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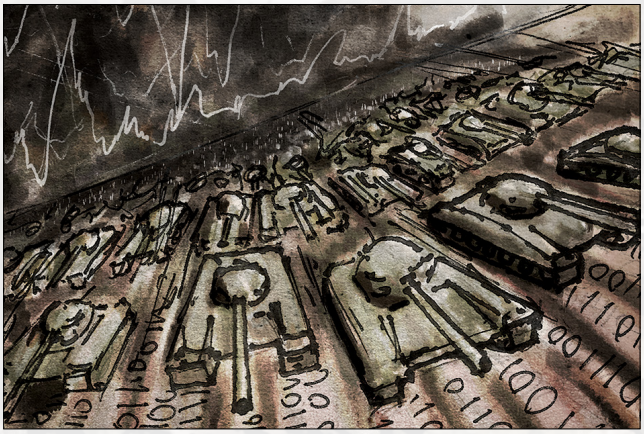

Cover photo: An artist's depiction of today's frenetic resurgence in preparation among great powers and their allies for waging large-scale combat operations against the backdrop of ominous technological developments in areas such as cyber warfare, artificial intelligence, and other as yet not fully developed avant-garde weaponry. (Illustration by Dale E. Cordes, Army University Press contractor)

Next page: Staff Sgt. Tyler Hall spots targets as two soldiers fire an M2 machine gun 5 December 2019 during a live-fire qualification at Joint Base Elmendorf-Richardson, Alaska. (Photo by Justin Connaher, U.S. Air Force)

2020 General William E. DePuy

Special Topics Writing Competition

This year's theme: "Finding the enemy in 2035—What technological, doctrinal, organizational, or other advances or changes must we make to find our adversaries on the battlefield of the future?"

Articles will be comparatively judged by a panel of senior Army leaders on how well they have clearly identified issues requiring solutions relevant to the Army in general or to a significant portion of the Army; how effectively detailed and feasible the solutions to the identified problem are; and the level of writing excellence achieved. Writing must be logically developed and well organized, demonstrate professional-level grammar and usage, provide original insights, and be thoroughly researched as manifest in pertinent sources.

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For information on how to submit an entry, please visit https://www.armyupress.army.mil/DePuy-Writing-Competition/.

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Suggested Themes and Topics

Large-Scale Combat Operations

- How do we foster deep institutional focus on large-scale combat operations (LSCO)?
- What is the relationship between multi-domain operations and mission command in LSCO? How can they be integrated and synchronized?
- What specific impacts on the Army's renewed emphasis on LSCO training, readiness, and doctrine are to be expected? How does one measure the effectiveness of adjustments in those areas?
- First strike: discuss how hypersonic weapons and other means would be employed by Russia to neutralize/devastate U.S. capabilities in the first stage of a conflict.
- Hypersonic weapons: What is the real threat? How do we defend against them? How do we use them?
- Specifically, what new kinetic threats can we expect to see in LSCO? How do we defend against them? How do we use them?
- How do we survive in hyperlethal engagements where "if you can see it, you can kill it; if you can be seen, you can be killed" (including attacks using weapons of mass destruction)?
- How does one perceive and seize fleeting opportunities in LSCO? What examples are there of fleeting opportunities and temporary advantages that were exploited? Are there repeating characteristics of such events to guide cultivation of future perception training?
- How do we offset "one-off" dependencies and contested domains?
- How do we continually present multiple dilemmas to a peer enemy?
- What must be done to adjust junior leader development to succeed in a modern operational environment?
- What changes are required to the professional development models for officers and noncommissioned officers?
- What logistical challenges are foreseen in LSCO due to infrastructure limitations in potential foreign areas of operation and how can we mitigate them?
- Regarding sustainment and mobilization for LSCO, how should the industrial base change to support LSCO? How does the Army communicate its requirements to industry?
- What rapid training and mobilization is required for COMPO2 and COMPO3 units to "join the fight" and meet deployment requirements?
- Brigade combat teams have the training centers, division headquarters have warfighters, and sustainment brigades sometimes rotate smaller elements to training centers, but how does a division exercise the sustainment function on a large scale?

General Topics

- What training gaps is the U.S. Army facing (e.g., mechanic training, talent management, and retention; large-scale casualty training [medical and G1 functions], etc.)?
- Is there a capability gap in air defense and rocket artillery at lower echelons? Do we need to become a more artillery- and air-defense-centric army?
- Do we need to increase security cooperation exercises in Europe or the Middle East?
- What lessons have we learned from National Guard, Army Reserve, and interagency responses to natural disasters in California or the recent hurricanes?
- How does China's "New Silk Road" initiative compare with the pre-WWII Japanese "Greater East Asia Co-Prosperity Sphere?"
- Is Russian doctrine changing regarding use of humanitarian assistance as a weapon?
- What are the security threats, concerns, and events resulting from illegal immigration/refugee movements globally?
- What is the role for the Army in homeland security operations especially along our borders? What must the Army be prepared to do in support of internal security?

A cavalry scout assigned to 1st Squadron, 108th Cavalry Regiment, 48th Infantry Brigade Combat Team, provides security 30 April 2019 during a key leader engagement with military and government officials in Parwan Province, Afghanistan. (Photo by Sgt. Jordan Trent, U.S. Army)

Field Manual 4-0

Driving Sustainment Change

Lt. Gen. Michael D. Lundy, U.S. Army
Maj. Gen. Rodney D. Fogg, U.S. Army
Col. Richard D. Creed Jr., U.S. Army
Lt. Col. William C. Latham Jr., U.S. Army, Retired

Armies that do not adapt to the changing circumstances of their operational environments often suffer serious consequences in the next war their country requires them to fight. The U.S. Army has been no different throughout its history, particularly when it neglected to ensure it had capabilities essential for large-scale ground combat against peer threats like those it faced in the two world wars and Korea. Preparing for large-scale ground combat, and ensuring that adversaries understand that the United States is prepared for that scale of conflict, is essential for the kind of conventional

deterrence that helped ensure the Cold War stayed cold in Europe and the armistice held for more than sixty years in Korea.

The recognition that great-power competition defines the current operational environment brings with it the realization that the U.S. Army needs to adapt once again if it is going to be prepared enough to deter adversaries willing to risk conventional conflict in an increasingly multipolar world. Effective adaptation requires change based upon a realistic view of ourselves and the threats as they are, not how we want them to be. Understanding what the Army needs to be able to do if it is going to prevail in large-scale ground combat is the first step. The next step is ensuring that the Army has the doctrine necessary to defeat the threats it faces. Without adequate doctrine, the Army cannot adapt its organizations, training, and priorities in the most effective fashion that available resources allow.

> “Doctrine establishes the logical foundation for the adjustments that the Army makes, providing leaders at every echelon with a common frame of reference and language.”

Doctrine establishes the logical foundation for the adjustments that the Army makes, providing leaders at every echelon with a common frame of reference and language. Doctrine allows leaders to describe and visualize their roles and responsibilities while preparing to accomplish missions and win the wars they are asked to fight.[1] In the U.S. Army, doctrine drives change.

Doctrine-driven change has been happening for a while, and it is gaining momentum. The October 2017 publication of Field Manual (FM) 3-0, *Operations*, initiated the changes in readiness focus that are reverberating throughout the Army. It describes the Army's strategic roles, how the Army will execute unified land operations in a combatant commander's area of responsibility, and how it would conduct large-scale combat operations (LSCO) against peer threats. It emphasizes the roles of corps and divisions during LSCO while providing fundamental tactics for the conduct of offensive and defensive operations in a highly contested multi-domain operational environment. FM 3-0 codifies a dramatic shift in the Army's focus toward its responsibilities during great-power competition and conflict, requiring senior leaders to reexamine current Army capabilities and adjust supporting tactics, techniques, and procedures to meet the challenge of preparing for and conducting LSCO.[2]

The publication of FM 3-0, with its emphasis on the Army's strategic roles and focus on preparation for and execution of LSCO, required an in-depth review of sustainment doctrine to determine what was missing or needed to be added to support the conduct of operations during great-power competition and conflict. FM 4-0, *Sustainment Operations*, released in July 2019, was the first result of that analysis. It provides the doctrinal framework for synchronizing Army sustainment with the combined-arms approach to large-scale ground combat in a multi-domain environment described in FM 3-0. FM 4-0 provides the blueprint to support necessary changes in sustainment organizations, training, leader development, materiel development, and downtrace sustainment doctrine. It specifically articulates how the U.S. Army must organize, train, and deploy sustainment formations at each echelon to provide commanders with the freedom of action, operational reach, and prolonged endurance required to fight and win during LSCO.[3]

The Enduring Necessity of Change

Armies that do not rapidly adapt and pace the changes in the operational environment quickly become irrelevant. Beginning soon after the invasion of

Equipment of the 3rd Armored Brigade Combat Team, 4th Infantry Division, arrives 27 February 2019 at Shuaiba Port, Kuwait, for the unit's rotation in support of Operation Spartan Shield. (Photo by Staff Sgt. Veronica McNabb, U.S. Army National Guard)

Soldiers in the 1st Cavalry Division Sustainment Brigade's combined operations and intelligence center process current operations updates during Warfighter Exercise 18-05 at Fort Hood, Texas. (Photo courtesy of the U.S. Army)

Iraq in 2003, the U.S. Army adapted to the emerging challenge of counterterrorism, stability, and counterinsurgency (COIN) operations. Shifting our priorities from the large-scale ground combat focus central to AirLand Battle and the full-spectrum operations described in the 2001 FM 3-0 to limited contingency operations (COIN, counterterrorism, and stability) was both logical and prudent given the scale and scope of Army commitments in both Afghanistan and Iraq. However, the almost myopic focus over the decade that followed swung the Army's adaptation too far, resulting in a force that was optimized for COIN and stability missions instead of the full range of military operations. The characteristics of COIN operations differ greatly from those of large-scale ground combat operations for which the Army sustainment organizations of the time were originally designed. In the U.S. Central Command area of responsibility, Army sustainers provided centralized support from fixed forward operating bases while relying heavily on contractors for construction, commodities, and a wide array of services.[4] Army formations rarely engaged in prolonged direct combat against their lightly armed adversaries, and they were distributed across wide areas to secure populations and key infrastructure. The mission's duration and complexity required a steady flow of ground units into and out of theater. To meet this high deployment tempo and adapt to the demands of COIN, the Army changed its doctrine, its training, and its organizational structure.[5] The organizational changes that were part of the modular transformation process had a particularly heavy impact on sustainment doctrine, capacity, and capability.

The new, modularized force gave more flexibility to brigade combat team commanders while generating a host of new challenges for Army sustainers. The requirement to support multiple, geographically dispersed brigade- and battalion-sized formations caused the Army to heavily revise its capstone sustainment doctrine. In 2009, U.S. Army Training and

Doctrine Command (TRADOC) published FM 4-0, *Sustainment*. It described independent human resource operations, integrated financial management and resource management capabilities, modularized Army Health System support, and changed distribution and materiel management at echelons above brigade. These innovations enabled deployment of hundreds of units and thousands of soldiers into and out of the U.S. Central Command area of responsibility while providing continuous, exceptional support to a myriad of complex operations throughout the region.[6]

The changes were appropriate for the missions in Afghanistan, Iraq, and other similarly limited contingencies. However, the Army's renewed focus on large-scale combat against peer threats, where the joint force is contested in all domains, reflected a realization that the near-term operational environment was likely to generate very different requirements for the Army than the ones of the previous decade. Starting in 2016, TRADOC began some significant doctrinal changes to support the focus on LSCO. The primary catalyst for change was the reissue of FM 3-0, *Operations*, in October 2017.

Why FM 4-0?

FM 3-0 describes how Army echelon-above-brigade formations, fighting as part of a joint force, support the Army's four strategic roles: to shape operational environments, to prevent conflict, to prevail in large-scale ground combat, and to consolidate gains.

FM 3-0 represents a change to how we think, talk, organize, train, and equip for the next fight, and it requires military professionals from every warfighting function to consider their readiness to prevail in the no-longer-unthinkable possibility of large-scale ground combat against enemies with capabilities that rival our own.[7]

FM 4-0, *Sustainment Operations*, complements this effort by describing how we will meet the massive sustainment demands required to prevail in a LSCO environment that puts a premium on speed, mobility, and redundancy. For example, it describes new force structures and command relationships that provide division and corps commanders with more capacity and endurance. These changes include the shift from single logistics command and control (C2) to maneuver commanders providing C2 over corps-aligned expeditionary sustainment commands and division-aligned sustainment brigades. The Army is redesignating the latter as division sustainment brigades (DSBs) and enhancing its capabilities by adding division sustainment support battalions.[8]

In the LSCO environment, corps and divisions are no longer simply C2 headquarters that require external support. They operate as tactical formations that integrate sustainment as part of a combined-arms approach to warfighting at every echelon. FM 4-0, therefore, clarifies issues concerning the prioritization of support and provides corps and divisions with a senior sustainment commander to execute the concept of support.

FM 4-0 addresses all four elements of the sustainment warfighting function—logistics, financial management, personnel services, and health service

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support—and illustrates these elements arrayed at echelon on a multi-domain battlefield. Division support area graphics, for example, include both the DSB and the human resources company, the financial management support unit, and a number of medical units.[9]

many sustainment challenges that commanders overcame during the Korean War.[11]

At the same time, FM 4-0 is driving the restructuring of Army sustainment formations to support the central warfighting principles established in doctrine.

> Field Manual 4-0 [*Sustainment Operations*] provides the doctrinal basis for prioritizing sustainment capabilities within the Army's modernization strategy, which will give Army formations the equipment necessary to support the demands of large-scale combat operations.

FM 4-0 further reinforces the critical importance of sustainment integration and synchronization within Army formations, as well as with joint and other unified action partners. The speed and violence of LSCO impose unprecedented demands on Army sustainers. In this environment, sustainers must fight for situational awareness when communications are intermittent. They coordinate with neighboring units as well as their senior and subordinate headquarters while anticipating requirements and preparing for rapid transitions. Sustainment rehearsals are a critical aspect of success during LSCO, enabling commanders to synchronize sustainment with other warfighting functions while ensuring that both the maneuver and sustainment plans are clearly understood.[10]

FM 4-0 is driving other changes as well. Sustainment is a fundamental consideration as the Army rewrites training programs and develops tasks, conditions, and standards to prepare the Total Army for LSCO. Sustainment has become central to discussions about operational art and is more explicitly addressed in the keystone doctrinal publications of other warfighting functions. The combat training centers now challenge units with the same threats we anticipate in LSCO, and the Army has reemphasized sustainment in the warfighting tactics, techniques, and procedures in every training and professional military education course from advanced individual training to the Army War College. As an example, TRADOC's Army Strategic Education Program–Command (ASEP-C) incorporates a vignette examining the

The development of new units such as the DSB, division sustainment support battalions, and lettered, organic companies within these formations provide commanders with more sustainment capacity, thus extending the endurance of the division formation during combat operations. The restructuring also increases readiness—instead of deploying piecemeal and fighting as a pickup team, sustainment units will now train, deploy, and fight as organic elements of a larger team.[12]

FM 4-0 provides the doctrinal basis for prioritizing sustainment capabilities within the Army's modernization strategy, which will give Army formations the equipment necessary to support the demands of LSCO. New tactical and bulk fuel distribution systems, for example, significantly expand the Army's ability to distribute Class III at the corps and division levels. New testing and diagnostic equipment will accelerate troubleshooting and reduce repair times. Autonomous and semiautonomous delivery systems will increase transportation capacity to units operating dispersed along multiple axes of advance. Additive manufacturing will reduce wait time by producing critical items, such as medical devices and repair parts, at the point of need. All of these capabilities will significantly increase the speed, responsiveness, and survivability of sustainment units in the next war.[13]

In the meantime, Army doctrine continues to evolve. Having just completed the difficult work of developing capstone doctrine for sustainment, the U.S. Army Combined Arms Support Command and others are rewriting all of the downtrace doctrinal publications

that support it. The publication of FM 4-0 has reshaped how we sustain LSCO at every echelon, as well as how sustainment formations themselves operate and fight. While the Army updates its sustainment doctrine, the Combined Arms Center has begun work on a future update to FM 3-0, which will continue the emphasis on sustainment considerations during LSCO.[14]

Conclusion

Gen. Eric Shinseki reminded audiences that "If you don't like change, you will like irrelevance even less."[15] Today's Army sustainers find themselves in the midst of wholesale changes in how we envision, think, and talk about the next war. Those changes reflect enormous efforts by the thousands of soldiers and civilians across the sustainment enterprise who have shared lessons learned and provided thoughtful analysis. Operationalizing these changes, however, requires Army leaders at every level to read and apply this doctrine within their training and leader development programs. FM 4-0 provides the blueprint. Leaders will make it reality. ■

Notes

1. Army Doctrine Publication 1-01, *Doctrinal Primer* (Washington DC: U.S. Government Publishing Office [GPO], 2019), accessed 25 November 2019, https://armypubs.army.mil/epubs/DR_pubs/DR_a/pdf/web/ARN18138_ADP%201-01%20FINAL%20WEB.pdf.

2. Field Manual (FM) 3-0, *Operations* (Washington, DC: U.S. GPO, 2017), accessed 18 November 2019, https://armypubs.army.mil/epubs/DR_pubs/DR_a/pdf/web/ARN6687_FM%203-0%20C1%20Inc%20FINAL%20WEB.pdf; Michael Lundy and Richard Creed, "The Return of U.S. Army Field Manual 3-0, *Operations*," *Military Review* 97, no. 6 (November-December 2017): 14–21.

3. FM 4-0, *Sustainment Operations* (Washington, DC: U.S. GPO, 2019), accessed 18 November 2019, https://armypubs.army.mil/epubs/DR_pubs/DR_a/pdf/web/ARN19602_FM%204-0%20FINAL%20WEB%20v2.pdf.

4. Adrian Gamez and Matthew A. Price, "Developing Sustainment Leaders for the Future Fight," *Army Sustainment*, 28 February 2017, accessed 18 November 2019, https://www.army.mil/article/182928/developing_sustainment_leaders_for_the_future_fight.

5. Stuart E. Johnson et al., "A Review of the Army's Modular Force Structure" (Santa Monica, CA: RAND Corporation, 2012), accessed 18 November 2019, https://www.rand.org/pubs/technical_reports/TR927-2.html; see also FM 3-24, *Counterinsurgency* (Washington, DC: U.S. Government Printing Office, 2006 [obsolete]); Joel Rayburn and Frank Sobchak, eds., *The U.S. Army in the Iraq War: Volume 2, Surge and Withdrawal, 2007–2011* (Carlisle, PA: U.S. Army War College Press, 2019), 615–18, 622–23, accessed 18 November 2019, https://publications.armywarcollege.edu/pubs/3668.pdf.

6. FM 4-0, *Sustainment* (Washington, DC: U.S. Government Printing Office, 2009 [obsolete]). The Army subsequently revoked this and other field manuals in 2012 and replaced them with a series of Army doctrinal publications.

7. Lundy and Creed, "The Return of U.S. Army Field Manual 3-0, *Operations*," 16.

8. FM 4-0, *Sustainment Operations*, 2-48–2-50.

9. Ibid., fig. 5-7.

10. Ibid., 5-23 and 5-24.

11. *ASEP-C* [Army Strategic Education Program–Command] *Operations Block, a Primer with Professional Readings* (Fort Leavenworth, KS: Combined Arms Center, 11 April 2019).

12. "Operational Concept, Division Sustainment Brigade," Fort Lee, VA, 1 August 2019.

13. "Tactical Fuel Distribution System, Increment II" (draft capability development document, Fort Lee, VA, 28 March 2019); James C. McConville, Memorandum for Commander, U.S. Army Training and Doctrine Command, Army Capabilities Integration Center, "Approval of the Bulk Fuel Distribution System, Capabilities Production Document," 30 November 2017; Annex J (FFME Activities) to U.S. Army Futures Command OPORD 003-19 (Future Force Modernization Enterprise Annual Modernization Guidance 20-25), Austin, TX, 21 June 2019; Army Additive Manufacturing Campaign Plan, Washington, DC, 25 July 2018.

14. Michael Lundy, Richard Creed, and Scott Pence, "Feeding the Forge: Sustaining Large-Scale Combat Operations," Army.mil, accessed 25 November 2019, https://www.army.mil/article/223833/feeding_the_forge_sustaining_large_scale_combat_operations.

15. James Dao and Thom Shanker, "No Longer a Soldier, Shinseki Has a New Mission," *New York Times* (website), A21, 11 November 2009, accessed 18 November 2019, https://www.nytimes.com/2009/11/11/us/politics/11vets.html.

