The Return of Cavalry: A Multi-Domain Battle Study

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The U.S. Cavalry has enjoyed a long history as both an enabling and decisive tactical force during American landpower campaigns. From its earliest manifestations in 1775 to its incorporation into the modernized Armor Branch in 1950, the Army's primary mounted arm employed mobility, firepower and eventually protection to aggressively shape conditions across the battlefield's breadth and depth while providing distinct advantages to the larger combined-arms force.

This record of evolving contributions, which ranged from dedicated reconnaissance-and-security (R&S) efforts in World War II to more generalized roles during recent counterinsurgency (COIN) campaigns in Southwest and Central Asia, has once again found the "spurs and Stetsons" community at a doctrinal, material and organizational crossroads.¹

The tradition's newest inflection point centers on the unique service that lethal, mobile and survivable cavalry forces can potentially contribute to the Army's emerging multi-domain battle concept. As argued by GEN David Perkins, 15th commander of U.S. Army Training and Doctrine Command (TRADOC), it requires "flexible and resilient ground formations that project combat power from land into other domains to enable joint-force freedom of action."² In contrast to recent conflicts where scouts and tankers typically fought as general-purpose Soldiers, this emerging paradigm – which leverages emergent technologies to shape "deep fights" with cross-domain effects – offers opportunity for fast-moving armored forces, and cavalry in particular, to assume critical roles in dislocating and disintegrating enemy networks. This advance holds potential to expand the purpose and identity of the Armor Branch.

Context and background

The Army's return to focusing on peer competition finds its mounted-maneuver proponent recovering from a diminishment of perceived value after years of optimization for stability operations in Iraq and Afghanistan. While the Armor Branch, and its cavalry subset, strained to reconcile urgent COIN demands and traditional doctrinal mandates, the broader institution seemed to place increasingly less import in formations designed to conduct forceful R&S. This perceived loss of stature was reflected in intellectual questioning of the need for cavalry, observations of diminished enthusiasm for joining the branch at West Point, degradation of skills and identity, and the simultaneous loss of corps- and division-level cavalries in favor of less-capable squadrons assigned to brigade combat teams (BCTs).³

The decision to create less-resourced humvee, Stryker and armored-cavalry squadrons with a relatively anemic allocation of mechanized platforms stemmed from the Army's embrace of BCT modularity. The transformation aimed to empower economized reconnaissance, surveillance and target acquisition with emerging technologies by shifting emphasis from aggressively fighting for information to attaining situational awareness through stealthy observation.⁴ As assessed by a 2014 Maneuver Center of Excellence (MCoE) study, the resulting composition – bereft of the organic tanks and rotary wing of the legacy armored-cavalry regiments (ACR) and division-cavalry squadrons (DIVCAV) – "left the force structure without an organization that possessed the organic assets, doctrinal underpinning and specialized training to execute the broad range of traditional cavalry missions."⁵

This perceived relegation of cavalry functions, at least in terms of resources, inflicted subtle identity confusion on the "combat arm of decision" as a generation of leaders predominantly gained combat experience in stability operations. The ambiguity was further clouded as the Army eliminated tank-pure battalions, moved the Armor Center to the "home of the infantry" and reorganized its final deployable ACR as a Stryker BCT. Simultaneously, infantry leaders increasingly assumed command of cavalry squadrons and troops populated by 19-series Soldiers, while Armor officers at the U.S. Military Academy reported, albeit anecdotally, the dilution of the branch's "brand" when cadets struggled to understand its distinctive history, functions and purpose.⁶

A third area of institutional concern centered on the predictable diminishment of tactical and technical acumen among officers and noncommissioned officers (NCOs) in both combined-arms battalions and cavalry squadrons as they trained for COIN. As argued by then-BG Scott McKean, who served as Chief of Armor from 2014 to 2016, observed trends from combat training centers demonstrated "a significant degradation in our knowledge and abilities to conduct [R&S] operations."⁷ This included a loss of stabilized gunnery expertise, degradation of maintenance competence, atrophy of information-collection skills and diminished familiarity with time-honored ceremonies and customs for many leaders.

