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Applying Lessons-Learned

First I want to say thank you for what you, your Soldiers and leaders are doing/have done for the Army and the joint force and then tell you what an honor it is to assume responsibilities as the 50th Chief of Armor and one of Fort Benning's deputy commanding generals. I want to thank MG Scott McKean for his leadership and stewardship of the branch and school over the past two years. I look to build on the momentum generated by my predecessors as we build technically competent and confident armor Soldiers, cavalry troopers and armor officers that are successful regardless of their operating environment.

Today on all four corners of the map sheet, armored and cavalry formations are demonstrating American commitment and resolve. In places like Korea, Europe (Operation Atlantic Resolve), Afghanistan (Operation Freedom's Sentinel), Iraq (Operation Inherent Resolve) and the greater Middle East (Operation Spartan Shield), our Soldiers and troopers are carrying out operations aimed at bolstering partner capacity, preventing conflict and deterring our adversaries – oftentimes at great personal risk and sacrifice. When not deployed, these same units are focused on building readiness so that when called on, they are prepared to fight and win decisively across the full spectrum of conflict as part of the joint force.

We are driven by lessons-learned and observations from today's contemporary operating environment – specifically the Ukraine-Russia Conflict – rotations at our combat training centers and information you and your organizations share. What we've learned has reaffirmed the importance of armored-warfare fundamentals. We must maintain the capability to “shoot, move, communicate and sustain” in support of combined-arms maneuver and wide-area security.

These lessons-learned are also driving the development of initiatives within the Maneuver Center of Excellence and Armor School. Some of these initiatives are the armored brigade combat team triangular redesign; development of mobile, protected firepower for infantry brigade combat teams; an aligned Abrams / Bradley / Stryker master-gunner training strategy; hosting and supporting international tank and reconnaissance competitions; transitioning the military-occupation specialty for Stryker Mobile Gun Systems from 19K to 19D; developing and updating reconnaissance-and-security doctrine; gender integration; and alignment of functional courses to support armor-leader assignments.

The Armor School will continue to be the institution of choice for developing agile and adaptive leaders, Soldiers and formations that can operate in any environment; are skilled in the art of

mounted warfare; are capable of integrating combined arms; and are experts in reconnaissance-and-security operations. Under the leadership of the Maneuver Center of Excellence's commanding general, MG Eric Wesley, I look forward to working with BG Pete Jones and the Infantry School as we harmonize efforts to support current operations and initiatives; inform the future; and provide trained, agile and adaptive combat-ready Soldiers and leaders for the Army.

Lastly, I want to take this time to thank COL Charles Freeman for his service as the Armor School deputy commandant over the past year. He will be taking over as chief of the Leader Development Division, Directorate of Training and Doctrine. I also want to welcome COL David Davidson to the Armor School team as the new deputy commandant. No stranger to the Armor School – having previously commanded 316th Cavalry Brigade – COL Davidson is coming to us from U.S. Army North, where he served as the G-3.

In closing, I am proud to be the 50th Chief of Armor, and I look forward to seeing many of you at this year's Maneuver Warfighting Conference Sept. 14-16, 2016. Take care and keep in touch.

GUNNER'S SEAT

CSM Alan K. Hummel
Command Sergeant Major
U.S. Army Armor School



Adapting to the World's Growing Complexity

I will take this opportunity to formally welcome BG John S. Kolasheski to the team as he takes the reins as the 50th Chief of Armor. I look forward to working with him to continue the stewardship of the branch.

This Gunner's Seat will focus on the world's growing complexity that we continually ask our Soldiers to serve in. In recent months and years, we have seen so many changes in the world in which we serve and the ever-growing influence of non-state actors – for instance, the recent attempted coup in Turkey and the negative actions of other actors around the world. The influence of the Islamic State and the resurgence of both Russia and China only continue to obscure the picture of the future operational environment. The rise of non-state actors requires Soldiers capable of creatively and innovatively meeting those problems. This means that as an organization, the Army must continue to adapt and evolve to constantly meet the ever-changing threat our Soldiers may face. If the organization must continue to grow, then we must start to implement change at the institutional level to instill the skills that are required to win in the complex environment in which our Soldiers will someday find themselves.

We recognize that our armor leaders, crewmen and cavalry scouts will operate in these environments almost immediately after departing the Fort Benning training environment. That is why we focus our training to develop adaptive and agile leaders and Soldiers who are creative problem-solvers. To train and prepare our Soldiers to fully engage these problems, we have started to institute more innovative training such as integrating Senior Leader's Course (SLC) and Advanced Leader's Course (ALC) into training with Basic Officer Leadership Course and Maneuver Captain's Career Course students, and better aligning their follow-on schools, post-SLC and -ALC, before returning to their units. By sending SLC and ALC students to act as platoon sergeants and first sergeants, we better prepare them to rejoin the force with a deeper understanding of the abilities of their positions. This allows these noncommissioned officers (NCOs) to create and improvise solutions to previously difficult problems.

Nested with this concept, we also encourage and support sending these NCOs to the appropriate follow-on school that will bolster the individual's skillset, but at the same time, make them a more lethal and complete as-

set when they return to their units.

In addition to the training and education we provide to NCOs, we also continue to grow and evolve our basic-training programs to match the ever-changing needs of our operational forces. In taking this approach, we arm our NCOs and Soldiers with the confidence and competence to make an immediate impact within their units.

The intent of these actions is to develop NCOs and initial-entry-training Soldiers who possess a well-rounded skillset to increase capabilities to units throughout our formations. With that in mind, the Armor School is devoted to continuously evolving training to meet the operational force's mission requirement. Through these actions, Soldiers should leave Fort Benning with an understanding of what their role is and how to accomplish their tasks, leaving them more prepared to handle complex situations once back on the ground with their respective units. In creating a more confident and competent force, we establish a NCO chain that will be flexible and mentally agile enough to create innovative solutions for any and all problems they may face in the near future.

Russian Hybrid Warfare and the Re-emergence of Conventional Armored Warfare: Implications for U.S. Army's Armored Force

by MAJ Amos C. Fox

Russia's operations in Georgia (2008) and Ukraine (2014-present) provide many interesting insights, but most notably they illustrate a departure from contemporary guerrilla and counterinsurgency operations and demonstrate the pendulum swinging back toward conventional, high-intensity land warfare. (Figure 1 illustrates this dynamic).

In light of the evolution in the character of the contemporary operating environment, the U.S. Army's armored force must be aware of the implications of these changes. This article seeks to illuminate the salient features of Russian operations in Ukraine in relation to armored warfare and their potential implications for the U.S. Army's armored force.

This article does not call for a return to Cold War thinking – primarily because the Russian army's armored corps is not organized, nor does it operate in the same fashion, as the Soviet army's armored corps. Furthermore, this article is not intended to be alarmist or speak of hybrid warfare as something

new. (Figure 2 provides an illustration of the evolution of warfare.) Instead, this article's purpose is to raise awareness about unfolding doctrine, tactical and operational approaches, and evolved task organizations.

Lastly, this article will provide potential implications and recommendations for the U.S. Army's armored force as a result of the evolving character of tactical-level warfare.

Russian ground forces

While the United States and North Atlantic Treaty Organization (NATO) saw relative peace in the post-Cold War period and potential of Information Age technology as an opportunity to cut ground forces in Europe, Russia went in the opposite direction. Russia spent more than \$640 billion modernizing its force – and a substantial amount of work has gone into improving their ground combat capability.

The Russian army used this funding to increase its army by 2,000 tanks and 2,000 self-propelled field-artillery guns. Also, they have upgraded their

T-72s, T-80s and T-90s, incorporating the latest active-armor-defense system, reactive armor. What's more, Russia recently introduced the T-14 Armata, the most modern main battle tank in the world, to its armored fleet.¹

Likewise, Russia has heavily invested in drone technology. Russian operations in the Donbass demonstrated the omnipresent nature of Russian drone technology. Drones were integral to the Russian targeting process and the information-collection plan. Russian drones detected Ukrainian assembly areas, command posts, sustainment nodes and battle positions. The drones then transmitted that information to Russian field artillery and multiple-launch rocket (MLR) artillery, which then delivered massed, overwhelming firepower to devastate Ukrainian ground forces.²

Changes to Russian army task-organization have compounded the complexity wrought by the highly integrated nature of Russian armor, mechanized infantry, drones and indirect fire. Descriptions from the Ukrainian

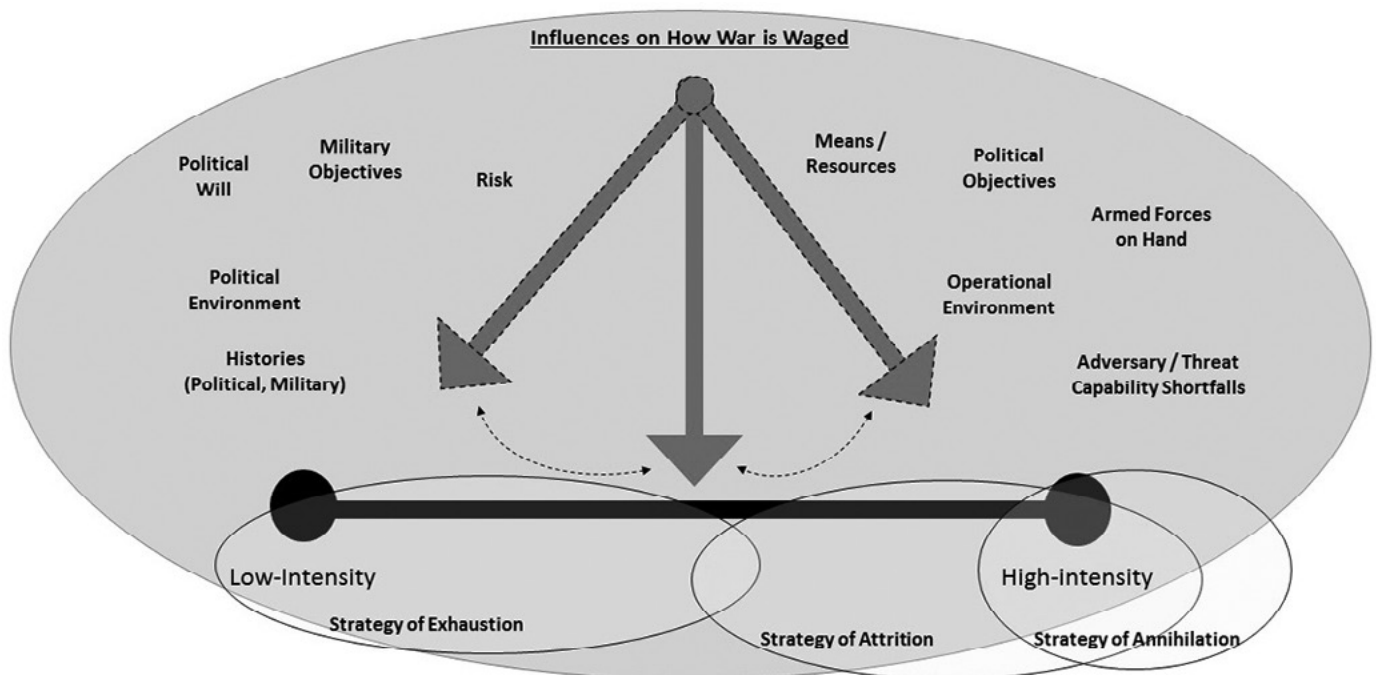


Figure 1. Continuum of conflict.

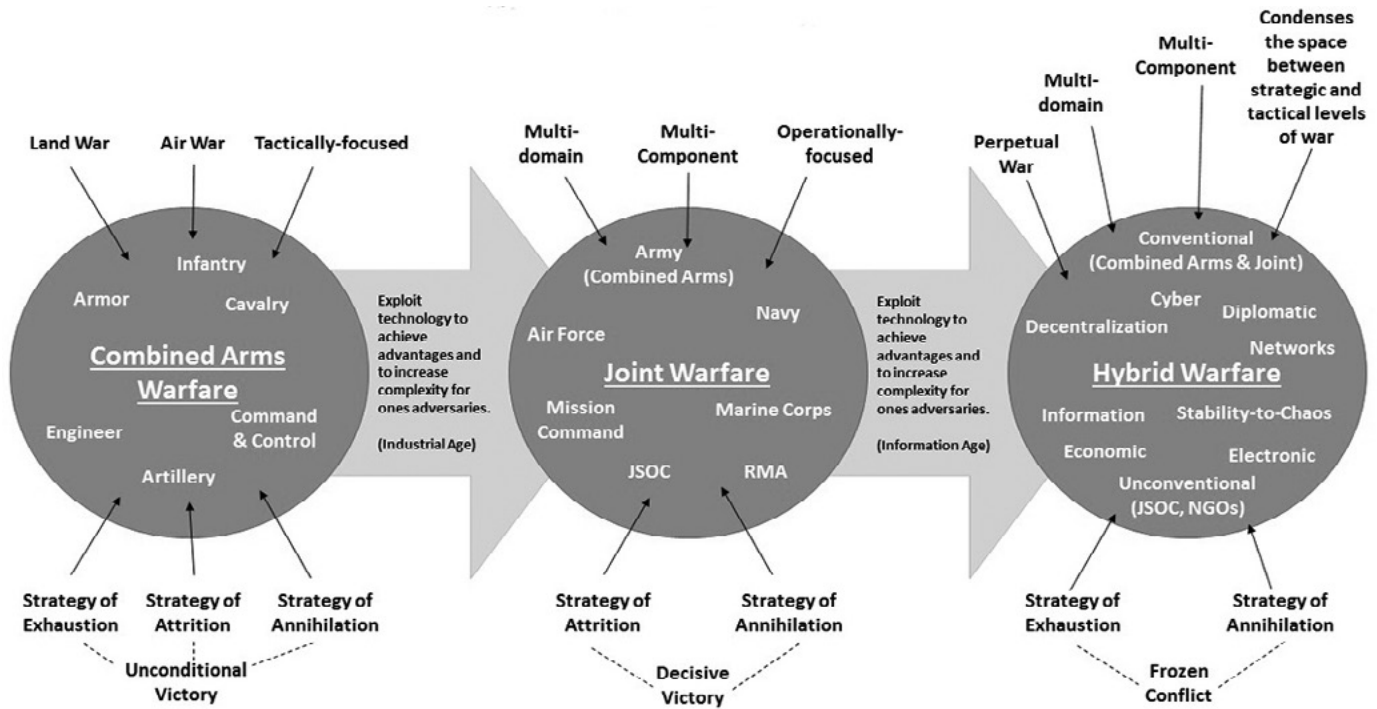


Figure 2. Evolution of hybrid warfare.

battlefield state that the preponderance of Russian formations are robust combined-arms battalions commonly referred to as brigade tactical groups (BTGs). The BTGs commonly consist of a tank company, three mechanized-infantry companies, two anti-tank companies, two artillery batteries³ and two air-defense batteries.⁴ (See Figure 3 for task-organization chart.)

An ample collection of electronic, cyber, information and unconventional capabilities complement the BTG. Those capabilities are used to set the conditions for massive artillery bombardments and mobile strikes from armor and mechanized forces.