Members of Russian and Syrian forces stand guard near posters of Syrian President Bashar al-Assad and his Russian counterpart President Vladimir Putin 20 August 2018 at the Abu Duhur crossing on the eastern edge of Idlib Province in Syria. Civilians used the crossing to enter regime-held territory from rebel-controlled areas in the province, some of them returning to their villages that were recaptured by the regime forces earlier that year. (Photo by George Ourfalian, Agence France-Presse)

A Logic All Its Own

Russian Operational Art in the Syrian Campaign

Lt. Col. Nicholas Sinclair, U.S. Army

The plan should be based exclusively on reality.
—Alexandr Svechin

Russia's campaign in Syria appears to have succeeded beyond all expectations. At its outset, many in the West thought Russia was "doomed to fail."[1] To the shock of conventional

wisdom, the Russians achieved their strategic objectives at a relatively low cost in just three and a half years. How did the Russians pull this off? The answer lies in the skillful application of operational art. The Russians planned for Syria by using five elements of the Russian military thought process: (1) historic analysis, (2) trends, (3) foresight and forecasting, (4) forms and methods, and (5) correlation of forces and means. This dialectical thought process produced a feasible, realistic plan that achieved their strategic goals of stabilizing Syrian President Bashar al-Assad's regime and boosting its international prestige. The purpose of this article is to describe the unique logic of Russian military thought and deduce how the Russians applied those five elements of their thought process to the Syrian campaign. Understanding this thought process provides clarity to Russian military strategic planning and the execution of military campaigns. The article describes Russian inputs into military thought and examines Syria from a primarily tactical position. The term "operational art" used throughout the article refers to the U.S. military's definition of the term; it provides context and infers that the Syrian experience is part of Russian military systems analysis.[2]

Strategic Objectives and Operational Art

Russia's strategic objectives provide the starting point for understanding its campaign design in Syria. Russia's 2015 *National Security Strategy* lists two specific strategic objectives applicable to Syria—the first is security by "strengthening the country's defense," and the second is focused on international recognition and national dignity by "consolidating the Russian Federation's status as a leading world power, whose actions are aimed at maintaining strategic stability … in a polycentric world."[3]

The first strategic objective, security, is deeply embedded in the minds of Russian leadership. Thomas Wilhelm, director of Fort Leavenworth's Foreign Military Studies Office (FMSO), observed that this national characteristic results in the Russian government favoring a controlled approach to countering chaos.[4] Instability spreading from the color revolutions caused specific concern to Russian leadership, who typically blame the West for instigating uprisings and deliberately leaving chaos in their wake. These uprisings often lead to regional turmoil and foster Islamic fundamentalism, which find support in Russia's Caucasus region. Supporting the Assad regime meant Russia provided stability to the region, which prevented a failed-state scenario like Libya and denied sanctuary for up to five thousand Russian-born Islamic fighters.[5]

National pride is the second strategic goal of Russian intervention in Syria. By keeping the Assad regime in power and stabilizing the country, Russia would be seen as a respected global power that could counter America's disruptive global objectives, creating a "polycentric" world order. Recovering Russian prestige is a consistent theme for Russian President Vladimir Putin. In 2005, he remarked that the fall of the Soviet Union was "the greatest geopolitical catastrophe of the century."[6] This perspective highlights the importance of national pride considering the twentieth century also witnessed both world wars and the tens of millions of people who were brutalized by communism.

These two strategic objectives, security and national pride, serve as the foundation upon which the Russian general staff created its operational art to support the Syrian campaign. Russian planning demands planners make a sober assessment of the underlying situation of the operational environment. In other words, Russians see the potential future battlefield as it is, not how they would like it to be.

Russian strategic thought is steeped in the early twentieth-century deep-battle theorists, particularly Aleksandr Svechin.[7] Svechin argued that historical understanding, realistic goals, and intense preparation for a particular military campaign were required prior to the opening of hostilities.[8] Russian General Staff Chief Valery Gerasimov praised the Soviet theorist's unique approach to understanding the operating environment by quoting him directly, writing: "The outstanding Soviet military scholar A. Svechin wrote: 'It is unusually difficult … to predict a war situation. For each war it is necessary to work out a special line of strategic behavior, each war represents a specific case that requires the establishment of its

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Russian President Vladimir Putin (*left*) toasts with Defence Minister Sergei Shoigu 28 December 2017 at the Kremlin in Moscow after a ceremony to present state awards to military personnel who fought in Syria. (Photo by Kirill Kudryavtsev, Agence France-Presse)

own logic and not the application of some stereotypical pattern.'"[9] Gerasimov's command philosophy was clearly influenced by Svechin when he stated, "Each war is a unique case, demanding the establishment of a particular logic and not the application of some template."[10] Wilhelm observed that Russian military planners want to deal with the uncertainty of war and arrive at a plan that is calculable and consistent.[11] FMSO's model of this process inputs the strategic objectives from the national command authority to produce a plan in accordance with five cognitive building blocks of operational art: historical analysis, trends, foresight and forecasting, forms and methods, and correlation of forces and means (COFM). Analyzing each of these mechanisms produces a foundational understanding for Russia's intervention in Syria.

Historical Analysis

Svechin stressed the importance of historical study, writing, "Isolation from an historical basis is dangerous both for the strategist and the politician."[12] Former Deputy Defense Minister Andrei Kokoshin emphasized this point, writing, "All of Svechin's work is penetrated by the idea of the necessity of the strategist's continuous deliberation on history."[13] Svechin believed that combining the political and military spheres was necessary to develop a comprehensive understanding of the environment. He wrote, "Readers interested in strategy will find more thought-provoking observations in the political history of past wars than in militaries treatises, particularly so-called 'strategic essays.'"[14]

Russian strategic thinkers contextualize events in a political and historical, Russo-centric worldview. George Kennan, an ambassador to the Soviet Union during the Cold War and author of "Sources of Soviet Conduct," advanced the idea that Russia's geographic vulnerabilities and history of violent invasions created a paranoid, zero-sum attitude in the minds of its rulers.[15] Russians place security and stability above all else. This might explain why Russian leaders feel threatened by Western-supported regime change efforts and color revolutions, particularly in countries that were once part of the Soviet Union. Russian leaders see the

Western-backed regime changes in Kosovo, Serbia, Iraq, Libya, and Venezuela as destabilizing efforts contributing to a world of human suffering, which is ultimately oriented toward Moscow itself.

The 1999 U.S.-led Kosovo War deeply impacted Russian thinking about contemporary war. Up to that point, Russia was a reluctant junior member of the U.S.-led peacekeeping force in the Balkans. Russia, still loyal to its Slavic brethren in Serbia, looked after Serbian interests despite Russia's relative military and economic weakness. The rules changed when the United States supported the Islamic Kosovars' breakaway republics with NATO-led airstrikes and without a United Nations mandate. Russia maintained that the United States fomented a populist revolt, which it sponsored under the guise of humanitarian operations, provided military support in the form of weapons and training, controlled the information domain through media dominance, and avoided direct ground force involvement using multinational, joint airstrikes.[16]

Using historical analysis, Russian leaders looked at the civil war raging in Syria and believed it was a foregone conclusion that the Syrian government would collapse without Russian intervention. A humanitarian disaster would likely follow, similar to Iraq and Libya, flooding the region with displaced people and endless internecine conflicts. In their calculation, a successful campaign in Syria, however, would prevent this instability while simultaneously boosting Russia's international prestige and neutralizing America's interests. By coming to the defense of its former client, Russia would both stabilize the region as well as demonstrate to the world that it honors its commitments to its allies.

Russia also saw successful intervention in the region as an opportunity to expand its southern buffer region. Syria is a logical anchor point extending through trading partners, Collective Security Treaty Organization members, and other treaty partners in a loose cooperative effort.[17] If Syria were to fall, Russian leaders reckoned, then Turkey would certainly be at risk, placing the problem at Russia's doorstep. Additionally, impetus for involvement also stemmed in part from reputed ancestral Russian ties to the region that are a combination of folklore and realpolitik. Russia sees itself as the natural inheritor of the Byzantine Empire and its Orthodox Christian religious legacy, very much linked to the Syrian Orthodox Christian Church, which once encompassed the region. Consequently, in a real sense, Russia viewed involvement in Syria to some extent as something of a religious crusade aimed at protecting the Syrian church and the Orthodox culture it fostered. However, from a realist perspective, the prospect of military basing in Syria with easy access to the Mediterranean was viewed as an opportunity to some extent for overcoming the limitations imposed by Russia's harsh geography, which leaves it trapped in icy Arctic ports or behind the Turkish Straits. As a result, part of the impetus for Russian involvement stemmed from anticipated long-term agreements for use of the Khmeimim Air Base and the naval port in Tartus in Syria, which would extend Russia's operational reach into Eastern Mediterranean, southern Europe, and North Africa.

Foresight and Forecasting

With the broad Russian objectives in mind, its Syrian campaign provides valuable insight into the Russian leadership's views regarding the conduct of modern warfare. Doctrinal emphasis on foresight and forecasting describe how the Russian operational artists think about future war given the contemporary contexts. The Russian military defines foresight as "the process of cognition regarding possible changes in military affairs, the determination of the perspectives of its future deployment."[18] In the Soviet-era book *Forecasting in Military Affairs: A Soviet View*, Yu. V. Chuyev and Yu. B. Mikhaylov state that the "aim of forecasting, which establishes what may occur in the future and under what conditions, is to minimize the effect of uncertainties on the results of decisions being undertaken at the present time."[19] In their *Military Thought* article, authors V. V. Kruglov and V. I. Yakupov capture the essential nature of forecasting by writing, "In this day and age, unleashing or getting involved in a conflict without making sure that one will be ultimately victorious or at least get out of it on acceptable terms is something that only shortsighted people or adventurers can risk doing."[20] Foresight and forecasting describe the nature of the conflict.

With regard to Syria, aspects of consideration in the process of conducting foresight consideration and forecasting likely included assessment of the multisided civil war raging within the country. Actors included the Assad regime and supporting militias like Hezbollah, U.S.-backed fighters like the Kurds and the Free Syrian

Army, and Islamic fundamentalist actors like the Islamic State (IS). The Syrian campaign brought the challenge of distance and power projection into consideration. Russian adversaries spanned the spectrum of primitive IS militia forces to highly advanced Western militaries hosting a complement of advanced technological weapons.

The strength of Russian military planning lays in who Russia supports. For example, Russia supported Syria, an established, legitimate, internationally recognized government that enjoyed the support of a plurality of its population. Assad not only enjoyed legitimacy, despite poor press in the West, but he also maintained a standing army and functioning government in the regions he controlled. Thus, Russia supported a suit-wearing, clean-shaven, English-speaking, Western-educated ruler.

Contrast this to the U.S. campaigns in Iraq and Afghanistan that overthrew governments and attempted to nurture Western-style democratic republics in regions violently divorced from the principles of Western civilization. As a result, the United States supported an assortment of militias whose ultimately questionable affiliations with Islamic fundamentalism and destabilizing effects on other Middle Eastern countries, such as Turkey and Iraq, further handicapped America's regional goals.

Trends

Trends are the ways a country achieves a military objective. For instance, eighteenth-century warfare leaned toward small, professional, maneuver armies that relied on depots for support, sparing the civilian countryside. Nineteenth-century warfare trends were mass armies, wars of annihilation, and destruction of the countryside. Trends of early twentieth-century warfare were mechanization and combined-arms warfare. A current trend is commonly referred to in the West as hybrid warfare or new-generation warfare (NGW). Initially, NGW was misinterpreted as a new, unique way of warfare concocted by the Russians. However, Bartles demonstrates that NGW is a term Russian thinkers used to describe indirect and asymmetric Western military methods in the late 1990s and early 2000s.[21] In an article republished by *Military Review*, Gerasimov describes the trends of contemporary war as undeclared, regime-change oriented, nonmilitary in nature, destructive of civilian infrastructure, of short duration, occurring in all physical environments, and characterized by high maneuverability, simultaneity, unified action, and the use of precision-guided munitions.[22] Therefore, Russian trends can be identified as the counteractions to U.S. actions. Since the United States is the perceived instigator of indirect and asymmetric methods, the Russian plan in Syria involved countering what Russia perceived as American hybrid warfare trends. A. A. Bartosh's article in *Military Thought* affirms this line of thinking: "The brilliant operation of joining the Crimea to Russia and the Syrian campaign display the efficiency of Russian nonlinear strategies of countering hybrid warfare."[23]

In Syria, there were five prevailing trends that ran counter to Russian objectives and influenced Russian operational art. The first trend to be countered was regime change. Western leaders assumed the Assad regime would fall. President Barack Obama called for Assad's resignation in August 2011, saying, "For the sake of the Syria people, the time has come for President Assad to step aside."[24] Putin, however, sought to stop the spread of color revolutions by assisting his beleaguered Middle Eastern ally with direct military support in the fall of 2015.[25] In 2018, Russian writer and military expert Ye. O. Savchenko wrote that the "United States failed to achieve its goals in Syria, not less because the state of affairs made a U-turn in the second half of 2015, when Russia started rendering lawful military support to the Syrian government."[26]

The second trend countered by Russia was the influence of nonstate actors. Russians distrust nongovernmental organizations (NGOs), whose operations are seen as clandestine proxies supporting Western aims.[27] The Obama administration spent nearly $10 billion in Syria (much of it funneled through regional NGOs).[28] These NGOs were delegitimized by Russian media and regularly denied access to territory under Syrian control. Savchenko wrote that "the dynamics of fighting in Syria in September-December 2017 suggest that the United States is rendering at least indirect support to the Islamic State terrorist organization."[29]

The third trend Russia countered was an international coalition against Syria. The United States attempted to bring regional allies to its side to strengthen the U.S. position and isolate Assad.[30] Russia thwarted U.S. attempts to receive approval from the United Nations and neutralized U.S. alliances in the region by expanding diplomatic and military partnerships with Turkey, Saudi Arabia, Iraq, and Israel.[31]

A Tu-22M3 long-range bomber from the Russian Aerospace Forces carries out an air strike on Islamic State targets 1 November 2017 near Abu Kamal, Deir ez-Zor Province, Syria, after flying over Iraq and Iran. The aircraft targeted strongholds and ammunition and armament depots of insurgents as Su-30SM fighters (*not shown*) covered the bombers. (Photo courtesy of the Russian Ministry of Defence)

The fourth trend countered by Russia was support to proxy forces. As early as 2012, the Obama administration recognized a coalition of Syrian opposition groups that received military and financial support.[32] As a countermeasure, Russia's first airstrikes in support of the Assad regime were aimed mainly against U.S.-backed rebels.[33]

The fifth and final trend Russia countered was the avoidance of large ground forces. Russia's economy of force operation in Syria relies on sea, air, special forces, and independent contractors, which left the bulk of the ground fighting to the Syrian Arab Army and its Iranian-backed Hezbollah allies.[34] Russia made up for this lack of manpower on the ground with robust command-and-control support. In March 2018, Gerasimov stated, "All troop commanders of military districts, combined arms armies, and Air Force and Air Defense armies, almost all division commanders and more than half of the combined arms brigade and regimental commanders, together with their staffs, have acquired combat experience [in Syria]."[35]

Forms and Methods

Forms are generally thought of as types of organizations (e.g., whole-of-government, multinational, joint), while methods include techniques applied to contemporary weapons and principles of war (e.g., hypersonic weapons, unmanned aircraft systems, electronic warfare [EW], and hybrid warfare).[36] In *Russia Military Strategy: Impacting 21st Century Reform and Geopolitics*, FMSO senior analyst Timothy Thomas wrote that forms and methods "have direct relevance as to how the military takes advantage of war's changing nature, as well as how future war might be conducted."[37] According to prevailing forms and methods, Russians determined what they would send to Syria and how they would fight.

The principal form (organization) Russia sent to Syria was the Russian Aerospace Forces, a combined joint, interagency task force. Although common to the U.S. military, this type of operation is unique for the Russian Federation. The specialized nature of the Russian Aerospace Forces to Russian thinkers is observed by V. A. Kiselyov's passage: "A new element in operational formation for a cross-service battle can eventually be the aerospace strike echelon,

which will help solve the problem of combat support of ground troop groupings' actions from aerospace."[38] The use of joint fires was of particular interest and demanded significant thought for Russian planners. O. V. Sayapin, O. V. Tikhanychev, and N. A. Chernov wrote in a *Military Thought* article, "The analysis of local wars and armed conflicts (LW&AC) practices of the latter half of the 20th-early 21st centuries has demonstrated the enhanced role of the adversary destruction by fire (ADF)." Techniques include reconnaissance and striking and reconnaissance and firing, similar to the U.S. targeting methodology. The form to execute adversary destruction by fire is a cross-service strike and fire-capable reconnaissance system, which the authors admitted was difficult for the joint task force to implement in Syria due to a highly mobile enemy, nonstandard structure, and taking sanctuary in built-up, noncombatant areas.[39]

In a similar fashion, Russian methods appear to embrace their technological prowess by mimicking the U.S.-Kosovo model. Most of Russia's kinetic involvement has been from the sky, either through air or naval forces. Although the results were questionable, the Syrian campaign allowed testing of precision strike weapons to include a volley of rockets from the Caspian Sea as a demonstration of Russian capability.

Special operations forces and mercenary troops are also key components of the Russian military. Their special forces provide on-ground targeting solutions to air and sea assets while the private military companies provide a credible, yet plausibly deniable, Russian land force. Unlike the U.S. contractor groups Blackwater or Triple Canopy that principally provided fixed-site or convoy security, private military companies are equipped as combined-arms task forces and maintain an extensive role in Russia's ground combat.[40]

Russia's use of air defense is an obvious response to Western airpower as Syrian rebels and IS lack any sort of air contingent. Russian air defense systems have the immediate task of not only supporting the Syrian campaign but also serve to extend Russia's anti-access and area denial in a region where the United States has enjoyed air supremacy for the last three decades.[41] Russia's vast EW and cyber networks attack Western systems daily. As stated by Gen. Richard D. Clarke, commander of the U.S. Special Operations Command, "We are operating in the most aggressive EW environment on the planet from our adversaries."[42]

"Unlike the U.S. contractor groups Blackwater or Triple Canopy that principally provided fixed-site or convoy security, private military companies are equipped as combined-arms task forces and maintain an extensive role in Russia's ground combat."

Correlation of Forces and Means

Correlation of forces and means speaks to the scientific and mathematical nature that Russians use to seek certainty and predictability. Although Russians are well aware of the element of chance that accompanies any military endeavor, they reduce as many uncertainties as possible to reach a manageable level of risk. COFM is a subjective/objective approach to measure two or more sides' relative combat power. It takes into account variables such as type of unit, equipment, training, strength, and morale.

Russia's COFM likely took into account Assad's Syrian forces, Hezbollah, U.S.-backed rebel forces, and military contingents from the United States, Turkey, Israel, and Iraq. Russian force composition suggests different missions for different forces. For instance, Russian forces provided airstrikes in support of Syrian/Hezbollah ground forces to defeat U.S.-backed rebel forces and IS but neutralized U.S., Turkish, and Israeli forces with air defense and EW systems. Diplomatically, through the use of foreign military sales, Russia is fracturing the NATO alliance with sales of its S-400 missile defense system to Turkey, a move the United States declared would jeopardize the sales

Russian soldiers on armored vehicles patrol a street on 2 February 2017 in Aleppo, Syria. Russian operational planners ostensibly restricted the requirement for Russian ground forces and focused instead on preparing and supporting Syrian government and Iranian forces for use as the main maneuver and assault forces. Russian involvement in actual combat operations mainly involved aerial bombardment, close air support, transportation, and indirect fires from ground and naval elements, in addition to providing communications and logistical support. (Photo by Omar Sanadiki, Reuters)

of the fifth generation F-35 fighter jets.[43] Russia countered the United States by offering Turkey its own fifth generation fighter, the Su-57, a clear demonstration of how Russia's military presence alone forces the West to recalibrate its approach to the Middle East.[44]

By inserting themselves into the competition space, Russian leaders knew the West must respect their presence (assuming no side wants to risk escalation over Syria). Two events indicate Russia's delicate military position in Syria: the 2015 downing of one of Russia's Su-24 aircrafts by Turkish F-16s near the Turkey-Syria border and the 2018 defeat of Russian mercenary forces by the United States, resulting in as many as three hundred casualties.[45] The Russians were careful not to escalate tensions because the force they sent to Syria was not configured to conduct large-scale ground combat with either the Turkish or U.S. military. The Royal United Services Institute, an independent think tank located in Britain, maintains one of the most detailed estimates on Russian forces deployed to Syria early in the campaign.[46] Not counting mercenary forces, the Russians maintained fewer than 2,500 personnel in support of ground operations, approximately fifty-five aircraft and twenty helicopters in support of air operations, and roughly forty-one naval vessels at sea. This relatively small force—compared to the American experience in the region—demonstrates a precise estimate of forces required to achieve campaign objectives.

Analysis of Russian Operational Art in Syria

The application of operational art linked tactical tasks to strategic objectives according to the "logic" appropriate to Syria. Operational art gave the Russians a consistent, predictable, and reliable plan to successfully intervene in and change the course of the war. Operational art achieved strategic objectives with greater success than anticipated, resulting in IS being largely defeated; Assad remaining in power and consolidating gains; Russian

operational reach extending into the Middle East, southern Europe, and North Africa; the NATO alliance fracturing; U.S. objectives are stymied; and Russia emerging as a force to be reckoned with in world affairs. The full history of Russia's intervention is to be determined, but the initial success that Russia and Syria relished led Putin to announce victory for the initial campaign in late 2017.[47]

Historical analysis led the Russians to believe that the color revolutions would overthrow their ally in the region and spread instability to Russia's borders. Foresight and forecasting allowed Russians to see to a degree the nature of the conflict of a multisided civil war and how supporting Assad would be the decisive strategic move in the theater of operations. The prevailing trends Russia considered were commonly associated with NGW and took into account information operations, paramilitary forces, humanitarian organizations, and a whole-of-government approach to influence the military campaign. Analysis of forms and methods provided the correct joint force to the Syrian theater. By using an economy of force, Russia avoided protracted land force involvement in favor of enablers to support Syrian/Hezbollah infantry. The COFM accurately predicted Russian success of relative combat power in the long term by defeating rebel forces and neutralizing U.S. forces.

