 3rd Infantry BCT, 1st Armored Division, Fort Bliss and Afghanistan (Operation Enduring Freedom XIV). CPT Martin's military schools include Maneuver Leader's Maintenance Course (MLMC), Maneuver Captain's Career Course (MCCC) and Infantry Basic Officer Leader Course. He has a bachelor's of science degree in

technical-systems management from the University of Illinois Urbana-Champaign.

CPT Rob Francis (Dealer 6) commands Headquarters and Headquarters Troop, 1st Squadron, 11th ACR, Fort Irwin, CA. Previous assignments include commander, Company D, 1st Squadron, 11th ACR, Fort Irwin; assistant squadron S-3, 1st Squadron, 11th ACR, Fort Irwin; division chief of protocol, 2nd Infantry Division/Republic of Korea

(RoK)-United States Combined Division, Camp Red Cloud, RoK; assistant brigade S-3, 210th Field Artillery Brigade, Camp Casey, RoK; and company executive officer, Company E, 302nd Brigade Support Battalion, 1st Armored Brigade Combat Team, Camp Casey. CPT Francis' military schools include Cavalry Leader's Course, MLMC, MCCC, Army Reconnaissance Course and Armor Basic Officer Leader Course. He has a bachelor's of arts degree in political science from the University of

Hawaii-Manoa. CPT Francis' awards and honors include the Meritorious Service Medal, Parachutist Badge, Air-Assault Badge, Pathfinder Badge and Order of Saint George, black medalion.

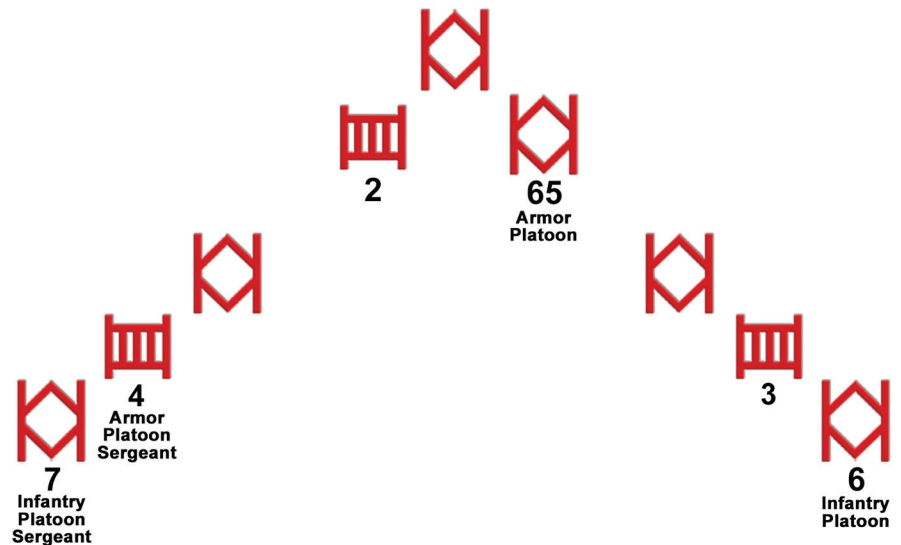


Figure 10. Demon MIBN SOP for MIC formations.

ACRONYM QUICK-SCAN

(Some of these are found in the figures only)

ABF – attack by fire
ACE – M9 Armored Combat Earthmover
ACR – armored-cavalry regiment
ADA – air-defense artillery
AO – area of operations
AT – anti-tank
ATK POS – attack position
ATP – Army techniques publication
BCT – brigade combat team
BDA – battle-damage assessment
BFB – Bilasuvar Freedom Brigade (guerrilla forces)
BFIST – M7A3 Bradley fire-support team
BFV – Bradley Fighting Vehicle
BMP – *boyevaya mashina pehoty*
BRDM – *boyevaya razvedyvatelnaya dozornaya mashina*
BTG – brigade tactical group
CAS – close air support (fixed-wing aviation assets)
CCA – close combat aviation (rotary-wing assets)
CP – command post
CRM – criminal network
CRP – combat reconnaissance patrol
DTG – division tactical group
EW – electronic warfare
FLA – field-litter ambulance
FLT – front-line trace

HCT – human-intelligence collection team
HHT – headquarters and headquarters troop
HNSF – host-nation security forces
HQ – headquarters
IN – infantry
INTSUM – intelligence summary
ITAS – Improved Target Acquisition System
JAV – FGM-148 Javelin shoulder-fired anti-tank missile
LD – line of departure
LMTV – Light Medium Tactical Vehicle
LRAS – Long-Range Advanced Scout Surveillance System
MBT – main battle tank
MCCC – Maneuver Captain's Career Course
MI – military intelligence
MIBN – mechanized-infantry battalion
MIC – mechanized-infantry company
MiCo – military-intelligence company
MILES – Multiple Integrated Laser-Engagement System
MIP – mechanized-infantry platoon
MLMC – Maneuver Leader's Maintenance Course
MT – maintenance troop
MTK – tracked mine-clearing vehicle

MTR – mortar
OBJ – objective
OC – observer-controller
OP – observation post
OPFOR – opposing forces
OSV – opposing-force surrogate vehicle
PAL – People's Army of Lezgin
PAX – persons
PH – Pale Horse (Detachment) (observer-controllers assigned to the OPFOR)
PL – phase line
PLT – platoon
RHHT – regimental headquarters and headquarters troop
RoK – Republic of Korea
S&T – supply and transportation troop
SBF – support by fire
SOP – standard operating procedure
SPT – support
SQDN – squadron
TAA – tactical-assembly area
TACON – tactical control
TASC – Training Aids Support Center
TM – team
TOC – tactical-operations center
TRP – troop
TTP – tactics, techniques and procedures
VDO – vehicle-dismount objective

A New Combined-Arms Approach for the Armored Brigade Combat Team

by Steven A. Yeadon

A new way of integrating the combined arms of the armored brigade combat team (ABCT) when it's combined with the deployment of the Joint All-Domain Command and Control (JADC2) network is needed to maximize unit capabilities during a war against the major powers in an era of all-domain operations.

JADC2 – the emerging term senior Department of Defense (DoD) officials are using to describe linking military sensors to all warfighters across all services and domains – will provide decision-makers with the most accurate situational awareness possible. To make JADC2 a reality, the Pentagon will first need to identify and leverage a highly flexible, scalable common data platform that can accommodate DoD's vast amount and types of data from across the service branches. A successful JADC2 program will also infuse data across domains with artificial intelligence and machine learning to allow machine-speed analysis and real-time situational awareness, helping funnel the right data to the right commanders or operators at mission speed.¹

This article makes the case that JADC2

changes armored warfare because detected indirect-fire weapons can swiftly destroy detected enemy units. The best way to implement this tactic is for all forward armored units to possess indirect-fire weapons. No longer must the battle tank be the main foil through direct-fire engagements.

'Battle of signatures,' 'ascendancy of fires'

This analysis bases itself on two concepts called the "battle of signatures" and the "ascendancy of fires." The *Marine Corps Operating Concept: How an Expeditionary Force Operates in the 21st Century* states that the future of warfare will depend on a "battle of signatures": "Tomorrow's fights will involve conditions in which 'to be detected is to be targeted is to be killed.' Adversaries will routinely net together sensors, spies, unmanned aerial systems (UAS) and space imagery to form sophisticated 'intelligence, surveillance, reconnaissance (ISR) strike systems' that are able to locate, track, target and attack an opposing force. In complex terrain, adversaries will collect targeting information through eyes and ears and spread it through social media. No matter the means of detection, unmanaged signatures will

increasingly become a critical vulnerability."²

Thus a decisive factor for land warfare is to stay undetected because detected forces face swift destruction by enemy fires. As the war in the Donbass region of Ukraine shows, this idea of a battle of signatures may already be in effect against the Russian military due to the combination of Russian massed area fires assisted by overhead surveillance. This reconnaissance-strike model was central to the Zelenopillya rocket attack that destroyed most of two Ukrainian mechanized battalions that were in the open in July 2014.^{3 4}

Second, the concept of an "ascendancy of fires" originally stems from a statement in *Field Artillery Journal* by GEN Glenn K. Otis in 1995.⁵ As the Federation of American Scientists explains: "The ascendancy of fires is a concept that describes the combined results of the improving ability to 'see the battlefield' while simultaneously attacking at depth with precision lethality. The ascendancy of fires describes a potential trend where land warfare is becoming more like sea and air warfare – i.e., forces will fight at increasingly greater ranges in 'demassed formations.' In this setting, combat



elements conducting superior information operations and employing state-of-the-art smart/brilliant munitions, robotic vehicles and swarms of unmanned aerial vehicles can conceivably shape the battlefield and conduct decisive operations, possibly without coming in visual contact of each other. This would produce a dispersed combat situation where small, powerful, highly mobile tactical units employing precision fires fight almost independently over incredibly large distances. The national mandate to win quickly with minimum casualties remains the driving factor in the emerging ascendancy of fires.”⁶

A serious question to raise in 2020 is, “Are we approaching an ‘ascendancy of fires’?” This concept, first explored in the 1990s, will soon apply to current battlefields against a near-peer power. The development of the JADC2 network will allow a maturation of both the battle of signatures and the ascendancy of fires for U.S. forces against potential enemies. U.S. ground units should organize around the predicted principle of small, lethal, highly mobile tactical units employing precision-guided indirect fires as they fight almost independently over incredibly long distances.

This article analyzes the necessary changes in doctrine to improve ABCT combined arms. It will then examine the current and necessary materiel to improve ABCT combined arms according to this new doctrine. It will conclude by finishing the rest of the doctrine, organization, training, materiel, leadership and education, personnel and facilities (DOTMLPF) analysis on this new concept.

New concept for ABCT combined-arms doctrine

To begin, the need for mobile protected firepower and infantry to engage targets at direct-fire ranges will not go away. This analysis assumes the best way forward is to alter the weapons on Infantry Fighting Vehicles (IFVs) and main battle tanks (MBTs) to take advantage of information dominance while retaining their direct-fire capabilities to directly engage and defeat an enemy should there be a need for an armored fist. Armored formations

are best for an ascendancy of fires due to their mobility, survivability and lethality, which can be repurposed for indirect fires. Also, this analysis sees a use in supplying armored and mechanized-infantry battalions with new units that can take advantage of a superior ability to “see” the battlefield.

This future can be enabled for U.S. forces through the acquisition of specific weapons that will add greater agility. The most important are indirect-fire weapons capable of destroying enemy armored vehicles for both MBTs and IFVs. Thus, they will be indirect-fire platforms that can also excel in direct-fire engagements. There will also be a use for units of indirect-fire anti-tank guided missile (ATGM) tank destroyers, such as those in-development by Poland,⁷ to add volume of fire to anti-armor firepower.

When combined with long-range precision-fires, the goal will be multiple layers of lethality against enemy armor before a direct-fire engagement. This will ensure that detection means death before an enemy can engage with direct-fire weapons. The goal is to reduce casualties and provide a higher operational tempo for U.S. military forces against the militaries of major powers.

This goal is enabled by Joint connectivity through JADC2 that enables massive data-gathering through all shooters partnering with Joint ISR assets and swarms of unmanned ground vehicles (UGVs) and UAS. With the aid of artificial intelligence and machine learning, this data turns into actionable information rapidly disseminated to commanders. A commander can then choose to act on the new information to engage an enemy unit with fires or indirect-fire weapons possessed by nearby armored units.

A logical sequence for understanding this concept is as follows:

1. Joint connectivity created through the JADC2 network;
2. Shooters, Joint ISR assets and UGV and UAS swarms feed the JADC2 network with massive amounts of data;
3. Rapid analysis and dissemination of intelligence, aided by artificial intelligence and machine learning, provides information to commanders at mission speed;
4. Judgment by commanders in the loop as to whether to use force;
5. Indirect-fire by armored units or long-range precision fires; and
6. Enemy unit destroyed.



Figure 1. A Russian UGV based on the BMD armored chassis. Russia’s armed forces will likely integrate UGVs with motor rifle battalions because of the Ministry of Defense’s “Weapons Robotizing 2015” program.

However, as retired COL John Antal concluded, "Precision strikes that are not backed up with a continuous battle of decisive maneuver are merely artillery raids set out to punish, not defeat, an opponent."⁸ This is an important reminder and caution for the tactic of massed, precision-guided fires proposed in this analysis. Attrition while in a battle of signatures does not necessarily lead to victory. That requires a broader all-domain operation and decisive action.

Understanding current anti-armor materiel for ABCT

It is important to understand current U.S. military anti-armor capabilities before offering recommendations for new materiel. To begin, direct-fire antitank firepower for U.S. military forces currently includes Javelin missiles; tube-launched, optically tracked, wire-guided (TOW) 2 missiles; an Abrams MBT's M256 120mm tank gun; and the M242 Bushmaster 25mm cannon on Bradley Fighting Vehicles (BFVs).

The Javelin missile has a maximum range of 4.5 kilometers.⁹ The TOW 2 missile's range is 3.75 to 4.5 kilometers.¹⁰ The BFV's M242 cannon has an effective range of two kilometers and can penetrate the armor of many armored vehicles it will encounter, including some MBTs.¹¹ As for an Abrams' main gun, M829A3 Armor-Piercing Fin-Stabilized Discarding Sabot with Tracer (APFSDS-T) projectiles are the current large-caliber projectiles used to destroy enemy heavy armored vehicles.¹² These projectiles have an effective range of three kilometers.¹³ However, given the classified nature of modern MBT armor,¹⁴ it is unknown how many APFSDS-Ts are needed to defeat a modern MBT. That said, the first Gulf War shows that a single APFSDS-T regularly defeats older tank designs, such as the T-72, T-72M and T-72M1, from any angle.¹⁵

The Javelin missile is a fire-and-forget weapon allowing for mobility immediately after launching the missile. This compares to TOW-2 missiles that require Soldiers to aim at a target until the missile strikes.

As for the monetary cost of these



Figure 2. A Battle Group Poland U.S. Soldier participates in Javelin ATGM training near the Bemowo Piskie Training Area during Saber Strike 17 June 11, 2017. (U.S. Army photo by Charles Rosemond, Training Support Team Orzysz)

anti-armor weapons, the fiscal year (FY) 2018 unit cost for a Javelin missile was \$206,705.¹⁶ The FY18 unit cost for a TOW 2 missile was \$83,381.¹⁷ The next-generation M829E4 depleted uranium APFSDS-T costs \$13,061.58 per unit as of FY17.¹⁸

Lastly, as a point of reference, the Air Force plans to purchase Small Diameter Bomb IIs to destroy moving targets. The unit cost of this ordnance as of December 2015 was \$243,000.¹⁹

New long-range precision fires are in development to achieve parity or superiority against other major powers

in terms of technology. First, there is the Extended Range Cannon Artillery program that will increase the range of the M109 Paladin 155mm self-propelled howitzer from 30 kilometers to 70 kilometers.²⁰ This will allow precision-guided 155mm projectiles to perform the same role as more expensive precision-guided rockets and missiles. Future hypersonic precision-guided munitions may push this capability out to 100 kilometers.²¹ There is also a new anti-armor 155mm artillery round being procured in the BONUS antitank artillery projectiles, each armed with two precision-guided top-attack

antitank munitions.²² ²³ Another solution for defeating armor with tube artillery is the in-development precision-guided 155mm Cannon-Delivered Area Effects Munition (CDEAEM).²⁴

Next, the Guided Multiple-Launch Rocket System (GMLRS) guided rockets have a range of 70 kilometers. GMLRS-guided rockets can use an area-fires alternative warhead, which affects as large an area (0.23 square kilometer)²⁴ as earlier sub-munition-equipped rockets.²⁵ Thus, the M270 Multiple Launch Rocket System can strike an area of around a square kilometer. To extend the range of U.S. guided rockets against near-peer guided rockets, there is a program to acquire the tail-controlled GMLRS guided rocket, a next-generation guided rocket that can hit stationary targets at a range of up to 136 kilometers.²⁶ Current GMLRS-guided rockets have a unit cost of \$129,226 in FY18.²⁷ This cost is less than a Javelin missile.

New materiel needed to enable concept

There is a need for deploying weapons on U.S. MBTs and IFVs that can destroy armored targets with indirect fires. One way to do so is by arming U.S. armored vehicles with longer-ranged ATGMs. Another course of action is to develop rounds fired from MBT cannons that can destroy enemy armored targets with indirect fire.

An interim solution is to arm Abrams tanks and BFVs with ATGMs mounted on a remote turret to provide anti-armor indirect fire. An ATGM tank destroyer – such as those in development by Poland, created using the hull of the Armored Multi-Purpose Vehicle (AMPV) – could serve this role or provide extra volume of fire when needed for Abrams and Bradleys. Such an AMPV variant may be much faster to deploy than a next-generation combat vehicle that replaces the Bradley or Abrams.

Two ATGMs may be useful in the role

of providing indirect fires to current armored vehicles: the Hellfire missile and the United Kingdom's Brimstone missile.

Hellfire missiles have a direct-fire range of seven kilometers, an indirect-fire range of eight kilometers and a minimum range of .5 to 1.5 kilometers.²⁸ Longbow Hellfire missiles use a millimeter-wave radar guidance, and Hellfire II missiles use laser guidance to destroy enemy armored vehicles with an antitank warhead.²⁹ These missiles had a weapon-system unit cost of \$94,997 per missile (all variants) in FY18.³⁰ Hellfire missiles cost less than half as much as shorter-ranged Javelin missiles. Thus, given that the Javelin missile is an effective means of destroying enemy armor, then Hellfire missiles represent a superior, though vehicle-mounted, anti-armor capability at a lower unit cost.

Brimstone missiles are the United Kingdom's version of the Hellfire.³¹ With a range of more than 40



Figure 3. U.S. Army soldiers load an AGM-114 Hellfire missile on an AH-64E Apache helicopter in Kunduz, Afghanistan. The Joint Air-to-Ground Missile will replace Hellfire. (U.S. Army photo by CPT Brian Harris)

kilometers, Brimstone II missiles have a much longer range than Hellfire missiles. They also possess both millimeter-wave radar guidance and laser guidance.³²

One drawback to the use of Hellfire or Brimstone missiles will be a limited number of shots before a crew needs to reload the missile launchers with the very heavy (roughly 100 pounds) missiles.^{33 34} Another drawback of this idea is the .5 to 1.5 kilometer minimum range of the Hellfire missile, which means that Hellfire missiles would best be used in combination with the Javelin missiles used by infantry deployed with U.S. IFVs, which have a minimum range of 150 meters.³⁵ TOW-2 missiles have a minimum range of 65-200 meters.³⁶ Thus, a combined-arms approach that uses all three ATGMs will allow troops with lightweight equipment to strike enemy armor from 65 meters to seven to eight kilometers.

A longer-term materiel solution is to create a Bradley replacement that has the flexibility to mount a variety of missile or drone launchers on either side of its turret in addition to a 50mm cannon. This could be like the flexible missile platform developed by Moog. This will allow the use of Brimstone missiles, Hellfire missiles, TOW-2 missiles and Javelin missiles by the Optionally Manned Fighting Vehicle while providing a capability for the use of Coyote drones and Stinger missiles for air defense.³⁷

As for the Abrams replacement, a future MBT could fire precision-guided rounds able to defeat enemy armored vehicles with indirect fire. This would need to be a precision-guided armor-defeating projectile that can fire out of a battle tank's main gun. Essentially it is a smaller version of the in-development 155mm CDAEM.³⁸

However, indirect projectile fire by battle tanks will require installing new targeting systems on all MBTs to allow precise indirect fire, installing cannons on new battle tanks that can elevate higher than the current 20 degrees³⁹ and including the Advanced Field-Artillery Tactical Data System (AFATDS). AFATDS is the fire-support command-and-control system employed by U.S.

Army and U.S. Marine Corps units to provide automated support for planning, coordinating, controlling and executing fires and effects.⁴⁰ Also, the right mix for each type of round in battle tanks will require simulations and wargames to determine.

Organization, training, leadership, personnel and facilities

Because of the nature of this proposal, the organization of tank companies and mechanized-infantry companies is unchanged. I propose adding a tank-destroyer platoon to the headquarters and headquarters company of all armored battalions and mechanized-infantry battalions. Each tank-destroyer platoon will include three sections of two tank destroyers each, providing flexibility for the battalion commander to attach, assign or use them independently of the battalion's tank or mechanized-infantry companies. This new tank-destroyer platoon will be a fires battery, not unlike the current mortar platoon in the role of direct-fire support to front-line forces.

Training for the crews of armored vehicles will need to include the use of indirect-fire weapons, including ATGMs and certain projectiles fired from a battle tank's main gun. Gunners of all armored vehicles will need training in how to hit targets beyond line of sight. Battle-tank commanders will also need training on using AFATDS, leaving other crew to perform their respective roles of driving, loading and gunnery.

Leaders at all levels will need training on how to quickly ascertain and take advantage of short-lived opportunities to destroy enemy units with indirect fires. This training cannot be lopsided toward field-grade officers with a more informed view of the battlefield. Mission command will require initiative by all levels of command. However, the use of force will need a streamlined kill-chain process with rapid authorizations as needed. This is especially true in a contested electromagnetic-spectrum environment.

This tactic should not require new tank crew or IFV crew members. That said, this proposal requires a new

military-occupation specialty for tank-destroyer crew members and officers. If tank destroyers have three crew members (driver, commander and gunner), there will need to be 12 more Soldiers per headquarters and headquarters company of each armored battalion and mechanized-infantry battalion. This assumes no need for more logistical personnel. Given there are 16 ABCTs with three maneuver battalions each,⁴¹ this will require adding another 576 Soldiers to the U.S. Army.

Facilities will need ranges for tanks large enough to provide training for gunnery using indirect fires out to a possible 40 kilometers. This will require new ranges simulating a variety of terrains for tanks and IFVs to train.

Caution on protecting armored units

This only drives home the fact that detection on future battlefields means destruction. An important point to make for the protection of armored forces going into the future is to plan for artillery barrages, long-range precision-guided fires and massed cluster or thermobaric munitions against any U.S. armored forces detected by an enemy. This will require a new way of thinking about protection in terms of masking signatures.