Changes to Russian tactics typify the manner in which Russia now employs its ground force. Borrowing from the pages of military theorist Carl von Clausewitz, who stated, "It is still more important to remember that almost the only advantage of the attack rests on its initial surprise,"⁵ Russia's contemporary operations embody the characteristic of surprise. Russian operations in Georgia and Ukraine demonstrate a rapid, decentralized attack seeking to temporally dislocate the enemy, triggering the opposing forces' defeat. These methods stand in stark contrast to the old Soviet doctrine of

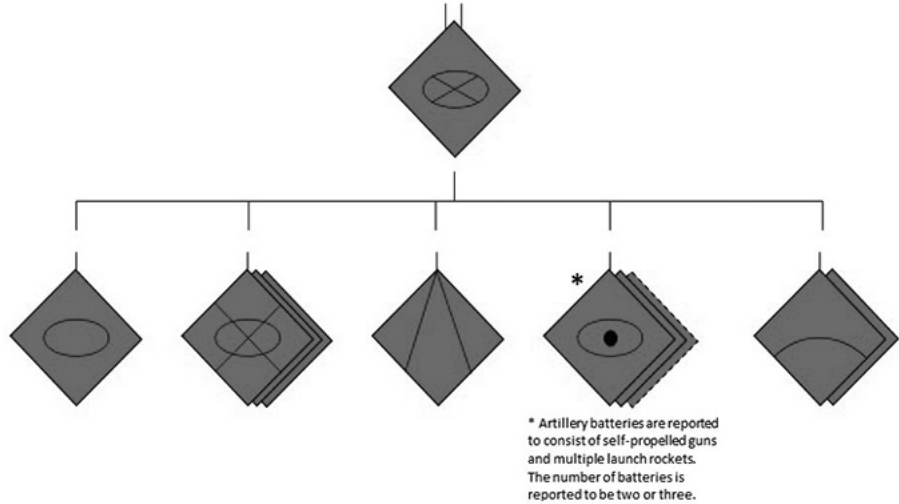


Figure 3. Reported task-organization of Russian combined-arms battalion.

methodical, timetable- and echelon-driven employment of ground forces that sought to outmass the opposing army. Current Russian land-warfare tactics are something which most armies, including the U.S. Army, are largely unprepared to address.

Conversely, after achieving limited objectives,⁶ Russia quickly transitions to the defense using ground forces, drones and air-defense capabilities to build a tough, integrated position from which extrication would be difficult, to be sure. Russia's defensive operations do not serve as a simple shield, but

rather, as a shield capable of also delivering well-directed, concentrated punches on the opposition army.⁷ Russia's paradoxical use of offensive operations to set up the defense might indicate an ascendancy of the defense as the preferred method of war in forthcoming conflicts.

Implications for U.S. Army armor, cavalry

Russia's focus on limited objectives, often in close proximity to its own border, indicates that U.S. Army combined-arms battalions and cavalry

squadrons will likely find themselves on the wrong end of the “quality of firsts”⁸ (Figure 4). The U.S. Army’s physical distance from those likely battlefields sets the Army at a great disadvantage because it will have to hastily deploy forces to the region, meaning the Army will arrive late; the arrival will also be known (location, time and force composition). The Army will have great difficulty seizing the initiative due to its arrival and movement being known, which weakens the Army’s ability to fight and win decisively. This dynamic provides time, space and understanding for the enemy to further prepare for combat operations and strengthen its integrated defensive positions. Therefore, U.S. Army combined-arms battalions and cavalry squadrons must be prepared to fight through a rugged enemy defense while maintaining the capability for continued offensive operations.

U.S. combined-arms battalions and cavalry formations will be outranged and detected far earlier than their Russian counterparts. Russian weapons systems, from the T-72B3 to the MLR artillery, outrange their U.S. counterparts. (Figure 5 provides a graphical representation of how weapons systems compare.) Furthermore, the manner in which they are organized and employed presents a unique challenge for U.S. ground forces.⁹ As already

discussed, the Russian BTG brings far more firepower to bear than the U.S. Army’s combined-arms battalion; aside from the slight advantage in the quantity of tanks, the Russian BTG also brings more firepower to the battlefield than any of the U.S. Army’s brigade combat teams (BCTs).

Also, Russian ground forces have been reportedly using their self-propelled artillery guns in direct-lay mode, providing frontal fires out to six kilometers, which is used to set conditions for follow-on forces. Direct-laid artillery, used in conjunction with anti-tank capabilities, provide excellent standoff for Russian forces, allowing them to advantageously shape the battlefield prior to launching tank and mechanized forces¹⁰ (Figure 6).

Next, contemporary Russian armored and mechanized forces embody the ethos of mission command – they are guided by shared understanding, a unifying purpose, mutual trust and the acceptance of prudent risk, as illustrated by their freewheeling destruction of Ukrainian ground forces in the Donetsk and Luhansk regions of Ukraine. The U.S. Army’s armored force must acknowledge this reality and understand it will be dealing with equally adaptive and agile soldiers, leaders and formations on the battlefield.

What’s more, the Russian armored

force has recent, relevant combat experience fighting major armored combat operations, while the U.S. Army’s armored force does not. Continual deployments to Afghanistan, Iraq and other contingency operations have eroded the U.S. Army’s armored forces’ ability to conduct effective land warfare as part of the joint force.¹¹ In addition, those operations have taught the U.S. Army many bad habits and to rely on tools that were effective for static, forward-operating base-centric, counterinsurgency operations; however, many of these bad habits and tools will prove deadly on the hybrid battlefield.¹²

Lastly, and perhaps more importantly, other nations are viewing how Russia is operating. Russia’s operations in Georgia, Crimea and Ukraine provided a relatively successful paradigm in relation to the response time of NATO and the international community. Other nations with similar limited objectives and similar means could see the Russian paradigm of hybrid warfare, with its paradoxical employment of offensive operations to set up the defense, as a viable solution to achieve similar political objectives in future conflicts.

Recommendations

First, and perhaps simplest of all, Armor Branch leaders must focus on sharpening the minds of the leaders within their formation. A simple tool to do so is a reading and discussion program oriented on understanding conventional land warfare.¹³ There are several good articles that discuss armor’s role in land warfare – two of the more insightful essays are Christopher Gabel’s “The 4th Armored Division in the Encirclement of Nancy”¹⁴ and Robert Sunell’s “The Principles of the Employment of Armor.”¹⁵ Furthermore, frequent quality discussions on the importance of the U.S. Army Armor School’s Armor fundamentals (i.e., mission command from the hatch, gunnery and sustainment) in relation to Armor’s role in land warfare will further the education of subordinate leaders.

In addition, theorist and retired LTC Robert Leonhard’s three books *Fighting by Minutes: Time and the Art of War*, *The Art of Maneuver: Maneuver*

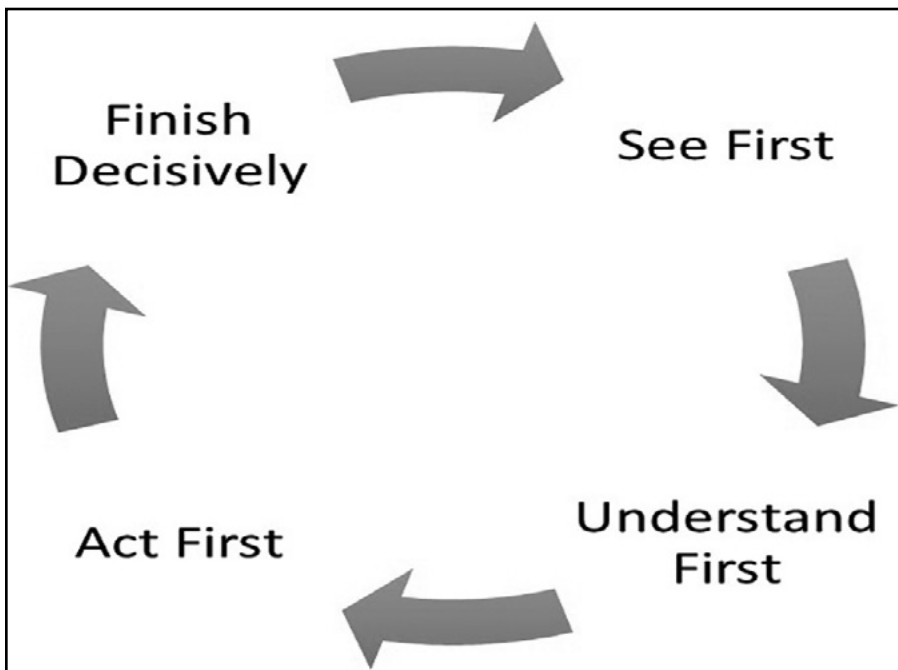


Figure 4. Quality of firsts.

Warfare Theory and **AirLand Battle** are great discussions of land-warfare theory, while Martin Blumenson's **Kasserine Pass: Rommel's Bloody, Climatic Battle for Tunisia** provides great insight into the nature of land warfare. Specifically, Blumenson's book describes in great detail the effects of ill-preparedness for the rigors, character and application of armored warfare against an adroit opponent.

Centers of gravity and decisive operations – or a systems perspective. The robustness of the Russian BTG calls for an evolution in thinking about defeating an enemy. At the tactical level, specifically the BCT and battalion levels, the U.S. Army must move away from the fanciful idea of centers of gravity and decisive operations and instead think in terms of systems and main efforts.

The center of gravity or decisive-operation style of thinking theorizes that there is a magic button that can be found and triggered to cause the enemy's rapid defeat.

This approach generally seeks to defeat the enemy in one major, decisive battle. The problem with this approach is that history has proven it a hollow or

disastrous proposition; two recent examples of the concept's failure include the quagmires that followed the toppling of the Taliban in 2001 and the toppling of Saddam Hussein's regime in Iraq in 2003.

The Russian BTGs are resilient, integrated systems, designed to absorb shock and punishment and still be capable of delivering devastating firepower. They are designed to be anti-fragile, devoid of a center of gravity. A systems perspective suggests the overall capabilities within a system must be weakened to such a point that the system breaks or acquiesces prior to reaching its breaking point.

A quick assessment of the BTG illustrates this idea – will destroying the BTG's tank company trigger the BTG's defeat? Probably not – the BTG still possess three mechanized-infantry companies that retain mobile, protected firepower with their *Boyeva Mashina Pekhoty-3s* (Russian fighting vehicle), 100mm anti-tank gun and 30mm gun – plus, the BTG contains the anti-tank company.

Will destroying the BTG's mechanized-infantry companies trigger defeat? Probably not – the BTG still possesses

significant firepower, direct and indirect, even with the loss of one or more of its mechanized-infantry companies. Furthermore, in all likelihood, armored BCTs and their subordinate battalions will not possess the capability to reach out and destroy the BTG's inherent field artillery or MLR artillery.

The robust nature of the Russian BTG begs the question of where does an organization focus its effort when meeting a BTG on the battlefield? The systems approach would dictate that effort be applied against the BTG at any possible point along the breadth and depth of its formation, with the goal to reduce the BTG's inherent capabilities to the point the enemy can no longer continue to resist.

A systems approach could signal a return to attrition-based warfare as adversaries seek to degrade an opponent's capability to such a point they cannot continue to resist. This does not mean maneuver is no longer relevant, but that perhaps maneuver will now be used to enable attrition.

The operations process, staff procedures and manning. At BCT and battalion level, staffs will be critical to countering the efficacy of the Russian BTG

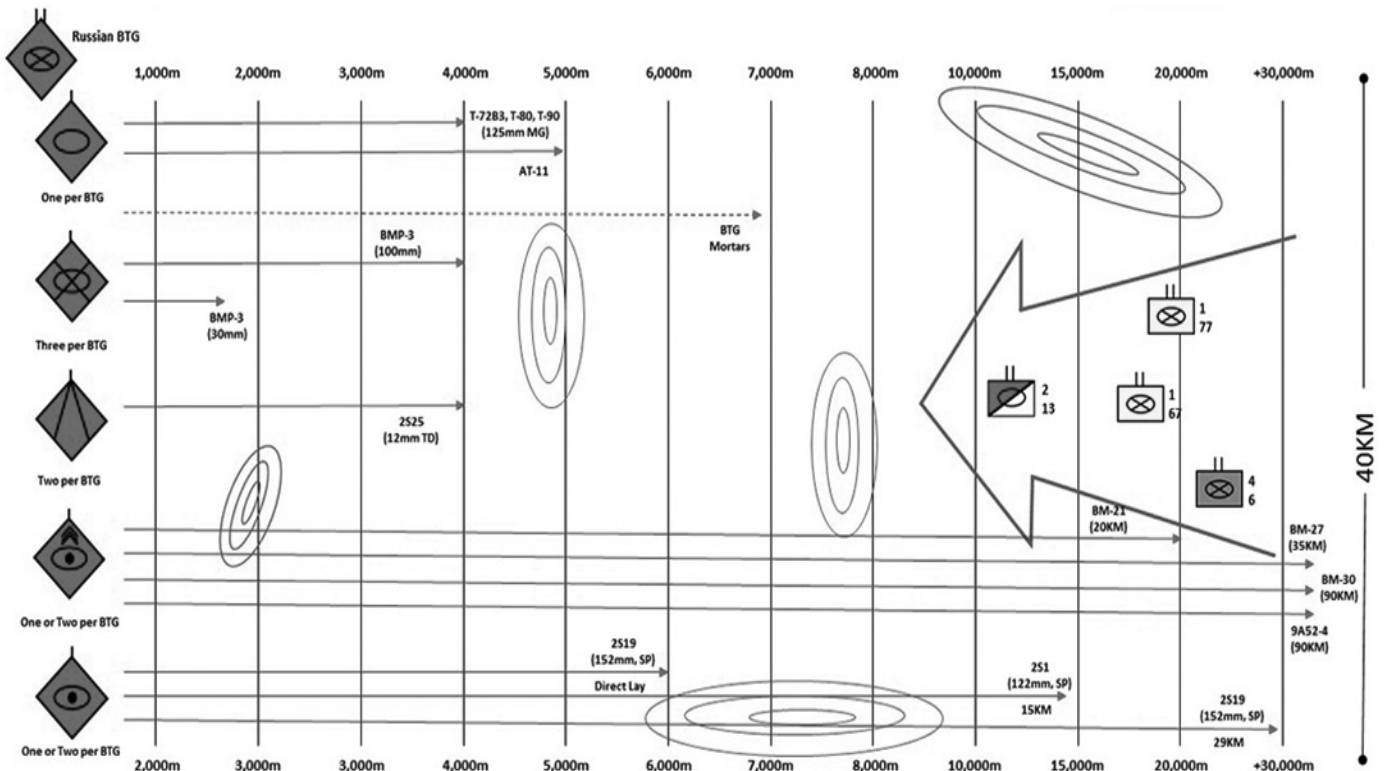


Figure 5. Russian BTG weapons capabilities.

and its contemporary approach to land warfare through increasing the speed of its operations process while not degrading its quality of work. Two of the most critical functions a staff must do on the hybrid battlefield is to rapidly and appropriately align and deploy cavalry formations and to plan the sequencing of operations to maximize the effects of temporally dislocating enemy forces.

At the tactical level of war, U.S. forces will lack the initiative due to the reactive nature of dealing with Russian operations. Therefore, combined-arms battalions and cavalry squadrons must develop more rapid staff-planning procedures and a more expedient operations process that enable forces to be rapidly committed to the fight with adequate information to enable mission command. The current operations process, which is detailed and information-rich, is slow and ponderous – both of which are characteristics that are incompatible on a fluid battlefield where adversaries seek to quickly acquire limited objectives.

Staffs must see beyond the current battle and sequence operations to maintain momentum and keep opponents off-balance. In his seminal work

on land-warfare theory, Leonhard stated that in war, sequencing operations is the difference between victory and defeat.¹⁶ Leonhard continued, “Defining sequencing as the ordering of events and that dictating the order of events to the enemy is critical to success in land warfare.”¹⁷

Sequencing operations is critical to defeating an integrated defense, the likes of which one could expect to see from Russian ground forces. The goal of sequencing in relation to the Russian BTG is threefold:

- Regain the initiative;
- Continue temporally dislocating the enemy; and
- Destroy as much of the enemy’s warfighting capability as possible.

To develop the ability to sequence operations, commanders and their staffs must see beyond the current battle, asking themselves “what is next,” while understanding how the current battle will influence future operations. Detailed and thorough staff work is critical to sequencing as it provides the commander with the information, analysis and professional judgment to make decisions about unfolding operations.