Despite these setbacks, the American cavalry force has begun to regain its distinctive relevancy within the broader institution in recent years. In 2016, the armored squadrons replaced their humvees with more M3 Cavalry Fighting Vehicles (CFVs) and gained a tank company to allow increased lethality and survivability. Simultaneously, the squadrons of the Stryker BCTs assumed training responsibility for their brigade's anti-tank and Mobile Gun System (MGS) companies, thereby uniting heavier firepower and wheeled scouts. This focus on empowering R&S operations – often reflecting increased integration of cyber-electronic, unmanned surveillance and informational technologies – indicates a growing appreciation by senior Army leaders for the dynamic role cavalry will perform in future campaigns.⁸

The squadrons of the infantry BCTs, though optimized with motorized scouts and light infantry to facilitate tactical and strategic mobility, have continuing challenges resulting from modularity. As assessed by the 2014 MCoE study, they "lack the passenger-carrying capacity, protection and mobility required for [R&S] operations" while maneuvering with a dearth of "organic mobile, protected firepower."⁹ Comprising most of the cavalry force at about 59 percent, the lighter squadrons' modest vehicle density and logistical requirements conflict with the doctrines of select parent divisions that emphasize dynamic aerial movement across extended distances and restrictive terrain.¹⁰

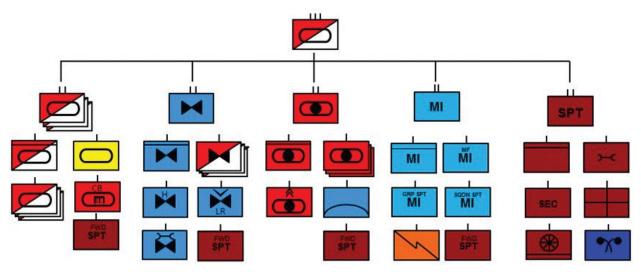


Figure 1. Example R&S force.

Despite recent improvements, the Army's cavalry formations still lack the robust combined-arms capabilities once enjoyed by ACRs and DIVCAVs. The possession of organic scout or attack rotary wing, in particular, has historically delineated R&S capabilities at tactical and operational levels. Without the air-ground maneuver profile of their predecessors, the current squadrons, regardless of increased CFV, Abrams or MGS densities, remain limited in capacity to aggressively and independently fight for information. While the integration of emergent technologies is creating new possibilities, these issues will inform the current cavalry force's ability to support multi-domain operations with enhanced speed and lethality across expanded frontages and distances.¹¹

Multi-domain battle

The Army's renewed focus on defeating peer-adversary complex defenses, even as it innovates to expand the aging 2nd Offset into 21st Century warfare, emphasizes land corps and division "deep fights" designed to create advantageous conditions. By incorporating simultaneity, depth, synchronization and flexibility, as argued by Army Doctrine Publication (ADP) 3-0, *Operations*, "commanders seek to seize, retain and exploit the initiative while

synchronizing their actions to achieve the best effects possible."¹² Since the institution now possesses a historically low quantity of maneuver brigades to attain offensive mass or endure unanticipated attrition, it has become increasingly vital for advance ground elements to integrate indirect, aerial, cyber, electromagnetic and informational fires to dynamically shape battlefield outcomes.

While all Army tactical forces boast degrees of operational reach and tactical agility, cavalry formations – both wheeled and mechanized – are ideal elements to host, integrate and synchronize joint fires while sustaining high-tempo movement. Even as airborne, air-assault and attack-aviation entry becomes problematic due to improving enemy area-denial (AD) capabilities, ground penetration by fast-moving, lethal and survivable formations holds potential to exploit kinetic and electromagnetic joint capabilities to dislocate enemy defenses. While cavalry will always conduct traditional R&S missions, the emerging paradigm offers opportunities to lead integration of multifaceted fires and deep-strike actions.