Masking is the active and passive ability to make military systems difficult or impossible to identify, locate and target. Masking is more than camouflage and stealth. It employs next-generation active and passive means to reduce the electromagnetic spectrum (EMS) signature to render the system difficult to locate and hard to target. Some of these technologies could include:

- Advanced profile design to lower a vehicle's radar cross-section and reduce its thermal, electronic and acoustic signature;
- Low-tech, passive systems such as next-generation camouflage netting;
- Color-changing materials and radar-absorbing paint;
- Intelligent, multispectral camouflage systems to rapidly blend a vehicle into its surrounding EMS background;
- Decoys and portrayal of false actions and locations;

- Cognitive electronic-warfare systems employing machine learning to counter the enemy's radars;
- Electronic jamming to protect the emission of friendly communications and electronic systems against enemy detection;
- Electronic-warfare support measures and signals intelligence; and
- The use of electronic countermeasures and digital radio-frequency memory to hide beneath the blanket of enemy or friendly jamming.⁴²

There will be a requirement for such measures for the foreseeable future to provide protection for armored vehicles. Masking signatures could become more central to the survival of armored vehicles than even armor plating as the raw lethality of war increases. The alternative is to turn to costly attrition warfare using extremely large ground forces as occurred in both world wars.

Conclusion

This article analyzed the changes in DOTMLPF needed to improve ABCT combined arms. The crux of this concept is through Joint connectivity provided by JADC2. Massive amounts of data gathered by all shooters to partner Joint ISR assets and swarms of UGVs and UAS lead to rapid analysis with the aid of artificial intelligence

and machine learning. This results in the rapid dissemination of actionable intelligence to commanders at mission speed. A commander can then choose to act on the new information to engage an enemy unit with fires or indirect-fire weapons possessed by nearby armored units.

Central to this concept is new materiel that will allow both anti-armor direct fire and indirect fire from all battle tanks and IFVs. Armored vehicles aided by new tank destroyers must also play a role.

That said, the future of precision-guided ordnance presages a broader question: "How will precision-guided weapons change the future of war?"

For instance, is the invention of precision-guided weapons like the invention of the rifle – something that changes warfare slowly at first but that dictates the battlefield later? The rifle was able to attack strategic targets using snipers and to harass troops from relative safety. However, it rapidly changed warfare as it became ubiquitous and technology evolved, causing very different battlefields to be only a few decades apart. The evolution of warfare from the American Revolution to the Civil War and through World War II shows this.

The cutting edge of modern war since World War II is arguably the

precision-guided munition. This includes advanced air defenses able to reach the stratosphere, to ATGMs, to bombs that increase the lethality of fixed-wing aircraft by orders of magnitude. Even modern anti-access/area-denial technologies are ultimately the result of advancing precision-guided ordnance (often bombs or rocket motors). Modern war has changed inexorably with the invention and evolution of precision-guided munitions, although directed-energy weaponry, cyberwarfare, space superiority, information warfare and networks such as JADC2 may give the precision-guided munition a run for its money in the 21st Century.

A further consideration is that precision-guided weapons are another tool for commanders among many, yet which will eventually need their own unique doctrine as a decisive arm of warfare. An example would be the invention of heavy cannon. Heavy cannons excelled at the ancient task of penetrating the walls of fortifications and by offering powerful defensive capabilities. Later, as their size, expense and weight decreased, cannons evolved into various types of field artillery such as the mortar and howitzer. They became weapons that eventually accounted for the most battlefield casualties in land warfare and have highly refined doctrine.⁴³

Another consideration is whether the invention of precision-guided weapons is like the invention of firearms: something that forever changes every way in which war happens – ways that were poorly predicted – over a very long period. From the cannon to the harquebus to the musket to the rifle to the machinegun, war was never the same after the invention of the firearm, although it took centuries for firearm technologies to mature.

Regardless, continued innovation among all components of DOTMLPF will be decisive for present-day commanders facing a time of great uncertainty as to what warfare may look like in just 20 years.

Steven Yeadon is an "independent scholar" living in Florida. He has been published in several military-related publications, including "sister"



Figure 4. An example of blending: a Japan Ground Self-Defense Force Type 73 Ougata light truck camouflaged into its surrounding background.

professional-development bulletins *MCU Journal, Fires, Army Aviation Digest and Infantry*. He holds a bachelor's degree in political science from the University of Central Florida.

Notes

¹ Frank Dimina, "Why a common data platform is the first step to JADC2," *C4ISRNET*, Feb. 26, 2020, <https://www.c4isrnet.com/opinion/2020/02/26/why-a-common-data-platform-is-the-first-step-to-jadc2/>.

² Headquarters U.S. Marine Corps, *Marine Corps Operating Concept: How an Expeditionary Force Operates in the 21st Century*, September 2016, <https://www.mccdc.marines.mil/Portals/172/Docs/MCCDC/young/MCCDC-YH/document/final/Marine%20Corps%20Operating%20Concept%20Sept%202016.pdf?ver=2016-09-28-083439-483>.

³ Phillip Karber and Joshua Thibeault, "Russia's New-Generation Warfare," Association of the U.S. Army, May 20, 2016, <https://www.USA.org/articles/russia%E2%80%99s-new-generation-warfare>.

⁴ "Ukraine conflict: Many soldiers dead in 'rocket strike,'" BBC News, July 11, 2014, <https://www.bbc.com/news/world-europe-28261737>.

⁵ Glenn K. Otis, "Ascendancy of Fires: the Evolution of the Combined-Arms Team," *Field Artillery Journal*, June 1995, http://sill-www.army.mil/firesbulletin/archives/1995/JUN_1995/JUN_1995_FULL_EDITION.pdf.

⁶ John Pike, "Indirect Fire," Federation of American Scientists Military Analysis Network, Feb. 6, 2000, <https://fas.org/man/dod-101/sys/land/indirect.htm>.

⁷ Kyle Mizokami, "This Destroyer Concept Is a Tank Battalion's Worst Nightmare," *Popular Mechanics*, Sept. 5, 2019, <https://www.popularmechanics.com/military/weapons/a28928680/tank-destroyer-concept/>.

⁸ Retired COL John F. Antal, "The Ascendancy of Fires," Defense Technical Information Center, April 7, 1998, <http://www.dtic.mil/dtic/tr/fulltext/u2/a346267.pdf>.

⁹ Kris Osborn, "New Army Infantry Missile Tech Destroys Tanks at 4.5 Kilometers," *Warrior Maven*, Dec. 16, 2019, <https://defensemaven.io/warriormaven/land/new-army-infantry-missile-tech-destroys-tanks-at-4-5-kilometers-n4xua7SF-ECP9d-nITY-3Mg>.

¹⁰ "TOW-2 Wire-Guided Anti-Tank Missile," *Army Technology*, accessed Oct. 15,

2018, <https://www.army-technology.com/projects/tow/>.

¹¹ "M242 Bushmaster 25mm Automatic Gun," Federation of American Scientists Military Analysis Network, Jan. 5, 1999, <https://fas.org/man/dod-101sys/ac/equip/m242.htm>.

¹² "120mm M829A3 APFSDS-T Armor Piercing Fin Stabilized Discarding Sabot with Tracer," Northrop Grumman, 2018, <https://www.northropgrumman.com/Capabilities/LargeCalAmmunition/Documents/M829A3APFSDST.pdf>.

¹³ Ibid.

¹⁴ Steven J. Zaloga, *M1 Abrams vs T-72 Ural Operation Desert Storm 1991*, New York: Osprey Publishing Ltd., 2009.

¹⁵ Ibid.

¹⁶ DoD FY19 budget estimates, Army Financial Management and Comptroller, February 2018, <https://www.asafm.army.mil/Portals/72/Documents/BudgetMaterial/2019/Base%20Budget/Justification%20Book/Missiles.pdf>.

¹⁷ Ibid.

¹⁸ "Cartridges Tank, 105mm and 120mm, All Types," Defense Technical Information Center, February 2016, http://www.dtic.mil/procurement/Y2017/Army/stamped/U_P40_E22203_BSA-35_BA-1_APP-2034A_PB_2017.pdf.

¹⁹ "Selected Acquisition Report (SAR) Small Diameter Bomb Increment II (SDB II) as of FY 2017 President's Budget," Executive Services Directorate, March 23, 2016, http://www.esd.whs.mil/Portals/54/Documents/FOID/Reading%20Room/Selected_Acquisition_Reports/16-F-0402_DOC_23_SDB_II_DEC_2015_SAR.pdf.

²⁰ Lauren Poindexter, "Picatinny Engineers Seek to Double Range of Modified Howitzer," Picatinny Arsenal Public Affairs, March 17, 2016, https://www.army.mil/article/164462/picatinny_engineers_seek_to_double_range_of_modified_howitzer.

²¹ Sydney J. Freedberg Jr., "Army Will Field 100 Km Cannon, 500 Km Missiles: LRPFCFT," *Breaking Defense*, March 23, 2018, <https://breakingdefense.com/2018/03/army-will-field-100-km-cannon-500-km-missiles-lrpf-cft/>.

²² "U.S. Army to procure BAE Systems' 155mm BONUS precision-guided munitions," BAE Systems, Oct. 9, 2018, <https://www.baesystems.com/en-us/article/us-army-to-procure-bae-systems-155mm-bonus-precision-guided-munitions>.

²³ <https://www.baesystems.com/en/download->

[en/20181018192053/143455555732.pdf](https://www.baesystems.com/en/20181018192053/143455555732.pdf).

²⁴ Kyle Mizokami, "The U.S. Army Is Creating Artillery Rounds Guided By AI," *Popular Mechanics*, Aug. 15, 2019, <https://www.popularmechanics.com/military/research/a28702450/ai-missiles/>; "Bofors 155mm BONUS Anti-Armor, Top Attack Artillery" BAE Systems.

²⁵ Lockheed Martin, "First Lockheed Martin GMLRS Alternative Warhead Rolls Off Assembly Line," CISION PR Newswire, Sept. 12, 2016, <https://www.prnewswire.com/news-releases/first-lockheed-martin-gmlrs-alternative-warhead-rolls-off-assembly-line-300326194.html>.

²⁶ Joseph Trevithick, "Army Plans To Double Guided Artillery Rocket's Range By Putting Control Fins On Its Tail," *The War Zone, The Drive*, June 22, 2018, <http://www.thedrive.com/the-war-zone/21708/army-plans-to-double-guided-artillery-rockets-range-by-putting-control-fins-on-its-tail>.

²⁷ DoD FY19 budget estimates.

²⁸ *U.S. Army Weapon Systems Handbook 2012*, Federation of American Scientists Military Analysis Network, 2012, <https://fas.org/man/dod-101/sys/land/wsh2012/132.pdf>.

²⁹ "HELLFIRE Family of Missiles," U.S. Army Acquisition Support Center, <https://asc.army.mil/web/portfolio-item/hellfire-family-of-missiles/>.

³⁰ Program Executive Office-Missiles and Space, "U.S. Army Successfully Fires Missile from New Interceptor Launch Platform," March 30, 2016, https://www.army.mil/article/165106/us_army_successfully_fires_missile_from_new_interceptor_launch_platform.

³¹ Missile Defense Project, "Brimstone," *Missile Threat*, Center for Strategic and International Studies, Dec. 6, 2017, <https://missilethreat.csis.org/missile/brimstone/>.

³² Ibid.

³³ *U.S. Army Weapon Systems Handbook 2012*, Federation of American Scientists Military Analysis Network.

³⁴ Missile Defense Project, "Brimstone," *Missile Threat*.

³⁵ Field Manual (FM) 3-22.37, *Javelin - Close Combat Missile System*, <https://fas.org/irp/doddir/army/fm3-22-37.pdf>.

³⁶ FM 3-21.91 (FM 7-91), *Tactical Employment of Anti-Armor Platoons and Companies*, 2008, <https://www.globalsecurity.org/military/library/policy/army/fm/3-21-91/appa.htm>.

³⁷ Moog, Inc., "Flexible Missile Platform," accessed April 21, 2020, <https://www>.

moog.com/products/weapons-platforms/flexible-missile-platform.html.

³⁸ Mizokami.

³⁹ “M1A2 Abrams American Main Battle Tank (MBT),” O[perational] E[nvironment] Data Integration Network, [https://odin.tradoc.army.mil/mediawiki/index.php/M1A2_Abrams_American_Main_Battle_Tank_\(MBT\)](https://odin.tradoc.army.mil/mediawiki/index.php/M1A2_Abrams_American_Main_Battle_Tank_(MBT)).

⁴⁰ Raytheon, “Advanced Field Artillery Tactical Data System (AFATDS),” <https://www.raytheon.com/capabilities/products/afatds>.

⁴¹ U.S. Army Public Affairs, “Army announces conversion of two brigade

combat teams,” Sept. 21, 2018, https://www.army.mil/article/211368/army_announces_conversion_of_two_brigade_combat_teams.

⁴² John Antal, “Mask or Die, Surviving on the Long-Range Precision Fires Battlefield of 2040,” Sept. 15, 2019, https://www.academia.edu/42734798/Mask_or_Die_Surviving_on_the_Long_Range_Precision_Fires_Battlefield_of_2040_by_John_Antal.

⁴³ James F. Dunnigan, *How to Make War*, 4th edition, New York: HarperCollins Publishers, 2003.

ACRONYM QUICK-SCAN

ABCT – armored brigade combat team
AFATDS – Advanced Field-Artillery Tactical Data System
AMPV – Armored Multi-Purpose Vehicle
APFSDS-T – Armor-Piercing Fin-Stabilized Discarding Sabot with Tracer
ATGM – anti-tank guided missile
BFV – Bradley Fighting Vehicle
CDAEM – Cannon-Delivered Area Effects Munition
DoD – Department of Defense
DOTMLPF – doctrine, organization, training, materiel, leadership and education, personnel and facilities
EMS – electromagnetic spectrum
FM – field manual
FY – fiscal year
GMLRS – Guided Multiple-Launch Rocket System
IFV – Infantry Fighting Vehicle
ISR – intelligence, surveillance, reconnaissance
JADC2 – Joint All-Domain Command and Control
MBT – main battle tank
TOW – tube-launched, optically tracked, wire-guided
UAS – unmanned aerial system
UGV – unmanned ground vehicle

TRADOC G-2 newsletter



U.S. Army Training and Doctrine Command’s G-2 has just released a monthly newsletter, unclassified and approved for public release. Its inaugural edition highlights many of G-2’s most recent products. The newsletter “seeks to arm leaders and Soldiers with resources to understand the operational environment [OE] and succeed when operating in it.”

“One of the challenges associated with the changing character of warfare comes not just from the emergence of

disruptive technologies and our adversaries’ embrace of them, but also from the ways in which they adopt hybrid strategies that challenge traditional symmetric advantages and conventional ways of war,” writes LTG Theodore D. Martin, TRADOC deputy commanding general and TRADOC’s chief of staff – and former commandant of the U.S. Army Armor School. “It is crucial to understand what the OE looks and feels like to warfighters to shape our application of combat power and how we train our formations to meet these challenges. [A] deep look at the future allows us to examine our assumptions about warfare, force structuring and capabilities requirements. This assessment is vitally important to every member of the Army team, from the brand-new Soldier, to general officers, to career Army civilians. Shared understanding of the environment is essential to preparing our people, setting the context for readiness, informing our modernization efforts and guiding us in reforming our processes to meet new challenges.”

Specific country products:

- Iran products: <https://community.apan.org/wg/gckn/p/irandproducts>
- China products: <https://community.apan.org/wg/gckn/p/chinaproducts>
- Russia products: <https://community.apan.org/wg/gckn/p/russiaproducts>
- North Korea products: <https://community.apan.org/wg/gckn/p/northkorealibrary>

See also TRADOC Pamphlet 525-92-1, *The Changing Character of Warfare: the Urban OE*, <https://adminpubs.tradoc.army.mil/pamphlets/TP525-92-1.pdf>.

Integrated Squads in the 6x36 Reconnaissance Formation

by CPT Jared D.L. Moore

What is a reconnaissance squad in the 6x36 formation? This is a topic frequently discussed among reconnaissance leaders as they prepare to certify their sections. The question affects how a unit qualifies and trains each echelon to meet its Objective-T (training) requirements.

There are two major answers to the question: 1) there are two types of squads within a platoon, mounted and dismounted; and 2) there are four comparable squads consisting of a vehicle and associated dismount team.

The modified table of organization and equipment (MTOE) further complicates this debate because it does not define squad composition. The MTOE simply designates two squad leaders, two team leaders, four mounted scouts and four dismounted scouts per reconnaissance section. The only differences in the squad leaders is one has a Scout Leader's Course (formerly known as the Army Reconnaissance Course) identifier and one has a Ranger identifier.

As a reconnaissance-troop commander in 4th Squadron, 2nd Cavalry Regiment, I discussed this issue with other leaders in the unit. Within the squadron, we generally agreed that a platoon was three sections, as the MTOE designates, with two reconnaissance sections and a headquarters section. Within the reconnaissance sections, we also agreed the 6x36 squad consisted of two vehicles and two dismount teams, aligning closely with the MTOE.

Some of us varied from the MTOE by the way we organized the headquarters section. Some leaders opted to leave the headquarters section with only eight Soldiers – nine with the addition of a platoon medic – and pulled the other four Soldiers who are allocated by MTOE into the reconnaissance sections.

Even with all these similarities among the leaders in the squadron, we remained divided on which squad concept to use. The debate ended with each troop leader choosing the squad concept he or she preferred to adopt

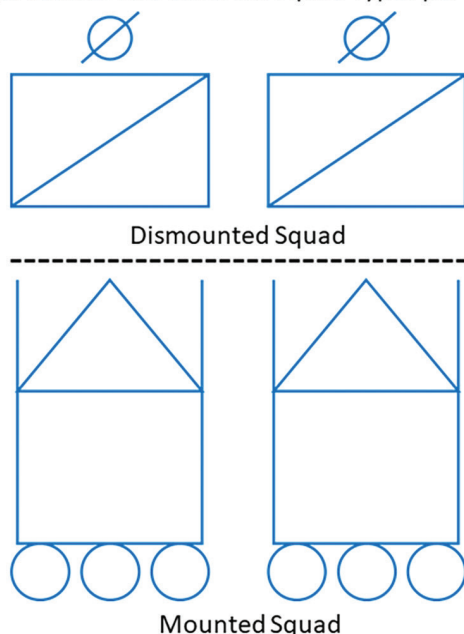
because both configurations resulted in similar section and platoon compositions.

Integrated squad best

Despite both concepts ending with similar compositions, fighting an integrated reconnaissance squad with vehicle and a dismount team is a better concept for maximizing vehicle and dismounted capabilities. It provides organizational flexibility and facilitates live-fire progressions.

With the 6x36 concept, the capabilities of the vehicle platform and the dismounted elements complement one another. The dismounted team provides local security for the vehicle, another observation team with multiple optics and an additional armor-defeating capability. The team can relay communications for elements separated by austere terrain. Likewise, the vehicle provides the dismounted team with basic sustainment, platform-based and amplified communications systems, mounted optic systems and additional standoff with higher-caliber weapon systems.

Configuration 1: Two Different Squad Types per Section



Configuration 2: Two Integrated Squads per Section

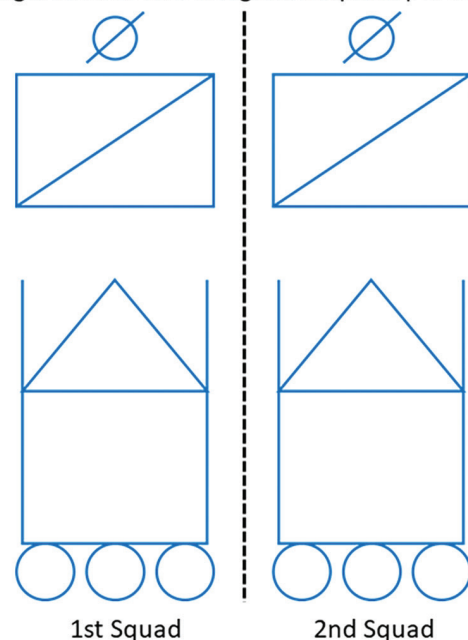


Figure 1. Line chart for 6x36 configurations.

It is a symbiotic relationship because each element works together to develop the situation and answer information requirements for the supported unit. While certain mission sets demand a more dismounted or mounted reconnaissance focus, completely divorcing the two elements for extended operations negates the advantages of the 6x36 formation.

For example, if a Stryker-based unit such as 4th Squadron, 2nd Cavalry Regiment, decides to air-insert a troop beyond the forward-line-of-own-troops to conduct an area reconnaissance during an attack's initial phase, the troop significantly increases the supported unit's situational awareness with a very-low-signature element. However, as the vehicles advance, the troop assumes risk with this movement since its dismounted elements are unavailable to clear danger areas or assist with pulling vehicles into observations posts.

Leaving the vehicles behind and going completely dismounted is also a possibility. However, this surrenders a significant portion of a Stryker unit's capabilities and limits its ability to support follow-on operations.

With that in mind, the 6x36 configuration is a mixed reconnaissance force that allows reconnaissance leaders to maximize the capabilities of their dismounted and mounted elements. Dissociating the vehicles and their dismounts is a deliberate decision and an assumption of risk by a reconnaissance leader to fulfill a specific reconnaissance task.

Lowest possible level

With this type of a relationship between the mounted and dismounted elements of 6x36 formations, integrating these capabilities at the lowest possible level maximizes their effectiveness and flexibility. The lowest level at which a reconnaissance formation can combine these capabilities is the squad level. Each vehicle in a reconnaissance section contains a staff sergeant and one sergeant. With the addition of a senior specialist or sergeant from the headquarters section, this gives the section the basic leadership elements for a squad: one squad leader and two subordinate team leaders.

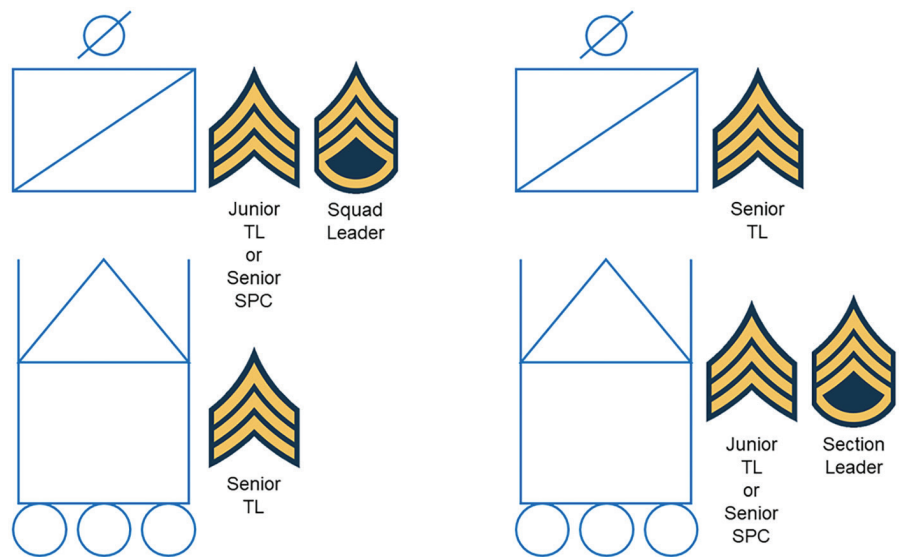


Figure 2. Organization of a reconnaissance section with integrated squads.