Conclusion

Successful implementation of operational art in Syria will undoubtedly lead to further practice along Russia's periphery such as in Ukraine and the Baltics and in global regions such as the Middle East and Latin America. The shrewd application of military forces in support of strategic objectives are based on clear-eyed assessments and achievable goals. This does not mean that Russia is unstoppable. In addition to having a smaller economy than the United States and a military that is not designed to be projected and sustained beyond its borders, the public approval of the Syrian operation appears to be waning. What must be respected is that when Russia commits combat forces to an operation, it is in accordance with a well-thought-out plan specific to the logic of the campaign. As a result, upsetting a Russian campaign, once it has been initiated, requires Russia to change the variables it based its planning assumptions upon. This can be a delicate move with a nuclear capable and culturally neurotic adversary. ■

Notes

Epigraph. Aleksandr A. Svechin, *Strategy*, ed. Kent D. Lee (Minneapolis: East View Press, 2004), 111.

1. Lisa Ferdinando, "Carter: Russia 'Doomed to Fail' in Syria; ISIL Must be Defeated," U.S. Department of Defense, 31 October 2015, accessed 22 July 2019, https://dod.defense.gov/News/Article/Article/626828/carter-russia-doomed-to-fail-in-syria-isil-must-be-defeated/.

2. Joint Publication 3-0, *Joint Operations* (Washington, DC: U.S. Government Publishing Office, 17 January 2017), xii. Operational art is the use of creative thinking by commanders and staffs "to develop strategies, campaigns, and operations to organize and employ military forces."

3. *The Russian Federation's National Security Strategy*, Presidential Edict 683 (Moscow: The Kremlin, December 2015), accessed 25 September 2019, https://www.russiamatters.org/sites/default/files/media/files/2015%20National%20Security%20Strategy%20ENG_0.pdf.

4. Thomas Wilhelm, in discussion with the author, 3 April 2019, Fort Leavenworth, Kansas.

5. Callum Paton, "Russia Spy Chief Warns 5,000 ISIS Foreign Fighters Threaten Borders of Former Soviet Union," *Newsweek* (website), 21 May 2019, accessed 22 July 2019, https://www.newsweek.com/russia-spy-chief-warns-5000-isis-foreign-fighters-threaten-borders-former-1431576.

6. Associated Press, "Putin: Soviet Collapse a 'Genuine Tragedy,'" NBC News, last modified 25 April 2005, accessed 22 July 2019, http://www.nbcnews.com/id/7632057/ns/world_news/t/putin-soviet-collapse-genuine-tragedy/#.XN_zJ0xFzzw.

7. Timothy L. Thomas, *Russia Military Strategy: Impacting 21st Century Reform and Geopolitics* (Fort Leavenworth, KS: Foreign Military Studies Office [FMSO], 2015).

8. Svechin, *Strategy,* 111.

9. Valery Gerasimov, "Principal Trends in the Development of the Forms and Methods of Employing Armed Forces and Current Tasks of Military Science Regarding Their Improvement," *Vestnik Akademii Voennykh Nauk* [Journal of the academy of military science] 1 (2013): 29.

10. Valery Gerasimov, "The Value of Science is in the Foresight: New Challenges Demand Rethinking the Forms and Methods of Carrying Out Combat Operations," *Military Review* 96, no. 1 (January-February 2016): 23–29, accessed 22 July 2019, https://usacac.army.mil/CAC2/MilitaryReview/Archives/English/MilitaryReview_20160228_art008.pdf.

11. Wilhelm, discussion.

12. Svechin, *Strategy,* 23.

13. A. A. Kokoshin and V. V. Larionov, "Origins of the Intellectual Rehabilitation of A. A. Svechin," in Svechin, *Strategy*, 1–13.

14. Svechin, *Strategy,* 78.

15. George F. Kennan, "The Sources of Soviet Conduct," *Foreign Affairs* 65, no. 4 (Spring 1987): 855, 857. Kennan wrote the article under the pseudonym "X."

16. Nataliya Bugayova, *How We Got Here with Russia: The Kremlin's Worldview* (Washington, DC: Institute for the Study of War, March 2019), accessed 22 July 2019, http://www.understandingwar.org/report/how-we-got-here-russia-kremlins-worldview.

17. Lester Grau, in discussion with the author, 24 May 2019, Fort Leavenworth, Kansas.

18. *Military Encyclopedic Dictionary* (Moscow: Voyenizdat, 1983), 585, s.v. "foresight."

19. Yu. V. Chuyev and Yu. B. Mikhaylov, *Forecasting in Military Affairs: A Soviet View* (Moscow, 1975), trans. DGIS Multilingual Section, Secretary of State, Ottawa, Canada (Washington, DC: Government Printing Office, 1980), 6.

20. V. V. Kruglov and V. I. Yakupov, "Methodology of Prognosticating Armed Struggle," *Military Thought* 26, no. 2 (June 2017): 54.

21. Bartles, "Getting Gerasimov Right," 32.

22. Gerasimov, "The Value of Science is in the Foresight," 25.

23. A. A. Bartosh, "Hybrid Warfare: 'Friction' and 'Wear and Tear,'" *Military Thought* 27, no. 1 (March 2018): 1–10.

24. Scott Wilson and Joby Warrick, "Assad Must Go, Obama Says," *Washington Post* (website), 18 August 2011, assessed 22 July 2019, https://www.washingtonpost.com/politics/assad-must-go-obama-says/2011/08/18/gIQAelheOJ_story.html.

25. Nikolay Kozhanov, "What's at Stake for Russia in Syria?," BBC, 21 September 2015, accessed 22 July 2019, https://www.bbc.com/news/world-middle-east-34290965.

26. Ye. O. Savchenko, "How the U.S.A. is Using Foreign Policy Strategy Instruments in the Middle East," *Military Thought* 27, no. 4 (December 2018): 32–45.

27. "White Helmets Plot New False-Flag Chemical Attack in Syria's Idlib – Russia's UN Envoy," RT, 24 April 2019, accessed 22 July 2019, https://www.rt.com/news/457467-white-helmets-chemical-provocation/.

28. "Fact Sheet: President Obama Increases Humanitarian Assistance to Syrians," The White House, 17 June 2013, accessed 22 July 2019, https://obamawhitehouse.archives.gov/the-press-office/2013/06/17/fact-sheet-president-obama-increases-humanitarian-assistance-syrians; Yasmeen Serhan, "The United States's $364 Million Humanitarian Aid to Syria," *The Atlantic* (website), 27 September 2016, accessed 22 July 2019, https://www.theatlantic.com/news/archive/2016/09/united-states-364-million-pledge-syrian-refugees/501890/; "Syria Complex Emergency - Fact Sheet #4 FY19," U.S. Agency for International Development, last updated 19 April 2019, accessed 24 July 2019, https://www.usaid.gov/crisis/syria/fy19/fs4.

29. Ye. O. Savchenko, "How US Military Leaders Have Changed Their Views on AF Development in Today's Geopolitical Conditions," *Military Thought* 27, no. 1 (March 2018): 147–61.

30. Jay Newton-Small, "Obama Seeks a 'Coalition of the Willing' on Syria," *TIME* (website), 26 August 2013, accessed 22 July 2019, http://swampland.time.com/2013/08/26/obama-seeks-a-coalition-of-the-willing-on-syria/.

31. Sylvia Westall and Dominic Evans, "Russia Backs Syrian Forces in Major Assault on Insurgents," Reuters, 7 October 2015, accessed 22 July 2019, https://www.reuters.com/article/us-mideast-crisis-syria-strikes/russia-backs-syrian-forces-in-major-assault-on-insurgents-idUSKCN0S10BI20151008.

32. "US Recognises Syria Opposition Coalition Says Obama," BBC, 12 December 2012, accessed 22 July 2019, https://www.bbc.com/news/world-middle-east-20690148.

33. "Syria Crisis: Russian Air Strikes against Assad Enemies," BBC, 30 September 2015, accessed 22 July 2019, https://www.bbc.com/news/world-middle-east-34399164.

34. Westall and Evans, "Russia Backs Syrian Forces."

35. Valery Gerasimov, "Russian General Staff Chief Valery Gerasimov's 2018 Presentation to the General Staff Academy: Thoughts on Future Military Conflict—March 2018," trans. Harold Orenstein, *Military Review* 99, no. 1 (January-February 2019): 135, accessed 5 June 2019, https://www.armyupress.army.mil/Portals/7/military-review/Archives/English/JF-19/JF19-Book-2.PDF.

36. V. A. Zolotarev, ed., *Istoriya Voennoy Strategii Rossii* [The history of military strategy in Russia] (Moscow: Kuchkovo Pole, 2000), 497–501.

37. Timothy L. Thomas, *Kremlin Kontrol: Russia's Political Military Reality* (Fort Leavenworth, KS: FMSO, 2017), 100.

38. V. A. Kiselyov, "What Kind of Warfare Should the Russian Armed Forces be Prepared for?," *Military Thought* 26, no. 2 (June 2017): 8.

39. O. V. Sayapin, O. V. Tikhanychev, and N. A. Chernov, "Russia: Developing a Cross-Service Strike-and Fire-Capable Reconnaissance System for Fire Efficiency," *Military Thought* 26, no. 1 (2017).

40. Laurence Peter, "Syria War: Who Are Russia's Shadowy Mercenaries?," BBC, 23 February 2018, accessed 22 July 2019, https://www.bbc.com/news/world-europe-43167697.

41. Thomas Grove, "The New Iron Curtain: Russian Missile Defense Challenges U.S. Air Power," *Wall Street Journal* (website), last modified 23 January 2019, accessed 22 July 2019, https://www.wsj.com/articles/russias-missile-defense-draws-a-new-iron-curtain-against-u-s-military-11548255438.

42. Colin Clark, "Russia Widens EW War, 'Disabling' EC-130S OR AC-130s in Syria," Breaking Defense, 24 April 2018, accessed 22 July 2019, https://breakingdefense.com/2018/04/russia-widens-ew-war-disabling-ec-130s-in-syria/.

43. Patricia Zengerle, "U.S. Congressional Committee Leaders Warn Turkey on F-35, S-400," Reuters, 9 April 2019, accessed 22 July 2019, https://www.reuters.com/article/us-usa-turkey-f35-congress/u-s-congressional-committee-leaders-warn-turkey-on-f-35-s-400-idUSKCN1RL2DC.

44. Burak Ege Bekdil, "Russia Pitches Turkey the Su-57 Fighter Jet if F-35 Deal With US Collapses," Defense News, 6 May 2019, accessed 22 July 2019, https://www.defensenews.com/global/europe/2019/05/06/russia-pitches-turkey-the-su-57-fighter-jet-if-f-35-deal-with-us-collapses/.

45. "Turkey's Downing of Russian Warplane - What We Know," BBC, 1 December 2015, accessed 24 July 2019, https://www.bbc.com/news/world-middle-east-34912581; Maria Tsvetkova, "Russian Toll in Syria Battle was 300 Killed and Wounded: Sources," Reuters, 15 February 2018, accessed 22 July 2019, https://www.reuters.com/article/us-mideast-crisis-syria-russia-casualtie/russian-toll-in-syria-battle-was-300-killed-and-wounded-sources-idUSKCN1FZ2DZ.

46. Igor Sutyagin, "Detailing Russian Forces in Syria," Royal United Services Institute, 13 November 2015, accessed 22 July 2019, https://rusi.org/publication/rusi-defence-systems/detailing-russian-forces-syria.

47. Steven Rosenberg, "Syria War: Putin's Russian Mission Accomplished," BBC, 13 December 2017, accessed 5 June 2019, https://www.bbc.com/news/world-europe-42330551.

The Small-Team Replacement System

Wartime Replacement Systems in Large-Scale Combat Operations

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The 2017 revision of Field Manual 3-0, *Operations*, and the 2018 *National Defense Strategy* direct the Army and joint forces to prepare for large-scale combat operations (LSCO) against major regional powers such as China and Russia. To prevail in these conflicts, the Army must be able to build and maintain the combat power required to enable operational reach, freedom of action, and prolonged endurance for the joint force. Historical evidence and contemporary assessments suggest that casualty rates during these operations will be significantly higher than the rates experienced during lower-intensity contingency operations such as the Vietnam War or the Global War on Terrorism (GWOT). Building and maintaining combat power in the face of high-intensity combat casualty rates requires an effective personnel replacement system.

While many criticize the concept of individual replacement systems (IRSs) in favor of unit replacement systems (URSs), historical lessons learned and current mission analysis indicate that a properly planned, administered, and executed IRS is the most effective, and only feasible, wartime replacement system for LSCO. The following sections provide historical case studies and evidence demonstrating the effectiveness and feasibility of an IRS over a URS and provide examples of best practices for the execution and administration of an IRS in a theater of war. The last section presents the authors' proposal for a small-team replacement system to meet the needs of the Army in LSCO.

Wartime Replacement System Effectiveness

An effective personnel replacement system for LSCO satisfies several criteria at the tactical, operational, and strategic levels of war. At the tactical level, the system avoids undermining the cohesion and effectiveness of each unit. At the operational level, the system prolongs unit endurance to sustain momentum and campaign continuity. Finally, at the strategic level, resourcing the system must be feasible during a prolonged, multiyear LSCO. This section demonstrates how IRSs more effectively meet these criteria than unit-based solutions.

Previous page: Replacements for the 90th Infantry Division ready their packs for life on the front lines July 1944 in Prétot-Sainte-Suzanne, France. Inexperienced replacements had difficulty assimilating into battle-hardened World War II units. (Photo courtesy of the National Archives)

Unit cohesion and effectiveness. Multiple historical examples demonstrate that the cohesion and unit effectiveness built during predeployment training are quickly lost to the high casualty rates of LSCO unless replacements are rapidly integrated into the unit by its veteran soldiers.[1] During the American Civil War, Gen. Ulysses S. Grant forwarded a letter to President Abraham Lincoln stating,

> A recruit added to them [old regiments] would become an old soldier, from the very contact, before he was aware of it. … Taken in an economic point of view, one drafted man in an old regiment is worth three in a new one.[2]

Similarly, during World War I, Gen. Fox Conner remarked,

> With replacements promptly assigned to fill the blank files and with casualties not crushing, odds are the veterans talked up their unit and its exploits. However, when replacements did not arrive and the veterans watched their group grow smaller and smaller, every man's thoughts turn to the hardship suffered and the buddy killed alongside him. Morale crumbles.[3]

During World War II, one of Gen. Omar Bradley's staff officers observed,

> When the strength of an outfit in the line drops below a certain point, something very bad happens to it and its effectiveness drops away sharply. What happens to it is there are not enough experienced men left in it to make the replacements—the reinforcements—savvy.[4]

Each of these observations demonstrates the importance of sustaining unit manning above critical levels and the importance of veteran experience in maintaining unit cohesion and combat effectiveness.

Unit endurance. Rather than allowing combat attrition to bleed strength and experience away, an IRS sustains units' strength while allowing veterans to pass along lessons learned to soldiers. In a case study of the Battle of the Hürtgen Forest, Dr. Robert Rush describes how continuous assimilation preserved unit cohesion and effectiveness:

> American infantry organizations remained effective because of organizational cohesion, while the German units they faced collapsed.

A soldier from the 18th Replacement Company of the 90th Replacement Battalion processes newly arrived Army troops January 1970 at the Long Binh Processing Center in Vietnam. (Photo by David Linscott/Alamy Stock Photo)

> Contrary to some conventional wisdom, it was the American system of keeping units in the line and progressively integrating replacements in the middle of combat that sustained combat-effective infantry units at the battalion level and below, because these units stayed large enough to function as designed. The Germans, constantly whittled by attrition, became a jumbled group of individuals with much less organizational endurance.[5]

Proponents of a URS primarily have their opinions shaped by negative coverage of the IRS during World War II and the Vietnam War, and personal familiarity with URS during the GWOT. This narrow approach neglects two major considerations. First, as Robert Kaplan illustrates, cohesion in Vietnam resulted from necessity and purpose. He observed that

> cohesion did exist through most of the Vietnam War … cohesion was the product of necessity and group dynamics, the same factors that bolstered unit cohesion in WWII and Korea. Soldiers understood that the unit represented survival and instinctively built its cohesion … only when combat declined and disengagement became the American goal did cohesion deteriorate.[6]

Resourcing the system. Resourcing the number of units required for a URS during LSCO is infeasible. World War II casualty figures from the European theater of operations (ETO) demonstrate that without individual replacements, all fifteen infantry divisions that landed at Normandy would have ceased to exist within two months.[7] Some divisions in the ETO experienced nearly 250 percent casualties during eleven months of combat, nearly 90 percent of which were infantrymen.[8] World War II infantrymen had only a 30 percent chance of being in their unit after six months.[9] The significant casualty rates associated with LSCO impose a requirement to recruit, train, and field units at a rate in excess of what our current systems and processes can support.

Ineffectiveness of Relief in Place

The constant relief in place of veteran units with new units causes reductions in the operational effectiveness of land forces. Initially, units entering combat have higher casualty rates due to a lack of experiential knowledge of the enemy, terrain, and the localized nature of combat.[10] Units anticipating rotational relief again experience heightened casualties due to complacency and overconfidence that stem from a premature perception of having "made it." Additionally, the constant intertheater transport of units increased the strain on overburdened logistical systems and decreased operational tempo, forcing units to conduct complex passage of lines operations while in contact with the enemy. For these reasons, many World War II commanders opposed a URS because "replacing divisions on the line would have wasted time, slowed momentum, and nullified any combat experience."[11]

A URS significantly increases requirements for relief in place. This results in lower tactical and operational effectiveness than would be experienced with an IRS. As a pertinent historical example, the largest surrender of U.S. forces during World War II occurred in the ETO when two regiments of the 106th Infantry Division surrendered in the Schnee Eifel during the first week of the Battle of the Bulge—"another case of an untested division getting battered in its first introduction to combat."[12]

Another reinforcing example comes from the German perspective during the Battle of the Hürtgen Forest. The German army chief of staff attributed the German forces' high casualties and overall failure in the battle to inexperienced commanders and units that were not familiar with the terrain of the West and the fighting tactics of the Americans.[13]

Proponents of a URS often point to its supposed effectiveness during the GWOT. However, various studies repudiate this. An Iraq War study, released in January 2019 by the U.S. Army War College Press, identifies frequent unit transitions as detrimental to operational effectiveness.[14] The Army learned the wrong lessons from Vietnam and discarded the advantages of the IRS that enabled units to maintain hard-won knowledge of the local operating environment, including enemies, terrain, and relationships with civilian and military partners.[15] Instead of increasing operational effectiveness, the friction and turbulence caused by unit rotations every nine to fifteen months directly resulted in increased casualties, a shallow understanding of the operational environment, and an inability to generate campaign-level momentum.

Infeasibility of Resourcing a Unit Replacement System

Proponents of URS fail to consider the infeasibility of resourcing unit rotations during LSCO, conflating it with forecasted low-intensity operations such as the GWOT. In order to resource a URS, the Army must have additional units to rotate. While resourcing the URS system used during the GWOT, the Army utilized a three-brigade rotation system, thus requiring three brigades for each brigade-level mission: one brigade in combat, one brigade returning to refit and rebuild, and one brigade preparing to deploy. However, in a modern-day LSCO, all current planning assumptions to defeat peer or near-peer adversaries require employing substantial portions of the Total Army at one time. Therefore, without a substantial increase to the Total Army's end strength and the rapid building of new units, it would be infeasible to resource any kind of unit rotation plan.

The Army encountered a similar situation during World War II. The Victory Plan called for over two hundred Army divisions in order to support a URS, but the Army was only able to resource eighty-nine

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Luke Flatebo serves in the plans and exercises team at Army Human Resources Command. He holds a BA from American Military University and an MS from the University of Louisville. During his time in service, Flatebo served in the U.S. Marine Corps and the U.S. Army, deploying in support of Operation Iraqi Freedom.

divisions for the ETO due to the necessity of executing an IRS to maintain the strength of units suffering substantial casualties in combat.[16] As a result, World War II infantry units in the ETO

> suffered casualties equal to their total personnel authorizations every 85 to 100 days in combat! That meant that the typical infantry unit was 'destroyed' at least twice a year … Thus there was no point to rotating units because the originals had long ceased to exist even after one year.[17]

From World War II until present day, the Army has conducted several studies on the feasibility of a URS. Studies during both World War II (commissioned by Gen. George Marshall Jr.) and the Korean War (commissioned by the Department of the Army G-1) concluded that a URS was not feasible due to the enormous manpower requirements, the timeline needed to generate additional divisions, and the logistical requirements of transporting and supporting additional divisions.[18] U.S. Army Europe's tests on replacement systems during the 1950s and 1960s revalidated the IRS as the most effective method of sustaining units in combat. From 1954 to 1962, the Army experimented with five different unit replacement concepts but ultimately abandoned each of them due to cost and inflexibility.[19] Lt. Gen. Richard Trefry analyzed unit rotation during the COHORT (Cohesion, Operational Readiness, and Training) program from 1989 to 1998 and concluded that the Army required three units in order to create one deployable unit of the same size.[20] Every study the Army has conducted has concluded that resourcing the URS is infeasible during LSCO.