This revitalized approach, which incorporates insights from past campaigns of scale and depth, requires the Army to examine its current brigade-centric cavalry structure. As argued by LTG H.R. McMaster, who commanded 3rd ACR in Iraq in 2005, "trends in armed conflict that include all domains contested, increased lethality and range of weapons, complex and urban terrain, and degraded operations all argue for increasing importance of [R&S] capabilities at all echelons."¹³ In the context of multi-domain battle, this means that current divisions and corps lacks optimal elements to enable and exploit diverse joint fires during forceful and wide-ranging "recon-strike" – sensor-to-shooter tactics that synchronize collection and fires networks – throughout contested domains and spaces.¹⁴

The Army has a variety of options to create specialized means and doctrine to defeat complex defenses. While combined-arms battalions and cavalry squadrons in BCTs remain indispensable for enabling success in "close fights," the emerging R&S brigade excursion – where select BCTs temporarily train to conduct historical ACR missions – provides an immediate, if inefficient, option for enabling corps-level forced entry. Alternatively, divisions could create large air-ground task forces with the ability to execute dispersed maneuver from across subordinate brigades. A more optimal solution would be, as proposed by the Commission on the Future of the Army, to form R&S strike groups (RSSGs), specifically designed with enhanced ground, aerial and intelligence capabilities to enable echeloned joint efforts.¹⁵

The establishment of larger and more effective cavalry formations to execute reconnaissance, security and strike options for corps and theater armies would allow the Army to better contribute to joint campaigns. As suggested by retired LTG David Barno in his 2015 report, "The Future of the Army," reimagining the capabilities of legacy ACRs, even if only through doctrinal solutions, "would give division and corps commanders a scalable formation" with the necessary mobility, protection and firepower to conduct "screening and guard missions, as well as a myriad of long-range independent operations in support of other maneuver units."¹⁶ This capability would ultimately allow rapid bridging of air and land component efforts as cavalry teams maximize cross-domain fires.

The adoption of a focused recon-security-strike doctrine and philosophy in a joint context would also offer broader benefits across the full range of military operations. Units with enhanced mobility, lethality, protection and tailored technological packages have historically provided valuable economy-of-force options to corps and theater commands in diverse settings. While 11th ACR proved its value during distributed-security operations in Vietnam when they employed superior operational reach and firepower to overmatch Viet Cong opponents, the American constabulary regiments that patrolled West Germany following World War II demonstrated similar benefit when their mechanized presence ensured relative peace during a period of precarious political transition.¹⁷

A final benefit of modernizing cavalry contributions would include allowing the Army to better contribute to national strategic deterrence. By providing regional combatant commands with forces optimized to reconnoiter over distance while leading the tactical synchronization of cross-domain fires — similar to Operation Atlantic Resolve but with teams specifically designed to collect information and strike AD networks – the institution would fulfil its doctrinal imperative to "prevent conflict and shape security environments."¹⁸ Reminiscent of the services performed by ACRs along the Iron Curtain during the Cold War, forward-positioned R&S brigades, RSSGs or comparable task forces in places like Eastern Europe would reassure allies and deter adversaries by amplifying operational simultaneity, depth, synchronization and flexibility in unified land operations (ULO).