The difference for the reconnaissance squad leaders is that they have one mounted and one dismounted team, an integrated squad. This leaves the squad leader with some decisions to make in terms of organization and his or her own positioning depending on the mission.

With two integrated squads per section, every leader within the section understands the other squad's capabilities. Training these formations as dismounted or mounted squads denies the leaders within each squad familiarity with the opposite formation's capabilities and ultimately negates the mixed-reconnaissance advantages offered by 6x36 formations. However, an integrated squad maximizes those advantages, but it also has the flexibility at section level to organize into unique dismounted and mounted squads if necessary.

To facilitate this flexibility, Troop O, 4-2 Cav, dismounted the junior squad leader, and the senior squad leader remained mounted. On each mission, the senior squad leader, who acted as section leader, discussed his organization with his platoon leadership and adjusted his formation accordingly. At times the section leader dismounted and left the junior squad leader on the vehicles or opted to place both squad leaders with the dismounted elements.

Training

Training as integrated squads allows

the section leader and his or her subordinate leaders to achieve organizational flexibility because of the understanding they have of mounted and dismounted capabilities within their formation. Some of this flexibility is inherent in the fact that an integrated squad mitigates certain issues with live-fire training for reconnaissance formations.

To lay this out: As we know, the subordinate echelon needs to certify before executing each echelon of training; similar to tank formations, vehicle-based reconnaissance elements need to qualify as an individual crew before moving to section and platoon live-fires. Dismounted formations, of course, follow a similar certification pattern to infantry elements: individual, team, squad and platoon.

However, the 6x36 reconnaissance elements have a unique organization that integrates dismounted and mounted elements at section level. With a section organization of two vehicles and two dismounted teams, integrated squads provide units a huge advantage in live-fire progressions.

How so? If a formation trains separate dismounted and mounted squads, it requires a unit to conduct five unique live-fire scenarios to achieve section proficiency (see Figures 3 and 4). An element that trains integrated squads only requires four live-fire scenarios to achieve section proficiency (Figure 4), which saves the unit training days and

| Echelon | Team/Crew | Squad | Section |
|------------|-----------|-------|---------|
| Dismounted | | | |
| Mounted | | | |

Figure 3. Live-fire events with mounted and dismounted squads.

| Echelon | Team/Crew | Squad | Section |
|------------|-----------|-------|---------|
| Dismounted | | | |
| Mounted | | | |

Figure 4. Live-fire events with integrated squads.



resources by conducting one less unique live-fire event. Furthermore, this mitigates the risk associated with maneuvering mounted and dismounted elements at the section level because each squad would have already certified with a mounted and dismounted element.

The integrated squad maximizes the capabilities of the 6x36 formation at the lowest echelon and provides reconnaissance leaders the maximum flexibility to task-organize for any mission. Also, using integrated squads increases the efficiency of a unit's live-fire progression and mitigates risk during section live-fires by integrating dismounted and mounted elements earlier in the progression. However, the concept does assume risk with the headquarters section by reducing its personnel strength to eight.

Granted, the integrated squad is not the one-size-fits-all answer, and units should not create situational-training progressions that only exercise the integrated-squad concept. However, a leader can organize the 6x36 formation in many configurations to fulfill the needs of each specific reconnaissance mission. Leaders can also deliberately choose the organization for each mission based on the mission analysis and the commander's intent.

Success in reconnaissance missions relies on the ingenuity and rapid

Figure 5. A reconnaissance-team leader overlooks the town of Dimpersreuth, Germany, during Outlaw Troop's team/squad situational training exercise (STX) in August 2017. This was the final named area of interest (NAI) for the STX lane, which used the integrated-squad concept in preparation for squad and section certifications. (Photo by 1LT Matthew Brooks, Outlaw Troop unit public-affairs representative)

decision-making of leaders at the lowest level, and the integrated-squad concept provides leaders with the best capabilities and flexibility to achieve it.

CPT J.D. Moore is a graduate student studying educational leadership and policy studies at the University of Kansas, assigned to U.S. Student Detachment, Fort Jackson, SC. His previous assignments include task-force sustainment observer/coach/trainer, Joint Multinational Readiness Center, Hohenfels, Germany; commander, Headquarters and Headquarters Troop, 4th Squadron, 2nd Cavalry Regiment, Vilseck, Germany; commander, Troop

O, 4-2 Cav; executive officer, Headquarters and Headquarters Troop, 4th Squadron, 10th Cavalry Regiment, Fort Carson, CO; and scout-platoon leader, Troop C, 4-10 Cav, Fort Carson. CPT Moore's military schools include the Stryker Leader's Course, Cavalry Leader's Course, Maneuver Captain's Career Course, Army Reconnaissance Course and Armor Basic Officer Leader's Course. He has a bachelor's of science degree in history (with thesis) from the U.S. Military Academy. CPT Moore is currently pursuing a master's of arts degree in social and cultural studies in education from the University of Kansas.

ACRONYM QUICK-SCAN

MTOE – modified table of organization and equipment
NAI – named area of interest
STX – situational-training exercise
TL – team leader



Figure 6. A reconnaissance-squad leader provides security during a short halt after dismounting from the squad's Stryker and maneuvering toward the final NAI during Outlaw Troop's team/squad STX in August 2017. The STX used the integrated-squad concept. (Photo by 1LT Matthew Brooks, Outlaw Troop unit public-affairs representative)

All-Weather Reconnaissance and Security Asset: The Cavalry Scout

by CPT Nathan Sitterley

The scout's purpose will not be fulfilled without making contact with his adversary. In most cases, the scout will accomplish reconnaissance and security (R&S) operations with little to no notice, under the cover of darkness and over challenging terrain. He or she does this to set conditions and enable the brigade combat team (BCT) to destroy the enemy.

This article will enhance the understanding of reconnaissance management and where to apply certain assets within the commander's intelligence-collection plan.

Although used differently in infantry, armor and Stryker BCTs, a cavalry organization's main purpose is to paint the picture of the battlefield by answering questions about the enemy, terrain, infrastructure and societal factors. This is the cavalry's main purpose because it enables commanders at all echelons to make the most informed

decision in the shortest amount of time. The journey to understanding the role of a cavalry scout begins with understanding certain capabilities within a cavalry troop in a Stryker BCT (SBCT).

Force structure

An SBCT cavalry squadron consists of six cavalry troops. There are three reconnaissance cavalry troops, one weapons troop, one forward-support troop and one headquarters troop in the squadron. This article will be limited to the discussion of the reconnaissance troop to explain how to incorporate scouts into the brigade's scheme of information collection.

A reconnaissance cavalry troop organically has two scout platoons and one mortars section. Each scout platoon consists of six Infantry Carrier Vehicle Variant (ICVV) Strykers that can comfortably fit some 11 personnel, including the driver, gunner, vehicle commander and eight dismounts. The

Strykers are equipped with an M151 Remote Weapon Station (RWS) that can detect heat signatures of up to 10 kilometers, positively identify vehicles at four kilometers and engage hostile forces up to two kilometers with a .50-caliber M2 machinegun or at 1.5 kilometers with an Mk-19 40mm grenade launcher.

Fitted on a Stryker is a Long-Range Advance Scout Surveillance System that can observe thermal signatures in multiple contrasts up to 20 kilometers away. It can also pinpoint a 10-digit military grid-reference system grid to allow accurate reporting, thus enabling a more effective and rapid call-for-fire mission.

The ICVV Stryker can travel up to about 250 cross-country miles with a top speed of 62 mph. It has an operational rate of some 12-72 hours based on usage and can hold about 53 gallons of JP-8 fuel. The average M1126 Stryker ICVV version can have up to two 1152F Advanced System



Figure 1. A team of scouts assigned to Apache Troop, 2nd Squadron, 1st Cav, maneuvers up challenging terrain in snowy conditions as they try to get to their tentative OP location during troop leaders' training time at Training Area Bravo, Fort Carson, CO. (Photo by CPT Nathan Sitterley)

Improvement Program radios that are line-of-sight-based and can communicate up to 10 kilometers away on power-amplification mode.

In the vehicle-commander station, there is one Joint Capabilities Release communications platform that uses satellite communications, which can send encrypted data and assist the vehicle commander on digital means of navigation.

Cavalry's main asset

The Stryker, no matter how comfortable, is not the Scout's main weapon system. The scout dismounted on the ground with a radio is a cavalry organization's main asset. Dismounts generally carry two radios per a three- to five-Soldier team and about three radios in a seven- to eight-Soldier Squad. These radios can potentially range up to 10 kilometers, but they rely heavily on line-of-sight communications and atmospheric conditions.

A scout platoon consists of 37 Soldiers, 36 being organic and one is an attached military-occupation specialty 68W combat medic. For planning consideration, the troop commander at minimum gives the necessary R&S guidance to include focus, tempo, engagement, disengagement and displacement criteria. He or she will then specify the squadron's priority intelligence requirements (PIR) and begin to assign tasks to subordinate units.

The platoon leader confirms that he or she understands the R&S guidance given by the troop commander during a confirmation brief. He or she must brief the latest-time-information-is-of-value (LTIOV) or the duration of the security operation within his or her scheme of maneuver to his/her platoon.

This will allow platoon sergeants to coordinate for more logistical resupply prior to crossing the line of departure or during the operation. A scout organization planning factor for self-sustaining logistical supply is three days' supply or 72 hours.

Within our organization, we also have other modified table of organization and equipment assets to assist in answering the commander's PIR. Three critical assets that enhance scouts'



Figure 2. PFC Bryan Breerton from Apache Troop, 2-1 Cav, low-crawls with a Javelin missile on his back to get into a hide position during squad live-fire certification at Fort Carson, CO. (Photo by CPT Nathan Sitterley)

abilities will be covered in the article.

Optics to be discussed are:

- Command launch units (CLU);
- Lightweight Laser-Designator Rangefinder (LLDR); and
- RQ-11 Raven.

The CLU can be used to observe or fire a Javelin missile (FGM-148) up to about four kilometers. It has a tracking mechanism that will lock on a heat signature that allows a 90- to 95-percent hit-to-kill ratio at its maximum effective range of 2.5 kilometers. It can penetrate anything from a T-90 tank to a *boyevaya mashina pekhoty-3* (Russian fighting vehicle). This secondary weapon of choice is the scout platoon's key asset when it comes to encountering an armor threat within the commander's engagement criteria.

The PED-1 LLDR is essential for dismounted operations. It provides scouts the ability to lase targets for an accurate call-for-fire mission using precision or near-precision munitions. It has a Global Positioning System, day sight and thermal that can range up to seven kilometers during the day and three kilometers at night. It weighs about 35 pounds and can fit in a Soldier's rucksack. It's essential for setting up short- or long-duration observation posts (OPs).

The final critical asset for a cavalry

troop to highlight is the RQ-11 Raven. This unmanned aerial system is crucial for aerial reconnaissance of up to some 10 kilometers with an ideal operational rate of up to 60 minutes. It has thermal and forward-looking infrared laser capabilities, which can observe heat signatures from both vehicles and individuals at its max ceiling of 500 feet above ground level. (Caution:

This asset is extremely loud and cannot be launched in a wind factor of 30 mph or greater.) This system is remotely controlled from a hand-held ground-control station and can be programmed, launched and recovered in a matter of minutes at the troop level.

Lethality

Lethality is not about having the best weapon system. Lethality encompasses the knowledge on where, when and how to tactically employ the best weapon system against the adversary. The final portion of this article will describe how to ensure continuous reconnaissance by using reconnaissance-management processes.

BCTs require continuous information collection throughout all phases and critical events of the operation. Some of the reconnaissance phases of operation include infiltration, counter-reconnaissance and transition to

security operations. If not deliberately planned, the enemy can exploit these transitions between phases and isolate reconnaissance units.

Commanders must direct information collection throughout all operations. To this end, they should direct task-organized cavalry assets to collect required information, leading to more informed identification and possible executions of sequels and branch plans. Continuous reconnaissance provides commanders at all echelons the ability to confirm or deny enemy courses of action (CoAs), and it provides reaction time and maneuver space for levels above as well as for themselves.

Reconnaissance management is designed to provide commanders and platoon leaders the ability to match certain asset capabilities required to gather certain PIRs. PIRs are broken down into sub-tiers. Indicators are used to assist in spotting signs, which lead to finding answers for PIRs. Are assets capable of answering types of specific information requirements?

Why are PIRs important? PIRs should drive certain decision points that commanders must make to confirm or create a CoA (reconnaissance push and pull techniques). To support commanders' decision-making, reconnaissance management can help gain and maintain threat contact as part of a larger defensive or offensive operation.

There are three types of reconnaissance management: cueing, mixing and redundancy. *Cueing* is the integration of one or more types of reconnaissance or surveillance systems to provide information that directs follow-on collection of more detailed information by another system (Field Manual (FM) 3-90-2, **Reconnaissance, Security and Tactical Enabling Tasks** Vol. 2). These systems may signal other ground or air reconnaissance assets to investigate specific areas to confirm, deny or verify information.

For example, a dismounted OP may observe a named area of interest (NAI) along a specific or most probable axis of advance, while the Raven observes an avenue of approach for the most dangerous CoA of the enemy at a

specific trigger. If the LTIOV has reached its limit and there is no threat contact from the dismounted OP, this will trigger a Raven to be launched to identify whether the enemy is using its most dangerous CoA on its most dangerous axis of advance.

Cueing is based on time, threat, friendly or established triggers. Cueing helps preserve combat power, but it limits maximizing reconnaissance assets forward at one particular time.

Mixing is using two or more different assets to collect against the same intelligence requirement (FM 3-90-2). Employing different systems is always desirable if the situation and available resources permit.

This recon management allows multiple perspectives from different vantage points. This method enhances the probability of collection and tends to provide complete information. Mixing can also help defeat deception attempts by highlighting discrepancies in information reported by different collection assets. However, this has to be an ongoing process until LTIOV – for example, if one OP with an LLDR and one RWS on a Stryker focused on one NAI from different depths of observation. Should the NAI be covered with micro-terrain and vegetation, different elements on the ground can have the opportunity to paint the picture for the commander from different angles.

Redundancy is using two or more like assets to collect against the same intelligence requirement (FM 3-90-2). Redundancy increases the chances the reconnaissance element collects the required information and provides depth should one element become compromised. For example, two OPs focused on one NAI can work well. Should an OP need to displace to avoid compromising its location, another OP team can observe that particular NAI.

The commander will know exactly the capabilities of the two OPs and the time it generally takes to answer certain PIRs. Redundancy maximizes R&S

efforts, but it lacks the preservation of combat power. Warfighter and equipment management must be emphasized when using this management tool.

Making contact

Someone will have to go forward and make contact. This job falls on the BCTs' cavalry squadrons. Continuous and focused collection efforts do not mean to employ all available assets at the commander's leisure.

To maintain warfighter management, one must consider the human dimension within the all-weather reconnaissance asset. BCTs task and position the right combination of humans, sensors and technical means to capitalize on their impact, allow rapid analysis of information, disseminate intelligence and aid decision-making at all appropriate echelons.

CPT Nathan Sitterley commands Apache Troop, 2nd Cavalry, 1st SBCT, 4th Infantry Division, Fort Carson, CO. Previous assignments include S-4, Headquarters and Headquarters Troop, 2-1 Cav, 1st SBCT, Fort Carson; commander/senior instructor, Hawk Troop (Apache Troop), 2nd Squadron, 16th Cavalry Regiment (Armor Basic Officer Leader Course, or ABOLC), 316th Cavalry Brigade, Maneuver Center of Excellence (MCoE), Fort Benning, GA; tactics officer/instructor/writer, 2-16 Cavalry, ABOLC, 199th Brigade, MCoE, Fort Benning; and platoon leader and executive officer, 3-4 Cavalry, 3rd Infantry Brigade Combat Team, 25th Infantry Division, Schofield Barracks, HI. CPT Sitterley is a graduate of ABOLC, Army Situation-Awareness Training, Army Reconnaissance Course, Maneuver Captain's Career Course, Cavalry Leader's Course, Airborne School, Maneuver Leader's Maintenance Course and Pathfinder School. He holds a bachelor's of science degree in business administration and marketing from Salisbury University. CPT Sitterley's awards and honors include the bronze Order of St. George.

ACRONYM QUICK-SCAN

ABOLC – Armor Basic Officer Leader Course

BCT – brigade combat team

CLU – command launch unit

CoA –course of action

FM – field manual

ICVV – Infantry Carrier Vehicle Variant

LLDR – Lightweight Laser-Designator Rangefinder

LTIOV – latest-time-information-is-of-value

MCoE – Maneuver Center of Excellence

NAI – named area of interest

OP – observation post

PIR – priority intelligence requirement

R&S – reconnaissance and security

RWS – Remote Weapon Station

SBCT – Stryker brigade combat team

For Company- and Platoon-Level Leaders' Professional Development: *Musicians of Mars, Vol. 3: the Cobra Strikes*

One of the Center for Army Lessons Learned (CALL)'s recent products (published in February 2019), it is a series of tactical vignettes in the same vein as *Duffer's Drift* and should aid mounted-maneuver leaders in conducting professional development with their junior officers / noncommissioned officers. From the CALL Website:

"Musicians of Mars III The Cobra Strikes picks up the tale of ... Task Force Mustang in the aftermath of their successful defense (in CALL Handbook 16-12, *Musicians of Mars II*) of Engagement Area Blackjack. ... As with *Musicians of Mars II*, this handbook takes the reader through a fictional scenario where the tactical leaders make decisions, some good and some not so good, that impact subsequent actions. *Musicians of Mars III* will have its leaders learning and improving as they progress through tactical engagements. This was intentional in the development of this publication and is designed to facilitate tactical discussions at the company and platoon levels."

All three *Musicians of Mars* publications are available by going to the CALL Website, <https://call.army.mil>, and clicking on "Publications." Direct links are *Musicians of Mars III: The Cobra Strikes*, <https://usacac.army.mil/sites/default/files/publications/19-08.pdf>; *Musicians of Mars II*, <https://usacac.army.mil/organizations/mccoe/call/publication/16-1>; *Musicians of Mars I: A Story of Synchronization for the Company/Team Commander*, <https://usacac.army.mil/node/2358>. The publications are also available to order in hard copy. (Books and shipping are free to unit address. To order publications, visit <https://call2.army.mil/rfp> (CAC login required). General questions can be directed to CALL's Request for Information line at (913) 684-2255 (CALL).)

From foreword:

"There is still a tendency in each separate unit ... to be a one-handed puncher. By that I mean that the rifleman wants to shoot, the tank to charge, the artilleryman to fire. ... That is not the way to win battles. If the band played a piece first with the piccolo, then with the brass horn, then with the clarinet, and then with the trumpet, there would be a hell of a lot of noise but no music. To get harmony in music, each instrument must support the others. To get harmony in battle, each weapon must support the other. Team play wins. You musicians of Mars ... must come into the concert at the proper place at the proper time." -MG George S. Patton Jr., address to 2nd Armored Division, July 8, 1941

Reforge the Broken Saber: Evolving the Infantry Brigade Combat Team's Cavalry Squadron to Win the Recon Fight

by SGT Christopher Broman

Part 1 of 2

The infantry brigade combat team (IBCT) cavalry formations of today are suffering from an identity crisis. More than 18 years of counterinsurgency (COIN) warfare has morphed the cavalry into an organization that is no longer the subject-matter expert on reconnaissance and security (R&S) operations. We spent so much time kicking in doors instead of building hide sites that we've lost our touch. Now, as we return to the *raison d'être* of our force, the technological advances of our near-peers have left us as a whole struggling to figure out how to adapt to these changes.

What are we to do? The first step in fixing any problem is admitting we have one. The IBCT cavalry squadron as an organization is unable to accomplish its mission sets and cannot compete against our near-peer adversaries.

Squadron, troop and Soldier/vehicle suggested changes will be discussed in this two-part series.

Problem

To many this will not be new information. In the July-September 2014 of *ARMOR*, then-Chief of Armor BG Lee Quintas spelled this out clearly with the problem statement: Is today's cavalry squadron manned, trained and equipped to accomplish required R&S missions? The answer written in capital letters is simply NO.¹

The modular BCT was created so "Soldiers, leaders and units [will] be extremely capable in [COIN] operations without sacrificing their ability to prevail in conventional combat."² The problem is that the fielding of cavalry squadrons into three different modular formations resulted in three organizations with various degrees of effective R&S against current or projected threats.³ The Army requires that

cavalry units conduct 13 missions covering reconnaissance, security, offense and defense. Of these, the IBCT cavalry squadron as organized is fully mission-capable of accomplishing six. The other seven can only be accomplished in a permissive environment in which combat with peers or near-peers is unlikely.⁴

This is not a matter of opinion but doctrine. Per Field Manual (FM) 3-20.98, *Reconnaissance and Scout Platoon*, "Currently platoon elements have limited dismounted capability and limited direct-fire standoff, lethality and survivability in full-spectrum operations."⁵ This makes sense considering that the Russian lead reconnaissance effort is often a reinforced platoon followed by a mounted reinforced company, often equipped with vehicles that have more armor and heavier weapons than a humvee.⁶

It's not just a problem with the current

organization structure of our units. We've had a failure for years in performing our inherent task. The inability to conduct effective reconnaissance was seen at the training centers even before the Global War on Terrorism; the RAND Corporation in 1993 conducted a study of 34 battles where Blue Forces did poor reconnaissance, of which 26 ended in failure, six in standoffs and only two victories. Enemy positions were not identified during half the missions, and route reconnaissance was conducted less than half the time. Scouts also failed to dismount 50 percent of the time and to avoid enemy contact 75 percent of the time, even though both directly correlate to recon success.⁷

Even with the shift away from COIN, scout platoons still seldom conduct true reconnaissance at the Joint Readiness Training Center (JRTC), with the focus being more on security or offensive operations.⁸ While some may



Figure 1. New York Army National Guard PFC Mathew Smithers, a cavalry scout with Troop B, 2nd Squadron, 101st Cavalry, based in Jamestown, NY, scans his area with an Mk-19 Grenade Launcher for enemy forces at JRTC, Fort Polk, LA. (U.S. Army photo)

blame the brigade commanders for fighting their scouts because they do not understand either the capabilities or missions they can accomplish, this is not true. Ultimately it is the responsibility of the squadron commander to make sure the brigade knows the most effective way to use his troopers.