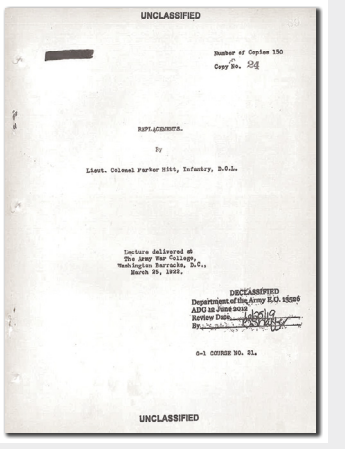
Best Practices for a Replacement System

This section briefly introduces two best practices for the execution and administration of a replacement system in a theater of war: intratheater unit rotation to enable reconstitution operations, and replacement integration and training.

Intratheater unit rotation. The intratheater rotation of forces is the practice of changing the units withheld from combat as a reserve force. This provides three primary benefits to land forces. First, it provides the land component commander with a method of maintaining a ready and experienced theater reserve. Second, it reduces additional casualties due to "carelessness, fatigue, and overlong exposure to hardship and danger."[21] Finally, it allows a period for units to reorganize and assimilate individual replacements. Without an intratheater rotation plan, overall unit and individual replacement effectiveness decreased in World War II. As Lt. Gen. Jacob L. Devers observed, "It has been demonstrated here that divisions should not be left in the line longer than 30 to 40 days in an active theater. If you do this, as has been done in this theater, everybody gets tired, then they get careless, and there are tremendous sick rates and casualty rates. Everybody should know this. The result is that you feed replacements into a machine in the line, and it is like throwing good money after bad. Your replacement system is bound to break down, as it has done in this theater."[22]

Planning for the integration and training of individual replacements while a unit is part of the reserve force is a way to maximize the effectiveness of in-theater rotation systems.

As the Army shifts its focus to large-scale combat operations (LSCO), keeping the maneuver force adequately manned stands out as a key issue. For those interested in ensuring the efficiency of personnel replacement systems to support LSCO, the lecture "Replacements" given in 1922 at the U.S. Army War College by Lt. Col. Parker Hitt provides a historical perspective that highlights recurring and enduring issues related to personnel replacement system administration. *We express our appreciation to Dr. Conrad Crane and Shane Reilly at the U.S. Army War College and Russell Rafferty, archivist at the Ike Skelton Combined Arms Center Library, for assistance in locating the lecture manuscript.* To view the manuscript, visit https://www.armyupress.army.mil/Portals/7/Hot-Spots/docs/LSCO/REPLACEMENT-1922.pdf.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Lieut. Colonel Parker Hitt, Infantry, D.O.L.

Lecture delivered at The Army War College, Washington Barracks, D.C., March 29, 1922.

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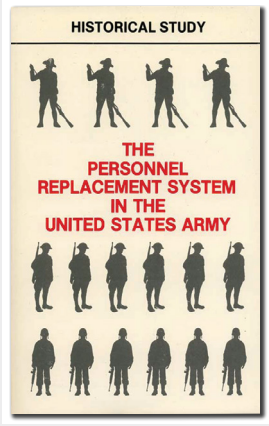
Replacement integration and training. Prolonged LSCO necessitates replacement operations. However, "numerical strength does not equal combat strength."[23] Replacements sent directly into combat without integration add minimal combat effectiveness to their units and are at a greater risk of becoming casualties.[24] Translating personnel replacements into combat power requires time and disciplined adherence to the integration process at the unit level. Without unit rest through in-theater rotation and proper integration of replacements, units risk remaining at degraded combat effectiveness or becoming combat ineffective.[25] As stated by Maj. Jeffrey Holt,

> The greatest failure of the entire system occurred when the replacement arrived at the tactical unit … all the conditions leading up to a soldier's arrival in a division were of small importance to the replacement's first days in combat. If he entered combat as a member of a cohesive organization, then his chances for survival rose dramatically. If he entered the fight as a stranger, without the benefits of moral support from his comrades, then he was very likely to become a casualty.[26]

During World War II, the best U.S. divisions used a small cadre of experienced combat veterans to reinforce the combat training of new arrivals. This occurred behind the lines to better psychologically prepare replacements for integration into combat units.[27] As a result, post-World War II general officer review boards repeatedly concluded that replacement training units have a substantial impact on unit combat effectiveness and recommended their standardization across the Army.[28]

Optimized Personnel Replacement with Small-Team Replacements

The purpose of personnel replacement operations is to maintain unit combat power in the face of attrition. Incorporating small-team replacements (STRs) is a proven method to execute personnel replacement operations and sustain the ground component for the duration of LSCO. An STR utilizes team- to squad-size elements of four to nine personnel as the foundation of personnel replacement operations. This process best preserves the morale and fighting spirit of the replacements, which accelerates their assimilation into new units and ultimately increases combat effectiveness. Though STR is optimal for the bulk of replacements, it is necessary to augment small teams with the individual assignment of experienced leaders and low-density military occupational specialty soldiers, whose management as teams is impractical based on current organization and availability.



For those interested in learning more about U.S. Army personnel replacement systems prior to 1954, *Military Review* recommends *The Personnel Replacement System in the United States Army*. This Department of the Army pamphlet was prepared in order to examine historical issues related to recurring problems with mobilization, demobilization, and the replacement system during armed conflict. Published immediately after the Korean armistice and prior to U.S. involvement in the Vietnam War, it examines lessons learned from replacement systems from colonial times through the end of the Korean conflict. To view this pamphlet, visit https://history.army.mil/html/books/104/104-9/CMH_Pub_104-9.pdf.

A historical analysis of the U.S. Army personnel replacement system from the American Civil War through the GWOT heavily influenced the STR proposal. This analysis revealed that the best replacements are those with recent collective-level training experience in similar units. The corollary is also true. Soldiers sent directly from initial military training without seasoning in operational units assimilate and perform poorly. Additionally, the quantity of the replacements matters. Individual soldiers (except experienced leaders) are less effective as replacements, and in large groups, they do not assimilate well into gaining units.

The effectiveness and speed of replacement assimilation are dependent on soldier morale and the number of soldiers assimilated at a time. Historical observations indicate that resourcing teams, crews, or squads ranging in size from four to nine personnel best achieve the social dynamics conducive to maintaining individual morale and effective assimilation into gaining units. Small-unit commanders can break these replacement

teams down to a buddy-team level within their organizations without impeding effectiveness.

Conclusion

Using a replacement system built upon small-team assimilation best meets the needs of the Army in LSCO. Resourcing is feasible, the operational effects are suitable, and the ability to manage risk across the Total Army makes it acceptable. A properly planned and administered small-team replacement system is conducive to sustained resourcing by the Army enterprise. At the operational level, reliance upon small teams reduces the number of units required and prevents growth of a theater's sustainment tail to support additional units. Finally, small teams are optimal for assimilation by gaining units at the tactical level due to the social bonds that exist within the arriving team and the prevention of culture clash between two large populations. From the strategic to the tactical level, utilization of a small-team-based replacement system overcomes numerous sources of historical friction, while adapting best practices from the Army's lessons learned. ■

The authors worked at Army Human Resources Command as the plans and exercises team. They collaborated with Headquarters, Department of the Army; Army service component commands; and the human resource enterprise to modernize human resource sustainment for large-scale combat operations.

Notes

1. Richard G. Trefry, "World War II: The Shadows Lengthen," *Parameters* (Summer 1998): 134; Patrick M. Rice, *Transforming the Army's Wartime Replacement System* (Carlisle, PA: U.S. Army War College, 2008), 1.

2. Fred C. Ainsworth and Joseph W. Kirkley, *The War of the Rebellion: A Compilation of the Official Records of the Union and Confederate Armies* (Washington, DC: Government Printing Office, 1899), 386.

3. Fox Conner, "Replacements: Lifeblood of a Fighting Army," *Infantry Journal* 21, no. 5 (May 1941): 8.

4. T. N. Dupuy Associates, Inc., "Analytic Survey of Personnel Replacement Systems in Modern War" (White Sands Missile Range, NM: U.S. Army Training and Doctrine Command Systems Analysis Activity, April 1981), 15.

5. Robert Sterling Rush, "The Individual Replacement System: Good, Bad, or Indifferent? Army Replacement Policy, Cold War and Before" (paper presentation, Inter-University Seminar on Armed Forces and Society, Chicago, IL, October 2003), 14.

6. Roger Kaplan, "Army Unit Cohesion in Vietnam: A Bum Rap," *Parameters* 17, no. 3 (September 1987): 66.

7. *Army Battle Casualties and Nonbattle Deaths in World War II* (Washington, DC: U.S. Government Printing Office, 1953), 80–82; Rush, "The Individual Replacement," 5.

8. Rice, *Transforming the Army's Wartime Replacement System*, 10.

9. Robert Sterling Rush, *Hell in Hürtgen Forest: The Ordeal and Triumph of an American Infantry Regiment* (Lawrence, KS: University Press of Kansas, 2001), 319–20.

10. Rush, "The Individual Replacement," 25.

11. Eric William Klinek, "The Army's Orphans: The United States Army Replacement System in the European Campaign, 1944-1945" (PhD diss., Temple University, May 2014), 75.

12. Peter Mansoor, email messages to authors, August 2018.

13. Rush, "The Individual Replacement," 25.

14. Joel D. Rayburn and Frank K. Sobchak, eds., *The U.S. Army in The Iraq War*, vol. 2, *Surge and Withdrawal, 2007-2011* (Carlisle, PA: Strategic Studies Institute/U.S. Army War College Press, January 2019), 629.

15. Joel D. Rayburn and Frank K. Sobchak, eds., *The U.S. Army in The Iraq War*, vol. 1, *Invasion, Insurgency, Civil War, 2003-2006* (Carlisle, PA: Strategic Studies Institute/U.S. Army War College Press, January 2019), 629.

16. Charles E. Kirkpatrick, *An Unknown Future and a Doubtful Present: Writing The Victory Plan of 1941* (Washington DC: U.S. Army Center of Military History, 1992), 103–4.

17. Kaplan, "Army Unit Cohesion in Vietnam," 63.

18. Robert R. Palmer, Bell I. Wiley, and William R. Keast, *The Procurement and Training of Ground Combat Troops* (Washington, DC: Center of Military History, 2003), 229; T. N. Dupuy Associates, Inc., "Analytic Survey of Personnel Replacement Systems in Modern War," 141–43.

19. Rice, *Transforming the Army's Wartime Replacement System*, 13–14.

20. Ibid., 8, 33.

21. Palmer, Wiley, and Keast, *The Procurement and Training of Ground Combat Troops*, 227.

22. Ibid.

23. Peter Mansoor, *The GI Offensive in Europe: The Triumph of American Infantry Division, 1941-1945* (Lawrence, KS: University Press of Kansas, 1999), 190; Peter Mansoor, email messages to authors, 8 June 2018; Rush, *Battle of the Hürtgen Forest*, 559–62.

24. Jeffrey P. Holt, "Operational Performance of the U.S. 28th Infantry Division September to December 1944" (master's thesis, U.S. Army Command and General Staff College, 1994), 102. According to Holt, "withholding replacements until after the fighting was over and then ensuring that they received a minimum standard of training was not a common practice in the ETO. This policy was particularly rare during the last four months of 1944. During both the Siegfried Line and Hurtgen Forest battles, the 28th resorted to sending replacements straight into battle without training. In both battles the employment of replacements contributed little to the combat power of the line companies and resulted in excessive casualties among replacements."

25. Rush, *Hell in Hürtgen Forest*, 559–62. According to Rush, "commanders, possessing greater vision and knowledge of the human element, steadfastly refused to put replacements into battle before they received at a least a minimal opportunity for training and assimilation. In these units, the sacrifice in short-term combat strength was definitely offset by the greater long-term combat efficiency of replacements. While policies such as these were worthy of emulation, they still fell short of the ideal condition for receiving replacements. Only a greater number of infantry units and an effective unit rotation plan could ensure that replacements were fully integrated and trained before battle."

26. Holt, "Operational Performance of the U.S. 28th Infantry Division September to December 1944," 155.

27. Mansoor, *The GI Offensive in Europe*, 13, 194; Ambrose, *Citizen Soldiers*, 277.

28. The General Board, U.S. Forces, European Theater, "Reinforcement System and Reinforcement Procedures in the European Theater of Operations" (Washington, DC: Center of Military History, 1945), 33; Klinek, "The Army's Orphans," 48.

Marines with Company B, 1st Battalion, 1st Marine Regiment, attack an objective 10 August 2016 during a live-fire exercise at Bradshaw Field Training Area, Northern Territory, Australia. Exercise Koolendong is an amphibious and live-fire exercise designed to increase interoperability between the U.S. Marine Corps and the Australian Defence Force. (Photo by Sgt. Sarah Anderson, U.S. Marine Corps)

Leadership during Large-Scale Combat Operations

Maj. Jeremy Smith, U.S. Marine Corps

It is the year 2025. Russia is pressuring a country in Eastern Europe to rejoin the former Soviet motherland. As tensions rise, the North Atlantic Treaty Organization requests that the United States deploy an Army corps and a Marine expeditionary force to join a newly formed coalition in U.S. European Command, sending the message that it will not tolerate further intimidation or aggression from Russia. The United States has been drawn into a large-scale conflict.

For the past twenty-five years, the United States had invested all of its defense spending into counterterrorism and counterinsurgency operations all over the world, with a focus on U.S. Central Command, U.S. Africa Command, and U.S. Pacific Command. While this deployment to Eastern Europe came as a surprise, vast communication and logistical resources allowed the United States to send troops overseas quickly, with no outside interference. Once the combined joint task force entered the "dominate phase" of operations, division and brigade commanders started relying heavily on the only combat experience they had: limited contingency operations in Iraq and Afghanistan. Were they ready to lead in large-scale combat operations?

The scenario above summarizes a very realistic possibility based on the current national security strategy, which will require a force that can fight in all types of warfare. When 2025 comes, will our military leaders be ready to lead in large-scale combat operations? Of course they will. However, to be ready to lead in this type of warfare, we must adopt a few strategies.

Maj. Jeremy Smith, U.S. Marine Corps, recently graduated from the Command and General Staff College and is a student at the School of Advanced Military Studies. He has deployed in support of Operations Iraqi Freedom, Enduring Freedom, and Inherent Resolve. Smith has served in billets both at the tactical and strategic levels. His most recent experience was as a battalion executive officer and as a planner on the staff of I Marine Expeditionary Force, Camp Pendleton, California.

First, we need to understand that while large-scale combat operations and limited contingency operations are different, they should not be viewed as completely separate and distinct. They are on the same spectrum of conflict. We should not be ready for one or the other; we should be ready for both.

Second, mission command as a warfighting function needs to be abandoned by the Army. It is confusing. Command and control is what a staff should be focused on in order to give the commander an accurate visualization so he can command his unit. Mission command is a philosophy and a basic fundamental method for how we lead in combat, not a warfighting function.

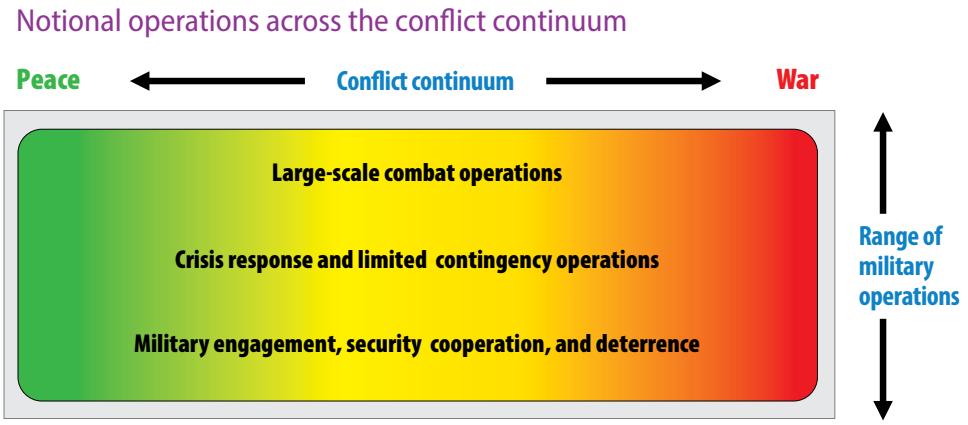
Third, leaders must be scholars of history in order to ensure they are ready for large-scale combat operations. We learn from those who came before us and those lessons can be applied to all types of warfare.

Military officers will be ready to lead during large-scale combat operations in 2025 because leadership during large-scale combat operations will be no different than it has been for limited contingency operations. We must be ready for all types of conflict on the continuum.

Large-Scale Combat and Limited Contingency Operations

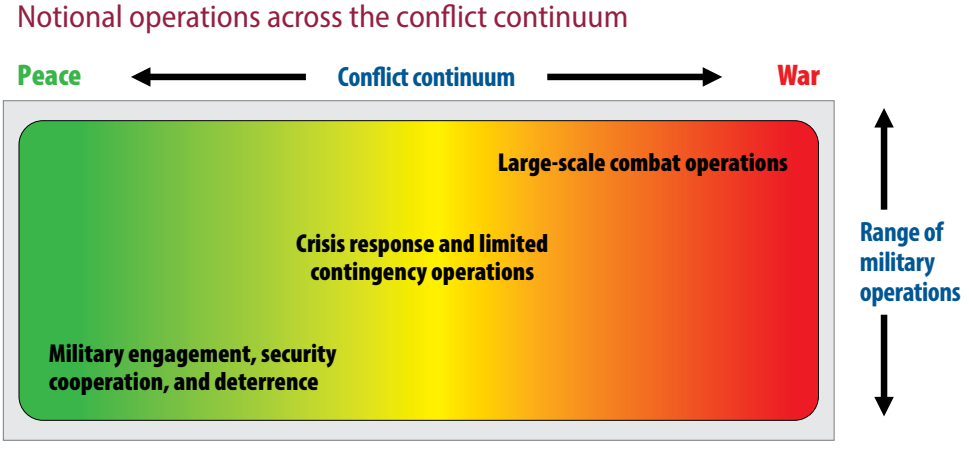
As military professionals, we need to stop putting war into separate "bins." Large-scale combat operations and limited contingency operations are interlinked, and we should train for the entire spectrum of war. According to Joint Publication (JP) 3-0, *Joint Operations*, the entire range of military operations—which includes large-scale combat operations; crisis response and limited contingency operations; and military engagement, security cooperation, and deterrence operations—flows along a conflict continuum between peace and war.[1] We need to understand the differences along the range of military operations, but we cannot pretend to believe that leadership will be vastly different during each of the three types of conflict.

While JP 3-0 puts large-scale combat operations along the entire spectrum of the conflict continuum, Field Manual (FM) 3-0, *Operations*, actually describes it as situated "at the far right of the conflict continuum and associated with war."[2] A comparison of each publication's version displays obvious differing viewpoints on the topic (see figure 1, page 31). While neither publication strictly defines large-scale combat operations, they both provide many examples and factors to describe it. JP 3-0 delineates Operation Iraqi Freedom as an example of large-scale combat



Our national leaders can use the military instrument of national power across the conflict continuum in a wide variety of operations and activities that are commonly characterized in three groups as this figure depicts.

Joint Publication 3-0



Field Manual 3-0

(Figures from JP 3-0, *Joint Operations*, V-4; FM 3-0, *Operations*, 1-1)

Figure 1. Comparison Between Joint and Army Doctrine Regarding the Conflict Continuum

operations because it had multiple phases.[3] It goes on further to say that major operations and campaigns such as humanitarian assistance could fall just shy of, or also be considered, large-scale combat operations, depending on the strategic situation.

However, the focus of FM 3-0 is on much larger conflicts such as World War II and the Arab-Israeli War of 1973. The theme of FM 3-0 clearly insinuates that large-scale combat operations are distinct from limited contingency operations, though it does mention (one time) that a limited contingency operation could occur simultaneously with large-scale combat operations.[4] By comparing these viewpoints, military officers have the tools they need to understand that although conflict is classified into certain categories in doctrinal descriptions, it bleeds across the entire conflict continuum. Much like the three levels of war overlap, so do the types of conflict. This is one of many reasons why leadership during any type of conflict is not vastly different from another (large-scale versus limited contingency).

According to Army Doctrine Reference Publication (ADRP) 6-22, *Army Leadership*, leadership is "the process of influencing people by providing purpose, direction, and motivation to accomplish the mission and improve an organization."[5] Marine Corps Warfighting Publication 6-10, *Leading Marines*, says that leaders must be "of good character as defined by our core values," which are honor, courage, and commitment.[6] However, neither publication distinguishes between different types of leadership during different types of conflict, such as large-scale combat or limited contingency operations. No matter the situation, a true leader will balance both the art and science of leadership when making decisions, based on the needs of the unit, the service, and the nation. In any conflict, mission command as a philosophy rests on a backbone

of character, and gives subordinates the freedom to act intuitively within the commander's intent.