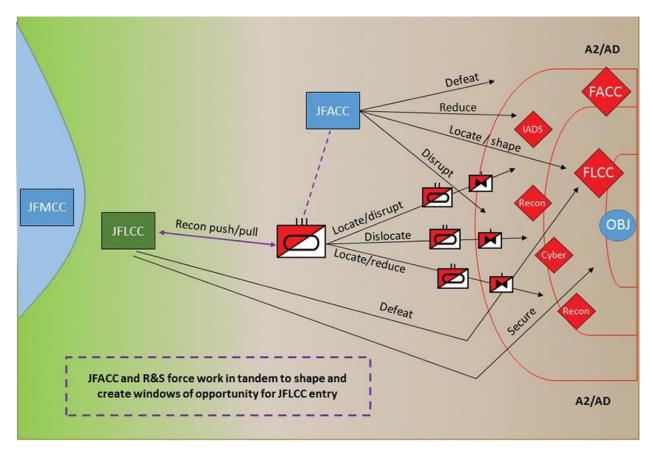


Figure 2. R&S support to joint-force entry.

Branch identity

The Army's embrace of multi-domain battle offers further opportunity for Armor Branch, and its cavalry subset, to modernize the internal perceptions, external expectations and joint implications of its organizational identity. The U.S. military's shift in emphasis toward achieving more rapid and decisive "windows" of advantage across enemy disruption and security zones, while providing early access for key enablers, creates the need for agile and survivable ground partners. Armor and Cavalry leaders, with organizational culture and material expertise suited for dispersed maneuver, serve as ideal hosts to maximize cross-domain efforts during joint operations.¹⁹

Since, as argued by LTG McMaster, the Army's "competitive advantage doesn't come from a single branch or single technological capability" but instead emanates from the "ability to employ a broad range of technologies and capabilities in combination with each other."²⁰ Therefore, the Armor community should continue to lead integration of both traditional and emerging cross-domain fire and maneuver; this demands capitalizing on emergent requirements for ground elements able to combine reconnaissance, security and strike capability across expanded theater depth in the face of complex AD networks. The "rebranding" would subtly shift the traditional "jack of all trades" mentality of scouts to "cross-domain leaders" as cavalry forces position to allow joint forces to dislocate and degrade adversary capabilities.

While the Armor Branch will always retain its singular status as the Army's proponent for mounted maneuver, expansion of its identity within a multi-domain context can broaden its "combat arm of decision" moniker to include a greater range of decisive impacts. This would imply that scouts and tankers bring not only unmatched direct-fire lethality but also the destruction of diverse joint fires – kinetic, cyber, electronic, informational – as only mounted forces capable of high-tempo warfare can reliably enable. While all Army communities contribute distinctive capabilities, Armor, with responsibility to dominate R&S, owns the imperative to shape "deep fights" for joint force commands.

This broadening of organizational emphasis holds implications for how the mounted-maneuver community, and the Army writ large, should perceive Armor and Cavalry leaders at various stages of development. Beginning with company-grades, the traditional mandate, as described by LTG Sean MacFarland, that armored forces be "led by officers and NCOs who are properly trained and qualitied to operate at high speeds across large distances" could be joined with unique expertise to coordinate and apply cross-domain fires from a panoply of 21st Century enablers.²¹ While all tactical leaders must attain combined-arms proficiency, 19-series officers and NCOs who operate early, independently and forward in cavalry troops and tank companies are natural candidates to integrate the joint armament.

Commanders and staffs, according to Army reconnaissance doctrine, "manage assets by cueing, mixing and redundant employment" of systems to "collect the most critical information with multiple perspectives."²² Armor-Branch field-grade officers and senior NCOs in mechanized and motorized squadrons, as well as echeloned headquarters, must accordingly exercise superior competency in planning and leading the tactical application of cross-domain fires. As premier managers of diverse enablers during ULO, 19-series majors, lieutenant colonels and sergeants major offer the depth and breadth of expertise for empowering maneuver with both traditional and newer technologies. This tactical acumen makes them indispensable contributors to any command.