It has been suggested by some that, because of the cavalry's inability to conduct reconnaissance and survive contact with the enemy, regular infantry or combined-arms battalions can conduct these missions instead. While infantry units have their own scout formations and can conduct limited area reconnaissance, they do not possess the skills, equipment or training to accomplish the full spectrum of cavalry operations. The cavalry's role is that of a specialized unit, no different than combat engineers, and its replacement will just further dilute the brigade's ability to conduct reconnaissance.⁹ Instead, the IBCT cavalry squadron needs to evolve.

Squadron, troop organizational solutions

This evolution cannot be done by simply changing a modified table of organization and equipment (MTOE) on a PowerPoint slide or equipping units with some new vehicles. IBCT cavalry squadrons need to become hybrid organizations capable of meeting and defeating any peer threat; have the technological capability to conduct reconnaissance across all spectrums; and possess the expertise to become the force-enablers that our infantry brothers need to be successful in their missions. Sweeping changes need to be seen not just at the squadron, troop and platoon level but also in the equipment carried by the individual trooper and on our vehicles.

Some organizational solutions may be:

- **Remove "RSTA."** What's in a name? The name of an organization gives an idea of its purpose and the mindset adopted by its Soldiers. IBCT squadrons are currently called reconnaissance, surveillance and target acquisition (RSTA), not cavalry. While this may seem like semantics, there is an important distinction between the two. The pre-December 2002 governing manual, *Cavalry*

Operations, states, "The fundamental purpose of cavalry is to perform reconnaissance and provide security in close operations."¹⁰ Per doctrine, the IBCT squadron needs to be able to conduct both security and reconnaissance, yet the RSTA name does not mention security. This change would help accurately describe the role of the squadron within the brigade. Only the battlefield-surveillance-brigade reconnaissance units should be designated as RSTA since their organization of just six Long-Range Advanced Scout Surveillance System-equipped humvees per platoon falls within the surveillance mindset of their brigade.

- **Make the squadron commander the chief of reconnaissance.** "Brigade commanders and their staff lack leader development and training to plan and execute [R&S] missions," according to BG Quintas, 48th Chief of Armor.¹¹ At this time, no staff section is in charge of both planning and executing information collection (IC). The brigade S-2, S-3, IC manager, cavalry squadron, military-intelligence company (MiCo), attached aviation and unmanned-aerial-system units all have a major role in the IC process.¹² This leaves the brigade commander, unless he delegates the responsibility, as the person to synchronize all these efforts while he is also making decisions about the overall operation. In addition, the squadron's organic assets are not enough to provide continuous reconnaissance, and not all information requirements can best be answered with just ground units.

To solve these problems, the squadron commander needs to be doctrinally established as the brigade chief of reconnaissance. As chief of reconnaissance, the squadron commander would direct IC planning for the brigade to answer all information requirements; task and direct all IC assets in the brigade; analyze all collected information; and disseminate information to enable shared understanding.¹³

By having the squadron commander in charge of IC efforts, the brigade S-2

would be able to focus on enemy courses of action, and a senior commander would be able to represent all IC efforts at brigade meetings. The squadron would also be responsible for all the brigade's named areas of interests within the recon fight. As chief of reconnaissance, the squadron commander would then have the tasking authority for all IC assets to ensure the proper use of cueing, redundancy and mixing for effective IC.

The concept of the cavalry squadron being in charge of all IC assets is already doctrinally established in the Stryker brigades. The Stryker brigade MTOE organizes all brigade intelligence, surveillance and reconnaissance assets under the reconnaissance squadron in a surveillance troop with human-intelligence (HUMINT) personnel directly integrated into the squadron's organic reconnaissance troops.¹⁴ In March 2015, 5th Battalion, 4th Cavalry Regiment, validated this concept during its National Training Center rotation, with the unit seeing great success in this role.¹⁵

Some might point to the squadron's need to move to stay in the recon fight and lack of a vehicle to enable use of Upper Tactical Internet applications such as Command Post of the Future (CPoF) and Distributed Common Ground System-Army (DCGS-A) on the move as reasons to not make this change.¹⁶ The squadron tactical-command post is more than capable of moving closer to control the squadron while the squadron command post completes its coordination tasks before moving forward. Also, while CPoF and DCGS-A are excellent coordination tools, they are not available to the troop/company commanders, thus creating an intelligence-sharing "speed bump" at the squadron/battalion level. By moving any general intelligence products to the Joint Battle Command-Platform (JBC-P), any information needing to be shared can be distributed quickly across the entire brigade without needing to be "translated" from a CPoF slide deck to a JBC-P overlay first.

EW at squadron and troop

After the Cold War ended, the Army

got rid of almost all of its electronic-warfare (EW) assets, believing the Navy or Air Force could provide those necessary capabilities. The focus of fighting non-state actors over the last decade did little to increase the need for these assets. Even when an EW position was later added to the squadron staff, the focus was more on countering improvised explosive devices than on traditional EW.

During this time, Russia kept practicing and perfecting EW to great success. In 2017 the Army released a study detailing how Russia was shutting down Ukrainian radio and cellular networks; was able to effectively jam and bring down 100 Ukrainian drones; and emitted signals to cause artillery and missiles to either prematurely detonate or veer off course.¹⁷ One shocking example was when Russia sent hoax messages to Ukrainian soldiers' families saying their sons were killed, and then minutes later used artillery to strike a location where a large group of cellphones had been detected as families tried contacting loved ones to see if they were alive.¹⁸ The Russians have also been honing their skills in Syria by effectively jamming our drones and disabling our EC-130s, EW planes equipped with jamming pods.¹⁹

Realizing the Army is losing the EW fight has forced it to start adding EW assets to its brigades. Currently the plan in 2020 is to start adding an EW platoon to the MiCo and have it serve as a brigade asset.²⁰ While this an important step forward, it is important to remember that each Russian armored or infantry brigade has its own EW company.²¹ This is why the cavalry squadron needs its own EW section organically assigned to provide both offensive and defensive options in its mission to collect information.

The squadron EW officer (either an officer or senior-enlisted Soldier) should be in charge of two combat EW intelligence (CEWI) teams of three Soldiers each, equipped with systems like Raven Claw and Sabre Fury. Raven Claw would allow them to manage the electromagnetic (EM) environment on the move and without network connection and to be able to "search and attack" potential EM threats.²² Another

similar system, the vehicle-mounted Sabre Fury, would give the squadron commander the ability to quickly move these teams to where they are needed most.

All members of the EW section would also be sent to the Low-Level Voice Intercept Operator's Course to add a further signal-intelligence (SIGINT) function to the teams.

This intelligence collected across the EW spectrum would give the squadron commander the options to either to continue to monitor and employ indirect fires, or to conduct an electronic attack to disrupt enemy communications.²³ Integrating EW into the squadron MTOE allows the squadron's screen or guard to instantly begin operating across multiple domains.²⁴

The downside is that integration of EW into squadron operations will inevitably degrade its own ability to communicate with friendly forces no matter how well-positioned or aimed the systems are.²⁵ SIGINT and EW activities broadcast a significant signature over the EM spectrum, making the teams susceptible to enemy collection efforts.²⁶ The EW officer at staff would be responsible for advising the squadron commander on the risks involved with each EW and SIGINT function and for managing the use of systems to drastically reduce the impact of the teams on other friendly-force communications.

Another consideration is that these teams need to spend as much time as possible with line units and not at squadron. If used effectively, the teams will be moving about the battlefield, and they need to be able to seamlessly integrate into scout-platoon positions without compromising them. Every opportunity should be taken to integrate the CEWI teams into training, especially as opposing forces. Almost no scout units have the resources or knowledge to effectively practice operations in an electronically degraded environment. The CEWI teams can help the line units practice operating in these conditions, leading to the development and implementation of new tactics, techniques and procedures.

More squadron changes

Other suggestions for changes at squadron include:

- **Move snipers to squadron.** Currently the snipers in an RSTA are a part of the infantry dismounted reconnaissance troop (DRT). Yet, while they are under the command of the troop commander, they are almost never integrated into DRT operations because the squadron frequently uses them as a separate element. With the training to infiltrate a particular location to conduct reconnaissance, or target key enemy personnel to harass enemy lines and provide depth and breadth to screen lines, the sniper section becomes a valuable tool for the squadron commander.²⁷ The section should therefore be reassigned from the DRT and put in headquarters and headquarters troop (HHT).

Infantry battalions already have a sniper section at their headquarters for the commander to task, so this change would not be new. Having the section at squadron would also place the snipers closer to brigade assets that help facilitate insertion into target areas. To help replace the long-range precision fires lost by moving the snipers, the DRT would get an increase of squad designated marksman (SDM) slots.

- **Establish a HUMINT section at squadron.** Reconnaissance is not limited to just the open terrain of our training areas, devoid of a local populace. In World War II, 40 percent of combat in Western Europe was in urban areas.²⁸ Already more than half the world's population lives in urban areas, and with the number of megacities expected to double from the current 38 by 2050, this number will only increase, thus making reconnaissance operations in these areas inevitable.²⁹ While operating around civilian population centers brings with it a host of problems, it also brings with it a massive benefit: the opportunity to collect HUMINT.

The U.S. military has seen the benefits in Iraq and Afghanistan of talking to the local populace to gain intelligence. Ranging from locations of suspected



Figure 2. SPC Oscar Ochoa, HUMINT collector from Company A, 3rd Special Troops Battalion, 3rd Armored Brigade Combat Team, 4th Infantry Division, interviews Donald Dust, an instructor with Foundry Intelligence Training Center, Fort Carson, CO, who is playing a role as an informant during the “Iron Vigilance” exercise. (Photo by SGT Grady Jones)

terror-cell leaders to just how the population views friendly forces, all these can help fill the information requirements of the squadron and brigade. With how fast situations can change in urban environments, IBCT squadrons need to have an organic HUMINT section to enable the rapid collection of information from civilians.

The section could consist of two teams of two to three Soldiers each, led by a staff sergeant and falling under the S-2 section. The S-2 or squadron commander could assign the field teams to units most likely to encounter civilians. The section sergeant would be at the tactical-operations center (TOC), able to help analyze and to provide advice on proper implementation.

Some might wonder why it’s important that the HUMINT section be a permanent part of the squadron and not just attached as needed. The reason is the same as why EW sections need to be organic: it is imperative they know how to function within a reconnaissance unit. There is a massive difference between conducting HUMINT in a semi-permissive environment – where there is security

provided – to doing the same mission on the very forward edge of the brigade’s lines. Simply grabbing HUMINT soldiers from the MiCo, assigning them to a scout troop and expecting them to function effectively will not work. Even if they do become effective, the time between when they are first assigned to when this happens is going to be larger due to unfamiliarity between the HUMINT soldiers and the cav. By having them as a part of the squadron, they can be integrated into all levels of training, and both can learn from each other’s strengths and weaknesses.

- **Add mortars and gun trucks to the squadron.** By their very nature, squadron TOCs will usually operate forward of the infantry battalions to fulfill the brigade commander’s intelligence requirements. This means they face an increased risk of air, indirect and ground attack but lack the means to effectively defend themselves. To rectify this, each squadron needs to have its own mortar team and more gun trucks.

While the brigade has many fire and support assets available, there is no guarantee that any of these will be

assigned to the squadron. By assigning two 120mm mortars to the HHT, the squadron commander has a way to both defend the TOC position and potentially provide more indirect support to the troops. This concept is already used by the infantry battalions, which have a four-gun platoon of towed 120mm mortars for these same reasons.³⁰

Another advantage is that these additional mortars can be used to swap with the line troops if their systems become damaged or destroyed, thus maximizing firepower forward.

Currently there are only two gun trucks assigned to the squadron TOC, one for the S-3 and the other for the squadron commander. With only these two vehicles, the TOC’s defense is relegated to personal weapons and a handful of squad automatic weapons (SAWs). Also, if any medical or support vehicles require an escort to a forward element, it means having to potentially pull trucks from line platoons to accomplish these missions. The squadron TOC and troop trains must be able to self-secure during operations without “bleeding off” gun trucks from its scout platoons.³¹

By replacing four trucks in the squadron with gun trucks, multiple options suddenly become available to the squadron commander. They can be used to defend the squadron TOC, escort the squadron commander, support logistics, serve as medical vehicles or act as a quick-reaction force (QRF) to quickly support units requiring assistance. If vehicles or weapons get damaged, any of the four can be quickly “hot-swapped,” meaning the squadron can maximize reconnaissance assets forward. While the need to sometimes pull Soldiers from HHT to man these trucks to accomplish the required mission will cause operational strain, the benefits provided to the squadron as a whole will far outweigh this downside.

DRT into Stryker

The final consideration in this part of my two-part article is a suggestion to turn the DRT into a Stryker unit. The DRT has about 80 Soldiers, consisting of a troop headquarters, sniper squad, mortar section and two scout platoons

consisting of three scout sections of two four-man teams.³² The troop is most often used in missions or terrain where the nature of the operation is more closely suited for deliberate and stealthy reconnaissance.³³ If the squadron requires information collected in severely restricted terrain such as urban environments, mounted troops would not be able to collect as effectively as the DRT. Also, due to the many F7-coded Pathfinder slots, the DRT can be used as the squadron and brigade Pathfinder element.³⁴ With the addition of their Zodiac boats, the unit is capable of ground, air and water insertion.

Yet, for all its benefits, the DRT has many issues. Per doctrine, the scout troops are fully capable for *zone, area and route* reconnaissance, and *screen, local, route and convoy* security operations.³⁵ In comparison, the DRT is only fully capable of area reconnaissance and local security, with all other functions requiring permissive environments or reinforcement.³⁶ The lack of organic mobility is also an issue. The DRT cannot maintain the same mission tempo as the mounted troops, thus forcing the squadron commander to limit the width and depth of his area of operations, move his whole squadron at a slower tempo or leave his DRT out of this portion of the squadron mission.³⁷

These are not good options. As stated in FM 3-96, *The Brigade Combat Team*, "Reconnaissance forces must maintain battlefield mobility, as fixed reconnaissance forces are ineffective."³⁸ The unit also has limited direct-fire standoff, lethality and survivability.

Instead of simply replacing the DRT with another motorized-reconnaissance troop, the DRT should be converted into a Stryker unit. Each section would have its own Stryker, plus one for the command team with attachments, making a total of four vehicles and eight more troops per platoon for crews. The mortar section would be in a Mortar Carrier Vehicle, with the staff sergeant being in the troop commander's vehicle. The first sergeant would have a Stryker, while supply and the medic attachments would have the vehicles they already currently use. The third platoon would be four Mobile Gun System (MGS) Strykers, with two Strykers per scout platoon being the upgunned Infantry Carrier Vehicle Dragoon vehicles. This would be a total of 15 Stryker vehicles and at least 28 more Soldiers for crews.

The infantry scout squads would also be modified in terms of equipment. Each four-man team would have a radio, a M320 grenade launcher, a M249 SAW and a SDM-Rifle (SDM-R). This

would give these small dismounted elements the firepower to break contact and fall back to their support elements. The high number of SDMs help offset the loss of the snipers to the squadron, as mentioned earlier. Overall, the collective firepower of the troop would go from 14 SAWs, one M2 .50-caliber weapon, 18 M320s, two 60mm mortars, four sniper rifles and five Javelin command launch units (CLUs) to at least 10 M2s, five M240B machineguns, four 105mm guns, four 30mm guns, 12 SDM-Rs, a 120mm and two 60mm mortars, all while keeping the same number of SAW, M320s and CLUs.

The addition of these vehicles and firepower now gives the squadron commander more options for winning the reconnaissance fight. The DRT can follow one terrain feature behind the two motorized troops, acting as a QRF for enemy contact. The squadron could now conduct a reconnaissance-in-force, with the DRT leading and the other troops supporting the flanks. In cases of dense terrain unsuited for vehicles, the DRT can still dismount their sections to conduct reconnaissance, with the Strykers then being able to pick up their teams without having to coordinate vehicles with squadron. The dismount element can still conduct air-assault or riverine operations (the Zodiacs would be moved from the



Figure 3. The author recommends that snipers assigned to an RSTA DRT be moved to the IBCT cavalry squadron's HHT. (U.S. Army photo courtesy Program Executive Office-Soldier)

troop to the brigade engineer battalion), and the Strykers can then be tasked to the motorized troops or kept as a ready reserve.

Since the DRT is already an infantry element, the squadron commander now has the increased ability to conduct platoon and troop offensive operations such as attacks and raids. The combination of MGS, Dragoon Strykers, 18 tube-launched, optically tracked, wireless-guided missile systems (using the 3x9x36 platoon), potentially seven 120mm mortars (if added at squadron), plus all the crew-served weapons and CLUs already assigned, would see the IBCT squadron able to effectively fight for information. The squadron would also have the necessary firepower required to deter, neutralize or destroy enemy forces during a guard mission.³⁹

To help with the recovery and maintenance of the Stryker vehicles, the Modular Catastrophic Recovery System (MCRS) would be fielded to the IBCT squadron's support company. This system consists of an M983A4 Light Equipment Transporter, a fifth-wheel towing and recovery device and a tilt-deck recovery vehicle.⁴⁰ Developed originally as a Stryker recovery system, it has been used in Southwest Asia for several years and is able to recover any vehicle this new squadron

could field.⁴¹ This will not only allow the current support company to quickly recover the new Stryker-based vehicles but also improve the company's ability to recover heavier vehicles attached to the organization.

Part II will look at suggested technology, plus more Soldier and vehicle solutions that support the organizational solutions suggested here.

SGT Christopher Broman is a squad leader in Troop B, 1st Squadron, 113th Cavalry, Camp Dodge, IA. Previous assignments include operations noncommissioned officer, HHT, 1-113 Cav, Camp Dodge; and team leader, HHT, 1-113 Cav. His military schooling includes the Basic Leader's Course. He has a bachelor's of arts degree in history from Iowa State University.

Notes

¹ BG Lee Quintas, "Commandant's Hatch," *ARMOR*, July-September 2014.

² MAJ Scott Mason, "Unmanned Aerial Vehicle Use in Army Brigade Combat Teams: Increasing Effectiveness across the Spectrum of Conflict," master's thesis, Naval Postgraduate School, 2006.

³ CPT Kyle A. Trottier, "The Cavalry Squadron 2025," *ARMOR*, January-March 2015.

⁴ MAJ Jason A. Pieri, "A New Army Brigade Cavalry Squadron: The Multi-Purpose Cavalry Squadron," master's thesis, U.S. Marine Corps Command and Staff

College, 2012.

⁵ FM 3-20.98, *Reconnaissance and Scout Platoon*, August 2009.

⁶ Dr. Lester W. Grau and Charles K. Bartles, *The Russian Way of War: Force Structure, Tactics and Modernization of the Russian Ground Forces*, Fort Leavenworth, KS: Foreign Military Studies Office, 2016.

⁷ Martin Goldsmith, Jon Grossman and Jerry Sollinger, *Quantifying the Battlefield: RAND Research at the National Training Center*, RAND Arroyo Center, 1993.

⁸ SFC Kyle West, "Troubling Trends in Reconnaissance," *ARMOR*, July-September 2015.

⁹ Pieri.

¹⁰ MAJ Ryan M. Howell, "A Critique of the U.S. Army Force Redesign of Cavalry Formations within the Brigade Combat Teams," master's thesis, U.S. Marine Corps Command and Staff College, 2009.

¹ CPT John Palmer, "The Squadron Commander as Chief of Reconnaissance," *ARMOR*, July-September 2016.

² Ibid.

³ Ibid.

⁴ LTC Brian Flood, MAJ James Hayes and MAJ Forrest Cook, "IBCT's Reconnaissance Squadron in Full-Spectrum Operations," *ARMOR*, March-April 2011.

⁵ Palmer.

⁶ Ibid.

⁷ Sebastien Roblin, "Electronic Warfare: The U.S. is losing the invisible fight to Russia's dominant capabilities," NBC News, Nov. 26, 2019, <https://www.nbcnews.com/think/opinion/russia-winning-electronic-warfare-fight-against-ukraine-united-states-ncna1091101>.

⁸ Ibid.

⁹ Ibid.

²⁰ Adam Stone, "When the Army could get new electronic warfare units," *C4ISR-NET*; <https://www.c4isrnet.com/electronic-warfare/2018/06/11/soldiers-are-being-forced-to-recognize-one-of-their-greatest-vulnerabilities-on-the-battlefield/>.

²¹ Roblin.

²² Stone.

²³ CPT Doni Wong, 1LT Theodore Lipsky, CPT Brigid Calhoun and CW2 Pablo Cruz, "Integration of Signals Intelligence," *ARMOR*, Fall 2018.

²⁴ CPT Kevin Zhang, Kevin and CPT Michael Grdina, "Protection across the Domains: Electronic Warfare in the Armored-Cavalry Squadron," *ARMOR*, Win-



Figure 4. SGT Jeffrey Palmer, an instructor, keeps a careful watch as students in the MCRS module of the H8 Recovery Specialist Course pull a disabled mine-resistant ambush-protected vehicle onto the MCRS' tilt-deck recovery trailer during training at Downer Range, Fort Lee, VA. The H8 course is a three-week additional-skill identifier course at Fort Lee. (U.S. Army photo)

ter 2019.

²⁵ Ibid.

²⁶ Wong, Lipsky, Calhoun and Cruz.

²⁷ Trottier.

²⁸ Jeremiah Rozman, "Urbanization and Megacities: Implications for the U.S. Army," Institute of Land Warfare; August 2019, <https://www.ausa.org/sites/default/files/publications/SL-19-3-Urbanization-and-Megacities-Implications-for-the-US-Army.pdf>.

²⁹ Ibid.

³⁰ Army Techniques Publication (ATP) 3-21.20, *Infantry Battalion*, December 2017.

³¹ Flood, Hayes and Cook.

³² Army Tactics and Techniques Publication (ATTP) 3-20.97, *Dismounted Reconnaissance Troop*, November 2010.

³³ Ibid.

³⁴ CPT Graham Williams and 1SG Brian Baumgartner, "The Dismounted Recon Troop: A Relevant Force for the IBCT," *ARMOR*, August-December 2016.

³⁵ ATTP 3-20.97.

³⁶ Ibid.

³⁷ Howell.

³⁸ FM 3-96.

³⁹ ATP 3-20.96, *Cavalry Squadron*, May 2016.

⁴⁰ T. Anthony Bell, "Newest Army recovery vehicle wields claws, can handle most anything," Army News Service; Dec. 18,

2013, https://www.army.mil/article/117214/newest_army_recovery_vehicle_wields_claws_can_handle_most_anything.

⁴¹ Ibid.