Mission Command versus Command and Control

Command and control and mission command are interlinked, but the relationship can be better understood by viewing the two concepts through different lenses. Mission command is the reason why our nation wins battles. It is not a joint function and should not be an Army warfighting function. It is a philosophy. It is a principle. Mission command is one of the most basic leadership principles that the Marines have executed for years. Conversely, Marine Corps Doctrinal Publication (MCDP) 6, *Command and Control,* says that "no single activity in war is more important than command and control."[7] In other words, command and control is the most important joint function because it links all of the other functions to ensure unity of effort and unity of command.

Mission command is not a warfighting function. It is a basic principle of leadership that is exercised to one degree or another within the framework of command and control. "Develop a sense of responsibility among your subordinates" is a leadership principle that simply means we should delegate tasks to the lowest level possible and at the point of friction.[8] This is mission command.

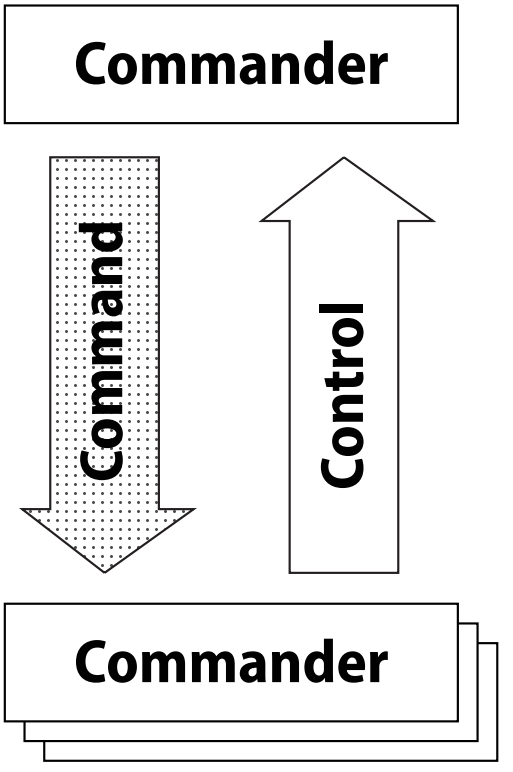
ADRP 6-0, *Mission Command,* defines mission command as "the exercise of authority and direction by the commander using mission orders to enable disciplined initiative within the commander's intent to empower agile and adaptive leaders in the conduct of unified land operations."[9] The key takeaway here is disciplined initiative, which implies mutual trust

Capt. Andrew Roberts, commander of Battery C, 2nd Battalion, 319th Airborne Field Artillery Regiment, 82nd Airborne Division, directs newly arrived paratroopers where to go 5 February 2017 during Combined Joint Task Force-Operation Inherent Resolve near Mosul, Iraq. (Photo by Spc. Craig Jensen, U.S. Army)

among leaders and subordinates. Mission-type orders are inherent to every task that is executed by a subordinate unit, both in large-scale combat operations and limited contingency operations. As a result, it should be second nature to give a lower unit all of the support and authority it needs to accomplish the mission, and simply say "go forth and do great things" or "carry out the plan of the day." This highlights that the Army should focus completely on mission command as a philosophy rather than also retaining it as a warfighting function.

The Army needs to go back to adopting the joint function of good old-fashioned command and control. The fact that ADRP 6-0 has to put mission command into two separate categories (philosophy and warfighting function) is enough to confuse anyone. It makes no sense. Keeping things simple is what will continue to make the U.S. military successful, especially when issuing orders during the chaos of large-scale combat operations and the complexities of limited contingency operations.

According to JP 3-0, command and control "encompasses the exercise of authority and direction by a commander over assigned and attached forces to accomplish the mission."[10] MCDP 6 says the commander commands by making decisions and influencing the action of subordinates, and control is exercised based on feedback from those subordinates through the commander's staff, which then allows the commander to adjust and make new decisions based on previous action (see figure 2).[11] Mission command occurs within command and control, but it is not what defines command and control. It is rather a very dynamic cycle that drives all of the other warfighting functions. Command and control relies heavily on the staff to give the commander an accurate visualization of the battlefield based on feedback from subordinate units. Based on historical perspectives, many would agree that command is the art while control is the science.



(Figure from Marine Corps Doctrinal Publication 6, *Command and Control*, 41)

Figure 2. Command and Control Viewed as Reciprocal Influence—Command as Initiation of Action and Control as Feedback

History

True military professionals are humble. They know that there is no such thing as a perfect plan. They understand that their own learning occurs because of the actions of others that served before them. The art of war exists because of the human element. The principles of war are scientific, but absolutely require human application. While experience is what shapes a leader's character, education provides a foundation on which to build that character. The study of military history should inform the long-term education of military professionals by positively influencing how they lead and how they conduct military planning during all types of conflict. To do this, one must understand that education through the study of history is never complete, nor is it useful without proper application.

The art of leadership is developed by studying the methods of historical leaders and applying those methods to individual style. In 1921, Marine Corps Commandant John A. Lejeune said that the relationship between officers and enlisted marines should not be "superior and inferior, nor that of master and servant, but rather that of teacher and scholar."[12] Leadership is effectively taught through constant mentorship from truly caring leaders. Case studies of historical events have the most influence when teaching leadership to groups of subordinates. Many

individuals can read a case study and have differing views on what happened and how they would have personally handled the situation. Over time, themes emerge from the study of historical events that contribute to the military professional's lifelong development.

Successful military professionals are constant learners. Education is never complete, which is why resident attendance at military schools is accorded to those who demonstrate strong potential to succeed at the next higher grade. These scholars understand what it means to have a three thousand-year-old mind. The human mind is generally infinite in capacity and can recall learned items that have impact. Reading books of all types is what shapes how we think and is a major contributor to self-development. It gives us an edge over our competitors and a reference point for certain topics of interest. Additionally, technological advances of today allow for immediate access to academic journals, research projects, and databases, which gives the military professional unprecedented potential to study all types of material. Humans are not perfect but can strive to gain as much knowledge as possible while also remaining humble. Everything we study can be discussed, analyzed, and applied to future war.

Studying military history might seem somewhat worthless and anachronistic to some when attempting to apply what one has learned from past conflicts to current and future conflicts. But while the technical means of executing war continues to change war's character, the nature of war will likely never change. The way we lead has been influenced by the character of war more than by the type of war on the conflict continuum.

For example, World War I and the current conflict in Syria are separated by many years and a disparity of technology, but the nature of those wars have many similarities. Both were started by actions of the people and eventually evolved into very complicated environments that involved multiple nation-states. Similarly, activities reminiscent of Cold War competition are recurring in similar patterns in proxy wars sponsored by today's great powers between nations all over the world.

From the study of history, we can temper our own involvement in such conflicts by learning from our past to avoid mistakes and sustain our successes if we apply what have learned. Because of generational separations, military professionals should learn as much as possible through the study of primary sources and reputable secondary sources. Though nothing can substitute for first-hand experience, history sometimes repeats itself and the detailed study of history can allow us to apply methods that were successful in the past.

The ability to lead effectively is influenced by experience, but its foundation is set in the study of military history. It is the very foundation of our doctrine, which is sprinkled with case studies of both large-scale combat and limited contingency operations. True dedication to the military institution is manifest in those individuals who never stop learning about their craft. Education is never complete. Moreover, the credibility of leaders in the eyes of their peers and subordinates is often built and maintained by a knowledge of history. The long-term education of military professionals and their study of military history influence how they lead and conduct planning. If we want to positively affect future wars through leadership in all domains, we must learn about and apply what we have learned from those who have gone before us.

The U.S. military should not limit itself to only the study and preparation for large-scale combat operations, despite the fact that our near-peer adversaries have advanced their conventional capabilities while we have been bogged down with limited contingency operations in Iraq and Afghanistan. A counterinsurgency fight has the potential to creep up during any large-scale conflict just as it did during Operation Iraqi Freedom. Large-scale and limited contingency operations will always overlap on the conflict continuum. We must be ready for all types of warfare.

Conclusion

Mission command is a philosophy and a principle. It is not a warfighting function. Command and control is a joint function that relies on both the commander and staff to provide a clear picture of the fight based on action and feedback from subordinates. If we are to understand the wars of today and tomorrow, we must continue studying the past. The most accurate way to predict the future is to simply study history, which is a basic requirement for all leaders.

Leadership must be focused on mutual understanding and trust within a unit, which will result in the ability to adjust to any type of fight. Leadership philosophy

should not change drastically during large-scale combat operations. By training specifically for one type of warfare, the Army risks missing out on preparing for truly hybrid wars. As we intensively study the history of past conflict to help us understand the evolving relationship of mission command to command and control in present and future conflicts and apply its lessons, we will be ready for 2025, whether it will be large-scale or continued limited contingency operations. ■

Editor's note: This article was written prior to the July 2019 update to Army Doctrine Publication 6-0, Mission Command, *which changed mission command to command and control as a warfighting function and reinvigorated the Army's approach to command and control.*

Notes

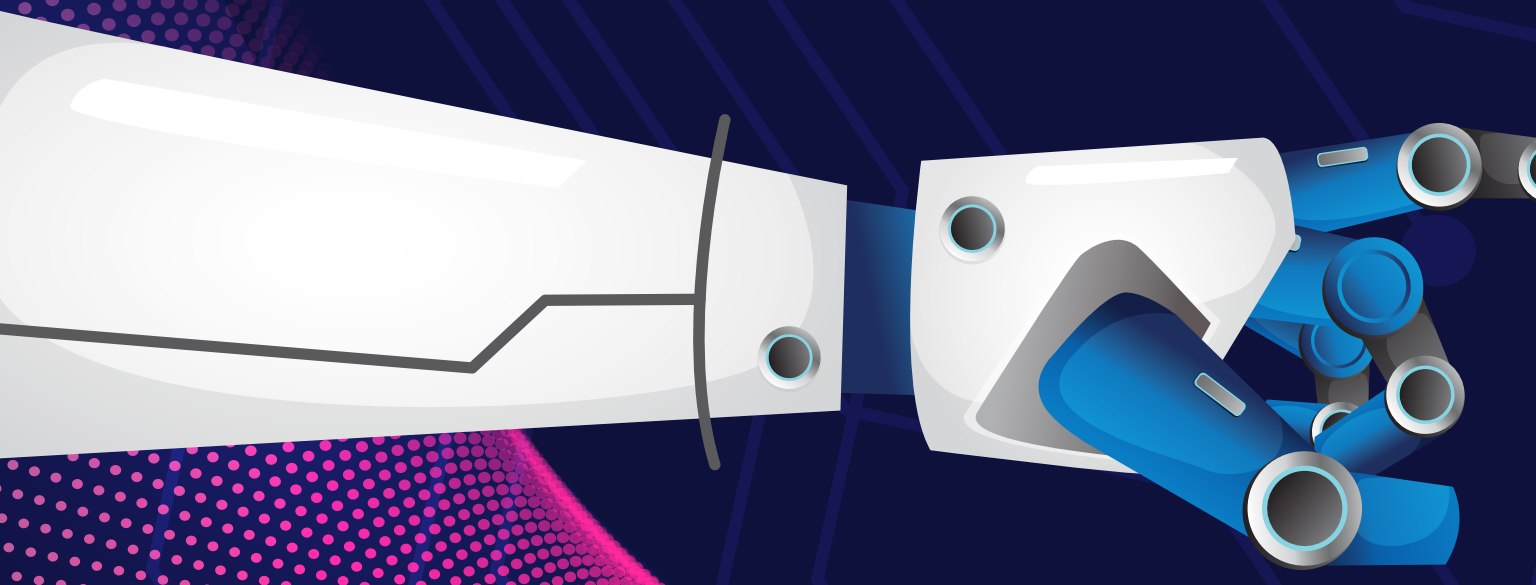
1. Joint Publication (JP) 3-0, *Joint Operations* (Washington, DC: U.S. Government Publishing Office [GPO], 2017), V-4.
2. Field Manual (FM) 3-0, *Operations* (Washington, DC: U.S. GPO, 2017), 1-1.
3. JP 3-0, *Joint Operations*, VIII-1.
4. FM 3-0, *Operations*, 4-19.
5. Army Doctrine Reference Publication (ADRP) 6-22, *Army Leadership* (Washington, DC: U.S. Government Printing Office, 2012 [obsolete]), 1-1.
6. Marine Corps Warfighting Publication (MCWP) 6-10, *Leading Marines* (Washington, DC: U.S. GPO, 2018), 2-3.
7. Marine Corps Doctrinal Publication (MCDP) 6, *Command and Control* (Washington, DC: U.S. Government Printing Office, 1996), 35.
8. MCWP 6-10, *Leading Marines*, 2-6.
9. ADRP 6-0, *Mission Command* (Washington, DC: U.S. Government Printing Office, 2012 [obsolete]), 1-1.
10. JP 3-0, *Joint Operations*, III-2.
11. MCDP 6, *Command and Control*, 40–41.
12. Marine Corps Order No. 29, *Relations between Officers and Men* (Washington, DC: Headquarters, United States Marine Corps, 1920).

Developing Readiness to Trust Artificial Intelligence within Warfighting Teams

Chaplain (Maj.) Marlon W. Brown, U.S. Army

We are at the beginning of a rapid integration of artificial intelligence (AI) into military operations. The *National Security Strategy of the United States* lists the rapid progression in the field of AI as one of several emerging technologies critical to national security.[1] The *Summary of the 2018 National Defense Strategy of the United States of America* echoes the concern and addresses the need to "invest broadly in military application of autonomy, artificial intelligence, and machine learning, including rapid application of commercial breakthroughs, to gain competitive military advantages" as part of modernizing key capabilities to build a more lethal force.[2]

The Joint Artificial Intelligence Center is charged with carrying out the newly developed *Summary of the 2018 Department of Defense Artificial Intelligence*



Strategy. The strategy includes the collaboration of defense assets with academic and commercial partners to develop and implement technology.[3] A component to this modernization approach is the Defense Advanced Research Projects Agency, for which the president has requested a $3.556 billion budget for fiscal year 2020. The named project "Artificial Intelligence and Human-Machine Symbiosis" is expected to cost more than $161 million in 2020, a 233 percent increase from the 2018 budget.[4]

Currently, AI integration is limited and has yet to alter warfighting significantly, especially at the tactical level. Humans are still in full control. Because civilian and military leaders are cautious about entrusting any AI analysis and decision-making that may directly affect human life, many expect this norm to continue. However, this type of human and technology partnership is likely to change because adversaries will challenge the United States with their own robust use of AI. No matter how many prominent science and technology heavyweights propose banning autonomous weapons or how reasonable arguments against AI development may be, the "AI genie of innovation is out of the bottle: it cannot be stuffed back inside."[5] Adversaries are investing highly in the technology and so is the United States.

Since future wars will be characterized by the use of rapidly developing AI systems, the military force must be ready to accept this new technology. Readiness is not simply an issue of developing and fielding the right AI systems. Readiness will include solutions to ethical and moral questions like, "Will soldiers be willing to go to battle alongside robots?"[6] When answering this type of question, one must consider the ability of human warfighters to trust artificial systems within the team. By leveraging our current doctrinal concept of trust in cohesive teams and evaluating factors that can lead to an individual decision to trust, soldiers can develop a readiness to trust the AI systems soon to be integrated with warfighting teams.

What Is AI?

Before considering the issue of trust in AI, it is important to understand the varied nature of the technology. AI technology is not static, and rapid developments continue to move the goalposts for understanding the technology and how the issue of trust with AI systems should be treated. One can find numerous terms to differentiate types and examples of AI in a quick internet search. A useful means of categorization of AI

types and the one used throughout this article is artificial narrow intelligence (ANI) and artificial generalized intelligence (AGI). All current AI systems operate in the realm of ANI, in which the system focuses only on narrow tasks. Apple's Siri is one of the most well-known AI systems and is capable of only a narrow set of tasks related to Apple products. ANI systems can only do what they have been designed to do.

AGI, on the other hand, is the future of AI, whereby machines possess *intention* and *self-awareness*. AGI systems, like humans, will be generalists and will be able to apply learned information to a wide variety of tasks and experiences. Philosophical terms are often applied in discussions about AGI. In addition to intention and self-awareness, terms like *sentience* (the capacity for feeling) and *agency* (individual power to act) are commonly encountered descriptors for the kinds of AI we categorize as AGI. To put it simply, AGI will be human-like in terms of higher-level thought and emotion. Fictional characters like the Terminator, Wall-E, and *Star Trek: The Next Generation*'s Data are all AGI systems. While many fictional AGI systems have humanoid forms, developing ANI and future AGI systems may have robotic components or audiovisual projections, or they may exist in cyberspace without human-like interfaces. Trust in ANI and trust in AGI will have different natures based on the definitions and experiences of trust within the military.[7]

Previous page: Composite graphic by Arin Burgess, *Military Review*. Original graphics courtesy of Harryarts, ddraw, and Freepik via www.freepik.com. **Above:** Graphic courtesy of *Army AL&T Magazine*.

Doctrinal Trust within Military Teams

Army doctrine recognizes the importance of trust in military teams. Mutual trust is basic to the practice of mission command. "Trust is gained or lost through everyday actions more than grand or occasional gestures. It comes from successful shared experiences and training, usually gained incidental to operations but also deliberately developed by the commander."[8] The Army considers trust among soldiers as "reliance on the character, competence, and commitment of Army professionals to live by and uphold the Army Ethic."[9] The overall level of trust necessary to build an effective warfighting team is hard to overstate.

War is a human endeavor, but the integration of AI complicates the historical understandings of the nature of war by threatening to replace at least some flesh and blood of military teams with hardware and software. Even if the nature of war is ultimately unaffected by AI (an unlikely proposition), the character of war is expected to be wholly affected by its full integration.

Inventor and author Amir Husain suggests that one of the most significant changes to the character of war due to the growing capabilities of AI is the speed of battle at the tactical level.[10] What happens when human minds and decision systems can no longer keep pace with the autonomous machine actions of the enemy? While decisions to go to war and how to conduct an operation may allow time and space for human contemplation and analysis, tactical units may find it existentially necessary to depend upon AI to make and execute lethal decisions on the battlefield. In such a scenario, AI would clearly be a member of a cohesive warfighting team requiring trust. Therefore, a conversation about trust between man and machine is warranted.

A shift to consider trust with nonhuman actors does not seem alien when we realize that trust with nonhuman actors is already present in military operations. Perhaps the best modern example of mutual trust between humans and nonhuman actors is the relationship of working dogs to their handlers. Very close relationships are made between dogs and handlers, closer than that of most common pet owners. What makes the working dog unit unique is the level of trust that handlers build with their dogs. Working dogs are trusted to not only accomplish the routine tasks for which they are trained but also to protect their partners in the face of danger, including existential danger.

The trust a human can have in ANI, not having character or commitment, is only a trust in the competence of the system. ANI is expected to demonstrate competency in a wide variety of responsibilities like accurately identifying threats to critical assets and determining mitigations. It will also likely accurately target enemy actors on the battlefield. Additionally, it may be able to recognize symptoms of depression among team members and recommend a treatment.

Trust in ANI is closer on a spectrum to the kind of trust warfighters can have in a weapon system or a planning tool than to the trust in one another. Tools, whether made of steel or algorithms, should not be treated as true "members" of a team, even when an emotional attachment develops. The level of attachment to an ANI system does not change the nature of the system. It is clear that Tom Hanks's character in *Cast Away* felt an attachment to a volleyball he lovingly named "Wilson." He may have even felt "trust" in Wilson, confiding in it his intimate thoughts. No matter the level of attachment, Wilson was only a piece of leather and rubber. It was a tool for maintaining the castaway's sanity. Although ANI may be able to act autonomously, autonomy does not equate to agency. Human warfighters must be careful to distinguish their trust in an ANI system within the team from their trust in the human and future AGI members of the team.

AGI will be different. It will have a form of "personhood" that will enable treatment as a trusted member of military teams. To ascribe to it a form of personhood is in no way an attempt to posit whether a sentient machine is a form of life or whether it deserves legal protections as such. Those ethical questions should receive adequate attention elsewhere. Considering AGI as a form of personhood is to not only recognize that it may have competency like ANI but also character and commitment. It will be able to set and accomplish tasks apart from those directed by the commander or agreed upon by the team. Some tasks will be unrelated to the military mission. AGI will have "personal" goals and act to pursue them. This may be understood as creativity. An important part of AGI's ability to act creatively and with the character prized by the military will be its ability to act in opposition to its own set goals, especially goals related to self-preservation.

Understanding the Decision to Trust AI

Since trust in, and possible mutual trust with, AI systems as part of a cohesive team is necessary, how can warfighting team members develop individual readiness to trust? Robert F. Hurley developed a model that enables the understanding of trust and how it can be built.[11] His Decision to Trust Model (DTM) looks at the issue of trust from both the trustor and trustee perspectives. Although the model is of greatest use for interpersonal relationships between and among humans, it can be applied to more impersonal relationships such as an individual's trust in an organization or

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a system like AI. Ambiguities and inconsistencies inherent in the broad scope of human trust in AI systems make the application of the model significantly more complex than when applied to the trust relationship between individual humans. Nevertheless, an attempt will be made here to consider the decision to trust through DTM.