If Armor and Cavalry Soldiers are masters of integrating cross-domain efforts, those who rise to colonel and command sergeant major have internalized the ability to negotiate the broader complexities of multi-domain battle. The mounted-maneuver community's focus on planning, facilitating and leading diverse teams with tailored task-organization creates team-builders with aptitude for complex problem-solving and strategic decision-making. Following the examples of iconic leaders like GEN George Patton and GEN Creighton Abrams, senior Armor leaders, after decades of attaining comfort leading dispersed and mobile formations across distance, provide the joint force with adaptive and agile practitioners.²³

Company-grade officers and NCOs



Expertise in coordination and application of cross-domain fires in tactical operations from diverse enablers. (Electronic warfare, intelligence, cyber, SOF, joint)

Field-grade commanders and staffs



Expertise in planning and leading the tactical integration of crossdomain fires and maneuver. The premier synchronizers of diverse enablers during joint/combined operations.

Senior Armor and Cavalry leaders



Expert managers of cross-domain fires in ULO. Leaders with depth and breadth expertise for empowering maneuver with both traditional and newer technologies.

Institutional requirement:

Focused training in the professional military education of all Armor and Cavalry leaders to integrate combined-arms maneuver and R&S operations with cross-domain fires from a diverse set of enablers (electronic warfare, intel, cyber, SOF and joint).

Figure 3. A continuum of expertise.

Maximizing this branch-wide "brand" of cross and multi-domain expertise requires focused training in the professional military education of all tankers and scouts. As argued by BG John Kolasheski, 50th Chief of Armor, the Armor School has long served as the "institution of choice for developing agile and adaptive leaders" that can "operate in any environment" and "are capable of integrating combined arms."²⁴ As the U.S. military anticipates engagement in increasingly complex settings, the continuous integration of newer technologies to complement traditional enablers in decisive-action training programs will ensure that 19-series Soldiers, from private to colonel, are prepared to maximize the potential of maneuver and fires to shape future operating environments.

Emerging horizons

GEN Mark Milley, 39th Chief of Staff of the Army, recently warned that "land-based forces now are going to have to penetrate denied areas for the rest of the joint force" while having the capability to "operate in all domains simultaneously."²⁵ Armored forces, when maneuvering as combined-arms teams, have the potential to adopt more decisive roles in multi-domain battle efforts as they enable rapid forced-entry across contested battlefields. While all Army branches and warfighting functions contribute critical capabilities, task-organized cavalry formations offer a unique combination of mobility, protection and firepower to dislocate and disintegrate sophisticated enemy defenses through reconnaissance and strike actions.

Continuing advancements in emerging technologies will only increase the intensity of 21st Century conflict as the United States designs new doctrines and structures to combat emergent threats. The Armor Branch, and its cavalry subset, will assume increasingly prominent roles in facilitating offensive campaigns of scale by dispersed joint task forces. Eventually, this may include increased incorporation of ground and aerial drones, robotic armored proxies, emergent swarm tactics and unprecedented cyber-electronic devastation as scouts and tankers unleash cross-domain fires.²⁶ If the COIN wars in Iraq and Afghanistan seemed to marginalize the cavalry tradition, the complexity, tempo and depth of the multi-domain battlefield may demand its return to prominence.

(Editor's note: Questions about this article may be sent to MAJ Nathan Jennings, lead writer and point of contact, at nathan.a.jennings2.mil@mail.mil.)

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Notes

¹Dr. Robert S. Cameron, *To Fight or Not to Fight*, Fort Leavenworth: Combat Studies Institute Press, 2010.

² GEN David Perkins, "Multi-Domain Battle: Joint Combined-Arms Concept for the 21st Century," **ARMY** magazine, December 2016.

³ For a critique of cavalry relevance, see Vincent Thomas, "A Dying Breed: The United States Cavalry in Today's Army," published by SAMS, Fort Leavenworth, 2013; for a critique of BCT cavalry resourcing, see Todd Poindexter, "Transforming Mechanized Reconnaissance: How the Armored Brigade Combat Team Cavalry Squadron should be Structured for [R&S] Operations in the Near Future," SAMS, 2014.

⁴ Cameron.