ACRONYM QUICK-SCAN

ATP – Army techniques publication
ATTP – Army tactics and techniques publication
BCT – brigade combat team
CEWI – combat electronic-warfare intelligence
CLU – command launch unit
COIN – counterinsurgency
CPoF – Command Post of the Future
DCGS-A – Distributed Command Ground System-Army
DRT – dismounted reconnaissance troop
EM – electromagnetic
EW – electronic warfare
FM – field manual
HHT – headquarters and headquarters troop
HUMINT – human intelligence
IBCT – infantry brigade combat team

IC – information collection
JBC-P – Joint Battle Command Platform
JRTC – Joint Readiness Training Center
MCRS – Modular Catastrophic Recovery System
MGS – Mobile Gun System
MiCo – military-intelligence company
MTOE – modified table of organization and equipment
QRF – quick-reaction force
R&S – reconnaissance and security
RSTA – reconnaissance, surveillance and target acquisition
SAW – squad automatic weapon
SDM – squad designated marksman
SDM-R – squad designated marksman-rifle
SIGINT – signals intelligence
TOC – tactical-operations center

Armored Fighting Vehicles of the World

Pokpung-Ho I-IV MBT



North Korean main battle tank in service since 2002, with four model variants to date. Four-man crew, weight 48 tons. 125mm main gun in models II, III (115mm models I, IV). Other weapons observed include a heavy anti-aircraft machinegun, rigid-mounted MANPADS and ATGM launchers. Later versions have an ERA package for turret front and glacis protection. In service with: North Korea.

10 to 80:

Refocused Approach to Mobile Gun System Maintenance for Stryker Brigade Combat Teams

by LTC Rafael J. Morrison, MAJ
Nicholas G. Barry and 1LT John D.
Formica

Stryker brigade combat teams (SBCTs) across the Army struggle with maintaining the readiness of the Mobile Gun System (MGS). While plagued by difficulties in diagnosing faults, a training shortfall for operators and maintainers and a long lead-time for parts, MGS offers a unique long-range direct-fire capability unmatched in a SBCT and critical to the formation.

In June 2019, 4th Squadron (Longknife), 3rd Cavalry Regiment, recognized that a fundamental shift in how we maintained the MGS fleet was needed. We developed a new three-pronged approach to MGS maintenance by focusing on training our maintainers on MGS-specific processes, pulling turrets to reset wiring and teaching operators more advanced maintenance. Through this new methodology, Longknife Squadron increased readiness from 10-percent fully mission capable (FMC) to 80-percent FMC in just six months. We also recognized particular issues pertaining to Multiple Integrated Laser Engagement System (MILES) use on the MGS and institutional challenges SBCTs face that may prove valuable to our sister SBCTs throughout the Army.

Lessons-learned

Misdiagnosis or no diagnosis: importance of MGS-specific training for 91Ss. The first issue identified was a platform-specific training shortfall among the military-occupation specialty (MOS) 91S population responsible for maintaining the fleet as well as the MOS 19D vehicle operators. Thus the initial solution focused on training both the maintainers and operators. Field-support representatives (FSRs) from private industry traveled to Fort

Hood, TX, with the purpose of training the 91S population on diagnosing MGS faults.

Most faults that historically stymied our 91S team related to MGS-unique computer systems (line-replaceable units or LRUs) and their associated wiring harnesses. The knowledge gap on the MGS fleet produced long trouble-shooting times and often-incorrect diagnoses. This led to even longer down times and unnecessary spending due to incorrect-parts purchasing. Only upon installation of the incorrect part and persistence of the fault would the mechanics realize the error of their initial diagnosis and move onto another diagnosis.

FSRs were able to help familiarize our 91S with the function of each LRU, the pinout chart on the wiring harnesses that led to that LRU and how to trace a fault across the complex architecture of the MGS firing system. While this training helped improve our diagnostic effectiveness, it alone was not the solution to MGS readiness, and it did nothing to address operator training.

Pulling turrets: an accelerant in operational readiness (OR). In September 2019, the squadron brought in two FSRs from private industry at Joint Base Lewis McChord, WA, to support our gunnery. These contractors initially supported instructors from Fort Lee (VA)'s Ordnance School who were part of the Unit Diagnostic Immersion Program (UDIP). This team continued the focus on maintainer education (fault identification and troubleshooting) and then expanded to include operator education. This FSR team astutely observed that nearly all the turrets had misaligned, incorrectly routed, broken or outright incorrect cables inside and around the turret. Time-consuming (manhours and long lead times) and expensive to replace, these

non-mission-capable cables were crippling the fleet. Over the years, untrained mechanics and unfamiliar operators moved and replaced cables, slowly creating this problem.

Compounding the issue in Longknife Squadron is the fact that ever since the MGS refit in 2017, our MGS fleet is mixed – meaning that seven MGSs have improved turrets and five have unimproved turrets. While the differences in operating MGSs are indistinguishable, the wiring disparities are significantly more nuanced. LRUs are interchangeable between improved and unimproved turrets, but their associated wiring harnesses are either shorter or longer depending on the turret type. Installation of the wrong cable for the turret type usually results in the cable being broken.

Based on the FSR's recommendation, the squadron conducted a fleet-wide turret pull and reset – something never completed in 3rd Cavalry Regiment because the turret pull is not a task included in the MGS services plan. It typically takes about five working days with two mechanics and a three-person crew supporting the operation to remove, rewire and reattach an MGS turret. With one 91S noncommissioned officer (NCO) supervising, the squadron maintenance team performed up to two turret pulls simultaneously.

Second benefit to turret pulls: training made easy for mechanics and operators. Not only did the turret rewiring accomplish the goal of reducing the number of broken cables, it also provided an invaluable training opportunity for our mechanics. The squadron's 91S NCOs built on training provided by the UDIP and FSRs to train new 91Ss on the more detailed issues of the MGS platform. The ease of training with a turret removed cannot

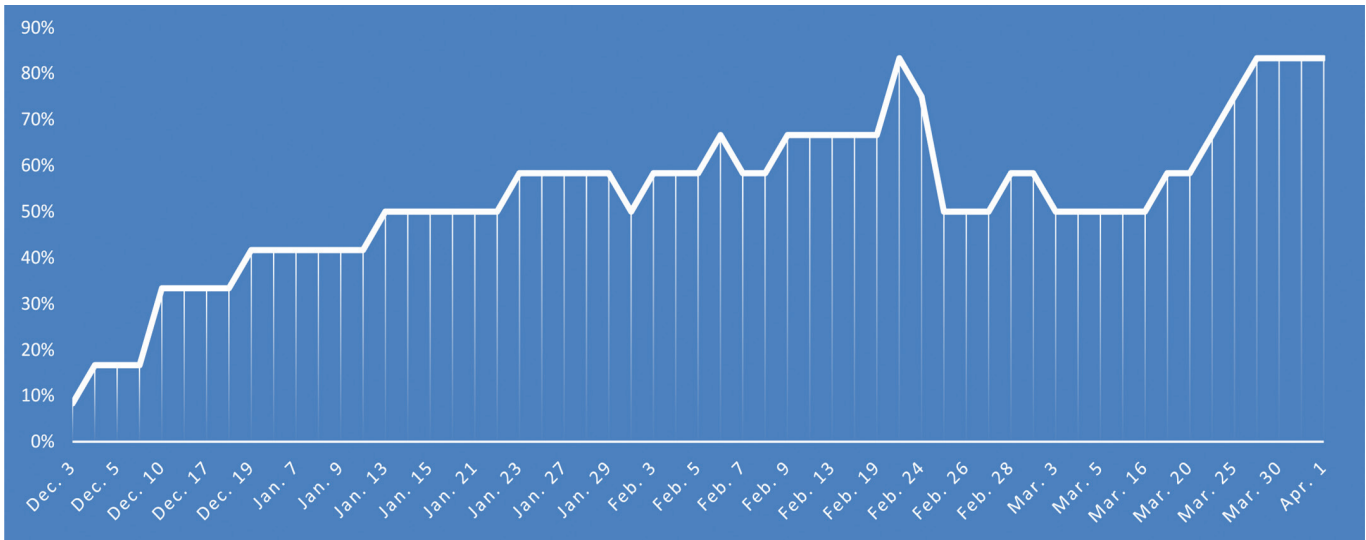


Figure 1. MGS OR in Longknife Squadron, Dec. 3, 2019-April 1, 2020.

be overstated. Rather than working with about eight inches on either side to find cables as the turret rotates, the turret is now accessible from every angle and cable routing is significantly easier to understand. Not to mention the ease in which we were able to install LRUs, reducing the install times significantly.

We finally had the capacity to develop our own organic MGS-focused 91S maintenance team. Also, with a complete rerouting of all the cables in the turret, mechanics could eliminate bad cables during the troubleshooting process. The decrease in troubleshooting time, coupled with a decrease in incorrectly ordered long-lead-time cables, helped contribute to the overall improvement in the MGS fleet OR rate.

In addition to diagnostic training, operator training and the turret rewiring, the squadron fundamentally relooked the alignment of the maintenance personnel to better support the MGS fleet. Mechanics with advanced diagnostic training and turret-pull experience became habitually associated with the MGS platoons. This not only increased the depth of their knowledge, but over time they developed buy-in on the MGS problem. Also, when going to the field for training or gunnery, these mechanics were task-organized to the troop.

Results come to fruition: 80-percent MGS OR. This three-pronged strategy of training, turret rewiring and

alignment of mechanics worked incredibly well. After returning from National Training Center (NTC) Rotation 20-02, the MGS fleet’s OR stood at 10 percent. Before the NTC rotation, the average MGS OR for the year stood at 25 percent. By the start of holiday leave, the squadron maintenance team brought the OR up to 40 percent.

In January 2020, the squadron implemented the MGS turret pulls, and the OR steadily climbed to more than 80 percent, reaching that mark for the first time since fielding the vehicles. In early March, the weapons troop conducted gunnery, putting the newly rewired vehicles through their paces. While the OR dipped to 50 percent during gunnery, constant field maintenance kept the vehicles participating in the gunnery. And, significantly, there were no new wiring-related faults during gunnery, thanks to the team’s excellent work during the previous two months.

Coming out of gunnery, the OR rate climbed back to 80 percent as replacement parts arrived and mechanics installed them.

MILES: an MGS Achilles heel? In addition to miswired turrets causing dead-lined MGSs, the squadron also observed a strong correlation between the use of MILES gear and the failure of MGS systems, specifically the turret electrical components. Initially, noticing a high failure rate of these components during training events involving

MILES gear, we began to keep track of those faults more closely. Our maintenance team used a multimeter to see if installing MILES gear caused irregularities with the turret electronics. They took many samplings of voltage at key nodes throughout the turret and noticed that with MILES gear installed, there were extreme voltage irregularities.

Over the course of an entire training cycle, the weapons-troop executive officer and maintenance team tracked faults diligently and broke them into the training periods. Figure 2 demonstrates that during periods of training where MILES gear was used, the MGS fleet suffered a significantly higher number of faults related to components that ran purely off turret power than during periods of similar training without MILES gear.

The team attempted to strengthen the validity of their initial hypothesis by comparing training events (featuring similar times and types of movement and turret use), reducing the difference to the presence or absence of MILES. While no two training events are identical, Figure 2 clearly shows a higher incidences of turret electronic faults with MILES installed.

Key among the turret electrical faults was an irregular number of thermal optic burnouts, LRU failures and associated wiring harnesses shorting. Also, in some vehicles the entire slip ring shorted out, causing electrical arcing

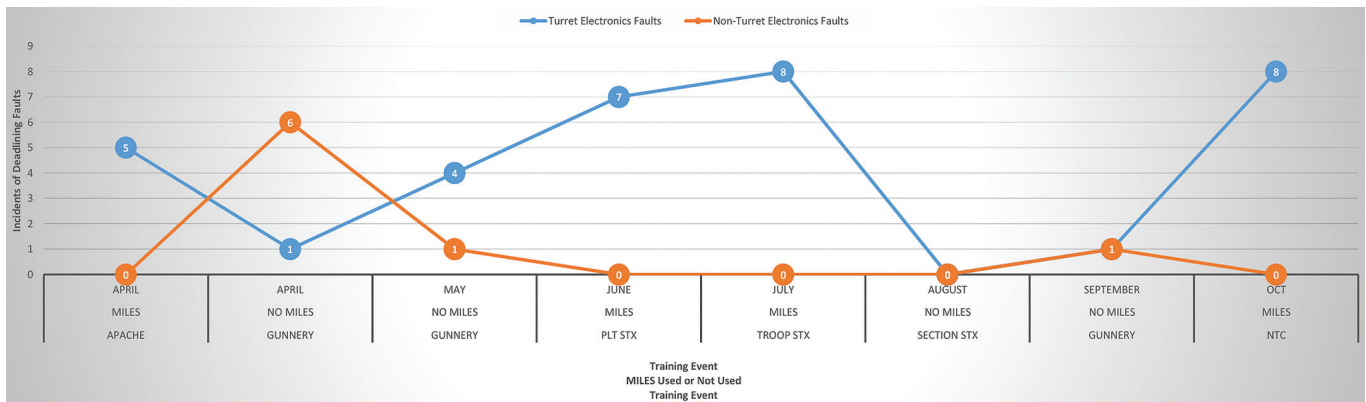


Figure 2. Longknife’s sampling of turret electrical vs. non-turret electrical faults during MILES use April-October 2019.

within mere hours of MILES gear installation. MGSs that performed perfectly for months of training before MILES use would inexplicably be deadlined almost as soon as MILES gear was installed.

To combat the issue, after a troop situational-training exercise (STX), the regimental commander decided to no longer use MILES gear on MGSs until NTC. This was when the correlation became painfully clear. During pre-deployment operations at the rotational-unit bivouac area, the weapons troop screened (zeroing of the MGS main weapon) seven out of the nine MGSs with no issues. At the completion of force-on-force operations, two had shorted slip rings (a very rare deadline), two had burned-out commander’s thermals, one had a burned-out gunner’s thermal and three had either LRUs or wiring harnesses shorted. Leading up to the NTC rotation, turret electrical faults were observed 28 times during periods of MILES use, as opposed to only nine times during periods when MILES was not used.

While correlation often does not equal causation, this specific instance of correlation, coupled with voltage irregularities observed by mechanics, certainly suggests that MILES gear induces faults in the MGS turret electronics. Therefore, Longknife Squadron attempted to determine if this was an Army-wide issue; many sister weapons troops reported they had the same experience -- also stating they did not have operational MGS MILES equipment, which raised the question of whether MILES itself is inherently faulted or if the problem is degraded MILES equipment causing issues.

It is without question that this topic needs further exploration and could be an article unto itself, but Longknife mitigated the issue by only using MILES when absolutely necessary (mainly combat-training-center rotations), disconnecting it as soon as possible and using observer-controllers to adjudicate whenever possible.

Institutional MGS issues (and thoughts on overcoming them)

There are several institutional challenges facing the MGS outside of the discussion about its pending obsolescence. There is no specific MOS for MGS operators; 19D troopers operate the MGS in Longknife Squadron and most other SBCTs. These same troopers, with the same training, serve as dismounted scouts in our line cavalry troops. Most 19Ds we receive for the MGS platoons have absolutely no MGS experience and, at best, minimal time on a Bradley Fighting Vehicle (BFV).

Being entirely new to the platform with little to no experience operating a turret presents a tremendous challenge for understanding the proper operation and maintenance of such a complicated piece of equipment. Even if Soldiers have previous experience on the Stryker platform, the MGS is almost an entirely different system.

We recommend that the Army either institutes an additional-skill identifier (ASI) for 19Ds who have turret experience, either on a BFV or MGS, or adjust the modified table of organization and equipment for MGS operators back to MOS 19K. While having a specific MOS for MGS vehicles would be

the most preferred course of action, this isn’t likely feasible due to the minimal number of MGS platforms vs. armor platforms in an armor BCT.

A second personnel challenge with the MGS is the lack of an ASI for the 91S community. Mechanics in MOS 91S perform maintenance on all 13 variants of Strykers. While 80 percent of Stryker components are common across each variant, the other 20 percent involve extremely complex electrical and mechanical differences. There is no way to track who has MGS experience and ensure that SBCTs are able to put those skills to use in the weapons troop.

There should be a series of ASIs to support the three most complicated and unique Stryker minority variants: the MGS, the anti-tank guided-missile vehicle (known as an ATVV if it has double-V hull) and the nuclear, biological and chemical reconnaissance variant. Creating these ASIs would allow strength managers and commanders the opportunity to put their mechanics’ previous experience and knowledge to good use supporting unique protection assets as well as the platforms with the most firepower in the entire brigade.

Training shortfall

There is also a training shortfall on the MGS for new MOS 91S Soldiers arriving to the unit from advanced individual training. Therefore we recommend members of each class take a more in-depth “elective training” on the minority Stryker variants. For the MGS, this training would include a turret pull, the discrepancies between improved and unimproved turrets, and

diagnostic/troubleshooting training to better prepare them to work on the MGS.

The other variants each have their own maintenance challenges, which the training could address. This strategy nests with the ASI assignments, which employs Army personnel systems to assign the mechanics with the proper training to the units with those variants.

The prevalence of long-lead-time parts for the MGS contributes to the historically low OR. MGSs have many unique parts, which – coupled with their low density across the Army – creates a low demand. We have three turret pulls to complete, which are paused solely to receive long-lead-time parts requiring removal of the turret for installation. Many of the LRUs, any of the main turret-wiring harnesses and the Commander's Panoramic Viewer and Hazardous Incident Response Equipment Sensor (the commander and gunner thermals, respectively) have at least three- to six-month lead times.

Also, the squadron waited nine months for an MGS Forward Unity Periscope (FUP) to arrive from the repair-part program. This vehicle remained deadlined for that entire period. It is not financially advantageous to keep an MGS FUP in the shop-stock list, and one is not included on the SBCT critical-stockage list. This is an issue with most of the MGS parts – the pending obsolescence has caused many manufacturers of MGS-specific parts to shut down new production.

If they do not have a part on hand, they require that the faulty part be turned into the repair system, and then end-users must wait for it to be refurbished.

One potential solution to speed up acquisition of wiring harness for MGS is to have them locally fabricated or repaired. While the tools and knowledge are not resident in the SBCT maintenance structure, local vendors have the capability to fabricate or repair the wiring harnesses. However, we were unable to leverage these resources due to the proprietary nature of the wiring harnesses, which prevented the availability of the schematics neces-



Figure 3. A rewired MGS turret sits on a turret stand in the Longknife Squadron motorpool. (Photo by 1LT John Formica)

sary to replicate or repair them.

Conclusions

While the Army continues to assess the MGS' future, there are still best practices units can implement to bolster readiness:

- A strong training program for both operators and maintainers is the foundation to success.
- Only choose the most technically proficient and resilient troopers as MGS operators and maintainers.
- Also, every SBCT weapons troop's service plan should require turret pulls annually. If nothing else, this provides the chance to train new MOS 91S troopers and gives operators a chance to clean out the vehicles' hulls.
- MILES gear should only be used when absolutely necessary, and MILES personnel should be trained to install and troubleshoot the equipment. With that in mind, Longknife Squadron attacked the problem of essentially only one platoon's worth of MGSs FMC by using the concept outlined here.

While the OR still is not 100 percent, an air of confidence and optimism now exists as the rate steadily trends upward. In just nine months, the

squadron lifted the stigma of the MGS and it is now a true force-multiplier, sought after by the other squadrons in the regiment for its lethality and direct-fire capabilities.

LTC Rafael Morrison commands 4TH Squadron, 3rd Cavalry Regiment, Fort Hood, TX. His previous assignments include aide-de-camp to the commander, U.S. Forces Afghanistan/Operation Resolute Support, Kabul, Afghanistan; cavalry squadron S-3 and observer/coach/trainer (O/C/T), Joint Readiness Training Center (JRTC), Fort Polk, LA; brigade S-3 O/C/T, JRTC, Fort Polk; brigade executive officer and O/C/T, JRTC; brigade S-3, 1ST Stryker BCT, 1st Armor Division, Fort Bliss, TX; and squadron S-3, 1st Squadron, 13th Cavalry Regiment, 3rd BCT, 1st Armor Division, Fort Bliss. LTC Morrison's military schools include the Command and General Staff College, and the Maneuver Captain's Career Course. He has a bachelor's of science degree in agriculture from Southern University and A&M College, and a master's of science degree in public administration from Central Michigan University. LTC Morrison also is a recipient of the bronze medallion, Order of St. George.

MAJ Nicholas Barry is the executive officer, Longknife Squadron, 3rd Cavalry

Regiment, Fort Hood. Previous assignments include chief of operations, 3rd Cavalry Regiment, Fort Hood; assistant professor of electrical engineering, U.S. Military Academy, West Point, NY; O/C/T team chief, First Army Division West, Fort Hood; commander, Company A, 40th Engineer Battalion, 170th Infantry BCT, Baumholder, Germany; commander, Headquarters and Headquarters Company, 40th Engineer Battalion, 170th Infantry BCT, Baumholder; and construction officer, 326th Engineer Battalion, Fort Campbell, KY. MAJ Barry's military schools include Command and General Staff College, Joint Engineer Operations Course, Sapper Leader's Course, Pathfinder Course, Air-Assault Course and Airborne School. He has a bachelor's of science degree in electrical engineering from the U.S. Military Academy, a master's of science degree in electrical engineering from Rensselaer Polytechnic

Institute and a master's of science degree in engineering management from Missouri University of Science and Technology.

1LT John Formica is the S-4, Longknife Squadron, 3rd Cav, Fort Hood. His previous assignments include executive officer, Quicksilver Troop, 4th Squadron, 3rd Cav; and cavalry-scout platoon leader, Task Force Nomad, Operation Inherent Resolve, Iraq. His military schools include Sabalauski Air-Assault School, U.S. Military Academy, Armor Basic Officer Leader's Course, Army Reconnaissance Course, Stryker Leader's Course and Troop Executive Officer Course. 1LT Formica has a bachelor's of science degree (dual major) in international studies (with honors) and international legal studies from the U.S. Military Academy. He is a recipient of the black medallion, Order of Saint George.

ACRONYM QUICK-SCAN

ASI – additional-skill identifier
BCT – brigade combat team
BFV – Bradley Fighting Vehicle
FMC – fully mission capable
FSR – field-support representative
FUP – Forward Unity Periscope
JRTC – Joint Readiness Training Center
LRU – line-replaceable unit
MGS – Mobile Gun System
MILES – Multiple Integrated Laser-Engagement System
MOS – military-occupation specialty
NCO – noncommissioned officer
NTC – National Training Center
O/C/T – observer/coach/trainer
OR – operational readiness
SBCT – Stryker brigade combat team
STX – situational-training exercise
UDIP – Unit Diagnostic Immersion Program



Figure 4. An MGS from Longknife Squadron engages simulated enemy combat vehicles during force-on-force training under live-fire conditions during NTC Rotation 20-02. (U.S. Army photo by 1LT John Formica)

Why Cavalry Officers Should Have Their Own Branch

by CPT Nicholas M. Charnley

In the modern U.S. military, the cavalry holds a unique place on the battlefield. Each brigade combat team (BCT) retains its own type of cavalry squadron to rapidly and accurately answer information requirements that facilitate the commander's timely decision making to seize, gain and maintain the initiative.