As Leonhard reminds the reader,

“Victory in warfare is linked inextricably with positive control of sequence. Nor is the link spurious or coincidental: the side that successfully strives to order future events will be the side that emerges victorious.”¹⁸

Interrelated with the previous recommendations, units must quickly get their cavalry formations integrated into the fight. Commanders and staffs must expedite the nature in which they deploy their cavalry squadron and scout platoons to rapidly develop situational understanding. However, cavalry formations cannot be committed without a purpose and focus. One way to expedite the deployment of these forces is to sidestep the traditional military decision-making process model of developing Annex L and commander’s reconnaissance and security guidance.

A proposed method for getting cavalry formations into the fight quicker, while providing purpose and focus, is to adopt a revised model of the commander’s reconnaissance and security guidance that covers basic visualization (briefly describes the current situation, provides an idea about a desired future state, briefly describes the forecasted enemy and forecasts the duration of the reconnaissance or security

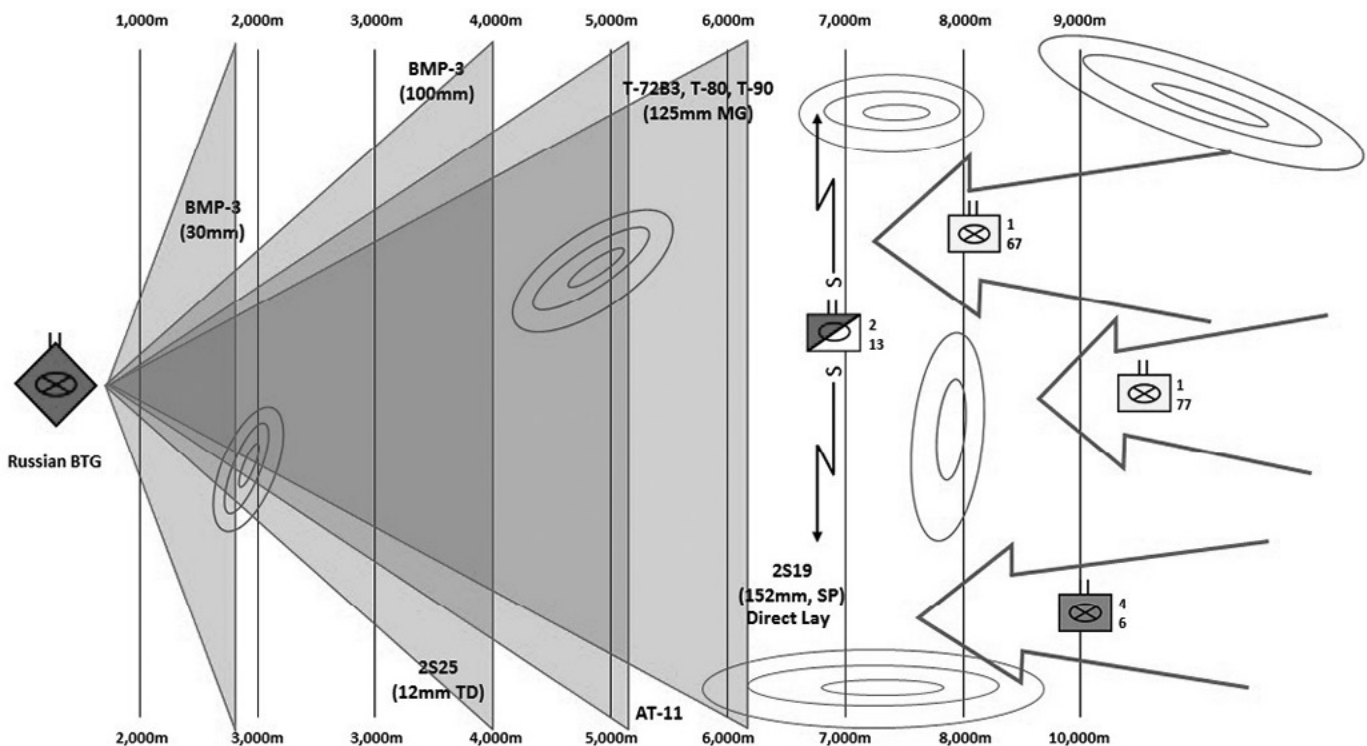


Figure 6. Direct-fire tactics and capabilities.

operation), provides initial commander's critical information requirements (CCIR), named areas of interest (NAIs), tasks for reconnaissance or security, a reconnaissance objective(s) and any additional instructions. (Figure 7 provides an example.) Quickly and accurately committing cavalry formations is critical to sequencing operations and thus to defeating the integrated defense of Russian BTGs.

Lastly, the Army must re-evaluate whether or not it makes sense to reinvest in Europe. Withdrawing armored forces and shutting down headquarters in Europe created a power vacuum, one which a resurgent Russia has filled. Russia's actions challenge the stability and international integrity of European nations and the United States' NATO partners.

Currently there are no permanent formations between U.S. Army Europe and the two BCTs assigned to it. The 4th Infantry Division has established a semi-permanent headquarters in Germany, and 3rd Infantry Division is habitually rotating an ABCT to Europe,¹⁹ but as defense analysts David Shlapak and Michael Johnson point out, "Our analysis — which assumed brigades could be received, moved to the front and then commanded, controlled and supported once there — may have ignored significant shortfalls in all these dimensions.

Deploying brigades is not enough. Without a plan, without adequate logistics, without robust command-and-control, a better-prepared adversary

would still overwhelm NATO."²⁰

Perhaps the time has come to reactivate V Corps and 2nd Armored Division and plant those guidons in a friendly European nation.

Conclusion

Russia's operations in Eastern Europe demonstrate another evolution in the character of war, swinging the pendulum back toward high-intensity conflict while leveraging all the tools in their arsenal (including hard and soft power) to achieve military and political objectives.

In his influential work titled "The Death of the Armor Corps," retired COL Gian Gentile warned that "[c]ompetent field-armies, skilled in all-arms warfare, are not made overnight."²¹

Russia's operations in Eastern Europe indicate the time has arrived for U.S. Army forces to again focus on fielding competent field armies, highly adept at combined arms and joint warfare.

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Notes

¹ Andrew Monaghan, "Putin's Way of War: The 'War' in Russia's 'Hybrid Warfare,'" *Parameters*, Winter 2015-16.

² Phillip Karber and LTC Joshua Thibeault, "Russia's New-Generation Warfare," *ARMY* magazine, June 2016.

³ This can be either two self-propelled field-artillery batteries or one self-propelled battery and one MLR battery.

⁴ Karber and Thibeault.

⁵ Carl von Clausewitz in Michael Howard and Peter Paret, editors, *On War*, Princeton University Press, 1976.

⁶ Limited objectives are tied to far more significant political objectives — in Georgia, Russia's limited objectives were supporting Abkhazia and the breakaway of South Ossetia; in Ukraine, the limited objectives were annexing the Donbass Region of the country, an area home to many ethnic Russians. The annexation of Crimea (2014) is not discussed in this article largely because it was a bloodless annexation within almost no real military action. However, in each case, the true political objectives were to punish Georgia and Ukraine for more openness with the West and working to become members of NATO. The point being, limited objectives often hide much larger strategic and political objectives.

⁷ Von Clausewitz.

⁸ The "quality of firsts" has been written about in several essays, including pieces by GEN Martin Dempsey and COL John Rosenberger. The quality of firsts are "see first, understand first, act first and finish decisively." See Rosenberger, "Breaking the Saber: The Subtle Demise of Cavalry in the Future Force," *Landpower* essay, No. 04-1 (June 2004).

⁹ All data for Figure 1 are averages of the predominate weapons systems reported to be operating in the Donbass; data on weapon ranges was pulled from the *World Wide Equipment Guide*, Vol. 1 on ground systems, August 2014.

¹⁰ Karber and Thibeault.

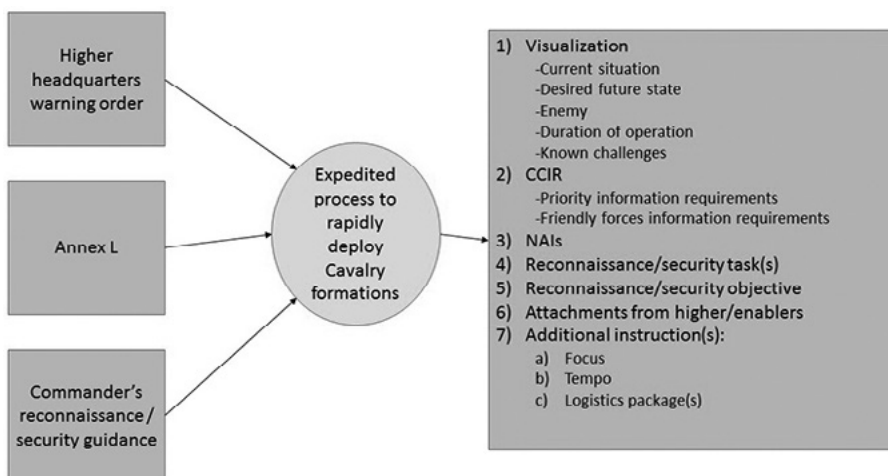


Figure 7. Reconnaissance and security guidance.

¹¹The U.S. Army Training and Doctrine Command Capability Manager for ABCTs/recon included in its semi-annual report on operations at the National Training Center (NTC), providing a great deal of insight into the current state of the ABCTs. Also, reporting from the NTC and Joint Multinational Readiness Center and Joint Readiness Training Center echo this to a lesser degree.

¹²Bad habits: large, static, networked command posts; not employing camouflaging on vehicles and headquarters; absence of deception; misuse of cavalry squadrons (using them as battlespace owners instead of as reconnaissance and security operation forces); assumption of air and land superiority; over-reliance on digital systems; predication for setting conditions (could be interpreted as risk aversion). Tools: mission-command systems such as Command Post of the Future, Joint Capability Release, Voice over

Internet Protocol phones, etc.; anything that emits a digital or electronic signature; Deployable Rapid Assembly Shelter tent command posts.

¹³Land warfare is inherently combined arms and joint – therefore, the role of indirect fire, air support and other aspects of combined arms and joint warfare should be naturally part of the discussion.

¹⁴Gabel's work can be found on Fort Leavenworth's Combat Studies Institute Website.

¹⁵Sunell's work can be found at *eARMOR*'s historical-series essays under the "Armor" tab.

¹⁶Robert R. Leonhard, *Fighting by Minutes: Time and the Art of War*, Westport, CT: Praeger Publishers, 1994.

¹⁷Ibid.

¹⁸Ibid.

¹⁹R. Reed Anderson, Patrick J. Ellis,

Antonio M. Paz, Kyle A. Reed, Lendy Renegar and John T. Vaughn, *Strategic Landpower and a Resurgent Russia: An Operational Approach to Deterrence*, Carlisle Barracks, PA: U.S. Army War College Press, 2016.

²⁰David A. Shlapak and Michael W. Johnson, "Outnumbered, Outranged and Outgunned: How Russia Defeats NATO," *War on the Rocks*, April 21, 2016, <http://warontherocks.com/2016/04/outnumbered-outranged-and-outgunned-how-russia-defeats-nato/>.

²¹Gian P. Gentile, "The Death of the Armor Corps," *Small Wars Journal*, April 17, 2010, <http://smallwarsjournal.com/jrnl/art/the-death-of-the-armor-corps?page=1>.

(*Editor's note: Also see "A New System Preserves Armor Dominance of the Future Battlefield: BMPT 'Terminator-2'" by CPT Charles K. Bartles and Dr. Lester W. Grau in ARMOR's April-June 2015 edition.*)



Donovan Research Library, Maneuver Center of Excellence,

hosts Armor student papers on various subjects,

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

and back issues of *ARMOR* magazine,

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

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

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

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

Armored Vehicle Development Behind the Curtain: the Secret Life of the Soviet SU-122-54 Assault Gun

by retired MAJ James M. Warford

(Editor's note: The author introduced two "mysterious" post-World War II Soviet assault guns, the "IT-122" and "IT-130" in his article, "T-64, IT-122 and IT-130: the Soviet Advantage," (ARMOR, September-October 1985). First introduced to the West in the writings of the infamous Soviet army defector, Viktor Suvorov, these two vehicles were initially discounted by Western analysts and labeled as fabrications. The IT-122, however – now known by the correct designation of SU-122-54 – has proven to be not only a real vehicle but a very important one for the Soviet army of the Cold War. While the "IT-130" remains a mystery, the SU-122-54 has finally emerged from "behind the curtain.")

In September 1967, the Soviet military launched Exercise Dnepr, one of the largest exercises in Soviet military history. Most observers and military analysts focused both on the size of the exercise and the large-scale use of airborne forces. The Soviet army actually dropped two complete airborne divisions with all their equipment in support of a front-level offensive during the exercise.

Almost unnoticed, however, the Soviet army also deployed a previously unseen new assault gun. This new assault gun, known as the SU-122-54 (to distinguish it from the SU-122 Self-Propelled Howitzer of World War II fame), has been the subject of controversy since this first appearance.

Throughout its lifetime, the SU-122-54 has been surrounded by a very high level of secrecy (even by Soviet standards), and it is a good example of the amount of effort the Soviets (and more recently the Russians), have historically put into keeping their most secret weapons developments secret. Over the years, this effort has proven to be especially true regarding Soviet anti-tank weapons.

In today's world, and on future battlefields, the challenge confronting the United States and the North Atlantic Treaty Organization (NATO) hasn't changed: seek out, identify and understand the vehicles and weapons still hidden in the shadows. Prior to a significant future event that could turn a new cold war hot, the U.S. and NATO must continue to focus on shedding some light on potential battlefield surprises like the SU-122-54.

West didn't notice

The SU-122-54 Assault Gun (also referred to as a tank destroyer) was

developed, fielded and retired by the Soviet army without really being noticed by the West. Interestingly enough, it did participate in both of the Soviet army's key milestone events of the 1960s: Exercise Dnepr (their army's premier go-to-war exercise) and the real-world Soviet/Warsaw Pact invasion of Czechoslovakia in 1968 (known as Operation Danube to the Soviets). Finally, so many years after these milestone events, the available information confirms that during its short and very secret lifespan, the SU-122-54 was a priority participant in the Soviet army's plan.



Figure 1. An SU-122-54 in Pribram, Czechoslovakia, during Operation Danube, August 1968. (Hornickeho Museum, Pribram, Czech Republic; used with permission)

To be fair, the SU-122-54 was actually noticed, but apparently only for a moment. A single photograph and a very brief description of this vehicle (misidentified as the “SU-100 M1968”), was included in the formerly top-secret U.S. report “Soviet Ground Force Weapons and Armored Vehicles” (August 1969), which is now unclassified. The photograph appears to be a still image taken from movie footage of Exercise Dnepr. According to the report, the SU-122-54 was “probably intended as a replacement” for the aging SU-100 Assault Gun. After this brief sighting, the vehicle seemed to disappear completely. In fact, it didn’t reappear in official U.S. military documents until the publication of the Marine Corps Intelligence Activity manual, *Soviet/Russian Armor and Artillery Design Practices: 1945-1995*, in September 1996.

Assault gun’s history

The history of the SU-122-54 is interesting for a variety of reasons, including the place it occupies in the Soviet army’s forced transition away from guns and toward anti-tank missiles. Work began on the new assault gun at Omsk Tank Plant 174 in 1949. Known by the designation “Object 600” during its development, the design was focused on using many components from the T-54 tank. The first prototype was built in 1950, with factory testing in 1951. In 1953, three prototypes completed military trials with the Soviet army. In spite of some initial problems with minor design flaws and poor workmanship (and after necessary changes were made), the SU-122-54 was adopted in March 1954.