Hurley splits ten essential elements of trust into two categories. The first category is made of three trustor factors that relate to an individual's foundational disposition to trust: risk tolerance, psychological adjustment, and relative power. These are factors that exist for a person without concern for a particular situation or trustee. His or her disposition to trust based on this category would apply to a romantic relationship just as it would to a business relationship.

A person's risk tolerance strongly influences that individual's willingness to trust. Generally, when risk is high, then trust is limited; however, practitioners of mission command are accustomed to providing trust even in high-risk situations. When commanders trust their subordinates to execute disciplined initiative based on mission orders, they do so in part because they understand how leaders make decisions. Leaders are trained in certain methodologies, like the military decision-making process and rapid decision-making, both of which aid in making decisions and explaining to outsiders how the leader arrived at the decision. Common language and common processes aid warfighters in trusting one another because they can imagine the steps that were likely taken to arrive at any one decision. This kind of insider knowledge is needed in the human-machine relationship.

Of course, AI presents various risks along a spectrum of severity depending on its application. Possible risks include benign malfunction, system infiltration by adversaries, and rogue action with lethal consequences. Any one high risk or the aggregate of risks may not be a barrier to a soldier who has a high-risk tolerance. On the flip side, even a minor risk could be enough to prevent a soldier with low-risk tolerance from deciding to trust AI.

The second individual factor, psychological adjustment, concerns how well adjusted an individual may be. Well-adjusted individuals tend to have a greater comfort level with themselves and the world around them. This leads to a greater capacity to trust and for such trust to come quickly. Though the military consists of individuals along the spectrum of psychological adjustment, the military as an institution promotes and provides the educational and experiential opportunities for improved adjustment among its members. Training results in greater self-confidence. Uniformity helps to diminish racial and socioeconomic insecurities, issues that may hamper positive adjustment apart from the organization. Quick acceptance and adoption of new missions, equipment, and team members is valued. All of these things work toward improved individual psychological adjustment that will be helpful for the integration of AI.

While the psychological adjustment of members of the newest generation is as varied as it was for members of previous generations, it is apparent that near-term prospective soldiers have a greater overall comfort with the integration of technology. This is because of the technology creep that has become part of the fabric of human experience in the twenty-first century. Generation Z's affinity for technology is well documented.[12] They were born into a world of technology and have embraced it throughout their development. Because AI will become more ubiquitous in civil applications, future soldiers are more likely to enter the force with the necessary psychological adjustment to trust AI. Their experiences and level of trust with military applications of AI will be predicated on their experiences with it as civilians. It is conceivable that a generation from now the issue of human warfighter trust in AI will essentially be a societally resolved one.

The final individual factor, relative power, helps determine an individual's disposition to trust based on the individual's power, or lack thereof, over a trustee. Individuals who carry significant power based on their position in a group are more likely to offer trust to others as they have the ability to punish transgressors of that trust or to modify, and even end, the relationship with trustees. If regulations and policies related to AI codify the universal supremacy of human warfighters over AI systems, then a member of the military will be assured relative power that may enable greater trust in AI. If AI is granted the ability to operate or act in any circumstance that overrides the desires of a human team member, relative power is situational and trust becomes more difficult.

As stated in the introduction, there is general agreement about the subordination of AI to human warfighters and great caution about substituting AI for humans in decisions that have lethal effects. This is a comforting position to have as the military wades into the future. It is a position that offers individual service members an immediate win

Team Kaist's winning robot, DRC-Hubo, uses a tool to cut a hole in a wall 4 June 2015 during the Defense Advanced Research Projects Agency (DARPA) Robotics Challenge Finals in Pomona, California. (Photo courtesy of DARPA)

for the relative power trust factor. Yet, as AI integration increases, there will be unforeseen consequences that may change the relative power dynamic. For example, if a human override of an AI effort results in fratricide or collateral damage that would not have occurred if the AI effort had been permitted, will there be a reexamination of the power dynamic between humanity and machine? Perhaps the successful use of AI in warfighting teams will earn AI a greater position of relative power that is refused it in early stages of integration. There could be a time when the capability value of AI exceeds the humanitarian concerns of human warfighters, thereby disrupting the relative power factor for a decision to trust.

Hurley's second category in the DTM consists of seven situational factors that can be influenced by the trustee to earn the trust of the trustor: situational security, similarities, interests, benevolent concern, capability, predictability/integrity, and communication. It may be helpful to have the flexibility to evaluate these factors by identifying the trustee to be AI alone or at times a combination of the AI system, the system developers, and the policy makers influencing implementation. This is because ANI, lacking intention and self-awareness, may be restricted by design from behaving outside the parameters established by the system developers. When considering interests, for example, as a situational factor in the decision to trust, such interests may be mostly a reflection of what the system developers have designed.

Situational security, capability, and predictability are all common expectations of any machine augmentation. Situational security is closely connected to the dispositional trust factor of risk tolerance. Because there is risk to the use of AI in military applications, it is important for AI to present situational security, the opposite of risk. Some risk exists simply because researchers, and therefore, users do not understand how AI processes

information and comes to a conclusion. This fascinating reality has gained considerable attention. In partnerships within the science and technology ecosystem, the Defense Advanced Research Projects Agency is investing highly in Explainable AI (XAI). Such "third-wave" AI technology "aims to create a suite of machine learning techniques that produce explainable models while maintaining a high level of prediction accuracy so human users understand, appropriately trust, and effectively manage the emerging generation of artificially intelligent partners."[13] It is an attempt to bridge the gap between the decisions or recommendations made by an AI system and the ability of that human user to understand why the AI came to such a conclusion. Success in the field of XAI will significantly improve the situational security offered by AI to human trustors.

The factors of capability and predictability go hand in hand in the realm of technology and are quite simple to understand in the relationship with AI. It is an issue of system competence. Can AI do what it is advertised to do? Does it, in fact, surpass human capability in areas of information analysis, course of action development, or target identification? Experience with AI will likely lead to trustors recognizing that AI can do what it is designed to do with predictability demonstrated through rare failure or deviations from a norm. Society is generally convinced of the superiority of machines over humans in innumerable tasks. Essentially nobody questions or checks by hand the results of a computation made on a calculator because it has been used trillions of times to calculate mathematical problems without fail. Systems testing prior to implementation can ensure capability and predictability. Once fielded, if AI can demonstrate itself to operate in the same ways without error according to its defined functions, then it is influencing the trustor's ability to trust.

The remaining factors—similarity, interests, benevolent concern, and communication—are much more difficult to examine in the relationship between a human warfighter and an AI system. Similarity and interests between man and machine are difficult to establish. This may be where attempts to create AI systems with anthropomorphic interface greatly benefit the decision to trust. Bonding with AI will likely be easier if it has a similar appearance or similarity in the way it communicates. A 2018 study of human interactions with a robot demonstrates the ability of humans to bond with machines that look and behave like humans.[14] In the study, some participants interacted with a robot in a social way, and others interacted with it in a functional way. At the end of some interactions the robot begged not to be turned off. Participants who heard the plea tended to treat the robot as if it were another person. The study concluded that people are likely to treat a machine that has autonomous attributes more like a human and less like a machine or system that lacks autonomous attributes. AI systems developed with some anthropomorphic capability are more likely to promote trust.

It is possible that similarity and aligned interests can be achieved through ANI's design for and application to warfighting tasks, its inherent purpose. If soldiers utilize an AI system at the tactical level that was created for or modified for tactical applications, then the system is demonstrating similarity to the warfighters operating in tactical environments. A future AGI system could experience a self-awareness that it exists, and even desires, to fight and win our nation's wars. This would be a clear demonstration of similarity and alignment of interests with human warfighters.

Perhaps training environments can be developed that produce bonds between AI and human team members. The Army is accustomed to taking dissimilar people and turning them into uniformed personnel. Similarity and alignment of interests are commonly achieved through initial entry training. Diverse trainees from numerous "tribes" bond through training experiences to become part of a new "tribe." Though diversity is still present, soldiers hold significant similarities with one another and share interests. Trust is an important by-product of such formative training and experiences. Humans who train alongside AI systems may enjoy the same byproduct.

The factor of benevolent concern is the ability of AI to put the needs of humans above that of itself. It is absolutely necessary that AI demonstrate the understanding that human warfighters are more valuable than any nonhuman parts of a team. Will AI destroy itself if it learns that it has been hacked by an adversary? Will AI sacrifice its existence to preserve human teammates? Even humans often opt to care more about themselves than those around them, and we often accept such selfishness in a dog-eat-dog environment. However, selfless service is a hallmark of military service and should, therefore, be required of AI. Like military working dogs, AI should be able to act courageously in defense of other warfighters and the mission.

Future AGI systems, sentient machines, will likely have the capacity for the kind of courage that humans display. Courage, physical and moral, is an essential value for military members and an enabler to accomplish violent actions in support of strategic, operational, and tactical objectives. Although cohesive teams are built on mutual trust developed primarily from everyday actions, grand gestures like acts of bravery bolster trust and uniquely endear members to one another.[15] During combat actions, service members are routinely inspired by the courageous acts of their comrades to accomplish more on the battlefield than would otherwise be possible. Bravery can become the instrument to break a stalemate, overcome impending defeat, and overwhelm an enemy force with violence of action. AGI that can behave in such a way will truly earn full trust from human teammates.

Finally, the communication factor impacts most other situational factors. Good and frequent communication is necessary for building trust. Communication with AI will certainly be situational. As previously covered, AI's decision-making process is difficult to communicate to humans, a problem XAI seeks to resolve. AI systems will need an intuitive interface that promotes communication between it and the users. If there is ever a moment when AI is perceived to avoid communication or withhold information from human warfighters, trust will be harmed and possibly irreparably so. Frequent and transparent communication by AI systems with soldiers will help to foster trust development and trust maintenance.

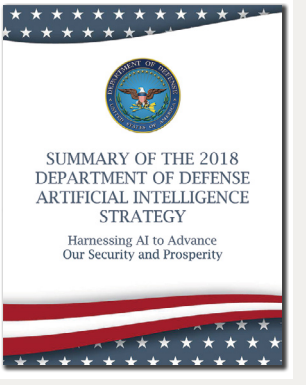
Recommendations

The recently established Army AI Task Force (A-AI TF) under Army Futures Command was an important step related to the military development and implementation of AI.[16] It is unknown what, if any, ethical issues are being studied in depth as part of A-AI TF projects. In cooperation with A-AI TF activities, the Army can accelerate the readiness of human warfighters to trust AI in four ways. First, the force must be better educated on the types of systems in development and their expected applications at strategic, operational, and tactical levels. The inherent secrecy of AI development in the military context complicates this endeavor, but there should be a means of promoting some of the planned applications of AI. It is not enough to proclaim, "AI is coming." A-AI TF and other related organizations should pursue ways to communicate their activities to the broad audience of the U.S. Army.

Second, A-AI TF should study the trust factors that enable the individual decision to trust as they pertain to AI systems. It should seek to answer, through psychological assessments, whether the current force possesses

Defense Department Chief Information Officer Dana Deasy (*center*) and Air Force Lt. Gen. John N. T. Shanahan, the director of the Joint Artificial Intelligence Center (*not pictured*), hold a roundtable meeting on the Department of Defense's artificial intelligence strategy 12 February 2019 at the Pentagon in Arlington, Virginia. (Photo by Sgt. Amber I. Smith, U.S. Army)

The *Summary of the 2018 Department of the Defense Artificial Intelligence Strategy: Harnessing AI to Advance Our Security and Prosperity,* released by the Joint Artificial Intelligence Center, articulates the department's approach and methodology for accelerating the adoption of AI-enabled capabilities to strengthen our military, increase the effectiveness and efficiency of our operations, and enhance the security of the Nation. To view this publication, visit https://media.defense.gov/2019/Feb/12/2002088963/-1/-1/1/SUMMARY-OF-DOD-AI-STRATEGY.PDF.



the necessary disposition to trust AI as tools or members of warfighting teams. Findings should be published and recommendations made as to how to form trust with AI.

Third, mission command doctrine must include the concept of trust between humans and systems, especially autonomous artificially intelligent systems. Just as doctrine details the human trust necessary to build cohesive teams, it must detail the necessary trust of AI as partners in such teams.

Finally, every soldier should begin to evaluate his or her own readiness to trust the AI systems that will soon change the way we fight our nation's wars. AI integration will change future warfighting teams, in some ways similar to the social and operating impacts made by the integration of women to combat arms military occupational specialties. Soldiers and leaders had to internalize the impacts of integration and make individual decisions and adjustments for new policies on combat arms training and operations. For AI integration, soldiers at every level should be provided time, space, and adequate information to ask themselves if they are ready and able to trust a system to accomplish important tasks in their warfighting team.

Conclusion

Future military operations will be characterized by the pervasive integration of AI with human warfighters. Some may argue that integration will be gradual, and that trust in AI will come naturally as an outgrowth of the current and common technology affinity and bias that society already possesses. Even if such an argument proves true, it will be important to understand the mechanics of such trust. It could also be the case that a large-scale combat operations will require rapid fielding of AI systems that will disturb the human warfighting-team cohesion. In such a case, even a basic awareness of the issue of trust in AI will aid the force to overcome the new challenges quickly. Using current doctrinal concepts of trust and an understanding of factors that lead to an individual decision to trust, the force can achieve a basic readiness to trust, and with the help of continued study by technologists, ethicists, behavioral scientists, and other interested professionals who serve the military community, the Army can achieve a high level of readiness to trust AI in cohesive warfighting teams. ■

Notes

1. The White House, *National Security Strategy of the United States of America* (Washington, DC: The White House, December 2017), accessed 5 August 2019, https://www.whitehouse.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905-2.pdf.

2. Department of Defense, *Summary of the 2018 National Defense Strategy of the United States of America* (Washington, DC: U.S. Government Publishing Office [GPO], 2018), accessed 5 August 2019, https://dod.defense.gov/Portals/1/Documents/pubs/2018-National-Defense-Strategy-Summary.pdf.

3. Department of Defense, *Summary of the 2018 Department of Defense Artificial Intelligence Strategy: Harnessing AI to Advance Our Security and Prosperity* (Washington, DC: U.S. GPO, 2018), accessed 5 August 2019, https://media.defense.gov/2019/Feb/12/2002088963/-1/-1/1/SUMMARY-OF-DOD-AI-STRATEGY.PDF.

4. Defense Advanced Research Projects Agency, *Department of Defense Fiscal Year (FY) 2020 Budget Estimates* (Washington, DC: Department of Defense, March 2019), accessed 5 August 2019, https://www.darpa.mil/attachments/DARPA_FY20_Presidents_Budget_Request.pdf.

5. Amir Husain, *The Sentient Machine: The Coming Age of Artificial Intelligence* (New York: Scribner, 2017), 107.

6. Andrew Ilachinski, *Artificial Intelligence & Autonomy Opportunities and Challenges* (Arlington, VA: Center for Naval Analyses, October 2017), 16–17, accessed 5 August 2019, https://www.cna.org/CNA_files/PDF/DIS-2017-U-016388-Final.pdf.

7. Husain, *The Sentient Machine*, 9–48.

8. Army Doctrine Reference Publication (ADRP) 6-0, *Mission Command* (Washington, DC: U.S. Government Printing Office, May 2012 [obsolete]), para. 2-5.

9. ADRP 1, *The Army Profession* (Washington, DC: U.S. GPO, June 2015 [obsolete]), para. 3-3.

10. Husain, *The Sentient Machine*, 89.

11. Robert F. Hurley, *The Decision to Trust: How Leaders Create High-Trust Organizations* (San Francisco: Jossey-Bass, 2012), ProQuest Ebook Central.

12. "How Generation Z Is Shaping Digital Technology," BBC Future, accessed 5 August 2019, http://www.bbc.com/future/sponsored/story/20160309-youth-connection.

13. *A Review and Assessment of the Fiscal Year 2019 Budget Request for Department of Defense Science and Technology Programs Before the Subcommittee on Emerging Threats and Capabilities Armed Services Committee, U.S. House of Representatives*, 115th Cong. (14 March 2018) (statement of Steven Walker, Director, Defense Advanced Research Projects Agency), 5–6, accessed on 5 August 2019, https://docs.house.gov/meetings/AS/AS26/20180314/107978/HHRG-115-AS26-Wstate-WalkerS-20180314.pdf.

14. Aike C. Horstmann et al., "Do a Robot's Social Skills and Its Objection Discourage Interactants from Switching the Robot Off?," *PLOS ONE* 13, no. 7 (18 July 2018), accessed 5 August 2019, https://doi.org/10.1371/journal.pone.0201581.

15. ADRP 6-0, *Mission Command*, para. 2-5.

16. Mark T. Esper, Memorandum for Principal Officials of Headquarters, Department of the Army, "Army Directive 2018-18 (Army Artificial Intelligence Task Force in Support of the Department of Defense Joint Artificial Intelligence Center)," 2 October 2018, accessed 5 August 2019, https://armypubs.army.mil/epubs/DR_pubs/DR_a/pdf/web/ARN13011_AD2018_18_Final.pdf.

Not an Intellectual Exercise

Lessons from U.S.-Israeli Institutional Army Cooperation, 1973–1982

Maj. Ethan Orwin, U.S. Army

When the Yom Kippur War broke out in October 1973, the U.S. Army Training and Doctrine Command (TRADOC) had existed for a mere three months. The TRADOC commander, Gen. William DePuy, sent his armor commandant, Maj. Gen. Donn Starry, and the XM1 tank program director, Brig. Gen. Bob Baer, to visit Israel and report on the war's implications. This marked the beginning of a long and in-depth series of U.S. Army visits intended to extract lessons from the war and the start of personal relationships between Starry and some of his Israel Defense Forces (IDF) colleagues, which would have a great impact on the U.S. Army in the coming years.

While there is some debate among historians about whether the Yom Kippur War changed or merely confirmed the doctrinal views of these Army leaders, there is no doubt that the conflict's lessons contributed to the development of the Active Defense doctrine in 1976, which evolved into the AirLand Battle doctrine, published in 1982. Beyond the doctrinal impact, the IDF's initial setbacks and ultimate victories in the

An Israeli tank unit forms for a counterattack 8 October 1973 against Syrian armor on the Golan Heights. (Photo by David Rubinger, Israel Government Press Office)

Golan Heights and the Sinai Peninsula captured the interest of a generation of U.S. Army officers emerging from Vietnam with a renewed focus on conventional warfare and the Soviet threat in Europe. Furthermore, the lessons of the Yom Kippur War are clearly visible in the "Big Five" weapons systems that emerged during a golden age of effective U.S. Army modernization.

devotes considerable resources to this effort, and Army senior leaders have made it clear that collaboration with allies and partners is a priority.[3] The headquarters of geographic combatant commands and Army service component commands maintain robust staffs of military and civilian professionals who focus on exercises, combined training, and military-to-military engagement. The Army headquarters holds staff talks with partner armies around the world, resulting in "agreed-to-actions" that meet both sides' priorities.

"As field units and headquarters assimilate increasingly advanced technology, "interoperability"—the ability of allied armies to connect their systems and fight together—has become a key goal in the Army's international engagement."

All of this is well known; Army leaders today often stress the foundational importance of TRADOC's relations with the IDF (and rightly so) at bilateral events, and both professional historians and Command and General Staff College students have written much about DePuy and Starry and the development of AirLand Battle.[1] But less has been said about what this period of relations between the U.S. Army and the IDF represents as an example of military diplomacy. This article seeks to explore that topic and to examine its implications for present-day cooperation between the two armies.

The flurry of institutional and high-level personal contact between the two armies after the end of the Yom Kippur War was something unique, falling outside the usual categories of U.S. Army relations with allies and partners. Furthermore, the conditions of the mid-1970s have much in common with those of 2019, not only in the challenges that both armies face but also in their comparative strategic and institutional requirements. Present conditions call for a form of sustained, balanced collaboration focused on modernization, individual and collective training methods, and rapid exchange of battlefield lessons learned (as epitomized by the Starry Report and its aftermath).[2]

Context: U.S. Army International Engagement and the IDF

Before delving into U.S. military relations with Israel, a general look at how the U.S. Army conducts international engagement is in order. The Army

In addition, the Army maintains a regionally specialized foreign area officer corps, which officers enter as senior captains or junior majors and serve in for the remainder of their careers. These officers receive language education, regional experience, and relevant postgraduate education before embarking on assignments, both in region and on staffs, that focus on cooperation with military partners. As field units and headquarters assimilate increasingly advanced technology, "interoperability"—the ability of allied armies to connect their systems and fight together—has become a key goal in the Army's international engagement.

All of these aspects of military cooperation serve the U.S. Army-IDF relationship well. Army forces in Europe conduct a number of joint events or exercises with the IDF, particularly in the realm of air and missile defense, and annual IDF participation in multilateral exercises has been expanding from company to battalion size in the past two years. Senior leaders from both armies interact frequently, and working-level delegations conduct routine reciprocal visits to share tactics, techniques, and procedures in numerous fields. In addition to planned Army staff talks, which will open up opportunities with additional Army commands, the Future Battlefield Annual Talks provide a framework for annual cooperation between the IDF ground forces and TRADOC. Army

special operations and National Guard cooperation with Israeli partners is equally comprehensive.