To help their respective BCTs build a common operating picture, each squadron boasts a specific vehicle and personnel configuration: humvee, Stryker and Bradley Fighting Vehicle (BFV). And while all types of cavalry units follow the same doctrine and perform the same missions, they each also fulfill distinct functions for their armor or infantry BCT "customers," whether mounted or dismounted.

Despite its distinctive and vital niche in the Army, staff officers at the operational level often struggle with

understanding cavalry's exact role and how to best employ the squadron to help the BCT achieve its mission. Similarly, officers within the cavalry squadron struggle to communicate its capabilities and limitations to the parent BCT. Much of this confusion stems from the struggle of former armor and infantry officers, who do not receive any mandatory cavalry professional-military education (PME) to adapt to their new assignments and convert their doctrinal knowledge from offensive and defensive operations to reconnaissance and security (R&S) operations.

In essence, the cavalry remains a profession without professionals. Formally breaking cavalry officers away from the infantry and armor professions by establishing their own branch affords the Army the opportunity to give R&S the attention it deserves. It would enable the Army to finally staff its formations with fully qualified and confident cavalry leaders capable of facilitating the success of their squadron and BCT. While exemplary officers within cavalry formations currently exist, most will agree it took them until troop command to fully understand R&S operations and that their PME did not

adequately prepare them for life in the squadron.

Debate continues

Nearly a decade ago, military members widely debated the merits of separating the cavalry function from the Armor Branch or redesigning the two specialties under a combined profession. Widely considered the landmark article on the subject, CPT Ken Segelhorst addresses the issue in "Keeping the Sabers Sharp: Maintaining Relevance in the Modern Era."¹ However, he offers a divergent approach from the current proposal: he favors subordinating armor under a new Cavalry Branch and redefining mounted operations to preserve resources and manpower in a downsizing and modernizing military. He does not address the idea of a new cavalry-officer PME, but instead he points to current courses to satisfy gaps in proficiencies.

In "Ideas on Cavalry," authors CPTs Joshua Suthoff and Michael Culler diverge from Segelhorst's thesis and discuss the need for distinguishing the Cavalry Branch from armor, standing up new operating equipment and clarifying training requirements to qualify personnel. However, their proposed



solution of sending personnel to already existing opportunity schooling further highlights the underlying issue discussed here: the lack of a standardized, mandatory PME qualification process for cavalry officers.²

CPT Nathan Jennings, in “Cavalry Branch: a Redesignation for the 21st Century,” largely agrees with Segelhorst, calling for a streamlined and rebranded Cavalry Branch that includes both the combined-arms and R&S functions. However, he neglects to outline any clear way forward, settling to outline the issues within the current model.³

1LT Kier Elmonairy, in “Elite Mechanized Forces in an Age of Expeditionary Operations” tackles the issue of force structure, calling for the fielding of a new special operations-type armored-combat regiment capable of rapid expeditionary deployment. He too offers no solution on how to streamline the training of cavalry officers, merely pointing to the current voluntary courses as potential options.⁴

MAJ Thomas Rebeck, in “Cavalry: the Mounted Arm of Maneuver,” advocates discarding the cavalry as an R&S-specific unit and combining armor and cavalry into a general-purpose mounted combat-arms unit. The issue with his idea lies in assuming that all military units are capable of, and willing to, conduct R&S to the detail necessary in today’s modern world when tasked as a secondary mission-essential task.⁵

CPT Thomas Spolizino, in “Not Just Infantry With Tanks: Who We Should Be and Why the Army Needs Us to Be It,” comes closest to the subject of this study, calling for a doctrinal redefinition of the cavalry and a refinement of its tactical battlefield purpose. However, he keeps much of his discussion theoretical and ideological, and he only briefly suggests that the Army realign PME for cavalry officers without proposing any solutions.⁶

As clearly demonstrated, previous military officers critically and enthusiastically broached the subject of a distinct Cavalry Branch. Most diverge from the current proposal, instead calling for a subordination of armor within a new

Cavalry Branch or emphasizing combined arms rather than R&S operations. Also, through no fault of the authors, developments in military doctrine and real-world operations render much of their prior work outdated. Written in the early years of the 2010s, their ideas came out of the counterinsurgency fights in Iraq and Afghanistan. At a time when all formations, regardless of branch, largely conducted or supported small-scale offensive operations, the Army de-emphasized units dedicated to R&S.

Depending on non-organic assets

The wide availability of upper-tier intelligence; technologically advanced and highly specialized observation equipment; and close cooperation with Special Operations Forces (SOF) caused many conventional units to depend on non-organic sources to conduct surveillance for them. At the time, cavalry, and many other branch functions, were considered non-essential. Dependence on specialized sensors and SOF for surveillance worked against a relatively small, limited and asymmetric enemy in a large but relatively static operational environment.

However, the conventional Army’s primary focus, as rediscovered in the wake of Russia’s activity in Eastern Europe and the Caucus region, needs to be on being able to find, fix and finish a near-peer conventional force in a highly mobile and multi-dimensional operational environment. This calls for an emphasis on active, dynamic reconnaissance to quickly answer mission-specific information requirements using organic personnel and equipment. In a kinetic conflict between near-peer threats, SOF and all its special equipment is able to provide only limited support to a conventional force, as they serve a much different but equally important function.

To briefly clarify: surveillance requires mass and unfiltered information collection and reporting. This must be followed by thorough ex-post-facto analysis to determine its utility and actionability for future operations. Reconnaissance demands an active analysis of information as it is gathered, and then reporting a refined and

useable product to drive predetermined decisions. Evidence of the shift from surveillance to reconnaissance exists within the force itself as the conventional Army consciously continues to move away from surveillance outside of the SOF community.

Previous authors made mention of battlefield-surveillance brigade plus long-range surveillance, reconnaissance, surveillance and target acquisition units as formations capable of performing R&S, freeing the cavalry to focus on combined-arms operations. None of those units exist anymore. Infantry and armor units cannot perform R&S to the level of detail and precision required to facilitate the success of the modern BCT. They simply lack the doctrinal knowledge and materiel resources. The standardized and redesigned cavalry squadrons, enhanced by BCT organic surveillance sensors, fulfill this function as intended. The Army wants BCTs to perform reconnaissance, and they want them to do it themselves.

More cav PME needed

All authors called for more schooling of cavalry officers, but none proposed a time-sensitive or cost-effective curriculum, standardized and reorganized under an independent branch-component training headquarters. In the Army’s current model, infantry and armor officers, the feeder branches for cavalry billets, receive very little (if any) formal education in R&S doctrine.

To make matters worse, both infantry and armor officers take vastly different career paths. At best, they first come together collaboratively in the cavalry world when they attend one of the following R&S voluntary courses. At worst, they first meet when they are already newly assigned to a cavalry unit, trying to plan and execute unfamiliar and unwieldy R&S missions to find answers they do not know to questions they don’t understand.

On the other side, BCTs often lack operations staff officers with any experience in cavalry squadrons. This creates a customer unit that does not know what to ask for or how to ask for it.

The Infantry Basic Officer Leader’s Course (IBOLC) neglects R&S

operations altogether, understandably emphasizing complex small-unit offensive tasks such as attacks, ambushes, raids and movements-to-contact. Also, IBOLC does not adequately incorporate mounted operations (except as a mode of transportation for the infantryman rather than as a combat or observation platform) into its curriculum, focusing almost exclusively on dismounted operations over limited distances. Infantry officers serving in cavalry formations arrive at their new assignments completely unprepared to conduct R&S operations; the only reconnaissance training conducted at IBOLC, if any, may be the extremely limited “leaders’ recon,” which is little more than a hasty visual confirmation of an intended objective prior to a planned offensive or defensive operation. Few information requirements are answered other than “yup, there it is!”

While an important function of infantry operations, the leaders’ recon follows cavalry doctrine only in the most basic, diluted sense and helps only the unit conducting the mission, not the all-important “customer” (the BCT). An IBOLC graduate leaves the schoolhouse without an understanding of R&S fundamentals, let alone an ability to conduct missions, plan information collection (IC) or answer information requirements for the squadron or BCT.

Armor officers fare little better. Their Armor Basic Officer Leader’s Course (ABOLC) includes a few weeks of R&S doctrine on the back-end of the program of instruction (PoI), mostly on the humvee platform. Even then, the missions usually devolve into a game of hide-and-seek, where the tank platoon and scout platoon square off in a movement-to-contact, an unlikely and highly discouraged scenario for cavalry units in a conventional fight.

However, in recent years the Armor School dictated program cuts, shortening the R&S portion of ABOLC to place more emphasis on tank training. While the importance of detailed training on the M1 Abrams certainly justifies an increase in instructional time, providing it at the expense of R&S training presents a significant opportunity cost.

Many armor officers report directly to a cavalry squadron upon graduation from ABOLC and never operate a tank for the rest of their careers. In essence, they spent half a year at a course that gave them almost no practical technical or tactical instruction for their new profession. While an in-depth knowledge of armor operations and a cursory understanding of R&S fundamentals certainly helps understand the information requirements of their BCT customers, ABOLC offers little in the way of actually teaching officers how to plan and execute R&S missions or IC.

Problems with voluntary courses

If neither BOLC provides adequate cavalry training, how does an officer obtain the knowledge necessary to succeed? Luckily, in the current model the Army offers several excellent courses on R&S operations at all tactical echelons. The problem lies in the fact that these courses are all voluntary, with vaguely defined prerequisites, and

exist autonomously outside of the structured PME.

The Infantry School’s **Reconnaissance and Surveillance Leader’s Course** (RSLC) provides instruction on small-unit dismounted R&S operations at the team and squad level. The curriculum includes in-depth individual technical training on observation and communication platforms, squad-level troop-leading procedures (TLPs) and dismounted reconnaissance doctrine.

However, RSLC limits itself in the following three ways:

- It restricts its curriculum mainly to infantry-battalion scout platoons and special-operations units. These units perform very limited types of reconnaissance which, while important at the battalion-and-below level, do not nest its curriculum within the bigger-picture operational needs of the main R&S customer, the BCT.
- A lack of marketing for RSLC among the primary branch PME schools



Figure 1. Scouts from 2nd Cavalry Regiment’s squad conduct land navigation in the 2019 Gainey Cup competition. (U.S. Army photo by SGT Scott Peckham)

such as ABOLC and IBOLC limits its audience. Few new officers on their way to a cavalry squadron actually attend RSLC. Most attendees are exclusively from the Infantry or Special Forces Branches and are bound for a battalion scout platoon or special-operations unit.

- A large portion of the RSLC PoI focuses on surveillance or the passive-sensor-based observation of an objective. While an important function within the special-operations community, surveillance provides little help in quickly answering BCT information requirements in a battlefield constantly becoming larger, more mobile and multi-dimensional.

In short, RSLC offers some exceptional technical training, but its tactics are too narrow in scope to serve the Army's larger R&S needs.

The Armor School's **Scout Leader's Course** (SLC), formerly the Army Reconnaissance Course, provides instruction on small-unit mounted and dismounted R&S at the squad and platoon level. The curriculum focuses on squad- and platoon-level TLPs and on executing various types of mounted and dismounted R&S missions. Unlike RSLC, SLC deliberately targets officers and noncommissioned officers (NCOs) reporting to cavalry squadrons as its core audience and places an emphasis on tactical proficiency rather than technical expertise.

SLC limits itself in the following three ways:

- It lacks in-depth training on individual technical skills such as optics and communications platforms, choosing instead to provide only basic familiarization. Students will see a lot of the same equipment that RSLC uses, but they will not walk away from the course as proficient as their RSLC counterparts.
- A lack of cross-branch marketing for SLC limits its audience and publicity across the force. Though configured to provide instruction for all three types of BCT cavalry squadrons (infantry, Stryker and armor), the school receives most of its attention and candidates from the armor world. Other branches (infantry)

view it as a course strictly for armor officers if they know about it at all.

- Since the Armor School treats it as a feeder course for its officers graduating from ABOLC and heading to cavalry squadrons, few slots are given to officers and NCOs already out in the force. This limits SLC's audience, as slots become precious commodities set aside specifically for ABOLC graduates.

The requirement for more certification schools delays the entry of many junior officers into their new formations by several months or more as they wait for an opportunity to attend the course. This does not even factor in platform-specific technical training such as the Bradley Leader's Course (BLC) or Stryker Leader's Course. In theory, new armor officers must attend a minimum of three courses to be fully qualified to serve in a cavalry squadron fresh out of their commissioning source (ABOLC/IBOLC, SLC and BLC/Stryker Leader's Course). That amounts to a minimum of eight to 12 months before reporting to a new duty station, assuming no gap between course-start dates.

More typically, a newly commissioned infantry or armor officer spends 12 to 18 months waiting on schools before actually even seeing a line unit. Some even earn performance-evaluation reports or promotions to the next rank without ever having held an actual duty position within the force.

For seasoned leaders heading to a command or staff billet, the Armor School's **Cavalry Leader's Course** (CLC) provides thorough instruction on R&S doctrine at the company and squadron level. The course focuses entirely on TLPs and the military decision-making process (MDMP) for executing mounted and dismounted R&S missions in all three types of cavalry squadrons. As such, the curriculum requires students to arrive with a considerable background knowledge of R&S fundamentals, tactics and MDMP to plan effectively.

Probably the most complete of the three R&S courses, CLC deliberately targets officers and NCOs on their way to assignments in cavalry squadrons as future commanders or staff members.

However, CLC shares its one major weakness with SLC: limited marketing. Widely hailed within the armor world, few infantry or Stryker cavalry squadrons send officers or NCOs to the school, even though its curriculum addresses all three formations equally.

Given that the Army currently fields three excellent R&S schools that address operations at all levels, one may be tempted to question criticism of the current model. However, a little investigation reveals several issues. First, the three courses fall under two schools and therefore share no defined unity of purpose. RSLC falls under the Infantry School's Airborne and Ranger Training Brigade, while SLC and CLC fall under the Armor School's 316th Cavalry Brigade. The three courses all certify their instructors differently and are not required to share a common operational picture or demonstrate the same baseline doctrinal, tactical and technical knowledge of R&S.

Ask an RSLC, SLC or CLC instructor about IC planning, for example, and a student will receive three different, and probably contradictory, answers. Courses that all teach the same doctrine, while catering to different echelons, should all have the same doctrinal baseline and work toward continuity from one level to the next. Instead, these three courses exist in a vacuum under two different command groups and often contradict or undo the work of the other, creating significant knowledge gaps.

Second, the Armor Branch monopolizes SLC, treating it like a pipeline school. All ABOLC officers assigned to a cavalry squadron are expected to attend, similar to how the infantry treats Ranger School as a "mandatory" voluntary course where failure or non-attendance carries career-ending implications. This flawed line of thinking takes slots away from IBOLC graduates and officers and NCOs already out in the force who may otherwise attend.

Cavalry Branch needed

Creating a distinct, independent Cavalry Branch remedies these problems. Instead of needing to attend three or more different voluntary schools in addition to required PME, the Army can create a Cavalry BOLC (CBOLC) and

Cavalry Captain's Career Course (CCCC).

CBOLC could adopt much of SLC's curriculum and merely expand the course length to allow two to three weeks of tactical and technical training per platform (dismounted, humvee, Stryker and BFV). CBOLC could also incorporate some of RSLC's individual technical training on optics and communication systems but discard or shorten the niche and somewhat antiquated surveillance instruction. This would stretch the length of a potential CBOLC course to 10 to 15 weeks, in line with the other combat-arms officer branch-qualification courses.

Likewise, CCCC could borrow from CLC's Pol but expand the course length to focus on troop-level TLPs to the same depth as CLC, which currently addresses squadron-level MDMP. Spending two to three weeks on each type of cavalry squadron at both the troop and squadron level would stretch a hypothetical CCCC to 12 to 18 weeks, similar to the current active-duty Maneuver Captain's Career Course (MCCC) model.

This model allows the Army to keep RSLC, SLC and CLC as revised independent courses, realigned under a new Cavalry School training-command group. RSLC could restrict its training audience to Soldiers assigned to SOF units, to Soldiers holding an 18-series military-occupation specialty (MOS) or to those reassigned to battalion scout platoons. This would allow RSLC to rebrand itself as a course specifically geared toward dismounted-surveillance and special-reconnaissance operations.

The advanced individual training for the cavalry-scout MOS (19D) might also consider adopting part of its curriculum, teaching the more basic individual surveillance techniques as well as the technical equipment proficiencies.

SLC could limit its attendees to officers and NCOs already in the force who are transitioning into a cavalry squadron troop-level billet. CLC could expand its audience from officers and NCOs transitioning to command and staff roles within a cavalry squadron, including individuals from the combined-arms

professions seeking a BCT staff operations position and who still require an in-depth understanding of IC. Ideally, RSLC would establish a technical, execution-driven knowledge base for junior NCOs heading to a SOF unit or battalion scout platoon.

SLC would then transition to the next level: planning and executing at the tactical level with junior officers and senior NCOs heading to an actual cavalry platoon or troop within a squadron. CLC would culminate a cavalry officer's R&S knowledge for senior-squadron-staff NCOs or officers bound for troop command or squadron/BCT staff positions.

Instead, all three current courses fall short because they do not plan for any continuity in their graduates' R&S careers beyond the walls of their own schoolhouses.

While one might argue the cost-effectiveness of such a drastic revision, closer scrutiny reveals a relatively small increase in expenditure. Existing R&S courses can trim their budgets proportionately as their audiences shrink and remove or alter portions of their curriculums that would be covered by the new Cavalry Branch PME. ABOLC, IBOLC and MCCC could also decrease their budgets proportionately with their audiences, as a portion of their former students would now attend the new CBOLC and CCCC. The money saved from the streamlined R&S schools and PME could help offset the costs of standing up the new cavalry PME.

Similarly, former instructors from the Infantry and Armor Schools could move to the new Cavalry School as the training-command groups realign, requiring the Army to hire only a minimum amount of new personnel for staffing.

In short, funds need to be moved and marginally increased vs. massively overhauled in any significant way.

Evolving battlefield

Today's battlefield constantly evolves, creating complex and unique information requirements for the modular BCT. They increasingly rely more and more on their organic cavalry squadrons to quickly and accurately provide

real-time feedback about terrain and threats within the operating environment.

The strenuous demands of the R&S profession require specialized, in-depth tactical and technical training for its leaders. Currently, the only feasible way to obtain the education necessary to be a successful cavalry officer requires more voluntary schooling, above and beyond required PME. While not an issue for active-duty officers, Reservists face time and financial constraints, as well as limited course slots and funding for non-PME schooling. Also, the BOLC-heavy audience at the Armor School's R&S courses discourages officers and NCOs from the force from attending prior to reassignment to cavalry formations.

The Army would benefit from staffing its cavalry profession with fully qualified professionals. If, as the old joke implies, the Army issues everything that someone needs for success, why does it not issue itself a Cavalry Branch?

CPT Nicholas Charnley is a plans officer for 1st Squadron, 150th Cavalry Regiment, West Virginia Army National Guard, Bluefield, WV. Previous assignments include commander, Troop C, 1st Squadron, 150th Cav Regiment, Glen Jean, WV; executive officer, Troop A, 1st Squadron, 150th Cav Regiment, Holden, WV; and platoon leader, Company A, 2nd Battalion, 108th Infantry Regiment, New York Army National Guard, Geneseo, NY. His military schooling includes CLC, BLC, MCCC, Army Reconnaissance Course, IBOLC, Airborne School and Air-Assault School. CPT Charnley holds a bachelor's of arts degree in education from Canisius College and a master's of arts degree in history from the University at Albany, State University of New York. He deployed to Jordan as an armored-cavalry troop commander in 2019-20 as "part of Operation Enduring Freedom in support of Operation Inherent Resolve." He participated in R&S missions in southern Syria in support of SOF.

Notes

¹ CPT Ken Segelhorst, "Keeping the Sabers Sharp: Maintaining Relevance in the Modern Era," *ARMOR* November-December 2012.

² CPT Michael J. Culler and CPT Joshua T. Suthoff, "Ideas on Cavalry," *ARMOR*, October-December, 2013.

³ CPT Nathan A. Jennings, "Cavalry Branch: A Redesignation for the 21st Century," *ARMOR*, January-February 2014.

⁴ 1LT Kier Elmonairy, "Elite Mechanized Forces in an Age of Expeditionary Deployment," *ARMOR*, March-June 2014.

⁵ MAJ Thomas A. Rebeck, "Cavalry: the Mounted Arm of Maneuver," *ARMOR*, March-June 2014.

⁶ CPT Thomas Spolizino, "Not Just Infantry With Tanks: Who We Should Be and Why the Army Needs Us to Be It," *ARMOR*, July-September 2014.

ACRONYM QUICK-SCAN

ABOLC – Armor Basic Officer Leader's Course

BCT – brigade combat team

BFV – Bradley Fighting Vehicle

BLC – Bradley Leader's Course

BOLC – basic officer leader's course

CBOLC – Cavalry Basic Officer Leader's Course

CCCC – Cavalry Captain's Career Course

CLC – Cavalry Leader's Course

IBOLC – Infantry Basic Officer Leader's Course

IC – information collection

MCCC – Maneuver Captain's Career Course

MDMP – military decision-making process

MOS – military-occupation specialty

NCO – noncommissioned officer

PME – professional military education

Pol – program of instruction

R&S – reconnaissance and security

RSLLC – Reconnaissance and Surveillance Leader's Course

SLC – Scout Leader's Course (Armor School)

SOF – Special Operations Forces

TLP – troop-leading procedures

Honoring our Armor and Cavalry Medal of Honor Heroes

Derived from Center of Military History information provided at <https://history.army.mil/html/moh/civwaral.html>. Listed alphabetically. Note: Asterisk in the citation indicates the award was given posthumously.

CUSTER, THOMAS W. 2LT

Unit: Company B, 6th Michigan Cavalry. Two awards. Entered service: Monroe, MI. Born: New Rumley, OH. Place and date of first action: Namozine Church, VA, May 10, 1863. Date of issue: May 3, 1865. Citation: Capture of flag May 10, 1863. Place and date of second action: Sailor Creek, VA, April 1865. Date of issue: May 26, 1865. Citation: Custer leaped his horse over the enemy's works and captured two stands of colors, having his horse shot from under him and receiving a severe wound.