In 1955, four of the 36-ton SU-122-54s were delivered to the Soviet army. This new assault gun mounted the D-49 122mm rifled main gun, along with two KPVT 14.5mm heavy machineguns (one mounted coaxially and one at the loader’s position for air defense). It was also fitted with the rarely seen TCD-09 stereoscopic rangefinder at the commander’s position. This rangefinder was adjustable from 4x to 10x and worked from 500 meters out to the 5,000-meter range. The vehicle was manned by a five-man crew: commander, gunner, driver and two loaders (positioned on either side of the main gun).

The SU-122-54 was only in production from 1955-1956, with work stopped in 1957. This short production run provided between 77 and 95 vehicles to the Soviet army. The exact number of SU-122-54s produced is still unknown. Based on the production numbers of its 122mm main gun (unique to the SU-122-54), this estimate is the best information available.

It’s important to keep in mind that this small production run should not be seen as an indicator of performance limitations or problems with the SU-122-54. In fact, large-scale production was planned and approved for the new assault gun, and a number of upgrades were planned – including changing to the more powerful M-62C 122mm main gun and adding infrared night-vision equipment. The real problem with the SU-122-54 was the timing of its arrival. The pro-missile/anti-gun preferences voiced loudly by Soviet leader Nikita Khrushchev in those days (to include even challenging the military value of tanks in general) forced production of the SU-122-54 to stop.

Surprisingly, it wasn’t until several years after its production had ended that information regarding the value and role played by the SU-122-54 began to emerge. As mentioned, it was used during Exercise Dnepr in 1967 and was unexpectedly filmed and photographed during the exercise. In addition to the film footage described above, the SU-122-54 can be seen in a few photographs that show massed and parked Soviet army units, apparently lined up for inspection. Two of these photographs show the assault guns parked in rows alongside several *Boyevaya Razvedyvatelnaya Dozornaya Mashina-1* anti-tank guided missile vehicles. These photographs clearly support Suvorov’s assertions that these assault guns were deployed as part of motorized rifle regiments (MRRs). Based on what we know now, however, Suvorov’s claims that every MRR inside the Soviet Union secretly included a battery of SU-122-54s is clearly a massive exaggeration.

It’s important to keep in mind here that most of Suvorov’s critics claim his assertions were pure fantasy and that he fabricated information he thought his post-defection audience would like

to hear. What we’ve learned in recent years, however, is that there is simply no doubt that some of the information he brought to the West and included in his books and articles is absolutely correct. That said, a more accurate critique of Suvorov’s writings should include something about a problem of scale more than a problem of wholesale fabrication. Clearly, there were enough of these assault guns produced to support the fielding of about eight to 10 nine-vehicle batteries – one each in eight to 10 select MRRs.

The Soviet/Warsaw Pact invasion of Czechoslovakia in August 1968 (Operation Danube) was a pivotal event for the Cold War Soviet army. This large-scale mobilization and deployment of Soviet and Warsaw Pact forces represented a dress rehearsal for World War III. According to the formerly top-secret U.S. report, “Warsaw Pact Ground Forces Facing NATO” (September 1969), which is now unclassified: “The Czechoslovak crisis provided the only recent large-scale test of Soviet mobilization and deployment procedures. About 20 divisions were mobilized, including some 11 of those with low peacetime manning and equipment levels. At least five armies were apparently mobilized – three of them and about 10 of the mobilized divisions were used against Czechoslovakia. In all, at least 125,000 Soviet reservists and 20,000 trucks were called up.”

Along with Soviet forces from the Group of Soviet Forces Germany (GSFG), Northern Group of Forces-Poland and Southern Group of Forces-Hungary, Soviet forces from the Carpathian, Byelorussian, Baltic and Odessa military districts (MDs) mobilized and moved west into Eastern Czechoslovakia (now Slovakia) and into Poland.

Soviet forces based in the western MDs of the Soviet Union play an important role in the history of the SU-122-54. In his writings, Suvorov clearly defined the plan for the peacetime deployment of the SU-122-54. To keep these important vehicles away from prying eyes, they were only deployed in the western MDs, far away from the attention they would have received had been forward-deployed with the GSFG, etc. The launch of Operation Danube,

however, moved these forces and their SU-122-54s out of the shadows and into Czechoslovakia and Poland. The SU-122-54s were involved throughout the invasion, and their use seemed to be kept out of the spotlight as much as possible (they were not deployed in Prague, for example). However, they were photographed in five cities in Czechoslovakia: Kosice, Roznava, Ziar nad Hronom, Ceske Tesin and Pribram.

In addition to being photographed in both Kosice and Roznava, the new assault guns were also filmed. While all these vehicle sightings are significant and confirm the widespread deployment of the SU-122-54 during the invasion, two of them deserve special attention: Ceske Tesin and Pribram. The city of Ceske Tesin is located on the border between Czechoslovakia and Poland on the Czech side of the "Friendship Bridge." It was originally a united town with its Polish counterpart Cieszyn, now separated on the Polish side of the bridge.

On Aug. 21, 1968, Soviet forces moved through Poland and crossed the bridge to enter Czechoslovakia. A few photographs were taken of the Soviet forces as they crossed, including one of an SU-122-54 at the moment it entered Czech territory. In Pribram, one of the assault guns was photographed at a bus station that was arguably the best photo of the SU-122-54 from the invasion. What makes the Pribram sighting

so interesting is the location of the city itself: southwest of Prague only about 65 miles from the West German border.

Since the very reliable reporting provided by the allied military-liaison missions based in East Germany (American, British and French), had made no mention of SU-122-54s in East Germany, the assault guns spotted in Pribram must have come from somewhere else.

The most likely answer to the mystery of how these SU-122-54s got so deep into western Czechoslovakia unnoticed can be found in the formerly top-secret U.S. report, "Soviet and East European General Purpose Forces" (October 1968), which is now unclassified: "Between July 17 and Aug. 10, 1968, the 11th Guards Army (from the Baltic MD), was fully mobilized and began a movement into north-central Poland. By the end of August, it was located in the area of the East German-Czechoslovakian border."

Based on this report, the SU-122-54s spotted in Pribram probably moved south into western Czechoslovakia from Poland, along with units from 11th Guards Army.

At the conclusion of Operation Danube, the majority of Soviet forces from the western MDs returned to the Soviet Union. While certain Soviet units remained to form the new Central Group of Forces based in Czechoslovakia, all

the SU-122-54s were moved back to Soviet territory.

Post-production

After Operation Danube, the SU-122-54s were never seen again ... at least not in their Soviet assault-gun form. In the 1970s, a Soviet TV series set during World War II called "The Ruins of Fire" aired that included a battle scene between Soviet and German forces. The Germans were actually supported by a few SU-122-54s made up to look (vaguely) like German assault guns from World War II. The TV series is still available on the Internet.

In 1977, a new armored recovery vehicle (ARV) was spotted in Moscow supporting the annual November parade in Red Square. U.S. Army Field Manual FM 100-2-3 included a photo of this vehicle along with the incorrect designation T-62-T. The vehicle was actually a heavily modified SU-122-54 with the main gun removed; it was used as a "tug" or recovery vehicle in case any of the parade vehicles broke down. This recovery vehicle was also seen during Red Square parades in 1985 and 1995.

There has been speculation over the years that the decision to show the "tug" version (and other more widely used recovery and engineer vehicles based on the SU-122-54) was deliberate misinformation by the Soviets. The theory is that the Soviets were admitting that they did in fact secretly work on post-war assault guns but the effort was unsuccessful, resulting in a relatively small number of ARVs and combat-engineer vehicles. Seen as different variants since that first appearance in Red Square, these modified vehicles have served in Afghanistan, Lebanon (with United Nations Interim Force in Lebanon forces) and currently in Ukraine. One of the most interesting SU-122-54 variants was photographed in Chernobyl after the disaster clean-up effort. This recovery vehicle was modified with the addition of an exterior layer of lead plates to help protect the crew from residual radiation during clean-up operations.

The SU-122-54 Assault Gun was developed, put into production, fielded and retired from Soviet army service basically without being noticed by the United States and NATO. This



Figure 2. View of SU-122-54 on display in the Central Museum of Armored Vehicles at Kubinka, Russia, April 2012. (Photo by retired MAJ James M. Warford)

significant miss is much more the result of Soviet process and planning than the small numbers of vehicles that rolled off the production line. The SU-122-54 was successfully kept secret at a time in history when learning military secrets was the overwhelming priority. This is made even more significant by the vehicle's participation in the Soviet army's highest-priority events of the time.

In contrast to the secretive SU-122-54, the very public unveiling in 2015 of the new Russian T-14 Armata tank was intended to send a loud and clear message to friend and foe alike. Surprisingly, the Russians have been very forthcoming with information about the whole Armata family of armored vehicles, certainly more than what was expected. While there are clearly well-kept secrets regarding the Armata prototypes that rumbled through Red Square, their public unveiling should be a cause of concern to observers around the world.

Perhaps the most important lesson to be learned from historic examples like the SU-122-54 is that there is always something being developed "behind the curtain." Without ignoring what is

marched through Red Square, the United States and NATO must maintain their focus on shedding light on the unseen weapons being developed and fielded inside Russia. They live their lives in secret until critical events suddenly force them out of the shadows to the forefront – and the next battlefield.

Retired MAJ Jim Warford is a program manager and "scrum master" working for a Fortune 500 company in the Kansas City area. During his career, he served in various command and staff positions that included 42 months of company-command time. He commanded Company D, 1st Battalion, 66th Armor, 2nd Armored Division, Fort Hood, TX; and both Company A and Headquarters and Headquarters Company, 2nd Battalion, 66th Armor, 2nd Armored Division (Forward), Garlstedt, Germany. He also served as a tactics instructor at the U.S. Army Command and General Staff College (CGSC), Fort Leavenworth, KS; and as the S-3 (operations) officer for both 2nd Squadron, 4th Cavalry, and 2nd Brigade, 24th Infantry Division, Fort Stewart, GA. His military education includes the Armor Officer Basic Course, Armor Officer

Advanced Course and CGSC. MAJ Warford was commissioned in Armor in 1979 as a distinguished military graduate from the University of Santa Clara. While there, he earned a bachelor's of arts degree. He also holds a master's of military art and science degree from CGSC and a master's of arts degree from Webster University.

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2017 Gainey Cup May 1-5, 2017

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CSM William J. Gainey

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The Gainey Cup is named for CSM William J. (Joe) Gainey, the first senior-enlisted adviser to the Chairman of the Joint Chiefs of Staff, then a newly created position. The position was established to advise the chairman on professionally developing enlisted personnel assigned to joint billets. Gainey began to serve in this position Oct. 1, 2005, and retired April 25, 2008, after nearly 33 years of service.

*“Despite the importance that reconnaissance and security operations play in setting the conditions necessary for tactical and operational success, the Army’s brigade combat teams struggle to effectively employ their organic cavalry squadron. ... Brigade commanders and their staffs lack leader development and training to plan and execute [reconnaissance and security] missions. Brigade staffs ideally comprise subject-matter experts with a variety of skills, including fires, aviation, intelligence, engineering and logistics. In the case of [reconnaissance and security] operations, however, no designated staff officer possesses the unique training and experience required to assist the brigade commander to properly employ and use his [reconnaissance and security] assets in answering his priority information requirements.”¹ –BG Lee Quintas, 48th Chief of Armor, “Cavalry Update,” *ARMOR*, July-September 2014*

The Squadron Commander as Chief of Reconnaissance

by CPT John F. Palmer

No leader in the brigade has more reconnaissance and security expertise than the cavalry squadron commander. He has the professional expertise to plan, direct, and assess information collection (IC) within the brigade commander’s intent and the authority to task all IC assets.

The squadron commander now has the capability to provide that expertise to the brigade commander as quickly as he needs it, no matter where the squadron is positioned on the battlefield. Due to the implementation of Upper Tactical Internet (TI) mission-command systems at the squadron level, the squadron commander is now able to control all phases of IC and rapidly share information across the brigade. Because of this, the squadron commander is best suited to be the brigade chief of reconnaissance. This allows a senior commander to completely focus on answering the brigade commander’s information requirements (IR), and it allows the brigade S-2 (intelligence) officer to focus on the next enemy course of action (CoA).

Problem

The current brigade IC process presents a problem because it is decentralized, which often makes it desynchronized. No staff section is in charge of

both the planning and execution of IC. The brigade S-2, S-3 (operations), IC manager, cavalry squadron, military-intelligence company, attached aviation units and attached unmanned aerial systems (UASs) all have a major role in the IC process. Currently, the brigade commander is responsible for synchronizing all these entities to drive the IC process.

Instead of providing the brigade commander with the situational understanding he requires to make decisions about the overall operation, this process encumbers the commander with synchronization efforts. The commander is therefore left with the decision to either get bogged down by directing the IC process or to allow the brigade staff to collaborate with no clear integrator or leader.

The commander’s role in the operations process is to understand the tactical problem, the operational environment and the enemy; describe the operational framework, including the operation in time, space and purpose; and direct the synchronization of the warfighting functions through plans and orders to achieve the endstate.

This role is particularly pronounced in reconnaissance operations, where the operational environment is relatively unknown and unfamiliar, and the brigade commander requires answers to

IRs to aid understanding and decision-making. To perform this role, the brigade commander can either delegate synchronization of IC assets and activities, manage the activities personally (therefore relegating the commander’s role to one of a staff officer) or rely on the most experienced reconnaissance commander in the formation to synchronize these activities.

Ideally, the brigade commander would be able to delegate synchronization of the IC process to his staff. The problem is to whom should the commander delegate? In his “Cavalry Update,” BG Lee Quintas identified leader development in reconnaissance and security as a major issue for brigade staffs. Not only is leader development and proficiency an issue, brigade staff officers also have competing duties. The brigade executive officer can coordinate staff sections, plans and orders during the planning process, but the brigade executive officer has limited ability to control subordinate units during the execution phase. Neither the brigade S-2 officer nor the brigade S-3 officer has the time or staff required to completely coordinate the IC process.

The brigade IC manager has technical expertise in UAS platforms but does not have the authority or the experience to task brigade IC assets within the commander’s intent.

The brigade commander needs an officer designated as the brigade chief of reconnaissance who can control all phases of the IC fight.

The duties and responsibilities of the chief of reconnaissance should be:

- Direct IC planning for the brigade to answer the brigade commander's IRs;
- Task and direct all IC assets in the brigade;
- Analyze all collected information; and
- Disseminate information to brigade and battalion commanders (and to their staffs) to enable shared understanding.

Further adding to the problem is that no current or former Army doctrine addresses a brigade chief of reconnaissance. Therefore, there is no guidance for a brigade chief of reconnaissance to reference for duties and responsibilities. This lack of a standard also causes leaders to have many differing ideas as to who should be the brigade chief of reconnaissance.

These differing ideas limit professionally captured best practices and lessons-learned.

Solution

The cavalry squadron commander (SCO) is the most qualified leader in the brigade to be the chief of reconnaissance. The SCO has the experience, maturity and authority to perform all the duties of the chief of reconnaissance and bring unity of effort to the reconnaissance fight.

Furthermore, the SCO has the necessary tools to leverage this knowledge and expertise to rapidly provide shared understanding across the brigade.

The benefits of having the SCO as the brigade's chief of reconnaissance are twofold:

- It places a senior commander in charge of all things IC; and
- It allows the brigade S-2 to focus on the next enemy CoA.

The SCO is better positioned than an assistant S-2/ S-3 officer or the brigade IC manager to be in charge of all IC in the brigade. The SCO has command of the ground cavalry units; the maturity

and experience to plan, direct and assess IC within the brigade commander's intent; and the authority to task all the IC assets. Conversely, an assistant staff officer does not have any tasking authority, making him or her a middleman of sorts.

The staff officer would only be able to simply coordinate and manage various IC assets to provide someone with authority the information required to make a decision about tasking IC assets.