⁵ Whitepaper, "Cavalry Squadron Capability Review," MCoE, April 17, 2014.

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

⁷ BG Scott McKean, "Redefining and Relearning the Role of the Cavalry Squadron," *ARMOR*, July-September 2015.

⁸ Leah Kilpatrick, "Cavalry brigade combat team assumes new design, transition nearly complete," Army News Service, Feb. 17, 2016.

⁹ "Cavalry Squadron Capability Review" whitepaper.

¹⁰ Force Management System Website, U.S. Force Management Support Agency.

¹¹ Cameron.

¹² ADP 3-0, *Operations*, Washington, DC: Government Printing Office, August 2009.

¹³ LTG H.R. McMaster, correspondence with MAJ Nathan Jennings, Nov. 5, 2016.

¹⁴ Barry Watts, "The Evolution of Precision Strike," Center for Strategic and Budgetary Assessments, 2013; Ian Easton, "China's Evolving Reconnaissance-Strike Capabilities," The Japan Institute of International Affairs, 2014.

¹⁵ National Commission on the Future of the Army, Jan. 28, 2016.

¹⁶ Retired LTG David Barno and Nora Bensahel, "The Future of the Army: Today, Tomorrow and the Day after Tomorrow," Atlantic Council, Brent Scowcroft Center on International Security, September 2015.

¹⁷ GEN Donn Starry, *Mounted Combat in Vietnam*, Washington, DC: Department of the Army, 1978; Cameron.

¹⁸ TRADOC Pamphlet 525-3-1, *The U.S. Army Operating Concept: Win in a Complex World*, October 2014.

¹⁹GEN Perkins.

²⁰ LTG McMaster, 2015 Maneuver Warfighter Conference, Fort Benning, Sept. 15-17, 2015.

²¹ LTG Sean MacFarland, 2015 Maneuver Warfighter Conference, Fort Benning, Sept. 15-17, 2015.

²² Field Manual 3-98 Reconnaissance and Security Operations, Washington, DC: Government Printing Office, July 2015.

²³ Lisa Alley, "U.S. Army Observes 75th Anniversary of Armored Force," ARMOR, July-September 2015.

²⁴ BG John Kolasheski, "Chief of Armor Hatch: Applying Lessons-Learned," ARMOR, July-September 2016.

²⁵ GEN Mark Milley, quoted in "Army \$40B Short on Modernization vs. Russia, China: CSA Milley," *Breaking Defense*, Oct. 3, 2016; also quoted in "Miserable, Disobedient and Victorious: GEN Milley's Future U.S. Soldier," *Breaking Defense*, Oct. 5, 2016.

²⁶ Tim Baxter and Tom von Eschenbach, "Manned-Unmanned Teaming," *Ground Combat Technology*, April 24, 2014; John Arguilla and David Ronfeldt, "Swarming and the Future of Conflict," RAND National Defense Research Institute.

Acronym Quick-Scan

A2/AD - anti-access/area denial **ABCT** – armored brigade combat team ACR - armored-cavalry regiment ADP - Army doctrinal publication AOBC – Armor Officer Basic Course BCT - brigade combat team CFV – Cavalry Fighting Vehicle CGSC - Command and General Staff College CLC – Cavalry Leader's Course **COIN** – counterinsurgency DIVCAV - division cavalry IADS – Integrated Air Defense System JFACC – Joint Forces Air Component Command JFLCC – Joint Forces Land Component Command JFMCC – Joint Forces Maritime Component Command MCCC - Maneuver Captain's Career Course MCoE – Maneuver Center of Excellence MGS – Mobile Gun System MI – military intelligence NCO – noncommissioned officer OBJ - objective RSSG - reconnaissance and security strike group R&S - reconnaissance and security SAMS - School of Advanced Military Studies **SOF** – Special Operations Forces SPT - support TRADOC - U.S. Army Training and Doctrine Command ULO - unified land operations