DAVIDSIZER, JOHN A. SGT

Unit: Company A, 1st Pennsylvania Cavalry. Place and date of action: Paines Crossroads, VA, April 5, 1865. Entered service: Lewiston, PA. Born: Milford, PA. Date of issue: May 3, 1865. Citation: Capture of flag.

DAVIS, CHARLES C. MAJ

Unit: 7th Pennsylvania Cavalry. Place and date of action: Shelbyville, TN, June 27, 1863. Entered service: Harrisburg, Pa. Born: Aug. 15, 1830, Harrisburg, PA. Date of issue: June 14, 1894. Citation: Led one of the most desperate and successful charges of the war.

A Way of Improving Training and Readiness Oversight

by CPT Timothy Sweeney and LTC Brennan Speakes

As the Army develops new ways to fight and win in large-scale combat operations, the U.S. Army Armor School (USAARMS), in conjunction with the U.S. Army Infantry School, is developing options for brigade and battalion organizational redesign to increase lethality. Combined-arms battalions (CABs) bring an effective mix of armor and mechanized-infantry forces to challenge and defeat our adversaries. Although squad manning is limited, mechanized infantry prove critical on the battlefield with an armored brigade combat team (ABCT).

With that in mind, USAARMS proposed that Career Management Field (CMF) 19 Soldiers man the Bradley Fighting Vehicle (BFV), while CMF 11 Soldiers surge to man all dismounted-squad capabilities within a mechanized-infantry company. CMF 19 Soldiers have the best skill set and enable CMF 11 Soldiers to focus on their specified dismounted-infantry tasks and drills. We believe this concept would increase lethality and readiness today and into the future.

Lethality

The ABCT employs vehicles to close with and destroy the enemy. A BFV is not an armored personnel carrier or a place to store gear. In the Armor Branch, vehicles are our mindset and mounted lethality is our profession; every CMF 19 assignment is on a vehicle. During the current 19D One Station Unit Training-Transformation Course, cavalry-scout trainees receive 263 hours of BFV training over the 22-week training plan.

This begins a career of experience in our mindset. Armor and cavalry Soldiers and leaders are trained to be experts on our platforms and consistently prove that we are through our expertise on vehicles. Mounted maneuver is not a secondary task for us; we have technical expertise on our platforms, we love our vehicles, and we

have the longevity to continuously learn how to employ them.

On the other hand, the infantry squads in mechanized formations provide essential combat power on the ground where the commander deems necessary. The infantry squads do not exist just for local security but have specified collective tasks that support the CAB rifle company's mission-essential task list (METL).

The individual and collective tasks listed under each of the offensive and defensive tasks includes tasks completed by both mounted and dismounted elements. Examples of dismounted tasks for "conduct an attack – company" (Table 1) include "Engage targets with an M249 machinegun using an AN/PEQ-15 aiming light" and "Engage targets with an M240B/M240L machinegun." As outlined in the Combined-Arms Training Strategy METL listing, it is also important to note that the collective and individual tasks below the company level are identical in both rifle companies assigned to infantry brigade combat teams (IBCTs) and ABCTs as shown in Table 1.

Dismounted squads in the ABCT rifle company are not just support, just like the BFVs of the mechanized force are not just support. Both elements maneuver together toward an objective, and both are essential to the lethality, mobility and flexibility of the formation.

Adjusting the BFV crew would benefit the Army by encouraging specialization and reducing training burdens while increasing lethality. A single military-occupation specialty (MOS) could

be expected to serve as experts on mounted maneuver in the ABCT, Stryker Mobile Gun System (MGS) organizations and future mobile protected firepower organizations. This specialization would alleviate the lack of specialization that often occurs when personnel transition from one BCT type to another.

Simultaneously, the infantry personnel assigned to an ABCT would specialize in the key individual and collective tasks associated with their dismounted operations. The formation would be better trained and better enabled to fight and win as a combined-arms team by having masters of each mindset, skill set and mission set, rather than one MOS trying to master multiple complex missions and tasks. The latter means lower proficiency on all tasks and lower ability to sustain readiness of equipment.

Readiness

The benefit of having dedicated CMF 19 personnel to crew platforms in ABCT formations is a renewed focus on maintaining the fleet. If the BFV crews are specially trained for that skill set and platform, maintenance will improve. When the unit conducts command maintenance, the crews conducting maintenance will be specially trained on that platform and will have continuous career experience in maintaining vehicles, rather than intermittent assignment opportunities.

Currently, CMF 11 personnel can transition back and forth between light-infantry formations and mechanized formations, leading to noncommissioned officers serving in ABCTs or Stryker

| Name | Number |
|------------|---|
| 07-CO-1092 | Conduct an attack – rifle company (IBCT) |
| 07-CO-1272 | Conduct area security – company |
| 07-CO-9003 | Conduct an area defense – company |
| 55-CO-4830 | Conduct expeditionary deployment operations |

Table 1. ABCT rifle company METL.



Figure 1. A U.S. Army MGS system Stryker variant belonging to the Quickstrike Troop, 4th Squadron, 2nd Cavalry Regiment, fires at several targets during a week-long gunnery range at the Grafenwoehr Training Area, Germany, Feb. 14, 2019. The gunnery was the culminating event for their multi-month training progression. (U.S. Army photo by SGT Timothy Hamlin, 2nd Cavalry Regiment)

BCTs for the first time as a staff sergeant. Conversely, CMF 19 personnel remain in the same BCT type from staff sergeant to command sergeant major. This provides more time for them to learn and perfect their trade.

Increased priority and specialization in maintaining tracks will lead to higher operational readiness (OR) ratings across the fleet. Infantry squads will also have continuous experience focused on the equipment that supports their operations and will improve their lethality as the critical dismounted element in their formations. CMF 19 and CMF 11 personnel will also be able to execute combined training, incorporating expertise and repetitions across both of these forms of maneuver, directly leading to increased lethality. Both the infantry squads and BFV crews will have Soldiers and leaders trained and experienced in the maneuver and maintenance of their forces.

Recommendations

The conversation of training a specialized MOS for crewing vehicles in mechanized formations has been ongoing since the Infantry Branch eliminated the 11M MOS in 2000. The ABCT's infantry squads do not exist

simply for local security around their vehicles; every ABCT mission requires dismounting those squads at a critical point to achieve mission success. ABCTs are lethal and accomplish the mission when armor, cavalry, infantry, fires and engineers work together in concert and capitalize on the relative advantage offered by each subordinate formation.

Increased specialization among the BFV crews and dismount squads will directly lead to increased OR rates and overall readiness. These specialty

crews and squads will be more ready, more lethal and thus more capable of using all assets available to challenge and defeat any threats from our adversaries.

Conclusion

We conclude that providing CMF 19 Soldiers rather than CMF 11 Soldiers to crew positions in BFVs provides increased lethality and reduces a lack of specialization in ABCTs while allowing CMF 11 personnel to continue to master their skill set.



Figure 2. An infantry team leader from 2nd ABCT, 1st Cavalry Division, yells commands during the combined-arms live-fire exercise Feb. 6, 2019. (Photo by MAJ Carson Petry, 1st Cavalry Division Public Affairs)

CPT Timothy Sweeney is an operations officer in USAARMS, Fort Benning, GA. Previous assignments include small-group instructor at the Cavalry Leader's Course in 316th Cavalry Brigade, Fort Benning; cavalry troop and Headquarters and Headquarters Troop commander, 5-4 Cavalry, 2nd ABCT, 1st Infantry Division, Fort Riley, KS; and scout-platoon leader and troop executive officer, 1-33 Cavalry, 3rd IBCT, 101st Airborne Division (Air Assault), Fort Campbell, KY. CPT Sweeney's military schools include the Cavalry Leader's Course, Maneuver Captain's Career Course (MCCC), Army Reconnaissance Course and Armor Basic Officer Leader Course. CPT Sweeney holds a bachelor's degree in political science from the University of Rochester. His awards and honors include the Bronze Star Medal and two awards of the Meritorious Service Medal.

LTC Brennan Speakes is chief of the

Commandant's Initiatives Group, US-AARMS, Fort Benning. Previous assignments included brigade S-3, 1st Security Forces Assistance Brigade, Fort Benning; G-3, Task Force Southeast, Advising Platform Lightning, Afghanistan; brigade executive officer, 1st BCT, 3rd Infantry Division, Fort Stewart, GA, and Europe; and S-3, 5-7 Cavalry, 1st BCT, 3rd Infantry Division, Fort Stewart. His military education includes inter-agency fellow at NCR, Command and General Staff College, Cavalry Leader's Course, MCCC, Scout Leader's Course and the Armor Officer Basic Course. LTC Speakes holds a bachelor's of science degree in business administration from Texas A&M University and a master's of business administration from Columbus State University. His awards and honors include three awards of the Bronze Star Medal, Defense Meritorious Service Medal and four awards of the Meritorious Service Medal.

ACRONYM QUICK-SCAN

ABCT – armored brigade combat team
BCT – brigade combat team
BFV – Bradley Fighting Vehicle
CAB – combined-arms battalion
CMF – career-management field
IBCT – infantry brigade combat team
MCCC – Maneuver Captain's Career Course
METL – mission-essential task list
MGS – Mobile Gun System
MOS – military-occupation specialty
OR – operational readiness
USAARMS – U.S. Army Armor School



Send Us Your Manuscripts

ARMOR magazine's manuscript suspenses for 2021:

- Winter 2021 edition: Oct. 28, 2020
- Spring 2021 edition: Feb. 9
- Summer 2021 edition: April 29
- Fall 2021 edition: Aug. 20

For planning purposes, **ARMOR** magazine suspenses are an average of 10-11 weeks before the edition is published.

Royal Flush: Commanders, Fire-Support Officers Use Echelonment of Fires to Dominate Fight

by MAJ David A. Saxton

This article addresses issues associated with the lack of echeloning fires at the maneuver-battalion level while incorporating indirect fire (howitzers and mortars).

Critical to this success is the integration and synchronization of maneuver commanders and fire-support officers (FSOs) at the battalion and company levels during the planning, execution and analysis of fires in support of maneuver.

This minimizes the maneuver force's exposure to the maximum effective range of the enemy's direct- and indirect-fire weapon systems, and it reduces the threat on the objective.

Echelonment of fires

Army Techniques Publication (ATP) 3-09.42, *Fire Support for the Brigade Combat Team*, cites that echelonment of fires is "a technique for integrating and synchronizing maneuver and fires. Echelonment of fires is the execution of a schedule of fires fired from the highest caliber to the lowest caliber weapon, based on risk-estimate distances and weapons-system range capabilities, as the maneuver force moves toward an objective.

"Echelonment of fires helps ensure that ground forces are able to move to an objective without losing momentum, helps set the conditions for the direct-fire fight and reduces the risk of friendly casualties. Echelonment of fires is accomplished when the maneuver commander wishes to conduct preparation fires on an objective."¹

Observations also identify three critical areas in the planning and execution phase required for commanders to successfully execute an echelonment of fires. These are (1) target detection/confirmation; (2) asset/munition selection ("massing" on the objective); and (3) calculation of time-based triggers for both friendly and

enemy movement speeds.

Commander, FSO collaboration

To properly use an echelonment of fires, commanders must have clear dialogue with their FSOs to properly relay the commander's intent for fires.

Such a dialogue is necessary to drive the "nine steps for echeloning a preparation" (from ATP 3-09.42, Table 2-2):

1. Determine what assets, to include ammunition, are required and what assets are currently available or allocated.
2. Verify risk-estimate distances and attack criteria with the commander.
3. Plan targets.
4. Develop a communications plan.
5. Determine what the rate of movement will be.
6. Develop the schedule of fires and decide how the preparation schedule will be initiated.
7. Brief the plan and confirm the method with the commander.
8. Complete the scheduling worksheet(s) within Advanced Field Artillery Tactical Data System (AFATDS) or manually using DA Form(s) 4656 (scheduling worksheet).
9. Rehearse and refine the plan.

The nine steps raise multiple questions the FSO should either be asking or developing an answer to based on the maneuver plan. Step 5 must include the phrasing of *time*. As alluded to earlier, the communication necessary between commander and FSO is already lacking from the preceding list.

Commanders and FSOs need to discuss the following: Where does detection come into play? How and when will detection of enemy forces occur to achieve better effects on enemy forces?

Target detection and refinement

Proper identification of enemy location, size and disposition is the first critical step in making an echelonment of fires effective. Instrumental for setting the conditions for an echelonment of fires to be successful is having all maneuver and fires current operations updated and accurate on the fires common operating picture (COP).

At this moment we shall pause and examine the fires COP for the following:

- Are firing-battery positions updated and accurate?
- Has Class V (ammunition) been monitored and updated throughout the fight?
- Does the FSO have a clear understanding of what effects can be achieved with shell/fuze combinations currently on hand?
- Where is the battalion in precedence for howitzer support in the current phase of the operation?
- Are we able to achieve the effect of destroy, neutralize or suppress the enemy; how will that affect the commander's plan?
- Are mortars in an effective location to offset their maximum range in relation to friendly maneuver forces projected movement(s)?
- Have the battalion fire-support element (FSE) and battalion operations officer (S-3/AS-3/battle captain) conducted targeting synchronizations to nest with the commander's guidance?

These are just a few recommended considerations in question format the FSO should be addressing as running problems during current operations that feed into effective echelonment of fires as they pertain to Step 1 of the nine steps. Tools include, but are not limited to: leader's reconnaissance; scouts; snipers; intelligence, surveillance and reconnaissance (ISR) such as

the company-level Raven unmanned aerial vehicles; and company fire-support teams (FiSTs). The proper use of detection assets enables a more accurate picture visualized for the FSO to refine attack options. When detection reveals a larger or armored enemy force, the FSO may realize that the battalion's 120mm mortars are ineffective and that howitzer support from the brigade combat team's field-artillery (FA) battalion is necessary.

Take, for example, the detection of enemy T-90 tanks when previously the S-2 (intelligence section) had templated BMP-3s (*boyevaya mashina pekhoty*; that translates to Russian Infantry Fighting Vehicle-3). The 105mm howitzers and mortars will have very little effect on a T-90 from a weaponeering perspective, but what can the FSO do to address this threat? Using a light BCT as an example, the battalion FSO can state "Sir, Charlie Battery (155mm towed, M777A2) can provide BONUS Mk II (155mm target detection anti-armored vehicle shell) and dual-purpose improved conventional munition (DPICM). They are low on BONUS Mk II. I recommend a battery mix of Bonus

Mk II and DPICM to destroy the enemy." The correct understanding of asset, Class V and effects is critical for nesting with the commander's guidance, but this can only be achieved if the maneuver force has painted a clear picture of the enemy composition and disposition. It is paramount that commanders understand the importance of positive target detection to maximize the effects of indirect fires.

Conversely, the risk of "unobserved fires" (i.e., having no clear detection/observer) will unnecessarily expose the brigade or battalion commander's assets to counter-battery fire from an enemy radar, a Russian 1L-220 for example, when firing.² Such an action will now deny the maneuver commander additional fire support while he or she waits for a friendly-firing battery to jump to a new firing location after its previous fire mission. Leaders must realize that howitzers and mortars must jump firing points after each fire mission against a peer threat until it is confirmed that enemy radar has been neutralized.

Takeaway: *Accurate detection and*

identification of enemy assets on the objective drives refinement of asset/munition selection and will have an effect on time-based triggers for the echelonment of fires.

Asset and munition selection: delivering mass on target

The proper selection of firing system and munition (both type and quantity) will be the difference in destroying, neutralizing or suppressing a target; this in turn has a direct effect on the maneuver force being able to successfully exploit an objective based on the enemy threat. Should the proper effects with fires not be achieved, the commander's mission success is at risk of failure due to not properly preparing the objective with enough fires through a previous echelonment of fires.

Proper asset selection by the FSO at either battalion or company level begins with proper communications established with both digital (AFATDS) and voice (frequency modulated or high frequency). Clear communication allows the seamless transfer and

| ASSET | LOCATION | DIS. | AMMO | | | | | | FSCMS | | DTG |
|--------|-----------------|----------|-------|--------|---------|-------|-------|--------|-------|-----|-----|
| | | | HE | SMK | ILLUM | DPICM | BONUS | FASCAM | | | |
| 60MM | 32X XX XXXXXXXX | | XXX | | | | | | | CFL | |
| 81MM | 32X XX XXXXXXXX | | XXX | XX | | | | | | | |
| 120MM | 32X XX XXXXXXXX | | XXX | XXXX | XXX | | | | | | |
| 105MM | 32X XX XXXXXXXX | | XXX | XXXX | XX | | | | | FSC | |
| 155MM | 32X XX XXXXXXXX | | XXX | XXXX | XXX | XXX | XXX | XXX | | | |
| H/MLRS | 32X XX XXXXXXXX | | | | | | | | | NFA | |
| | | | Gun | Rocket | Missile | Bom b | | | | | |
| AAA | 32X XX XXXXXXXX | | XXX | XX | XX | | | | | | |
| CAS | 32X XX XXXXXXXX | | XXX | | | X | | | | | |
| UAV | 32X XX XXXXXXXX | | | | | | | | | ROZ | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| UNIT | COMM | TARGET # | DESCR | | | ASSET | DTG | PAA | | | |
| BN | | | | | | | | | | | |
| A | | | | | | | | | | | |
| B | | | | | | | | | MFP | | |
| C | | | | | | | | | | | |
| D | | | | | | | | | | | |
| THDR | | | | | | | | | CFFZ | | |
| WC | | | | | | | | | | | |
| BDE | | | | | | | | | | | |
| | | | | | | | | | CFZ | | |

Figure 1. Fires COP (example of a battalion FSE COP).

knowledge management between FSOs and FSE. Also, the battalion FSE must be constantly tied into its higher-brigade FSE and FA battalion fire-direction center to maintain an accurate fires COP within the maneuver battalion tactical-operations center. All this culminates with ensuring unity of effort for commanders and FSOs working off the same COP for planning and executing an echelonment of fires.

Figure 1 gives an example fires COP. It is imperative that FSOs maintain accurate Class V information to ensure that the selection of fires volume is feasible for the guideline.

To properly achieve the desired commander's endstate on the objective, the forward observer ensures that enough resources are requested and delivered during the execution. This can be best summarized by answering the question: How many projectiles from a specific weapon system, based on the target threat, are needed to achieve the desired effect? When engaging an armored target as opposed to dismounts, the munition and quantity will be different. Does the fire order for the method of engagement truly make sense? See Figure 2 for an example.

This example demonstrates the

effectiveness of shifting the 105mm howitzer support from Objective Hood to Objective Cowboys while echelonning with 120mm battalion mortars upon Objective Hood. It is important to note that maneuver units must move in conjunction with the risk-estimate distance of each system in relation to the phase line associated with that weapon system.³

FSOs must understand the system they are planning to engage targets with in relation to three criteria:

- The maximum/sustained rate of fire;
- Burst size/method of engagement; and
- Quantity on hand.

In relation to the first criterion, this subject will spill into the subject of **time**: from the first burst until the last burst on the target, how long will that fire mission take? This valuable window of time allows suppression of the enemy while achieving lethal effects that friendly units can exploit to bound on the battlefield. If using smoke, what is the build/sustainment time for that smoke mission? Has the FSO clearly communicated this time to his commander for fidelity in the mission? Has the commander ensured he or she understands the time and relayed that information to subordinate

leaders across the formation?

Addressing the second criterion is to look at the weaponeering solution for enemy engagement. If enemy dismounts are dug in, has the shell/fuze combination been properly changed to address this threat – high-explosive (HE) variable time as opposed to HE/point detonating – using howitzers as an example)? When engaging an armored threat, do commanders and FSOs plan to use BONUS Mk II or DPI-CM?

With respect to the latter, FSOs must clearly articulate the dud rate of DPI-CM and possible impact to friendly maneuver movements across the objective. It is imperative that FSOs understand what effect a projectile can achieve on an identified enemy threat based on size, disposition and type. A standard HE projectile from any howitzer or mortar will have minimal effects on enemy armor unless it is fired *en masse* at an extremely high volume.

Finally, there's the issue of quantity on hand in relation to massing on a target. How does a controlled supply rate (CSR) affect fire orders? The CSR for a specific munition type may limit a battery fire order to a low quantity that does not achieve the desired effects. In this scenario, the FSO must anticipate quantity on hand vs. the supply rate to proactively plan targets during sustained operations.

FSOs must understand the importance of massing in sufficient quantity of system(s), total number of projectiles in effect and munition type for an effective echelonment of fires. Take, for example, the BONUS Mk II projectile. This munition requires sufficient method of engagement to achieve a projected 100-percent destruction rate.

This example relays the importance of delivering sufficient quantity *en masse* to meet desired commander's endstate in support of maneuver forces. A lack of mass will lead to degraded effects while creating the additional problem set of bleed time until the next fire mission. Both commanders and FSOs must realize that firing units in large-scale combat operations will jump their firing location after each

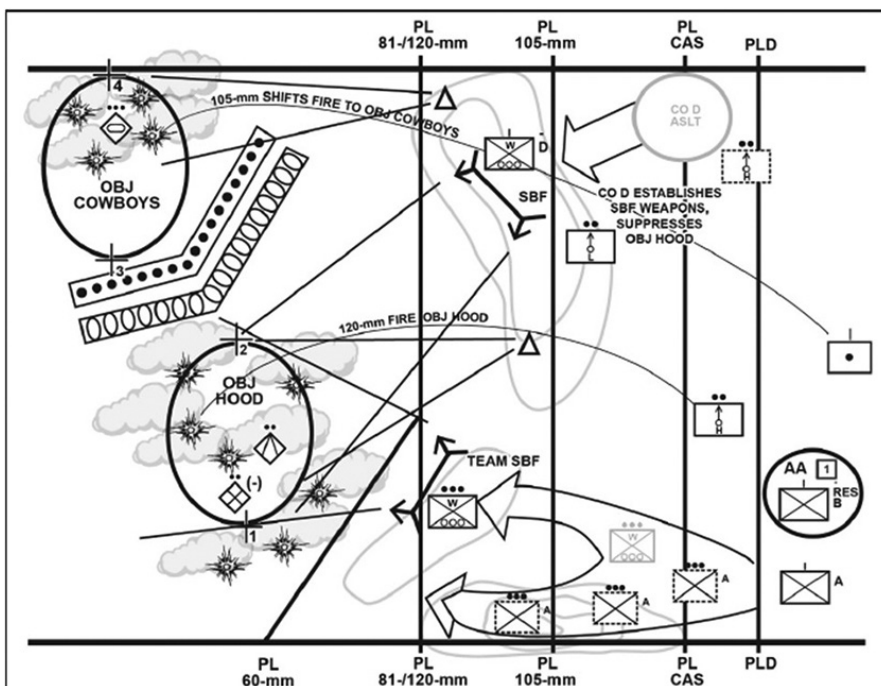


Figure 2. Shifting FA targets. (Adapted from ATP 3-21.10, *Infantry Rifle Company*)

fire mission in a high counterfire threat scenario. Fire missions must be made to count in each iteration.