If the cavalry squadron controls some IC assets, and various brigade staff officers control other IC assets, the brigade S-2 is forced to be the point of information synthesis. If the brigade S-2 is busy juggling multiple sources of IC input, the S-2 section cannot dedicate its full time and resources to plan the future enemy situation, which is imperative in a continuously changing operational environment. However, with the SCO as the chief of reconnaissance, the brigade S-2 can focus on the next move the enemy will make. The brigade S-2 develops the initial enemy situation template and, with the help of the brigade S-3, the initial brigade commander's IR. The squadron, under the leadership of the chief of reconnaissance, then develops and executes the plan to answer these IR, confirming or adjusting the enemy sitemp for the brigade.

Once the IR are answered, the brigade S-2 can use those answers to develop the next enemy CoA, and this intelligence and IC cycle repeats as the fight progresses.

While the SCO is the most qualified leader to perform the duties of a chief of reconnaissance, he or she still needs to be able to connect with the rest of the brigade to perform the duties of the chief of reconnaissance. Fortunately, the implementation of Upper TI systems at the squadron level now facilitates rapid information exchange across the brigade through such systems as Command Post of the Future (CPoF), Ventrillo, Jabber, Secure Voice of Internet Protocol (SVoIP), Internet portals, email exchange and Distributed Common Ground System-Army (DCGS-A).

These systems now enable the SCO to

execute all the aforementioned duties of the chief of reconnaissance at a rapid tempo to create shared understanding.

SCO as chief of recon

Validation of this concept came during the 5th Battalion, 4th Cavalry Regiment's National Training Center (NTC) rotation in March 2015. The unit proved the squadron commander was able to perform the aforementioned duties as the chief of reconnaissance. Therefore, the squadron – and the brigade – were highly successful. As chief of reconnaissance, the SCO effectively directed both staff and troops, leveraging the use of Upper TI mission-command systems to enable doctrinal planning of reconnaissance, execute an aggressive operations tempo and rapidly report up and across the brigade.

The biggest impact the SCO had as chief of reconnaissance was providing real-time intelligence updates to the brigade commander and brigade staff while also informing fellow battalion commanders and their staffs. This was done primarily through the use of a "recon pasteboard," a tool developed by the squadron battle captain. The recon pasteboard used CPoF to maintain a reconnaissance common operating picture (COP) that could be accessed from across the brigade. The pasteboard tool centered on a map of the brigade area of operations that served as the COP. It was tied to a position-location information feed from the squadron tactical-operations center's (TOC) Joint Capability Release (JCR) that populated the location of friendly units from the brigade onto the map. This allowed everyone to know the exact locations of recon elements, reducing the risk of fratricide.

As reports came in from the IC assets assigned to the squadron, the battle captain populated enemy locations (to include obstacles and battle positions) onto the map. The squadron S-2 then wrote a brief assessment of the enemy CoA. The battle captain also maintained an updated combat slant and priority information requirement status on the recon pasteboard. The battle captain also added the line-of-sight (LoS) overlay (produced with either CPoF or DCGS-A) to show the coverage the squadron provided. The output of

all this was a single pasteboard that anyone from brigade or battalion staffs could easily access to receive situational understanding of the enemy status as gathered by the reconnaissance elements. While the recon pasteboard helped the brigade commander visualize the operational environment, it was the SCO's assessment that helped him understand it. The brigade conducted a net call over Ventrillo one hour before start point for the combined-arms battalions (CAB), which was also the last time information was of value (LTIOV). During this call, the SCO used personal experience to provide a commander's assessment to the brigade. Essentially, the SCO was able to use his expertise to turn the information collected by his units into an intelligence update – exactly the role of a chief of reconnaissance, and it was a role that only a senior commander could perform.

The SCO also leveraged personal expertise to direct a planning process that could effectively integrate external IC assets, information from other units and technical analysis of terrain. Through tactical Secure Internet Protocol Router (SIPR) communication, whether SVoIP phones or SIPR email, the squadron staff was able to frequently communicate with external IC assets throughout the planning process. The squadron staff was also in constant communication with the brigade IC manager; S-2 section; intelligence, surveillance and reconnaissance platoon leader; and its tactically controlled OH-58D (Kiowa helicopter) troop and the rotary-wing aviation troop.

The squadron was also able to nest with the brigade planning efforts through the brigade portal and email exchange. Previously, these communication efforts would have been greatly encumbered by having to use Lower TI communication (radios) or in-person interaction to communicate across a wide brigade area of operations. Finally, LoS analysis was a major planning asset, enabled by Upper TI. The LoS tools on both DCGS-A and CPoF enabled the squadron staff to effectively plan redundant observation posts (OP) in depth based off the IC plan and to identify gaps in coverage of named areas of interest (NAIs) by the OPs that

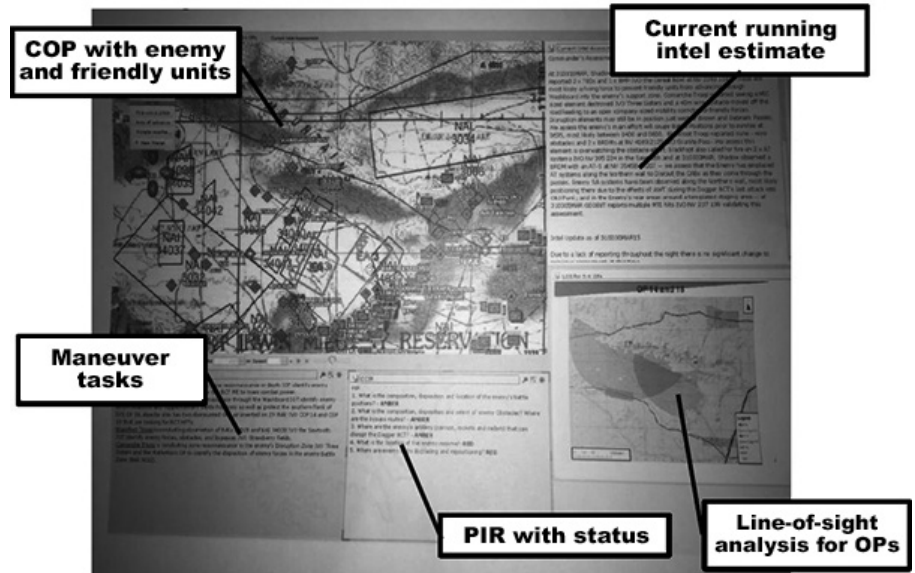


Figure 1. The recon pasteboard.

could be covered by external IC assets.

Because of his authority as a commander, the SCO was able to make further use of Upper TI systems to enable aggressive execution of the reconnaissance plan. The squadron commander was able to be aggressive because he maintained control of all IC assets in the recon fight. Therefore, the commander could quickly maneuver all recon assets without having to wait for brigade approval because they came from the cavalry troops organic to his squadron. Moreover, the brigade also assigned all IC assets in the recon fight to the squadron. Therefore, the squadron commander could direct prioritization of NAIs for these assets based on his current assessment of the situation.

Had the SCO not had these assets, he would have had to make a recommendation to the brigade commander, S-2 or S-3, who would then have to coordinate with the IC manager or the Shadow platoon (that provided the RQ-7B Shadow UAS). With the SCO assigned these external assets, it streamlined the process; the SCO was able to quickly maneuver all assigned assets.

This tempo was possible because the analysts in the squadron S-2 section were able to quickly communicate with the UAS pilots through Jabber chat, another Upper TI system.

More assets, enablers

While the SCO effectively served as the

chief of reconnaissance during 5-4 Cavalry's NTC rotation, there are several changes to current practices that would allow future squadron commanders to be even more effective. The cavalry squadron should be assigned responsibility of all the brigade NAIs within the recon fight. This enables the SCO to ensure the IC plan synchronizes efforts across the entire area of operations and prevents any seams in reconnaissance coverage. It helps the brigade achieve continuous reconnaissance.

To cover all these NAIs, the SCO also needs tasking authority for all IC assets allocated by the brigade to the recon fight. For example, the squadron is not able to observe NAIs outside the LoS of their OPs without the help of a UAS platform. However, if the SCO controls these assets, a seamless reconnaissance handover can be conducted between that UAS platform and the scouts in the OPs as the enemy moves between NAIs.

The only exception to this requirement is that any human-intelligence collection sources should continue to be under control of the brigade S-2, as they are trained to manage these, with the S2X section (part of S-2), humint tech and counterintelligence-analysis officer.

These additional IC assets increase the need for more IC analysts. The brigade should consider task-organizing the brigade IC manager and additional IC

analysts to the cavalry squadron as the mission dictates. With Upper TI, the squadron TOC is now able to facilitate its mission to the same degree as the brigade TOC.

The brigade IC manager should provide the SCO with another staff member who has the technical expertise to advise on employment of UAS platforms.

Counterarguments

There are several counterarguments to the appointment of the SCO as the chief of reconnaissance, and while they can be answered, they do point to the need for follow-on work. One might argue that the SCO cannot be the chief of reconnaissance because he loses Upper TI capability when on the move. However, the squadron TOC does not have to move throughout a battle period because frequency-modulation (FM) radio retransmission, high frequency and tactical satellite enable effective communication with troops at extended distances.

Any need for a squadron mission-command element to move throughout the battle period can be accomplished with the squadron tactical command post (TAC).

Further research into this could determine whether there is the possibility to provide the squadron TAC with Upper TI on the move with a vehicle similar to one outfitted with point-of-presence systems.

Another counterargument would be that companies do not have Upper TI so the information shared by the recon pasteboard would not be available to them. In his 2012 article "Intelligence Support to Combined-Arms Maneuver," MAJ Michael Childs argued that intelligence products should be shared across the brigade by the lowest common denominator, which, in the case of companies is Force XXI Battle Command Brigade and Below (now JCR) and FM radio.² However, while they do not have Upper TI, most companies from the CABs are located in close proximity to their battalion TOC prior to the LTIOV in movement-to-contact, attack or defense operations.

Therefore, initial products can be

generated for companies using JCR, and then the CAB staff can refine them based off the recon pasteboard if necessary. Also, brigade staff can refine JCR overlays based on the recon pasteboard and disseminate them to the CABs.

Regardless of the method of dissemination to the companies, they are still getting the information much faster as a result of the real-time information sharing between the squadron and the CABs. Further research should determine a method to allow the CABs to quickly translate information garnered from the recon pasteboard to JCR.

Conclusion

In the near-term, this idea of the SCO as chief of reconnaissance should be captured in brigade standard operating procedures. In the long-term, it needs to be codified in Army doctrine. Army professionals have identified the need for a chief of reconnaissance for too long, and the practice proved too effective during the 5-4 Cav NTC rotation for it not to be standardized through doctrine.

With the SCO as chief of reconnaissance, an IC process already improved by new IC platforms can be streamlined further through effective use of Upper TI systems.

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Pathfinder School and Ranger School. He earned a bachelor's of science degree in American politics from the U.S. Military Academy, West Point, NY.

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Information-Collection Plan and Reconnaissance-and Security Execution: Enabling Success

by MAJ James E. Armstrong

As the cavalry trainers at the Joint Multinational Readiness Center (JMRC), the Grizzly Team members had opportunities to observe diverse rotations and learned that GEN George S. Patton Jr.'s quote, "You can never have too much reconnaissance," still proves true.

During the past year, we observed some common challenges in linking information-collection (IC) planning with reconnaissance-and-security execution at both the battalion and brigade levels across multiple nations. Doctrine gives us an example timeline for parallel planning efforts at the brigade level, using the brigade planning process mapped to cavalry-squadron actions and the planning timeline. This is a helpful diagram to start the discussion

within units on how we tackle IC planning and execution challenges. There are various ways we have seen this accomplished with all degrees of success. Units may appoint brigade reconnaissance officers who act as what some call the chief of reconnaissance. Some units have task-organized all collection assets under the cavalry squadron, while others have embedded a quality officer in the brigade plans shop to facilitate parallel planning.

Any combination of these may work, but most importantly, we must recognize that these efforts all strive for the same results, which is to facilitate planning to enable our reconnaissance-and-security assets to begin collection in a focused, meaningful and synchronized fashion to provide the commander with the information needed to make decisions.

Field Manual (FM) 3-98

Regardless of what approach we may take to solve these planning challenges and translate them into effective action, there are a few key points to keep in mind as we develop our unit's solutions:

- Recognize that cavalry operations consist of reconnaissance and security, and must be conducted at echelon throughout the formation; reconnaissance and security must go beyond the modified table of organization and equipment or the named reconnaissance-and-security units.
- Understand that every minute lost to wringing our hands about what to do with reconnaissance-and-security forces is initiative lost to the enemy.
- Accept that risk to

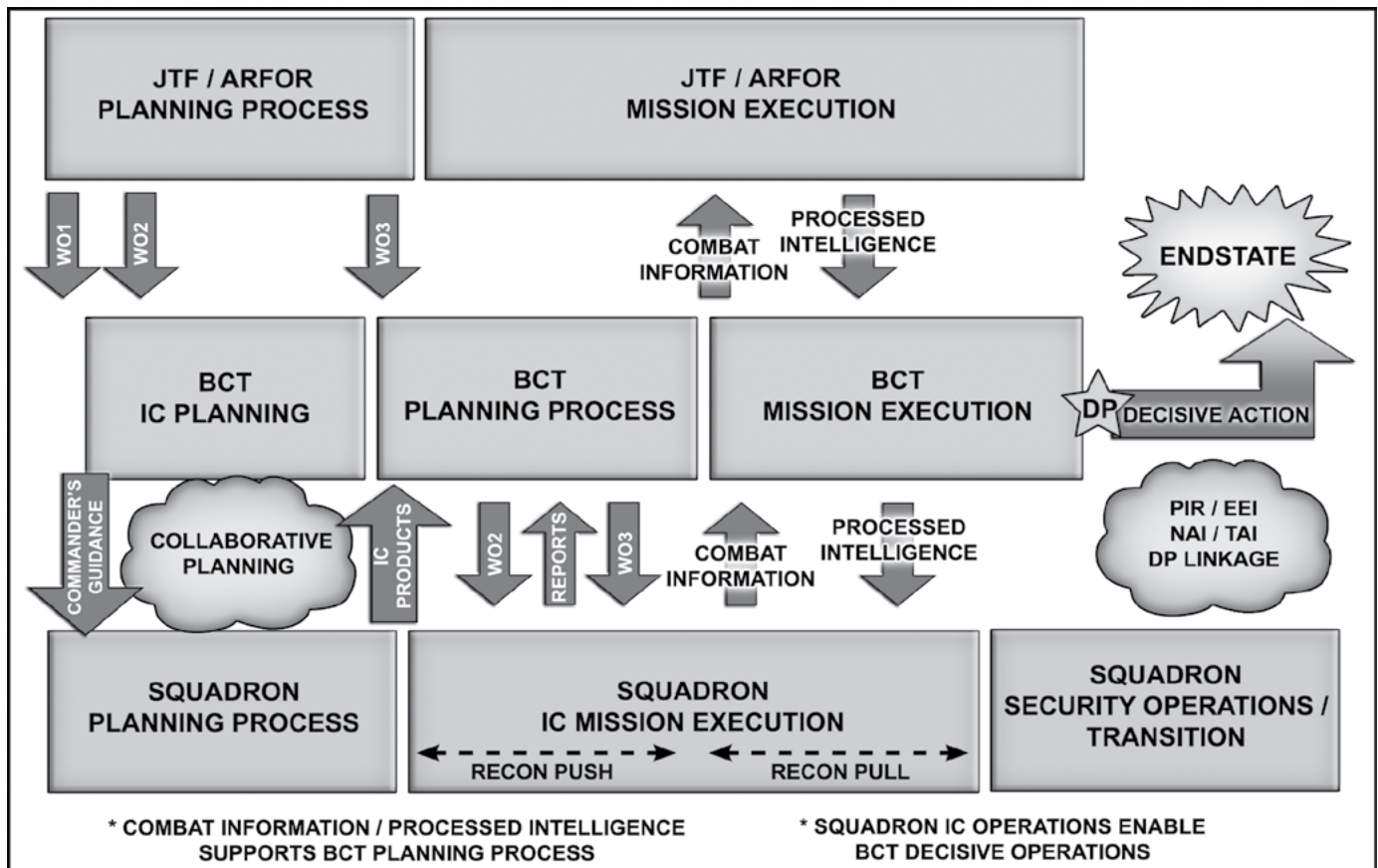


Figure 1. The BCT information-collection timeline. (Based on FM 3-98, Figure 4-4)

Focus: threat, infrastructure, terrain and weather effects, and/or society (linked to information requirements and informed by information gaps).	Provide reconnaissance-and-security guidance that enables a clear understanding of your visualization of the battle and what you expect reconnaissance-and-security elements to accomplish.
Tempo: level of detail and covertness (rapid, deliberate, stealthy, forceful).	Tell subordinates what to look for and why – this will enable them to use disciplined initiative to answer your PIR sooner rather than later.
Engagement / disengagement criteria: when to fight, what to fight, what to bypass.	Thorough guidance also helps the staff understand how the commander visualizes reconnaissance and security as part of the overall operation and where he is willing to accept risk.
Displacement criteria: trigger(s) to withdraw.	