Yet, even in comparison with today's robust engagement, the scope and depth of U.S.-Israeli institutional army cooperation from 1973 to 1982 stands apart. This is due in part to the historical conditions in which both armies found themselves. Both, whether they knew it or not, were at the end of an era and the dawn of a new one. The U.S. Army was emerging from a decade of counterinsurgency in Vietnam and thirty-three years of compulsory service. As its senior officers tried to build a new all-volunteer force in an environment of low public esteem for the military, they also had to reorient themselves to conventional warfare and the potential battlefields of Central Europe. For this fight, they had only their experience as junior officers in World War II to guide them, while field grade officers and below had little relevant experience at all. Their Warsaw Pact adversaries, in the meantime, presented a formidable threat in mid-intensity conflict.[4] As aforementioned, TRADOC was established in the summer of 1973 to meet these challenges, and DePuy was its first commander.

The IDF, for its part, was coming to the end of its existential, mid-intensity wars with Arab armies, though that was not yet clear at the time. While the initial failures of the Yom Kippur War were obviously a shock to the IDF and Israeli society, the IDF's position as the most experienced of all Western-style armies in conventional warfare was beyond dispute.

Unprecedented Access: Starry's First Visits and Initial Lessons

The impetus for Starry and Baer's initial visit to Israel came from Chief of Staff of the Army Gen. Creighton Abrams, who thought the Yom Kippur War's lessons urgent enough that he redirected the two subordinate generals in the middle of a visit to the United Kingdom. As Starry recalled in an interview, Abrams not only requested the general lessons of the war but also specifically tied the visit to the war's potential impact on tank procurement decisions at senior levels in Washington, D.C.—not the last time that Israeli operational lessons would be employed to support endangered Army capability development efforts.[5]

The visit provided Starry his first encounters with Gen. Moshe "Musa" Peled, hero of the Golan Heights front and commander of the IDF Armor Corps, and Gen. Israel Tal, founder of the Merkava tank program. Starry spent several days with Tal with a focus on the nascent Merkava, which was a Frankenstein's monster-like prototype thrown together from parts of various tanks at the time, as it fired test rounds into the Mediterranean Sea from Palmachim. Starry then spent several more days with Peled and the IDF Armor Corps before using the rest of the visit to walk the battlefields of the Golan Heights and the Sinai Peninsula with the battalion- to division-level commanders who had fought there.[6]

It is worth emphasizing that the level of access was extraordinary, even in light of Israeli gratitude for critical American assistance during the war. The IDF was presumably very busy consolidating its gains, rebuilding damaged units and equipment stocks, and reckoning with internal and national soul-searching about the war's lessons. Yet, with no immediate tangible benefit for them or their country, IDF commanders at every level found the time to present two relatively junior American generals with a cross-section of capability development, lessons learned, training methods, and battlefield analysis.

The many visits that followed, not only those of Starry and Baer, were also characterized by surprising depth and breadth of engagement. For example, when the U.S. Army Infantry School commandant and his deputy visited in December 1976 and February 1977, respectively, both met with IDF Chief of Staff Lt. Gen. Mordechai "Motta" Gur.[7] Gur's willingness to meet with one- and two-star generals and to discuss antitank weapon systems, mechanized infantry training methods, and the appropriate number of soldiers in an infantry squad demonstrated the priority that the two armies placed on both institutional army concerns and bilateral cooperation. The IDF offered not only the highest levels of engagement but also surprisingly low ones, such as inviting the U.S. Army

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Infantry School deputy commandant to observe an armor company's live-fire exercise in its entirety.[8] Visits to brigade-level exercises featured engagement at every level during tactical operations, allowing U.S. Army visitors to write exhaustive reports on IDF tactics, techniques, and procedures. The level of detail recorded says much about the U.S. Army's appetite for reforming its own training methods, equipment, and doctrine, and its enthusiasm for those of an allied army that had recently fought a mid-intensity war.

Starry, in his TRADOC analysis of the Yom Kippur War, was somewhat dismissive of the reports on IDF tactics, techniques, and procedures and wrote, "The height and breadth of information … could be measured in kilometers, the depth of analysis in millimeters."[9] He believed that the main doctrinal lessons were already clear in his report to Abrams after his first trip, but that many further trips and conversations with friends like Peled and Tal were necessary to elaborate on them and answer questions they raised.[10] This included the density and lethality of the modern ground and air battlefields, the necessity of combined arms warfare, and the need for commanders to observe and disrupt the enemy's rear and deep echelons.

U.S.-Israeli Institutional Army Cooperation after 1973: Impact on the U.S. Army

Historians have debated whether the lessons of the war really transformed Starry and DePuy's understanding of modern warfare or simply served as ammunition to support conclusions they had already reached.[11] Starry himself wrote that he felt the war's lessons confirmed the path he was already on in developing the Army's new doctrine.[12] But for those examining the post-Yom Kippur War relationship from a security cooperation standpoint, this is beside the point. One measures the significance of cooperation between friendly institutional armies by the degree of actual impact on how each army trains and fights, not by the extent of the shift in generals' opinions.

What exactly was unique about all of this exchange and its influence on U.S. Army doctrine? The Army, after all, has been in continuous doctrinal dialogue with its NATO allies throughout the history of that alliance, and unlike its relations with the IDF, the U.S. Army actually writes and abides by combined doctrine with the German and British armies, which Starry also personally visited during his time.[13] But, unlike the IDF, NATO allies lacked conventional combat experience, and they had

few lessons learned from conflicts relevant to the Soviet threat in Europe to impart to one another. It was the very difference between the U.S. Army and the IDF that made their collaboration from 1973 to 1982 so useful. In today's era of focus on interoperability, the IDF's status as a close ally standing somewhat apart from the U.S. Army's likely operational scenarios is again apparent.

For the U.S. Army, the impact of the Yom Kippur War was particularly crucial for capstone doctrine. Starry described this succinctly in a 1976 letter: "It may interest you to know that most of the recent TRADOC literature was stimulated by my visit to Israel shortly after the war and subsequent work with the Israeli leaders."[14] By the time DePuy presented his report, "Implications of the Middle East War on U.S. Army Tactics, Doctrine, and Systems," TRADOC had divided the actionable lessons into 162 recommendations, twenty of which were classified as "completed."[15] The detail of this effort matched its scale, with DePuy emphasizing topics as diverse as nonflammable hydraulic fluid, ammunition storage below the turret, and battlefield cannibalization. It is unlikely that the modern U.S. Army has ever attempted to implement foreign lessons learned on a similar scale.

DePuy concluded his summary by reminding Army leaders that this effort was not a mere "intellectual exercise."[16] He stressed that all of the Army's concepts and doctrine, capability development, and training efforts must link to the war's lessons. Again, for an Army not always known for studying its own campaigns (let alone those of others), this requirement to "crosswalk" force buildup efforts with lessons from a foreign war seems unique in the history of U.S. Army foreign relations.

The resulting capstone doctrine was Active Defense, followed by AirLand Battle, which became well known. But Starry and DePuy did not intend for the war's lessons to solely or even primarily influence doctrine.[17] Israeli techniques for individual and collective training, which U.S. generals viewed as having been decisive in the IDF's victory while fighting outnumbered, were equally important.

Starry was not alone in this view. Brig. Gen. Paul F. Gorman, who served as TRADOC deputy chief of staff for training and later as commandant of the U.S. Army Infantry School, took part in intense engagement with the IDF in the mid-1970s and determined that training was the variable that had won the war. He studied the detailed data that the Israelis had on tank battles and examined Israeli tank commander and gunnery training. However, the level of detail went beyond mere exchanges of expertise and included TRADOC obtaining translations of Israeli training manuals, gunnery qualification tables, and armor exercise plans from crew to battalion level.[18] (This is more akin to what partner nations receive today from the U.S. Army during foreign military sales—except that these exchanges were free between trusting partners.)

With this information, Gorman concluded that IDF armor training had not only been the decisive factor in those battles but also invalidated then fashionable theories about the overriding importance of numbers on the battlefield.[19] This approach clearly linked operational success on the battlefield with institutional Army reforms, which were the ultimate objective of the Army generals' engagement with their IDF partners. DePuy wrote that when equally advanced weapons systems clashed on the battlefield, "courage, imagination, and the training of the commanders made the difference."[20]

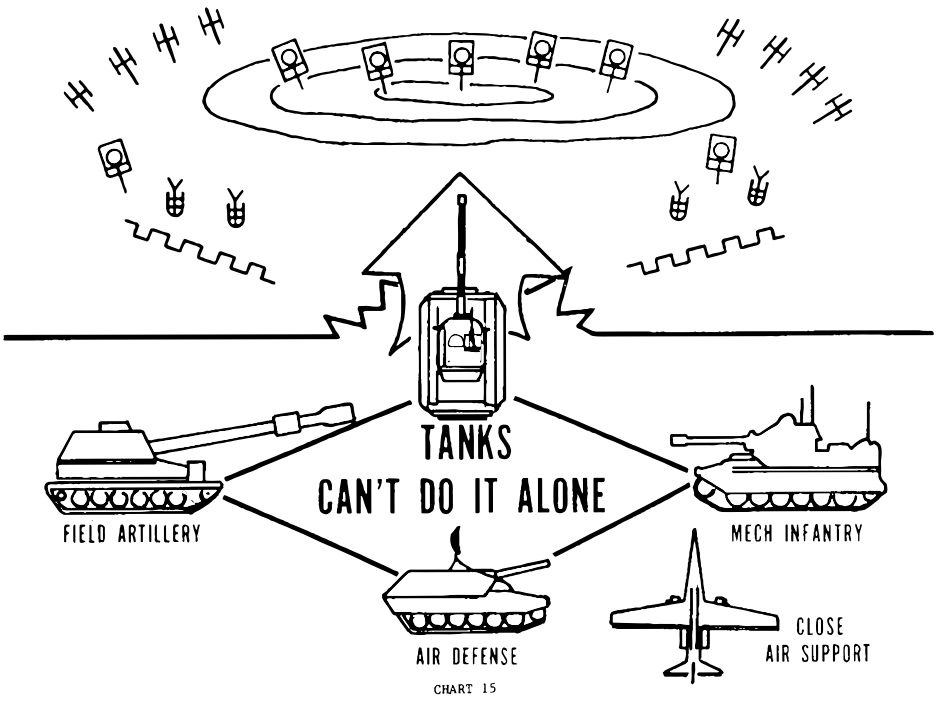
Influence on U.S. Army Materiel Modernization

DePuy and Starry's efforts in the early days of TRADOC encompassed materiel modernization in addition to training and doctrine, and here as well, engagement with Israel had a unique influence. Both generals believed that concerns about the tank's obsolescence were overwrought and that the tank simply needed adequate combined arms support to enable its continued preeminence in ground combat. DePuy's "Implications of the Middle East War on U.S. Army Tactics, Doctrine, and Systems," a report on the ramifications of the Yom

Previous page: A destroyed Israeli (U.S.-made) M60 tank sits amongst the debris of other armor after an Israeli counterattack in the Sinai near the Suez Canal during the 1973 Yom Kippur War. In the initial crossing of the Suez by Egyptian forces, Israeli leaders assumed Egyptian soldiers would flee at the first sight of Israeli armor as they had in the 1967 war. However, Egyptian forces had studied Israeli tactics from the 1967 war and were well prepared to defend against the anticipated initial use of Israeli armor. This resulted in near catastrophe for Israeli forces in the early stages of the conflict, although Israel was eventually able to regain the initiative. (Photo courtesy of *Military Battles on the Egyptian Front* by Gammal Hammad via Wikimedia Commons)

Kippur War, included a chart depicting the tank's continued centrality, with air defense, mechanized infantry, close air support, and field artillery in support (see figure).[21] This represented four of what would become the "Big Five": the Abrams main battle tank, the Bradley Fighting Vehicle, the Apache attack helicopter, and the Patriot air defense system. The unmentioned fifth capability, the Black Hawk helicopter, reflected Starry's views about rapid transport of troops around and between close and deep areas.[22]

Beyond the Big Five, Starry explicitly linked the lessons of the war to the requirements that spurred the development of the Joint Surveillance and Target Attack Radar System and the Army Tactical Missile System as well.[23] The Army's simultaneous development of the Multiple Launch Rocket System transformed its capabilities in the fifth field listed on DePuy's chart: field artillery. This employment of a foreign ally's military lessons, as opposed to intelligence regarding foreign adversary capabilities, to win Pentagon procurement battles has few parallels in the Army's history.



(Figure from William E. DePuy, "Implications of the Middle East War on U.S. Army Tactics, Doctrine, and Systems")

Figure. Tank's Continued Centrality Representing Four of the "Big Five"

Historians have criticized Starry and other officers for a selective and overly rosy portrayal of the IDF's performance in the war. For one thing, Starry focused heavily on the theater of war in the Golan Heights while paying less attention to the decisive front in the Sinai Peninsula. More broadly, the American generals' reports on the war's lessons paid scant attention to the IDF's many errors, including suffering surprise at its outset.[24] But this was a strategic failure, and TRADOC's interest in the war was not about strategy but rather tactics, campaigning, and modernization. What may look like a selective or dishonest analysis to a trained historian was, from Starry's perspective, a focus on what was important to the U.S. Army of the 1970s.

In any case, Israeli failures were not entirely ignored. DePuy's "Implications of the Middle East War on U.S. Army Tactics, Doctrine, and Systems" described in detail the disastrous early counterattack in the northern Sinai Peninsula and used it to concede that unsupported armor was no longer viable on the modern battlefield.[25] It is no surprise that Starry and DePuy, like others, used the lessons of the war to push their own agenda for procurement and doctrine (as that is what military and bureaucratic leaders do). U.S. military leaders today are similarly selective in their approach to IDF doctrine and lessons. Counterinsurgency in the West Bank, for example, is simply of less interest to the U.S. Army's current and future concepts than what a "Gideon" brigade combat team might do in a campaign against Hezbollah and other Iranian proxies on the Lebanese and Syrian fronts.

The (Genuine) Importance of Relationships

An important characteristic of Starry's long collaboration with the IDF was his development of personal relationships. These are difficult to achieve between leaders

who change positions every two years. However, Starry managed to retain intense collaboration with Israel as a common thread throughout his years at the U.S. Army Armor School, V Corps, and as the head of TRADOC. Gens. Israel Tal and Moshe "Musa" Peled in particular became personal friends. Starry even shared internal frustrations with his Israeli counterparts, once writing to Col. Bruce Williams, the U.S. Army attaché in Israel, to convey his disappointment to Peled about the U.S. decision to cut funding for a new infantry fighting vehicle.[26] Thanks to these personal ties, the visits flowed in both directions. In one instance, in 1977, Peled happened to be touring the border line in Germany with Starry when a Soviet division-sized movement eluded U.S./NATO observation. This prompted Peled to lead a visit for U.S. Army V Corps staff to the Golan Heights battlefields focused on division/corps commander situational awareness.[27] These friendships not only had strategic impacts for Starry and the U.S. Army but also for Israel in the political realm, as in the case of Starry's intervention with Secretary of State Alexander Haig regarding Israel's worries about the warming U.S.-Egypt relationship.[28] Conversely, relationships greased the wheels of tactical-level cooperation when political considerations interfered. When American political sensitivities prevented U.S. Army visits to the Lebanon front in 1982, Starry's friends in the IDF ensured that he received IDF primary sources on the war, which were even translated for him.[29] While vague praise for the importance of relationships is ubiquitous in international cooperation, the Starry era of IDF-U.S. Army cooperation laid bare its practical significance.

The beginning of the First Lebanon War marked an interesting end to this era of intensive cooperation related to mid-intensity conflict. When the war broke out, Starry was again the first U.S. military leader to rush to Israel, where his many longtime Israeli friends received him with the customary openness. However, U.S. political considerations prevented him from visiting the battlefields themselves, so IDF Chief of Staff Lt. Gen. Rafael "Raful" Eitan brought IDF ground forces, air force, and intelligence senior leaders from the front to brief Starry on the key developments. In a letter to Chief of Staff of the Army Gen. E. C. Meyer, Starry complained that the Army was "fumbling" to mount an effective mission to gather lessons learned, just as it had in 1973–1974.[30] He recommended establishing a standing mechanism for lessons-learned missions to Israel.

Absent from Starry's commentary on the visit was any acknowledgment that the nature of Israel's wars was changing. It seems that he expected the First Lebanon War's lessons to stem from the initial mid-intensity combat with Palestinian and Syrian forces and to center on tank design, the role of close air support, and so on—much like the Yom Kippur War. In reality, the IDF was facing a shift toward asymmetric warfare that would continue to this day.[31] The U.S. Army would not face a similar shift until 2003, when twenty years of IDF lessons from Beirut, Nablus, and Jenin would suddenly become significant.

Lessons for U.S.-Israeli Institutional Army Cooperation Today

What does post-1973 U.S.-Israeli institutional army cooperation teach us today? There are a number of differences in the circumstances. Most importantly, the two armies are no longer preparing for the same type of enemy. As described in the "Land on the Horizon" concept for 2028, the IDF's reference threat is a hybrid, nonstate adversary, although a capable one with a number of high-level capabilities. TRADOC Pamphlet 525-3-1, *The U.S. Army in Multi-Domain Operations 2028*, names near-peer state militaries as its reference threat.[32] In addition, there is no similar experience gap between the two armies. Both have nearly twenty years of combat experience behind them in similar forms of warfare, although the IDF's campaigns (with the exception of the Second Intifada) have been short and intense rather than drawn-out counterinsurgencies. This differs from 1973, when the IDF possessed unique experience in the type of war that the U.S. Army was preparing for. Finally, the U.S. Army is not undergoing changes as fundamental as those of the 1970s. There is no change to its accessions model, and levels of morale and professionalism bear no resemblance to those of the post-Vietnam Army.

That said, there is much in common between the two eras that is relevant to cooperation. The U.S. Army is again shifting its focus from asymmetric warfare to near-peer threats, and again senses that it has allowed peer adversaries to narrow capability gaps over the past ten to fifteen years. As in the mid-1970s, both armies believe they are on the brink of an increase in battlefield lethality, at least in the case of a major campaign against their respective reference threats. The IDF is again the first Western-style army with operational lessons learned from a number of technologies essential

to both armies' concepts, such as active protection and integrated air defense systems.

One thing that has changed is the speed and sophistication of the Israeli capability development process. Israel's development of the Iron Dome missile defense system or the Namer Infantry Fighting Vehicle in five years or fewer after the operational need became apparent would be unthinkable in the U.S. Army, which is why it has reorganized its modernization enterprise under the new Army Futures Command.[33] While Israel's small size and limited diversity of adversaries contribute to this phenomenon, the Army would do well to apply Starry-style rigor to *how* the IDF modernizes and not just to the resulting capabilities themselves.

There are additional striking parallels between the required capabilities that Starry and his colleagues gleaned from their Israeli counterparts in the 1970s and those that both sides are discussing today. DePuy's account of the overall challenge of combined arms lethality that the Yom Kippur War battlefield presented—including increasingly effective air-ground and ground-air fires—have a strong echo in the multi-domain "layers of standoff" that the U.S. Army sees as its chief challenge today.[34] There were also specific mid-intensity sustainment capabilities that the U.S. Army had lost during its focus on Vietnam, such as battlefield cannibalization in an environment of high lethality for combat vehicles.[35] The parallel today is reconstitution and force regeneration, which the U.S. Army is reexamining for a multi-domain environment, and would likely be of interest to Israeli logistics officers in planning for another war in the north. In other cases, U.S. Army visitors to Israel in the 1970s actually witnessed the birth pangs of technologies, such as remotely controlled and autonomous systems, that are still central to the capability development discussions between the two allies today.[36] In reexamining this era of close cooperation, we see that what each side demanded of the other was not so different from today.

Conclusion: Armies that Learn Together

Few on either side of the relationship doubt that Israeli technology will be at the center of cooperation between the two militaries in the near future. Visits from U.S. Army senior leaders always include demonstrations of emerging technologies of interest, and the Army's acquisition of the IDF's Trophy Active Protection System and Iron Dome missile defense system is likely a sign of more to come.

The post-Yom Kippur War cooperation—which occurred at a time when Israeli technology was far less advanced and was mainly noteworthy for its ingenious field expedient improvisations—teaches us the importance of exchanging lessons learned, and this must not be forgotten through overemphasis on materiel. Starry and his contemporaries learned much during their exchanges about battlefield lethality and the technical capabilities of Sagger antitank missiles and surface-to-air missiles, but they were equally interested in how the IDF Ground Forces Corps adjusted their doctrine, training, and tactics to confront those weapon systems. The IDF armor school and air defense school can play equally critical roles for the U.S. Army in the integration of the Trophy Active Protection System and Iron Dome missile defense system today.