Takeaway: *An effective echelonment of fires requires sufficient massing of the target born from rate(s) of fire, method of engagement and quantity available that will prevent “the enemy from observing and engaging the assault by forcing the enemy to take cover, which allows the friendly force to continue the advance unimpeded.”⁴*

Time: Creating safe gap based on triggers

A successful echelonment of fires will enable a commander to create a safe cushion rooted in time that is based on triggers, both enemy and friendly, to have his forces close upon an objective. The incorporation of time based on movement triggers applies to both the defense (enemy) and offense (friendly).

“In the defense, triggers are tied to the progress of the enemy as it moves through the area of operation, enabling the leader to engage the enemy throughout the depth of the area of operation,” according to ATP 3-21.20, **Infantry Battalion**. “In the offense, triggers are tied to the progress of the maneuver element as it moves toward the objective protecting the force and facilitating momentum up to the objective.”

Most commonly, leaders overestimate the amount of time required for a force, friendly and enemy, to move across the battlefield. The result is “dead space,” where fires are no longer providing effects on enemy forces in support of maneuver forces. Such a scenario can be mitigated in heeding the fifth step in ATP 3-09.42, **Echelon-ing a Preparation**, “determine what the rate of movement will be.”

Takeaway: *The calculation(s) for movement speeds is a process that from inception to execution does not stop. It is a running staff process that is monitored by the battalion FSO to support the commander’s plan so that during operations “the lead elements of the battalion approach the designated phase line en route to the objective, the FSO begins the preparation (of fires). Lead-element observers*

[scouts, snipers] and company [FiSTs] track movement rates and confirm them for the battalion FSO.”⁵

Calculating movement speeds by the FSO for an echelonment of fires is a critical task that occurs during planning but also occurs during execution to refine targets to adapt to changes in real time. ATP 3-21.20 stipulates that the battalion FSO adjusts the plan during execution based on unforeseen changes to anticipated movement rates.

What is missing from the planning process is the importance of the synchronization of the staff in the planning process. Leaders should discuss these questions:

- Has the FSO engaged the S-2 for the most current knowledge on enemy capabilities for calculating movement speeds?
- Do enemy vehicles have amphibious capabilities to cross swampy terrain with intermittent water features?
- What engineering assets does the enemy possess that may speed up their ability to traverse the battlefield?
- Has the staff taken into the account the effect of weather for slowing the rate of movement for the enemy, and similarly, how will poor weather affect friendly force’s movements in the offense?

It is imperative that FSOs collaborate with their peers across the staff for unity of effort to take into account the variables that will impact movement speeds.

Movement speeds are most often overestimated and result in fire missions such as a smoke screen – supporting a breaching operation in the offense, for example – lacking the appropriate effects. Smoke missions with the purpose of obscuration must be appropriately coordinated based on movement triggers so the build/sustainment rate of smoke is properly synchronized in both time and space. Similarly, screening smoke that shields friendly forces in the offense must have the same movement triggers applied. In both scenarios, the FSO must have clear communication with his peer fire-direction officer (FDO) in the

FA battalion to give an accurate capabilities briefing to his commander. This in turn will refine the commander’s plan for how to echelon fires to transition from indirect- to direct-weapon systems.

Double down

An echelonment of fires, successfully planned and executed, is a robust and technical process that requires practice and rehearsal to be properly executed. Combat-training-center decisive-action training exercises afford commanders the opportunity to put an echelonment of fires in practice against a dynamic opposing force.

While this article does not cover every aspect of planning and executing an echelonment of fires, I have attempted to present and discuss what I have identified as the three most common trends that lack in rigor.

FSOs are encouraged to examine the manner of target detection, ability to mass and calculation of movement times to provide better feedback to their commanders. Finally, commanders and FSOs must dialogue to increase their understanding of both the commander’s intent and the capabilities and options available to the commander. They need to look inward to how their organization plans and executes an echelonment of fires.

MAJ David Saxton was the maneuver-task-force fire-support observer/coach/trainer at the Joint Multinational Readiness Center, Hohenfels, Germany, at the time this article was written. His previous assignments include aide-de-camp for the deputy commanding general for operations, Eighth U.S. Army, Camp Humphreys, Republic of Korea (RoK); commander, Battery B, 1st Battalion, 38th Field Artillery Regiment, Camp Casey, RoK; battalion FSO, 2nd Battalion, 69th Armor Regiment, Fort Benning, GA; battalion FDO, 1st Battalion, 10th FA, Fort Benning; and battalion adjutant, 2nd Battalion, 319th Airborne Field Artillery Regiment, Fort Bragg, NC. MAJ Saxton’s military schools include the Field Artillery Basic Officer Leader Course and the FA Captain’s Career Course. He has a bachelor’s of arts degree in history from Furman University.

Notes

¹ ATP 3-09.42, *Fire Support for the Brigade Combat Team*.

² Brad Marvel, "Shattering the Snow

Dome," *Military Review Online* exclusive, June 2017.

³ ATP 3-21.10, *Infantry Rifle Company*.

⁴ ATP 3-21.20, *Infantry Battalion*.

⁵ ATP 3-21.20.

⁶ ATP 3-21.10.

ACRONYM QUICK-SCAN

AA – assembly area (Figure 2)
AFATDS – Advanced Field Artillery Tactical Data System
CAS – close air support (Figure 2)
COP – common operating picture
CSR – controlled supply rate
DPICM – dual-purpose improved conventional munition

FA – field artillery
FDO – fire-direction officer
FIST – fire-support team
FSE – fire-support element
FSO – fire-support officer
H – heavy (Figure 2)
HE – high explosive
L – light (Figure 2)

PL – phase line (Figure 2)
PLD – probable line of deployment (Figure 2)
RES – reserve (Figure 2)
RoK – Republic of Korea
SBF – support by fire (Figure 2)
W – weapons (Figure 2)

LEGENDS OF ARMOR



GENERAL DAVID. D. MCKIERNAN

Commander 3rd US Army/ ARCENT 2002-2004
 Commander US Army Europe and NATO Forces 2005-2008
 Commander NATO and ISAF Afghan Security Forces 2008-2009

Mission Command (Building Responsive, Flexible Teams)

by MAJ Jim Plutt Jr.

Mission command empowers subordinate situational decision-making and decentralized execution, but it is not simply subordinates doing what they want within broad intent. Do we want to leave actions at an ambulance-exchange point unscripted and open to interpretation? What about establishment of an observation post, recovery operations or logistics-status reporting?

Mission command requires three foundational elements: standardization, shared understanding and training designed to build expertise. Without this foundation, we may hope to execute through disciplined initiative and mission orders, but instead we will find ourselves overcome by routine problems we could have solved weeks or even months earlier.

If we do have standard operating procedures (SOPs) and common unit

language, we may find they suffer from a lack of routine review, update and rehearsal. Our leaders apply their time and energy to solving problems that should be standardized drills or procedures instead of executing on commander's intent, and the first true test of "how we fight" is at the combat-training center (CTC) or even in combat.

Therefore units must train to develop shared understanding and rapidly act during multiple repetitions and sets while maintaining subordinate focus on unique problems. In other words, units are capable of using mission command when they do the routine things routinely.

Units solve problems 'out of contact'

At the National Training Center (NTC), we often see that units solve problems by placing leaders at the point of friction. However, when points of friction

include our most routine problems, we quickly find more points of friction than leaders to apply to them. Units lack the collective training experience to execute using mission orders, and mission orders themselves are often unhelpful, unproduced or never distributed. When this happens, everything must be solved in the moment. There is little cohesion, and trust rapidly evaporates. We see that units want to execute within commander's intent, but without shared understanding and strong foundations, they cannot act, and so we see them waiting on higher-echelon guidance.

Fortunately, units can avoid many of these problems by simply standardizing and certifying routine actions as SOPs. SOPs are merely deciding in advance how to solve the preponderance of the issues we know we'll encounter. Problems as varied as camouflaging command nodes, conducting radio operations and establishing an observation post all benefit from SOPs, given they are produced, rehearsed and followed.

Standardize via collaboration

The commander is one of the most experienced Soldiers in the formation, but as Army Doctrine Publication (ADP) 6-0, *Mission Command: Command and Control of Army Forces*, reminds us, commanders also "recognize that they do not know everything, and they recognize that they have something to learn from even the most junior subordinate." Commanders who understand this can establish an environment that fosters collaboration and learning.

Discussion in a classroom with a whiteboard is a better opportunity to influence how leaders will execute their many individual and collective tasks than discussion in a period of darkness under direct-fire contact. Sitting down with junior leaders provides an invaluable perspective for the commander to understand the depth of knowledge within the formation. They



Figure 1. A Stryker Mobile Gun System fires its main gun during force-on-force training during live-fire conditions at NTC during Rotation 20-05. (U.S. Army photo)

also learn to appreciate the challenges the formation faces. It gives subordinate leaders the opportunity to share ideas without fear of reproach, and gives more senior leaders the opportunity to understand how subordinate leaders think about common problems. It is an important first step in defining best practices. It is also a venue for resolving conflict; it is better to address divergent ideas about execution in a calm classroom than after line of departure.

From this initial dialogue, units can begin to develop SOPs. Imagine a battalion that collaborates to standardize actions at a logistics-release point (LRP). The unit would identify markings, timelines, security requirements, leader requirements and all other actions required to execute this operation expertly within an SOP. As a next step, the unit could execute an LRP using the SOP, certifying the LRP's execution. After execution, a collaborative team would update the SOP, capturing changes in execution. The unit would now have a functional SOP for LRP operations: shared confidence and shared experience, linking collective competence and shared understanding.

An important part of the process is units routinely revisiting and updating their SOPs. It may be monthly or quarterly, paired with a training progression or focused on a CTC rotation, but it must occur. It allows training to feed back into collaboration in a cyclical manner, maintaining shared understanding throughout the unit. It develops a culture with a living SOP, a way that "we" do it, allowing central ideas to permeate throughout the organization. It is the lynchpin to operating on limited guidance from higher headquarters.

It also provides new leaders a voice for their experience and on-ramps them into the unit more quickly.

Training and trust

ADP 6-0 states that "tactically and technically competent commanders, subordinates and teams are the basis of effective mission command." We describe doctrine as "common language," but doctrine is a guide or framework, lacking specific unit



Figure 2. A Bradley Fighting Vehicle observes a named area of interest (NAI) at NTC during Rotation 20-04. (U.S. Army photo)

language to "speak" mission command. Building SOPs and certifying them during training builds another kind of common language within a unit and generates trust.

The power in this common language allows the commander to know when he or she orders an LRP in execution that everyone knows exactly how to do it.

Shared understanding of unit SOPs, paired with demonstrated competence in routine drills and procedures, builds trust at echelon and allows disciplined initiative. Subordinates are trusted because they have been certified to execute; they know "what" to do and "how" to do it. This is built-in

doctrine within the principles of "train as you fight."

Mission orders

An untrained unit will find it cannot execute on mission orders. Without the common language or standardization described, commanders can only ensure their intent is met and reduce risk to mission by being more prescriptive and exerting higher control. For commanders, this costs time and energy. For subordinates, this may appear as micromanagement and delays decision-making. For the unit, this loses opportunities.

With standardization and demonstrated competence, mission command is

possible through the use of mission orders. Good mission orders provide everything a subordinate must know and nothing else. Good mission orders do not contain the “whats” and “hows” collaboratively built during SOP development, much less superfluous products with useless excess information. They do provide enough information and products to synchronize and give subordinates the key information they need.

The mission-orders process itself should be SOP. The subordinate leaders who will execute commander’s intent should be part of its development, providing input to unit products and required touchpoints. In the best mission-orders processes, subordinates should receive what they expect and when they expect it, and nothing more.

Conclusion

When successful, mission command frees leaders from solving routine problems at the point of friction. It relies on routine, enabling momentum. It allows units to operate on shared confidence and shared experience, relying on collaboration and expertise built through training long before the line of departure. Mission command is less nuanced and abstract than one might think, and it certainly requires

more structure than is initially apparent. It is a culture within a unit that must be stewarded routinely.

With a sufficiently strong foundation, we do not have to tell subordinates how to do things. We can tell them what to do, empowering them to use their full ingenuity. This is mission command.

MAJ Jim Plutt Jr. is the cavalry squadron S-3 trainer/(Cobra) NTC Operations Group, Fort Irwin, CA. His previous assignments include S-3, 2nd Stryker Brigade Combat Team, 2nd Infantry Division, Joint Base Lewis-McChord (JBLM), WA; S-3, 2nd Infantry Battalion, 1st Infantry Regiment, 2-2 Infantry, JBLM; small-group leader, Maneuver Captain’s Career Course (MCCC), Fort Benning, GA; commander, Bravo Troop, 3rd Squadron, 38th Cavalry Regiment, 201st Battlefield Surveillance Brigade (BfSB), JBLM; and S-3 Plans, 3-38 Cav, 201st BfSB. MAJ Plutt’s military schools include the Armor Basic Officer Leadership Course, MCCC, Australian Command and Staff College – Joints, Basic Airborne School, U.S. Army Ranger School, Reconnaissance and Surveillance Leader’s Course, Joint Firepower Course and U.S. Army Jumpmaster Course. He has a bachelor’s of business administration degree in finance from Kent State University and

a master’s degree in military and defense studies from the Australian National University.

Notes

¹ ADP 6-0, *Mission Command (Command and Control of Army Forces)*, Washington, DC: Army Publishing Directorate, 2019.

ACRONYM QUICK-SCAN

ADP – Army doctrine publication
BfSB – battlefield surveillance brigade
CTC – combat-training center
JBLM – Joint Base Lewis-McChord
LRP – logistics-release point
MCCC – Maneuver Captain’s Career Course
NAI – named area of interest
NTC – National Training Center
SOP – standard operating procedures



Figure 3. A Soldier puts an RQ-11 Raven unmanned aerial system into operation to observe an NAI at NTC during Rotation 20-05. (U.S. Army photo)



Figure 4. Soldiers dismount ahead of their M1127 Stryker Reconnaissance Vehicles to conduct reconnaissance of an obstacle during a zone reconnaissance. (U.S. Army photo)

BOOK REVIEWS

Hitler's Tanks: German Panzers of World War II by Chris McNab; New York, NY: Osprey Publishing; 2020, 336 pages; \$40 hard cover.

Hitler's Tanks is Dr. Chris McNab's latest offering in military-history writing. An author of more than 100 other publications, McNab is an expert on analyzing individual weapons systems and their performance in combat.

Before this review, I was unfamiliar with his previous work and therefore anticipated yet another coffee-table book replete with beautiful photographs but lacking detail. However, the depth and breadth of research involved in writing this book made for quite a surprise. Readers, particularly researchers, modelers or re-enactors, looking for a detailed examination of German armor during World War II should strongly consider adding ***Hitler's Tanks*** to their home library.

McNab opens with a look back at the early days of German tank and armored doctrine development in the Great War as a foundation to understanding their use and continued evolution during World War II. This theme continues as a backdrop in later chapters that describe the path from blueprint to battlefield for individual tank models. The book provides specification data for the major German tanks – the Panzer series, the ubiquitous Panther and the massive King Tiger – describing the weight, dimensions, armor, armament, communications and power plant. In keeping with Osprey Publishing tradition, each chapter includes many period photographs of the tanks as well as detailed cutaway full-color illustrations revealing more internal or external details.

McNab is clearly not a believer in the supremacy of either German tanks or strategic-level decision-making. The author joins the growing chorus of researchers seeking to dispel the myth of Nazi armored supremacy, particularly highlighting the Wehrmacht's rather inferior tanks at the war's start

and the overly complex designs in the Third Reich's final moments.

Individual chapters studying each tank describe virtually every facet possible from combat performance against Allied tanks, such as the Russian T-34 or American Sherman, to more obscure analysis, such as crew comfort on the move or even the placement of individual switches and buttons necessary to operate the vehicles. Rarely have I encountered a book with so much attention paid to the smaller elements of a weapons system.

Hitler's Tanks is rich in detail but written in a dry, matter-of-fact, official-report style with little in the way of an engaging narrative. The book is more akin to a U.S. Army -10 series technical manual than a war story. The humanity of war, as told through discussion of the tank crewmembers themselves, makes all-too-brief appearances. While the book is about the machines, I believe more writing on the men would improve its overall appeal.

LTC CHRIS HEATHERLY

Wellington's Command: A Reappraisal of His Generalship in The Peninsula and At Waterloo by G.E. Jaycock; Yorkshire, United Kingdom: Pen and Sword Books Ltd.; 2019; 264 pages; \$42.95.

G.E. Jaycock's ***Wellington's Command*** is a critical assessment of the Duke of Wellington's leadership during the Napoleonic Wars era through the lens of the mission-command philosophy. Jaycock proposes that Wellington's leadership, despite notable victories such as Waterloo, deserves a reappraisal and that history and the favorable narrative surrounding his generalship have been too generous. Jaycock gives the legendary general a thorough review with a book that has a scholarly style and in-depth analysis of battles won and lost. The reader can infer several lessons relevant for application in the art of leadership with a mission-command mindset more than 200 years later.

Wellington's Command is the adaptation of Jaycock's master's thesis into a publishable work. The academic origin and original reading audience are noticeable in the strict scholarly style of ***Wellington's Command***, making the book a challenging read for the armchair historian. Jaycock provides an exhaustive level of detail and analysis that can be overwhelming at times. The analysis is generally at the tactical level and describes the nuanced activities of Napoleonic-era battles such as the sequence of selecting and setting the battlefield, the disposition of artillery and commitment of the cavalry. The depth of detail in evidence adds confidence to the veracity of the author's research but comes at the cost of reading ease.

Also, Jaycock tends to provide many details but makes few strong conclusions. The transitions between argument, evidence and claims often occur abruptly and are easy to gloss over. He also favors the use of the counter-factual, or what-if, method in his supplementing the arguments – i.e., what Wellington could've done or what could've been if done differently. These ideas are logically consistent with his own thesis but hard for the reader to critically refute.

Wellington's Command follows a mostly chronological outline with a brief history of Wellington's military career, the Peninsula Campaign 1808-1814, the Battle of Waterloo in 1815 and commentary on his enduring legacy. The first chapter introduces the popular Wellington narrative and legacy, as well as the dynamic between political and military offices to social standings. Here is proffered the book's thesis suggesting Wellington's generalship has been appraised too generously.

Jaycock uses the second chapter to describe how Wellington organized his command and executed his generalship using thematic sections comparable to U.S. Army warfighting functions. The next three chapters focus on Wellington's command and generalship during the Peninsula Campaign

(United Kingdom-led alliance against France on the Iberian Peninsula, 1808-1814). These chapters serve as the core of the author's evidence for supporting the thesis. Here also is the book's true value as an excellent case study of a multinational coalition campaign, including cooperation with guerrilla forces, against a capable adversary in a minor or secondary theater.

The second to last chapter is an abridged account of the action and leadership during the Battle of Waterloo. This chapter serves to conclude the author's main argument and demonstrates how applied mission command would have contributed to better battlefield decisions and fewer casualties. The Waterloo chapter and the conclusion come off as a bit rushed relative to the scope and detail of Peninsula Campaign and is somewhat underwhelming.

The book concludes with the

proposition that the quality of Wellington's leadership has been carefully crafted through his own close management of subordinates, exaggerated because of key victories won, and not attributable to any personal leadership quality or essence.

The book endeavors to illustrate how Wellington's overbearing and micro-managing leadership style cost him, and subordinates, opportunity for success and initiative on the battlefield. Ostensibly, this work should serve a professional-reading purpose to reinforce the philosophy of mission command. However, the book better serves as a case study of leadership. The book suggests that Wellington's style was forged by experiences, but he was static and didn't adapt or grow with increased responsibility, new operating environments or multinational partners. The student of mission-command philosophy will benefit from the

comparative study and Jaycock's exhortations.

Wellington's Command is a difficult but rewarding read for the serious or aspiring historian and any student of the period looking for excellent secondary source material. The book doesn't provide a lot of pretextual information – a basic knowledge of the period is assumed – but not necessary to digest the content. **Wellington's Command** does offer analysis of mission-command leadership affecting battlefield performance, but the lessons are hard to extract and not easily communicable in a contemporary context. Above all, Jaycock shows the reader what the antithesis of a mission-command leader looks like and the costs of a micromanagement style, and reinforces a notion that command, control and leadership are not synonymous.

MAJ LUKE C. BOWERS

Honoring our Armor and Cavalry Medal of Honor Heroes

Derived from Center of Military History information provided at <https://history.army.mil/html/moh/civwaral.html>. Listed alphabetically. Note: Asterisk in the citation indicates the award was given posthumously.

DAVIS, JOHN PVT
 Unit: Company F, 17th Indiana Mounted Infantry. Place and date of action: Culloden, GA, April 1865. Entered service: Indianapolis, IN. Born: Carroll, KY. Date of issue: June 17, 1865. Citation: Capture of flag of Worrill Grays (CSA).

DI CESNOLA, LOUIS P. COL
 Unit: 4th New York Cavalry. Place and date of action: Aldie, VA, June 17, 1863. Entered service: New York, NY. Born: June 29, 1832, Rivarola, Piedmont, Italy. Citation: Was present, in arrest, when, seeing his regiment fall back, he rallied his men, accompanied them without arms in a second charge, and in recognition of his gallantry was released from arrest. He continued in the action at the head of his regiment until he was desperately wounded and taken prisoner.

DODDS, EDWARD E. SGT
 Unit: Company C, 21st New York Cavalry. Place and date of action: Ashbys Gap, VA, July 19, 1864. Entered service: Rochester, NY. Born: Canada. Date of issue: June 11, 1896. Citation: At great personal risk rescued his wounded captain and carried him from the field to a place of safety.

75TH CAVALRY REGIMENT



The star represents the explosion of a shell; the cloud of dust represents the result of the explosion. The distinctive unit insignia was originally approved for 705th Tank Destroyer Battalion July 9, 1942. It was redesignated for 330th Mechanized Cavalry Reconnaissance Squadron Feb. 9, 1948. It was redesignated for 705th Tank Battalion July 25, 1952. The insignia was redesignated for 75th Cavalry Regiment, with the description updated Oct. 18, 2004.

ARMOR
Building 4, Room 142H
1 Karker Street
Fort Benning, GA
31905