Figure 2. The commander’s reconnaissance-and-security guidance should include these elements.

reconnaissance-and-security forces is necessary to provide information to the commander, reducing the overall tactical risk to the main body.

- Finally, recognize that our published IC plan is the operations order for our reconnaissance-and-security forces, and it needs to be rehearsed.

At echelon all the time

We cannot leave reconnaissance and security to only our named cavalry or reconnaissance units. Security is the first priority of work for all units. Reconnaissance is a troop-leading procedure executed at all levels and a fundamental point of security operations that must be done continuously.

These are not tasks left to just the brigade’s cavalry squadron or to the battalion’s scout platoon. These tasks must be conducted across the unit at echelon and as a result of standard operating procedures (SOPs).

This is not a call for every Soldier a sensor. This is much more concrete than that. This is an acceptance that our task-organization may leave us without a cavalry squadron, scout platoon or a military-intelligence company. Our area of operations may extend beyond the capability of our cavalry squadron or scout platoon to cover the terrain.

The weather may leave us with our only true all-weather reconnaissance asset. In any case, there are still information requirements to be answered and key terrain to be held, and the enemy will gladly take the initiative on either front if we don’t.

This is why throughout the rest of this article, you will read about reconnaissance-and-security forces, units or

assets rather than cavalry squadrons or scout platoons.

We have seen many allied and partner units at JMRC create reconnaissance-and-security forces from within their maneuver task-organization at the lowest level with great success to allow their main body to maneuver out of contact to a position of advantage prepared to mass combat power at the decisive point.

Seize the initiative

Our IC plan must be planned as a result of staff integrated intelligence preparation of the battlefield and synchronized across all warfighting functions. It probably must be quite a few other things, but above all, it must be executed in time to provide the commander information needed to make decisions with enough time and maneuver space for it to matter.

While our staffs will no doubt put a herculean effort into the daunting mission-analysis brief, commanders must recognize the critical role their ability and experience bring.

The commander alone may understand how our analysis at the early stages of the military decision-making process begins a process that will carry through to decision points in execution, mitigating key points of tactical risk.

The staff’s inexperience or inability to understand these links and the commander’s visualization may result in an IC plan that does not provide our reconnaissance-and-security forces with the bottom-line products to enable success.

This makes the commander’s guidance for reconnaissance and security a critical part of the planning guidance. We

need to understand the guidance for IC and how we support that plan across warfighting functions before we start complete course-of-action (CoA) sketches for the main body. Guidance from the commander must consist of more than just concurring with how and where we want to use unmanned-aerial-system assets.

Guidance includes focus, tempo, engagement/disengagement criteria and displacement criteria. It is also helpful if the commander shapes the staff’s understanding of how initial collection efforts are important to refining their continued CoA development. Above all, simplicity in these initial steps is important because, in many cases, we are still working on planning assumptions.

We must translate these assumptions into tactical tasks for reconnaissance-and-security forces; simplicity usually translates to speed. If the staff is allowed to struggle through the process on its own, the IC plan will likely be incomplete and not in time. While we are debating on when to send out the cavalry squadron, what task-organization changes we will make because our cavalry squadron was detached or which named area of interest (NAI) we should send the Shadow to, we will learn that the enemy just seized the key terrain. Now our forces must fight for it before they can begin collection.

Mitigate, accept risk

Sending forces early in the mission timeline to conduct reconnaissance and security while we are still developing friendly CoAs does put them at risk. However, we must mitigate that tactical risk and be willing to execute. If we do not, then we have translated that risk to the main body and, ultimately,

our higher unit's mission. We have a simple chart in Army Doctrinal Reference Publication (ADRP) 3-90 that describes the relationship between information, risk and the commander.

ADRP 3-90

ADRP 3-90 emphasizes that “[i]f the commander lacks sufficient information to make an informed choice, the first priority must be to gain the required information to support decision-making while at the same time taking precautions to protect friendly forces from surprise.”

We fail to recognize that our reconnaissance-and-security efforts, executed as soon as possible, are what provides this information and enables our analysis to produce intelligence. The commander does not want to keep a large reserve, but without confidence of enemy locations and enemy actions, the commander may decide to hold more forces longer, while waiting for enough information to commit them.

More information allows the commander to be more audacious in execution. Sending a tank company to attack the enemy's rear or conducting an air assault to destroy an enemy mission-command node is no longer a gamble. It becomes a mitigated risk when we know the disposition of the enemy main effort and security forces.

Recon-and-security operations order

Sending our reconnaissance-and-security forces out early and quickly emphasizes our responsibility to mitigate their tactical risk through the

development of a plan to support them across the warfighting functions.

If our IC plan is not truly owned by the operations staff section and we allow our intelligence section to develop a one-slide depiction of NAIs and priority intelligence requirements (PIRs), supported by a monster Excel document as a collection tasking matrix, we have failed our reconnaissance-and-security forces.

If the brigade has a cavalry squadron, that squadron staff can hopefully mitigate the lack of effort at the brigade level by putting together a comprehensive and complete plan.

If we have a company/troop-level leader or platoon-level leader moving out at the publication of our IC plan with a PowerPoint slide full of NAIs and brigade-level PIR but with no detailed sustainment, medical, fires or protection plan, our plan will fail. In such a case, we can expect their first-contact report with the enemy to be their last.

Doctrine leads us to think that the staff-integrated IC plan belongs in Annex L. Whether in a separate order or in Annex L, it must be done and done well.

In addition to a complete plan, we must rehearse:

- Do we combine the brigade IC rehearsal with the cavalry squadron combined-arms rehearsal?
- Do we combine the brigade IC rehearsal with the brigade fires rehearsal to address the recon-lethality link?
- Do we execute a separate brigade IC

rehearsal as soon as we publish the collection plan?

Any one of these techniques, or one of the many not mentioned, can be effective. The critical part of the IC rehearsal is the results. We must synchronize our collection efforts to ensure we use our assets in the most effective and efficient manner. We have to address points of friction, anticipated contingencies and the reconnaissance handover.

We must be able to demonstrate how we cue, mix and add redundancy to answer the commander's information requirements. Above all, we must walk away from the rehearsal with a shared understanding by all about how everyone contributes to the collection plan and the overall unit mission.

The last element for success must be to train as we fight. We must incorporate these actions into our training. Commanders must design exercises to allow reconnaissance-and-security operations to begin immediately upon deployment to the area of operations.

We must do all we can to prevent unrealistic constraints on reconnaissance-and-security operations during training events. Allow units to deploy forces early and give them the opportunity to collect on and answer PIR. This must include indicators across the operational variables and not just on opposing forces. We must also make every effort to begin events with a “warm start” at staff levels to exercise parallel planning while in execution of reconnaissance-and-security tasks as a part of the IC plan.

We have seen constant improvements and creative solutions at JMRC. Task-organization and participating nations create their own challenges, but the after-action reviews often describe the same importance of information collection (or lack thereof), whether it is from a brigade from the Czech Republic, the United States or Italy. As a result of a diverse task-organization, units often do not have a standard cavalry unit to execute the ground tactical IC plan.

This creates a unique opportunity every rotation to see creative solutions at echelon to accomplish reconnaissance-and-security tasks and

Risk	
Less information and intelligence	More information and intelligence
More uncertainty More risk to force	Less uncertainty Less risk to force
↓	↓
Commander employs:	Commander employs:
More reconnaissance and surveillance	Smaller reconnaissance and surveillance
Larger reserve	Smaller reserve
More security formations	Fewer security formations
Slower speed of operations	Faster speed of operations
Less distributed operations	More distributed operations

Figure 3. Risk-reduction factors. (Based on ADRP 3-90, Figure 1-1)

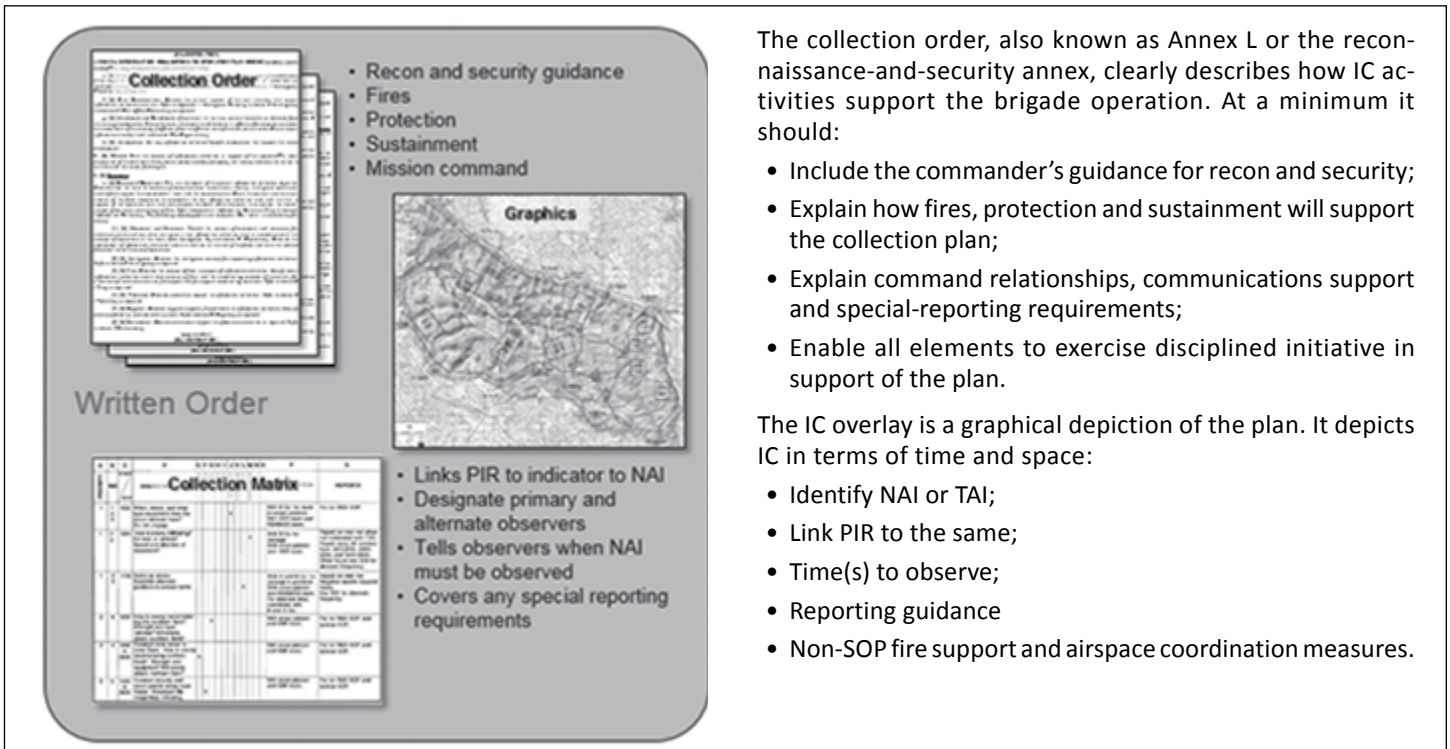


Figure 4. Annex L.

reinforces the imperative of conducting these tasks if there is any chance at winning on the battlefield.

Within the next month, we will have an opportunity to observe the 173rd Airborne Brigade (Sky Soldiers) conduct an airborne joint forcible entry with their cavalry squadron at Exercise Saber Junction 16, which is a simultaneous combination of offensive, defensive and stability missions with an emphasis on tactical interoperability among the Allied and partner-nation forces.

We look forward to having these discussions and capturing how the Sky Soldiers approach the problem. While we continue to look for the right ways to integrate cavalry squadrons within the brigade planning process, how to enable the brigade deep fight and whether or not our squadrons are designed correctly, we cannot lose sight

of why we conduct IC. We must address these bottom-line issues because the enemy is already on the move to seize the key terrain.

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The collection order, also known as Annex L or the reconnaissance-and-security annex, clearly describes how IC activities support the brigade operation. At a minimum it should:

- Include the commander’s guidance for recon and security;
- Explain how fires, protection and sustainment will support the collection plan;
- Explain command relationships, communications support and special-reporting requirements;
- Enable all elements to exercise disciplined initiative in support of the plan.

The IC overlay is a graphical depiction of the plan. It depicts IC in terms of time and space:

- Identify NAI or TAI;
- Link PIR to the same;
- Time(s) to observe;
- Reporting guidance
- Non-SOP fire support and airspace coordination measures.

include Air Assault Course; Master Fitness Trainer Course; Armor Basic Officer Leader Course; Armor Captain’s Career Course; Intermediate Level Education, common-core and qualification courses, Command and General Staff College (CGSC); and Joint Firepower Control Course. MAJ Armstrong holds bachelor’s of arts degree in systems engineering from the U.S. Military Academy, West Point, NY, and a master’s of military arts and science degree in military history from CGSC.

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Continued next page



<p>Task: Rehearse the collection plan and all IC efforts in the brigade.</p>	<p>Purpose of the rehearsal:</p> <ul style="list-style-type: none"> -Ensure that subordinate units' reconnaissance-and-security plans are synchronized with other units in the brigade; -Ensure that reconnaissance-and-security plans of all subordinate commanders will properly achieve the brigade commander's intent.
<p>Key attendees: brigade executive officer and S-3; brigade and battalion S-2s; air-liaison officer, assistant brigade engineer and chemical officer; cavalry commander, aviation-battalion commander, field-artillery battalion commander, engineer-battalion commander</p>	
<p>Desired results:</p> <ul style="list-style-type: none"> -Shared understanding of how all elements contribute to the brigade collection plan and how reconnaissance-and-security operations will contribute to accomplishment of the brigade mission; -Shared understanding of reconnaissance handover among all elements and enablers; -Shared understanding of reaction to anticipated contingencies. 	

Figure 5. IC rehearsal.

A Practical Guide for Excellence in Company Unmanned Aircraft Systems

by CPT John Albert

It's not hard to see the bend of history in a quick scan of world conflict today. State and non-state actors in the Ukraine, Syria and Iraq daily demonstrate the growing numbers, types and capability of unmanned aircraft systems (UAS) operations at all echelons. Large and small, combatants deploy their UAS skyward in the desperate attempt to gain an information advantage. With large fronts and limited combat power, adversaries use their temporary information advantages to make decisions on where and how to employ combat power. Click over to YouTube and watch combatants use UAS to identify enemy formations and adjust indirect fires in real combat.

Why then would we forgo the advantage provided by UAS operations of any type?

We've fully accepted the idea of large UAS operating deep across the battlefield, striking high-value targets with seeming invulnerability. The Army MQ-1C Grey Eagle and Air Force MQ-1B Predator combine lethal effects with near-real-time surveillance in a platform of extended range and endurance. Even the unarmed mid-size UAS such as the RQ-7 Shadow continuously buzz across the battlefield helping answer the brigade commander's priority intelligence requirements. Commanders grow agitated when weather or enemy air-defense threat denies them this eye in the sky.

The same is not the case for company-level UAS. The RQ-11 Raven tends to spend an equal number of hours enduring inventories as it does answering questions for the commander or enhancing depth during security operations. The reason for this inconsistency has little to do with the RQ-11's relative lack of capability. The real promise of the company UAS has yet to be realized because of the manner in which we prepare for its employment.

Systemically we fail to plan and organize for UAS operations. Commanders

tend to consider UAS operations as ancillary, not essential, to company, troop and battery operations. This results in ineffectual, disconnected or nonexistent company UAS operations.

Organizing excellence

The first thing to do is to consider the UAS as a system. Since it is a system, the commander assigns a crew just as for a vehicle platform or crew-served weapon. Because the RQ-11 requires two pilots to operate, the crew should be assigned from personnel on the same ground vehicle or in the same infantry squad. It would not do to have one pilot in one part of the battlefield while the other pilot is in a different area. If reliable dismounts are available to mounted formations, their separation from the responsibilities of vehicle crewman make them more desirable as pilots.

Clearly, more deliberation should be put into selecting pilots. Ideal pilots demonstrate maturity, agility and forethought in addition to the intuitive finger control required for manual flight.

Ideally, a noncommissioned officer (NCO) leads this crew and is responsible for the maintenance and accountability of the system as well as managing pilot-training requirements. Just as the master gunner assists the commander in managing training requirements relating to crew-gunnery qualification, the company UAS NCO can assist the commander in managing pilot-training requirements.

The commander manages the UAS crew no differently than any other crew, minimizing personnel disruption and ensuring proficiency. A commander would not break vehicle crews following successful gunnery qualification. For the same reasons, neither should the commander break UAS crews.

Next, the commander designates alternate, contingency and emergency crews from other platoons or sections. The reality of personnel turnover due to casualty or administrative reasons

requires redundancy to ensure the program survives contact with reality. The commander should consider four pilots (two UAS teams) as a minimum requirement with eight pilots (four UAS teams) as optimal. This dispersion of training ensures all elements of the troop are capable of conducting UAS operations.

The primary crew may reside in 1st Platoon, but the situation may call for UAS operation with 2nd Platoon. It's easier and more effective to transfer equipment vice personnel. Further, eight pilots and the NCO in charge represent a critical mass of pilots that ensures the program remains self-sustaining.

Training for excellence

Pilot training is time-consuming and seems hard to justify in comparison to other essential training. However, pilot training investment costs are comparable to other training.

Think of the time spent on bringing a new M3 Bradley Fighting Vehicle crew to gunnery competency. The upfront expenditure of time in simulation and gunnery skills training is quite high. In comparison, sustaining and improving on that competency is low cost in time and resources. UAS pilot training is no different.

Basic flight

Pilot terminology and currency requirements can be a little confusing. It's helpful to consider pilot training along the same lines as driver training. Each battalion element should have at least one, preferably two, master-trainer (MT) pilots. These MTs act as the commander's technical experts and assist with training management. MTs may be assigned at the company level, but this is less common.

Pilots who complete the introductory training as outlined in the brigade standard operating procedure and executed by the MT – as well as pilots new to the unit with previous pilot experience – are said to be at the mission-proficiency (MP) level. In driving terminology, MPs have a "learner's permit."

These pilots have the baseline of knowledge to operate the company UAS but still need to demonstrate their proficiency to the commander. To employ the UAS, the MT must be present if an MP pilot is operating. This can be a serious limitation if the battalion has but a single MT.

Next, the commander, via the MT, issues a proficiency flight evaluation (PFE) consisting of specific tasks outlined in Appendix A of Training Circular 3-04.62, **Small Unmanned Aircraft System Aircrew Training Program**. The commander should select additional tasks to those listed to ensure the pilot is tested under relevant conditions to the missions the unit performs. The PFE should test the pilot day and night and in all flight modes.

Upon completion of the PFE, the pilot is mission qualified (MQ). Now that the pilot has reached MQ level, MT presence is not required. The pilot effectively becomes “fully licensed,” in driving parlance. Severing the leash from the in-demand battalion MTs provides

much greater flexibility in incorporating the UAS in other training. To remain current, MQ pilots must complete a flight every 30 days. This flight can be done in simulation. However, one flight each 150 days must be conducted live.

Drilling

Still, achieving MQ status and remaining current is only the start. All the upfront investment, on the order of four weeks of training or more, has produced a pilot capable of getting the UAS airborne, but not much else. Taking the step toward excellence requires reducing the UAS operation to a drill, then repeating execution in a realistic environment.

Then the UAS goes from an expensive property-book item to a value-added tool.

To reduce the burden of getting the RQ-11 airborne, every facet of the operation should be reduced to a drill. The actual crew drill should be rehearsed weekly. This can be done in

conjunction with command maintenance or another repetitive weekly activity. For the UAS to be useful, it must be employable in less than five minutes. If the crew cannot meet this time requirement, they must be drilled until they can. Each of the primary, alternate, contingency and emergency crews execute the crew drill to standard each week.

Beyond the UAS crew, the company must have an airspace battle drill. Whether using the fire-support officer (FSO) or executive officer, the unit must have preformatted requests that enable approval of immediate restricted operating zones (ROZs). Due to the fluid and chaotic nature of airspace, immediate requests will never be as effective as planned ROZs. However, the unit must be ready to employ the UAS within five minutes anywhere on the battlefield.

This drill should be tied in with battalion and brigade rehearsals to ensure a request can move and be assessed from the company to the



Figure 1. Raven training at Todd Field (Raven Operators Course) at the Maneuver Center of Excellence, Fort Benning, GA. (U.S. Army photo by Vince Little, Maneuver Center of Excellence Public affairs Office)

joint-task-force headquarters within five minutes. This level of proficiency will never be achieved if the first time it is executed is during live training at a combat training center.

Every company, troop or battery has something similar to a short halt or security battle drill. Whether moving into a herring bone, crossing a linear danger area or hastily occupying a position area for artillery, every unit has one or several. The UAS crew should execute as part of the battle drill. The reaction is drilled and immediate.

Just as the troop mortars immediately begin laying on likely avenues of approach or a designated target as part of the drill, the UAS crew immediately preps to launch the UAS. The company executive officer or FSO sends the formatted request for airspace. In less than five minutes, the UAS should be winging its way along the most likely enemy avenue of approach to provide depth to the company security or answer questions for the commander.

The Raven should be employed in deliberately planned operations. The Raven assists in providing situational awareness and early warning, allowing the commander to maximize the effect of combat power. I will not examine the benefits of incorporating all information-collection assets at your disposal in this article. Field Manual 3-04.155, **Army Unmanned Aircraft System Operations**, provides an in-depth look at the operational considerations of employing UAS in support of your operations and should be read and understood by the commander and Raven teams.

Repetition and realism

The UAS crew should fly in support of every training event, but racking up the flight hours is not enough. To be effective, the UAS crew needs to understand what military equipment and activities look like. Generally, pilots are some of the more junior Soldiers.

For the UAS to do anything for the commander, the pilot needs to be able to understand what he/she is viewing and what it means.

For example, the manipulation of a rocket-propelled grenade may not be obvious when seen for the first time

through the RQ-11's infrared camera. Pilots need practice at observing these military activities. Pilots need to see scouts creeping through the woods, tanks maneuvering, mortars and artilleryman busily servicing their pieces, and what command posts look like in full and limited visibility.

Keep Ravens in air

Fortunately, the unit already does many of these military activities in normal training. The commander must not abandon these free repetitions. The RQ-11 should be up flying and identifying formations during all situational training exercises, live-fires and gunneries.

Another way to get repetitions in is to find out when other organizations are conducting their major training exercises. The other organizations are likely to have already requested airspace which you can share, and their primary training event provides free activity for your pilot to observe. If other units are hesitant, remind them that poor airspace control is the primary factor preventing timely and accurate fires delivery. You're offering some free practice at employing procedural airspace control.

Frequently, home-station requests for training resources such as land and airspace are required to be submitted outside the normal company six-week training-planning horizon. Commanders should research their home-station training policies to ensure opportunities for training are not missed. As excuses go, not being able to navigate our own policies to ensure quality training seems especially hollow. If all this sounds intimidating, it's actually just beginning. The future battlefield will be more technical and more inhuman.

Looking ahead

Air defense, electronic warfare, cyberwarfare and autonomous ground and air robots will play an increasing role as Soldiers will need to be more culturally, linguistically and technically savvy.

Employing UAS at the platoon and squad echelon as part of the continuing technological overhaul of fighting formations is a reality. Testing a modified formation took place in September

2015 at the Network Integration Evaluation 16.1 and continues at the Maneuver Center of Excellence (MCoE) and other locations. The test formation employed squad- and platoon-level UAS; payload-carrying, lethal UAS; and automated ground platforms, in addition to the traditional company-level Raven UAS.

Testing will continue, but the bend of future development is clear: companies will employ and synchronize multiple automated platforms to enhance their battlefield capability. Airspace management and electronic warfare will soon become essential components of the company-level fight. How will the company incorporate 10 to 15 more UAS if we can't operationalize a lone RQ-11 Raven?

Need more pilots

As systems become more technically complicated, the need for specially trained personnel increases. The future Raven pilot may be military-occupation-specialty or, at minimum, additional-skill-identifier differentiated for better management and ensured expertise. Until that day comes, it's up to you, commander!

Let's get going. Your adversaries already are.

For subject-matter expertise or questions in establishing your program, feel free to contact the Small UAS Master Trainer School at MCoE, <http://www.benning.army.mil/Armor/316thCav/129/SUASMT/>.

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Mastering Fundamentals of Passive Counter-reconnaissance to Survive against Hybrid Threat

by CPT Joshua T. Christian

The command post (CP) has just set in position, communications antennas have been erected and the first pot of coffee is beginning to drip when the situation reports from the troops crackle over the radios. This operation is conducted by a cavalry squadron partnered with a Polish cavalry troop executing joint, intergovernmental, interagency, multinational (JIIM) security operations at Grafenwohr, Germany, as part of the annual training exercises at the Joint Multinational Rotational Center (JMRC).

For now, the situation is going just as the S-2 and S-3 predicted during their analysis; troops have occupied the screen and are deploying their troop unmanned aircraft system (UAS) to attempt to gain contact with the enemy forces.

Just 10 minutes after receiving situation reports from the subordinate units, the S-3 and S-2 are enjoying a cup of coffee and analyzing their information-collection plan for the upcoming 48 hours. Suddenly they hear incoming indirect fire. All the CP vehicles and individual Multiple Integrated Laser Engagement System gear begins

going off, indicating that they have been killed. The observer/coach/trainer (O/C/T) informs them that the CP has been destroyed by indirect fire to the argument of the S-3 and S-2, who point out that this is impossible – not a single one of their troops had made contact with the enemy. In addition to the lack of enemy contact, the squadron had positioned the CP one terrain feature behind the main body, just as they had learned to do from doctrine.

In the after-action review (AAR), the O/C/T points out the lack of focus and attention that the unit gave to passive counter-reconnaissance. During the AAR, the opposing forces (opfor) described to the friendly unit how they had been able to use a common, off-the-shelf radio direction-finder (available at Radio Shack or ebay.com for \$50 to \$500) to identify a line of bearing to the unit's radio transmissions. The opfor then flew a UAS along the line of bearing until it identified the squadron's CP indicated by a series of tents, dress-right-dress vehicles and a line of port-a-potties. The opfor had identified the squadron CP as a high-payoff target during the planning phase and immediately massed its

indirect-fire assets to destroy the squadron's headquarters.¹

Field Manual (FM) 3-98 describes effective counter-reconnaissance operations as allowing the unit to retain freedom of maneuver by denying the enemy the ability to collect information and identify opportunities to seize, retain and/or exploit the initiative.² The counter-reconnaissance this rotational unit conducted was active in nature; it identified and defeated enemy reconnaissance forces in a named area of interest (NAI) or target area of interest.

So what is this passive counter-reconnaissance the O/C/T referred to – is it new? Had the unit missed an update to doctrine or to its individual and collective tasks outlined in the Combined Arms Training Strategy (CATS)?

Passive counter-reconnaissance is a unit's exercise of discipline when it comes to camouflaging and concealing their positions as well as exercising radio discipline and adhering to strict signal operating instructions (SOI) to reduce one's electronic signature. The squadron had not successfully employed protective measures of their CP such as digging in or camouflaging their positions. Also, the unit had not considered its electromagnetic signature and the vulnerabilities it presented to their security.

Camouflage, conceal, deceive

As units execute decisive-action training, they must account for the hybrid threat which will contain some near-peer capabilities such as UAS or even off-the-shelf (civilian-procured) UAS and radio direction-finding capability. In July 2015, a draft of Dr. P.A. Karber's "Lessons Learned from the Russo-Ukrainian War" circulated through U.S. Army Training and Doctrine Command. In this paper, Karber expresses his personal observations of the conflict and describes an environment proliferated with unmanned aerial vehicles, more than 14 different varieties of them,



Figure 1. Netherlands reconnaissance truck camouflaged with natural materials in a concealed position.

generally complemented with BM-21 Multiple Launch Rocket Systems, resulting in the ability to mass highly lethal indirect fires over extended ranges.³

For many years of stability operations, the United States and our allies have enjoyed complete supremacy over our enemies in every form of contact. As forces return to training for and fighting against a hybrid threat, that supremacy over all forms of contact is not necessarily lost, but our training must bring back some of the lost disciplines and tasks.

Units at the combat training centers (CTCs) used to “dig-in” their CPs just as they did for their fuelers or mortar firing points. This doesn’t assist in concealment, but it does increase overall survivability. Camouflage nets fully deployed also won’t completely conceal the unit – a well-trained UAS operator will be able to identify something is there but will not be able to ascertain if it is a CP or not. Will the enemy decide to employ indirect fire if he cannot be certain it is a high-payoff target? Likely the enemy will deploy another form of reconnaissance to verify this information, buying the friendly unit time.

In addition to digging in and camouflaging positions, units need to plan that critical friendly zones are in place over their CPs susceptible to indirect fire. By planning critical friendly zones, units ensure that target-acquisition radar is within range and can identify a point of origin from incoming indirect fire to enable accurate and responsive counter-battery operations. The use of critical friendly zones and counter-battery will force the enemy to displace or destroy his indirect-fire assets, reducing his ability to continue to mass on friendly positions.

In CATs, under Collective Task Number 07-3-9016, “establish an observation post (OP),” there are supporting collective tasks (07-2-6045, “employ deception techniques”; 05-2-3003, “employ camouflage, concealment and deception techniques”; and 05-3-3003, “camouflage equipment.”) These tasks are rarely ever trained or enforced, particularly against the threat of aerial surveillance. Currently some

formations across the Army do train in employing camouflage and concealment, but most often they evaluate the success of this compared to a direct frontal or flank observation and do not consider the threat of enemy UAS or how to counter it (actively or passively).

Old but still relevant to today’s warfare is FM 5-20, *Camouflage, Basic Principles* (1944), which discusses the need for concealment and some of the difficulty achieving it. Even in 1944, the writers of this manual identified the differences in concealment from ground and aerial collection efforts and reduced aerial into visual and photographic.⁴ The difference in visual and photographic then and now are the angle of observation based on the aircraft or collection platform.

Helicopters avoiding radar detection and air-defense threats generally fly low to the earth and therefore have a different observation angle than a UAS or satellite orbiting at a high altitude and generally looking directly down onto an area. During employment of camouflage and concealment, troops must consider what their locations look like from all these vantage points and choose appropriate terrain that will assist them. Conveniently troops have Ravens or other similar UAS that also need to fly to maintain proficiency and also ideally need practice in identifying enemy positions.

One way a troop commander could increase his troop’s survivability and capability to conduct passive counter-reconnaissance is to challenge his platoons to conceal their OPs and at the same time challenge his UAS to identify them from the air.

Students in the Army Reconnaissance Course (ARC) face enemy air threat from both AH-64E and UH-72 helicopters. AH-64E primarily rely on thermal imaging for observation, while the UH-72 relies on visual observation for conducting reconnaissance. ARC students employing concealment techniques are successful in remaining concealed (both mounted and dismounted) from these air threats for the duration of the aircraft’s station time. ARC students have been so successful that cadre members narrowed the amount of

terrain for the flight crews to reconnoiter to just one square kilometer, and the aircraft still could not identify the ARC OPs.

At the Cavalry Leader’s Course (CLC), students are taught the importance of commander’s reconnaissance guidance and commander’s security guidance – specifically the importance of engagement, disengagement and displacement criteria and how they are affected by enemy air threats. Students at both ARC and CLC also learn about deliberate risk-mitigation and management techniques. Scouts today are armed with a large array of sensors ranging from a Long Range Advance Scout Surveillance System to a Lightweight Laser Designated Rangefinder and standard binoculars.

Scouts employ sensors that require batteries to operate; the commander therefore must deliberately mitigate the risk incurred of running a vehicle to charge batteries. In his synchronization, he can include run time (both the start time and shut-down time) for vehicles to mitigate the increase in thermal and exhaust signatures. The risk mitigation begins with understanding realistic enemy capabilities, and when things such as exhaust are most vulnerable to observation or how long a recently run vehicle will produce a strong thermal signature.

These are just a few examples of considerations the commander should evaluate when he develops his operations order, specifically his reconnaissance or security guidance.

Reducing unit’s electromagnetic signature

Another form of discipline not new to the Army is the use of SOI. SOI should be high on unit commanders’ training priorities, particularly those identified to conduct decisive operations in JIIM environments or as part of a regionally aligned force. What used to be a common skill and strictly enforced was the use of brevity codes and the constant evolution of frequencies, call signs and key sets to avoid or mitigate enemy eavesdropping; this has become lost after years of enjoying supremacy over our enemies. The “Five Eyes” nations

comprised of Australia, Canada, New Zealand, United Kingdom and the United States maintain an agreed-upon SOI that includes brevity codes as well as transmission guidelines to ensure things are not lost in translation among member nations.⁵

SOI is more than just brevity codes, and staffs as well as commanders can assist scouts in reducing their communications signature through the planning process. Though fully compatible with joint services in frequency hopping (FH), Single-Channel Ground and Airborne Radio System (SINCGARS) are only partially compatible with multinational radios, requiring transmissions over single-channel (SC) non-secure mode to transmit to allies' very-high-frequency radios. In the vignette presented at the beginning of this article, to accommodate the Polish cavalry troop, the squadron maintained one SINCGARS channel on SC.

The use of SC has also allowed the squadron to increase the width of their screen due to the extended range it offers over FH. However, the use of SC is very susceptible to radio direction-finding, a weakness the opfor was able to exploit in the vignette. If units are going to use SC to communicate with allies, they must strictly adhere to SOI and ensure that communications are as brief as possible.

By refining priority intelligence requirements down to the yes, no or number indicator for the scout on the ground, the staff and commander can reduce the overall amount of radio traffic. Scouts do not need to send up routine reports; a well-trained scout will inform his command when he identifies an indicator he was tasked with collecting or when he makes contact. The gaps in between those two times should be acceptable radio-silence times, particularly in a Joint Capabilities Release-capable unit. Going forward against a hybrid threat, strict adherence to smart SOI will not only increase a unit's survivability against an enemy trying to direction-find them, but it will also ensure that units are interoperable with our multinational partners.

Another technique to increase survivability of cavalry formations against

hybrid threats while still relying on Single-Channel Plain Text to talk to multinational partners is to rely on directional antennas such as the half-rhombic antenna instead of omnidirectional antennas like the common OE-254 and COM 201B.⁶ Using a directional antenna aimed at the person you are talking to, coupled with the use of SOI brevity codes, significantly reduces the overall communications signature you are emitting. The S-6 and S-3 should evaluate the signal plan; it is more than just a list of frequencies, call signs and succession of command. Units could use directional antennas with retrans in-depth to reduce the overall electronic signature traveling forward toward the enemy.

SINCGARS operates on three variable power settings – designed to allow a user to control the electromagnetic signature given off by the radio transmission – and can be as little as 200 meters or as large as 40 kilometers (terrain dependent).⁷ Units can dictate to the troops which phases of an operation it's acceptable to operate on "high power"; when they need to operate their radios on "low power"; and when they need to operate in radio silence/listening only. The goal is to reduce the overall electromagnetic signature emitted, so it is advised that CPs only use the lowest-possible power setting to maintain reliable communication.⁸

If time is available, units should rely on hard-wire communications run between positions. To hardwire between OPs, units used to rely on TA312 wire, but that has been turned in and removed from most unit's modified table of organization and equipment. Either a new solution is required to fill the gap, or the Army must re-issue the wire and phones to units to counter this threat.

Conclusion

Unit commanders plan training, and in doing so, "they must understand their expected operational environment ... [and] replicate the conditions as closely as possible in training."⁹ Also, Army Doctrinal Reference Publication (ADRP) 7-0 points out that troop, company and battery commanders are responsible for tackling the fundamentals

first, focusing on individual and small-unit skills.

Since the Army is currently focused on Europe, the Pacific and Central and Southeast Asia, unit commanders must understand that adversaries in these regions possess near-peer or similar capabilities and incorporate those threats into unit training plans. Failing to acknowledge the operational environment of adversaries and incorporating it into training environments is impacting the overall mission readiness of Army forces capable of deploying to protect U.S. interests. The CTCs have acknowledged it and include it in their rotations; now the rotational units must ensure it is trained at home station through repetition after repetition until units regain competencies lost due to years of persistent conflict with an inferior enemy.

Finally, by removing units from their comfort zones of large "Base-X"-style CPs, not only do units train to increase their survivability against a hybrid threat, but they also build resiliency into their systems and increase the adaptiveness of their leaders.

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Notes

¹ The vignette presented is fictional but was created based on trends presented by JMRC in the Cavalry Council hosted by 3-16 Cavalry Jan. 27, 2016.

² FM 3-98, *Reconnaissance and Security*

Operations, July 2015.

³ Dr. P.A. Karber, "Lessons Learned from the Russo-Ukrainian War" (draft), The Potomac Foundation, 2015.

⁴ FM 5-20, *Camouflage, Basic Principles*, 1944.

⁵ Allied Communications Publication

131(F), *Communications Instructions – Operating Signals*, April 2009.

⁶ For more information on types of antennas and how they can assist in reducing a unit's susceptibility to enemy intercept and interference, units should refer to Chapter 10 of Army Technical Publication

(ATP) 6-02.53 (2016).

⁷ ATP 6-02.53, *Techniques for Tactical Radio Operations*, January 2016.

⁸ Ibid.

⁹ ADRP 7-0, *Training Units and Developing Leaders*, August 2012.

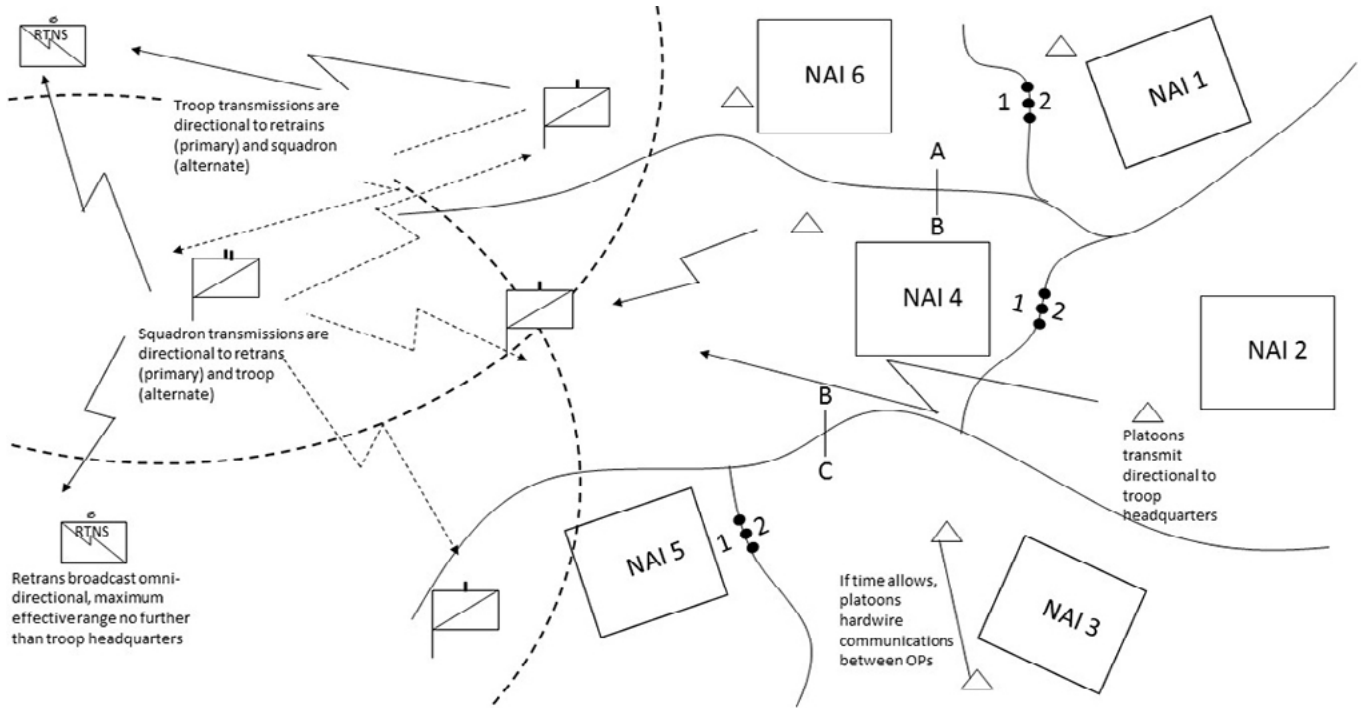


Figure 3. Example network diagram to reduce electromagnetic signature.

CONSOLIDATED ACRONYM QUICK-SCAN

A

AAR – after-action review
AAB – advise-and-assist brigade
ABCT – armored brigade combat team
ACE – armored combat earthmover
ACR – armored-cavalry regiment
ADP – Army doctrinal publication
ADRP – Army doctrinal reference publication
AGST – Advanced Gunnery Skills Trainer
ALC – Advanced Leader’s Course
AO – area of operations
APC – armored personnel carrier
AR – Army regulation
ARC – Army Reconnaissance Course
ARFOR – armed forces
ATG – annual training guidance
ATP – Army technical publication
ATHP – ammunition-transfer holding point
ATN – Army Training Network

B

BAO – brigade ammunition officer
BCT – brigade combat team
BFV – Bradley Fighting Vehicle
BSB – brigade-support battalion
BTG – brigade tactical group

C

CAB – combined-arms battalion
CATS – Combined-Arms Training Strategy
CCIR – commander’s critical information requirement
CCL – combat-configured load
CGSC – Command and General Staff College
CLI – Class I
CLII – Class II
CLIII – Class III
CLIV – Class IV
CLV – Class V
CLVIII – Class VIII
CLIX – Class IX
CLC – Cavalry Leader’s Course
CoA – course of action
COIN – counterinsurgency
COP – common operating picture
CP – command post
CPoF – Command Post of the Future
CSDP – Command Supply-Discipline Program

CTC – combat training center

D

DA – decisive action
DCGS-A – Distributed Common Ground System-Army
DP – decision point
DTMS – Digital Training-Management System

E

EEI – essential element of information
EUCOM – (U.S. Army) European Command

F

FH – frequency hopping
FLoT – forward line of troops
FM – field manual
FM – frequency modulation
FSC – forward-support company
FSO – fire-support officer
FY – fiscal year

G

GCCS-A – Global Combat Support System-Army
GPBTO – general-purpose barbed-tape obstacle
GST – Gunnery Skills Test
GT – gunnery table

H

HEMTT – heavy expanded mobility tactical truck
HR – hand receipt
HVT – high-value target

I

IBCT – infantry brigade combat team
IC – information collection
IR – information requirement
ITAS – Improved Target Acquisition System

J

JCR – Joint Capability Release
JIIM – joint, intergovernmental, inter-agency, multinational
JMRC – Joint Multinational Readiness Center
JRTC – Joint Readiness Training Center
JTF – joint task force

K

Kg – kilogram

L

LD – line of departure
LMTV – light medium tactical vehicle
LoE – line of effort
LoS – line-of-sight
LRS – long-range surveillance
LRTC – long-range training calendar
LTIOV – last time information was of value

M

MCCC – Maneuver Captain’s Career Course
MCoE – Maneuver Center of Excellence
MDMP – military decision-making process
MFS – multi-fuel system
MLR – multiple-launch rocket
MLRS – Multiple-Launch Rocket System
MP – mission proficiency
MQ – mission qualified
MRE – Meal Ready to Eat
MT – master trainer
MTC – movement-to-contact
MTRCS – Multi-Temperature Refrigerated Container System
MTV – medium tactical vehicle

N

NAI – named area of interest
NATO – North Atlantic Treaty Organization
NCO – noncommissioned officer
NCOER – Noncommissioned Officer Evaluation Report
NSRDEC – Natick Soldier Research, Development and Engineering Center
NTC – National Training Center

O

O/C/T – observer/coach/trainer
OEF – Operation Enduring Freedom
OER – Officer Evaluation Report
OIC – officer in charge
OIR – Operation Inherent Resolve
OP – observation post
Opfor – opposing forces

P

PB – property book
PBUSE – Property Book Unit Supply Enhanced
PDDA – power-driven decontamina-

tion apparatus

PFE – proficiency flight evaluation

PIR – priority intelligence requirement

PIR – parachute infantry regiment

PLF – parachute landing fall

PLS – Palletized Load System

PMCS – preventive maintenance checks and services

PT – physical training

Q

QTG – quarterly training guidance

R

RAM – random-access memory

ROZ – restricted operating zone

RSO – range-safety officer

S

SARJE – static-line control, activation

of the reserve parachute onboard the aircraft, red-light procedures, jump refusals and exiting procedures

SAT – sustained airborne training

SC – single channel

SCO – Cavalry squadron commander

S/I – sensitive item

SINGARS – Single-Channel Ground and Airborne Radio System

SIPR – Secure Internet Protocol Router

SLC – Senior Leader’s Course

SMFT – semi-trailer mounted fabric tank

SOI – signal operating instructions

SOP – standard operating procedures

SRTC – short-range training calendar

SSA – supply-support activity

SVoIP – Secure Voice of Internet Protocol

T

TAC – tactical command post

TAI – target area of interest

TAMIS – Total Ammunition Management Information System

TI – Tactical Internet

TOC – tactical-operations center

TPU – tank and pump unit

TTP – tactics, techniques and procedures

U

UAS – unmanned aircraft system

UBL – unit basic load

UGR – unitized group ration

UAS – unmanned aerial system

W

Warno – warning order

14TH CAVALRY REGIMENT



The distinctive unit insignia was originally approved for 14th Cavalry Regiment April 30, 1940. It was redesignated for 14th Armored Cavalry Regiment April 6, 1949. It was redesignated with the description updated for 14th Cavalry Regiment Aug. 28, 2000. The insignia was amended to correct the description Jan. 7, 2004. The shield is yellow for cavalry, the bend is in the color of the uniform worn at the time of the regiment's formation in 1901. The kris is for Moro campaigns and the rattlesnake for service on the Mexican border.