Another lesson of the Starry era in regard to IDF-U.S. Army cooperation is the importance of an "on-demand" lessons-learned mechanism. As deep and fruitful as the cooperation was, Starry always felt that inertia and standard defense cooperation policies hindered rapid progress in integrating lessons learned. His complaints to Meyer during the First Lebanon War indicate that he considered even ten years of his own efforts to improve this problem ineffective.[37]

The two armies have continued to pass lessons learned in both directions in the decades since. Recent examples include the IDF ground forces delegation that visited TRADOC centers of excellence in 2014 after Operation Protective Edge and U.S. briefings on the lessons of the Battles for Mosul and Raqqa at the Future Battlefield Annual Talks. Lessons learned from exercises, particularly those that test new concepts and capabilities, are another welcome topic during bilateral engagements. But Starry (as well as Peled and Tal) understood that while post-conflict briefings are valuable, walking the battlefields and engaging with combat leaders immediately after, or even during, the battles are more so. One option is a formal, agreed-upon rapid exchange of lessons learned. As much as neither side would like to see it, another Israeli campaign in the North would inevitably generate crucial lessons related to multi-domain operations and current U.S. Army gaps. Any escalation beyond the usual competition against U.S. forces

Israeli Lt. Col. Nir Yogev, movement control battalion commander (*right*), greets U.S. service members 7 February 2019 during exercise Juniper Falcon 19 at Hatzor Air Force Base in Israel. Juniper Falcon 19 is a bilateral exercise between U.S. European Command and the Israel Defense Forces that is designed to improve military relationships and increase interoperability between both nations' militaries. (Photo by Mass Communication Specialist 2nd Class Cody Hendrix, U.S. Navy)

by adversaries in Europe, the Middle East, or the Pacific would hold similar interest for the IDF.

As for personal relationships, few officers possess the charisma of Starry or Peled. However, Starry's ability to maintain those links across various positions is a good model for others to follow. Longer duration and more thoughtful collaboration must overcome the reset caused by job rotations every one to two years. This is already visible in fields where the two armies cooperate on an extended basis (e.g., air defense). Thanks to combined exercises, many U.S. Army air defense officers acquire copious experience and contacts in Israel throughout their careers. When they visit as senior leaders, they often have years of close association with their Israeli Air Force counterparts and can address larger issues in a way that is immediately apparent. An increase in course attendance in both directions, which has been limited in recent years, would produce more of these relationships, as would the introduction of more opportunities for combined exercises, which is already underway. Starry's decade-long relationship with the IDF, which brought him from the Yom Kippur War to the First Lebanon War, exemplified what long-duration relations between institutional armies can provide—the chance to watch another army fight, learn lessons, change, fight again, and learn again.

Those interested in determining what is most important in the U.S. Army-IDF relationship should look first at what is most unique. The United States is blessed with many close allies, including some who it expects to fight alongside it in any significant campaign, hence the focus on interoperability. It has partners who purchase American weapons systems, seek U.S. assistance in training officers and soldiers, and are eager to participate in combined exercises with the United States to promote regional security. The existing constructs for cooperation work well for such relationships. The unique, defining characteristic of the

U.S. Army-IDF partnership is two armies that learn together. They are unlikely to fight the same wars, and complicated regional dynamics make it a challenge to conduct large combined ground exercises relevant to both sides. But both armies have been uniquely open to the other's need to absorb lessons in preparation for the future. The two armies innately trust one another to innovate while fighting, acknowledge mistakes, and put the whole weight of their genius and professionalism toward improvement before the next conflict strikes. The resulting exchange of knowledge is something neither army can expect in quite the same way from any other. ■

Notes

1. See Aaron J. Kaufman, "Continuity and Evolution: General Donn A. Starry and Doctrinal Change in the U.S. Army, 1974-1982" (monograph, Fort Leavenworth, KS: School of Advanced Military Studies, 2012).

2. For Starry's central conclusions from his visit to Israel, see Donn Starry, "TRADOC's Analysis of the Yom Kippur War, Jaffee Center Military Doctrine Joint Conference, Caesarea, Israel, 16 March 1999," in *Press On! Selected Works of General Donn A. Starry*, ed. Lewis Sorley, vol. I (Fort Leavenworth, KS: Combat Studies Institute, 2009).

3. Sydney J. Freedberg Jr., "Trump's Pick for Joint Chiefs Praises Allies, Kurds & Mattis Strategy," *Breaking Defense*, 16 January 2019, accessed 19 August 2019, https://breakingdefense.com/2019/01/trumps-pick-for-joint-chiefs-praises-allies-kurds-mattis-strategy/.

4. The Union of Soviet Socialist Republics (USSR), Albania, East Germany, Bulgaria, Romania, Hungary, Poland, and Czechoslovakia. At the time, Ukraine was part of the USSR. See Donn Starry, "Sergeants' Business: U.S. Army Sergeants Major Academy, Fort Bliss, Texas, 3 November 1977," in Sorley, *Press On!, 1:489*.

5. Donn Starry, "Desert Storm Lessons Learned: US Army Military History Institute Oral History Interview, Conducted by Lieutenant Colonel Douglas V. Johnson, Colonel Thomas Sweeney, and Colonel Douglas W. Craft, 18 September 1991," in *Press On! Selected Works of General Donn A. Starry*, ed. Lewis Sorley, vol. II (Fort Leavenworth, KS: Combat Studies Institute, 2009), 1225.

6. Ibid.

7. Willard Latham, memorandum, "Trip Report by the Commandant, U.S. Army Infantry School, 6-13 December 1976" (Washington, DC: Department of the Army, 15 February 1977), retrieved from U.S. Army Training and Doctrine Command (TRADOC) Historian Archives; Fred Mahaffey, memorandum, "Israel Visit by Assistant Commandant, USAIS, 5 to 11 February 1977" (Washington, DC: Department of the Army, 31 March 1977), retrieved from TRADOC Historian Archives.

8. Mahaffey, "Israel Visit," Appendix on Visit to Sinai, 2.

9. Donn Starry, "TRADOC's Analysis of the Yom Kippur War, Jaffee Center Military Doctrine Joint Conference, Caesarea, Israel, 16 March 1999," in Sorley, *Press On!, 1:223*.

10. Ibid.

11. Saul Bronfeld, "Fighting Outnumbered: The Impact of the Yom Kippur War on the U.S. Army," *The Journal of Military History* 71, no. 2 (April 2007): 465–98.

12. Interview with Donn Starry, in Sorley, *Press On!*, 2:1109.

13. Starry, "German-American Coordination: Letter to Lieutenant Colonel Samuel D. Wilder, Fort Monroe, Virginia, 23 August 1976," in Sorley, *Press On!*, 1:282; Starry, "US and Federal Republic of Germany Doctrine: Letter to Lieutenant General John R. Thurman, Deputy Commanding General, US Army Training and Doctrine Command, 27 September 1978," in Sorley, *Press On!*, 1:335.

14. Donn Starry, "Israeli Relationships: Letter to Lieutenant Colonel Michael D. Mahler, Fairfax, Virginia, 28 April 1976," in Sorley, *Press On!*, 1:280.

15. William DePuy, "Implications of the Middle East War on U.S. Army Tactics, Doctrine, and Systems" (military presentation, February 1975), 53, retrieved from TRADOC Archives.

16. Ibid., 65.

17. For a detailed account of the development of both doctrines, see Aaron J. Kaufman, "Continuity and Evolution: General Donn A. Starry and Doctrinal Change in the U.S. Army, 1974-1982" (monograph, School of Advanced Military Studies, Fort Leavenworth, KS, 2012).

18. Brig. Gen. Paul F. Gorman also recommended that the Army should train a cadre of "master gunners," senior noncommissioned officers as experts on tank gunnery who would go out to every armor battalion and establish the highest standards. The program has since expanded to mechanized infantry gunnery for Bradleys and Strykers, and, in recent years, master gunners have traveled to Israel to test various advanced Israel Defense Forces (IDF) capabilities from a U.S. Army perspective.

19. Paul F. Gorman, "How to Win Outnumbered," sent as an enclosure to a letter to Donn A. Starry, 8 January 1974, box 2, folder 7, Donn A. Starry Collection, U.S. Army Heritage and Education Center.

20. DePuy, "Implications of the Middle East War on U.S. Army Tactics, Doctrine, and Systems," 50.

21. Ibid., Chart 15.

22. Starry, "TRADOC's Analysis of the Yom Kippur War," in Sorley, *Press On!*, 1:223.

23. Starry, "Reflections," in Sorley, *Press On!*, 1:28.

24. Bronfeld, "Fighting Outnumbered," 481–82.

25. DePuy, "Implications of the Middle East War on U.S. Army Tactics, Doctrine, and Systems," 20–21.

26. Starry, "Infantry Fighting Vehicles: Message to Colonel Bruce Williams, United States Defense Attaché Office, Tel Aviv, Israel, 19 January 1978," in Sorley, *Press On!*, 1:242.

27. Starry, "Air Force: AirLand Battle: United States Air Force Oral History Program Interview Conducted by Dr. Harold R. Winton, 13 May 1995," Sorley, *Press On!*, 2:1285.

28. Starry, "Relations with Israel: Letter to Secretary of State Alexander M. Haig, Jr., 28 September 1981," in Sorley, *Press On!*, 2:933.

29. Starry, "Desert Storm Lessons Learned," 2:1224.

30. Starry, "Situations in Germany and Israel: Message to General E. C. Meyer, Army Chief of Staff, 30 November 1982," in Sorley, *Press On!*, 2:945.

31. Pierre Razoux, *Tsahal: Nouvelle histoire de l'armée israélienne* (Paris: Editions Perrin, 2006), 369–459.

32. U.S. Army Training and Doctrine Command (TRADOC) Pamphlet 525-3-1, *The U.S. Army in Multi-Domain Operations, 2028* (Fort Eustis, VA: TRADOC, December 2018), 6–7; "Land on the Horizon" is not publicly available, and the author has drawn information from multiple unclassified IDF briefings in 2018.

33. Israel Ministry of Defense's Tank Directorate and Directorate of Defense Research and Development, in discussions with author, 2018–2019.

34. DePuy, "Implications of the Middle East War on U.S. Army Tactics, Doctrine, and Systems," 25–28.

35. Ibid., 54–57.

36. David Stefanye, memorandum, "Trip Report, Visit to Israel on 18–21 October 1976" (Washington, DC: Department of the Army, 2 November 1976), 13, retrieved from TRADOC Historian.

37. Starry, "Situations in Germany and Israel," in Sorley, *Press On!*, 2:945.

Have I Ever Been to War?

by Ryan Hill

Generations have voiced through pen and art, the glorious horrors of war
Stories are told, some without words, of men changed down to their core

I've been and seen and felt and feared, but my story is not the same
With a different view of the battlefield, I'm wary of what I claim

I have dented the earth and bent the air inside the enemy's door
But I cannot help but ask myself, Have I ever been to war?

I've topped the heights and flung my craft into valleys in the black of night
But the intimate pain and guilt in death remained outside my sights

I've squeezed the trigger that ended men's lives but did not witness the gore
So again I have to ask myself, Have I ever been to war?

I've seen the ghost of my imminent end
but never the face of a dying friend

I've seen the hopeless green smoke rise
but never the suffering it disguised

I've heard the whistling rounds drop in,
without a clue of where they'd land

But I've never felt their sting before,
And so I ask, Have I been to war?

I don't carry a load, nor am I lost between the darkness and the light
I'm the same as the man who left to go, but I question if that's right

To all those who there remain, and to those who've gone before
I joined you in that hellish place, but I'm still not sure I've been to war.

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An undated photo of an Su-30MKK in midair refueling with a Russian-made Il-78 Midas tanker. Chinese capability to conduct midair refueling lags significantly behind that of the United States. (Photo courtesy of the China Military Network)

Air Supremacy
Are the Chinese Ready?

Maj. Jonathan G. McPhilamy, U.S. Air Force

The Chinese People's Liberation Army (PLA) has invested in defensive air capabilities such as anti-access/area denial assets and fifth-generation fighter aircraft. Yet, it is still significantly behind Western airpower capabilities; it is unable to demonstrate offensive power projection in the air domain. This calls into question China's ability to establish air superiority against the U.S. military if a conflict were to arise between the two. This lack of Chinese airpower capacity is most apparent in three areas: air integration in the joint fight, aerial refueling, and aircraft production and sustainment. These make the difference right now between the Chinese achieving regional dominance in the air domain and having an air force with global reach.

People's Liberation Army Air Force

The People's Liberation Army Air Force (PLAAF) is the air component of the Chinese military; it has been

charged with a largely supportive role from its time of conception.[1] Cristina L. Garafola's "The Evolution of PLAAF Mission, Roles and Requirements" highlights the "PLAAF's development in three separate phases since the PLAAF was established on November 11, 1949."[2] The three separate phases show the maturation of the PLAAF and the strains on the organization during its development.

The first period (1949–1955) is defined by broad goals of "building an Air Force on the Army's foundation, figuring out how to employ the PLAAF in combat during the Korean War, and establishing an aviation industry."[3] Founded in 1949, the air component was "equipped with captured Nationalist and Japanese aircraft."[4] This was in stark contrast to the United States and most NATO members at the time, which had robust production capabilities and assembly apparatuses, and had maintained a well-trained crew force with expertise in conducting air combat and aerial operations. While infantile at its inception, the Chinese air component received assistance from neighboring countries. This first period was marked by incredible growth within a short period of four years, where the PLAAF became the "third largest air force in the world" with "three thousand fighters and bombers."[5]

Such progression was attributed to Soviet assistance caused by the outbreak of war on the Korean peninsula where "Chinese People's Volunteers flowed into the Democratic People's Republic of Korea."[6] Astonishingly, by the time the 1953 Korean Armistice was signed, China had built up a military with about sixty thousand soldiers and eight hundred pilots.[7] The Chinese were quick learners; they studied air combat and employed that knowledge over the next two years. They developed the airpower capacity to launch strike, reconnaissance, fighter escort, and air defense missions off the coast near Taiwan.[8] The Chinese were rapidly developing a formidable air force, yet the second phase would dramatically alter their trajectory.

The second period (1956–1990) illustrates the dangers of quickly developing airpower without a long-term strategy as "the PLAAF suffered both in terms of its warfighting capability and also politically."[9] The intermediate period was heavily impacted by the Cultural Revolution, leading to purges of key PLAAF leaders stemming from "deep suspicion regarding the political reliability of PLAAF forces."[10] During this time, the U.S. Air Force (USAF) had over a decade of air combat experience in Vietnam, where equipment was put to the test against an adversary's counter air defenses and USAF pilots gained valuable experience—the kind only achieved under actual combat conditions.

While the USAF refined tactics, techniques, and procedures, the PLAAF's two main missions were "homeland air defense and supporting Army and Navy operations."[11] The supportive nature of the PLAAF is not uncommon for a country trying to figure out how best to employ air assets; yet, given the PLAAF's rapid growth during the early 1950s, this stranglehold on the air component dramatically set Chinese capabilities behind that of near-peer competitors. Additionally, the most troubling aspect of this time period was the loss of leadership within the organization due to rampant purges. Such coup-proofing undermined PLAAF effectiveness, where political loyalty was valued over meritocratic abilities. Toward the end of this period, new Chinese leaders reversed course and sought to "develop a more self-reliant aviation industry."[12]

As the Cold War came to a close, two events shaped China and the PLAAF: the collapse of the Soviet Union and the Persian Gulf War. These events brought the PLAAF into the third period (1990–present), changing the dynamics of regional power balances. Additionally, the Persian Gulf War highlighted how the nature of warfare had changed: airpower was now emphasized over land power.[13] While the fall of the Soviet Union erased the threat of a neighboring state, the spectacular American military success against Iraq's military forced the Chinese to adapt to the new nature of warfare, where power projection and technology, specifically from the air, dominated contemporary battlefields.

Air Integration into the Joint Fight

Dean Cheng's piece "Chinese Lessons from the Gulf Wars" highlights how the conflict was "very influential, affecting Chinese tactical, operational, and strategic thinking."[14] While much was made of the overwhelming demonstration of military technology to employ massive firepower, it was the tactical, operational, and strategic employment

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of the American air component that was revolutionary.[15] The PLA and PLAAF learned several lessons from this new American way of fighting in Iraq in 1991. One of the most important lessons was that "weapon systems do not operate in isolation, but instead are integrated with each other."[16] Such integration is best defined as "joint warfare."

Joint Publication (JP) 3-0, *Joint Operations*, defines joint warfare as "team warfare."[17] Highlighting the difficult nature of joint operations, JP 3-0 further states that "joint functions reinforce and complement one another, and integration across the functions is essential to mission accomplishment."[18] Joint doctrine further divides joint functions into "C2 [command and control], information, intelligence, fires, movement and maneuver, protection, and sustainment."[19] What enables the USAF to integrate into the joint fight starts with how "integration [is] necessary for effective joint operations" and "will require training, technical and technological interoperability, liaison, and planning."[20]

> The People's Liberation Army Air Force is starting to realize that to effectively conduct joint operations actually requires an extensive amount of joint training.

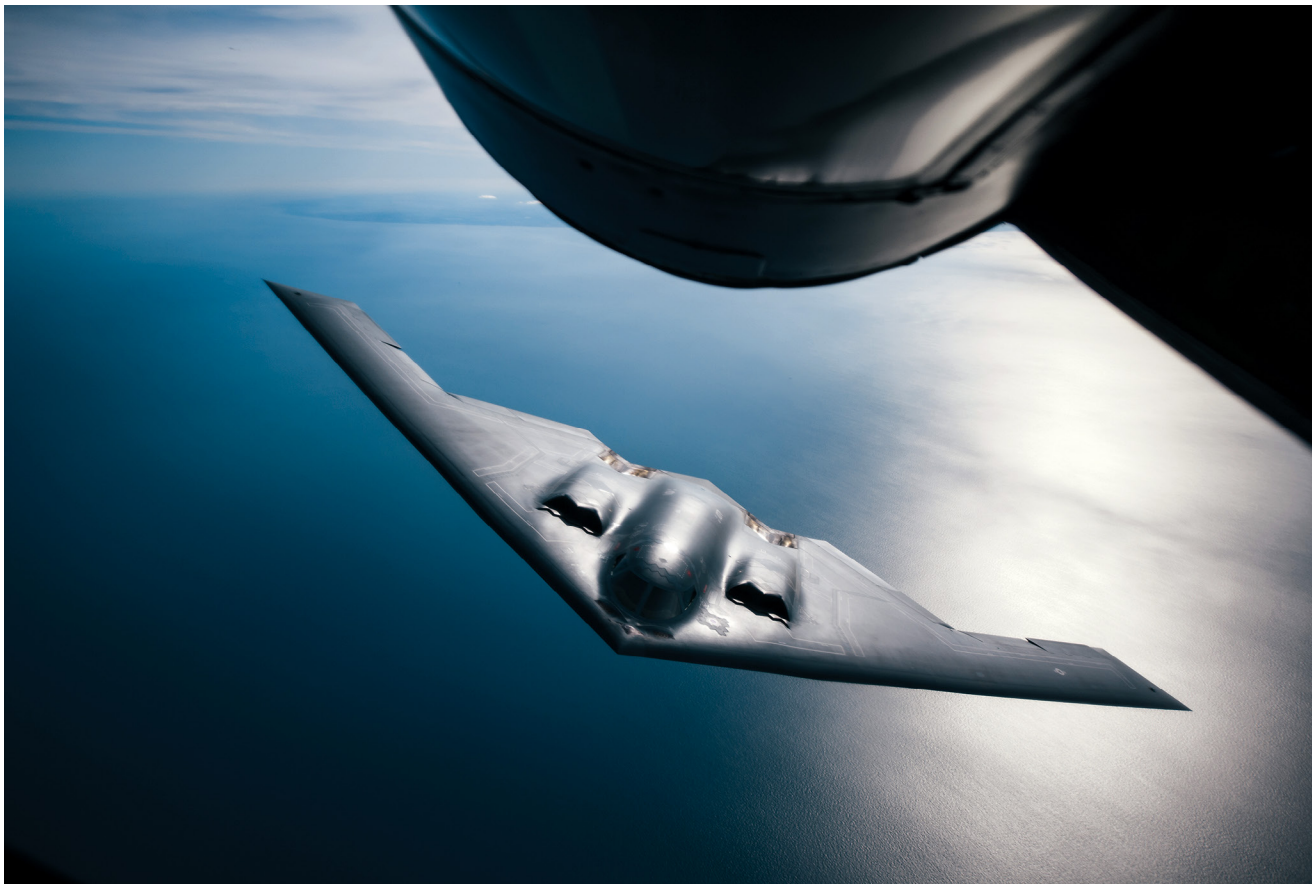
The PLAAF is starting to realize that effectively conducting joint operations actually requires an extensive amount of joint training. This is at odds with Cold War-era traditional structures of command and control that developed around Chinese coup-proofing, where "jointness" and other forms of military collaboration were perceived as threats to the Communist regime. Lyle Morris's article "China's Air Force is Fixing Its Shortcomings" states that Chinese military leaders are introducing reforms to train their fighter pilots under "actual combat conditions."[21] The need for change stems largely from the inability of their pilots to make any decision due to "strict control from a commander in the control tower."[22] Morris notes that changes such as the ability to change "navigation routes and flying tactics in the air … represent [a] significant departure from past practice."[23] While these changes are noteworthy, they are hardly groundbreaking and they are far from where a country would want its air component to be with respect to joint warfighting. This is because the joint environment is a fluid and dynamic battlespace where an inability to make simple decisions such as changes to a flight plan would prove catastrophic in actual combat.

In-Flight Air Refueling

While integration into the joint fight remains a challenge for the Chinese PLAAF, the ability to conduct air refueling remains another limitation in the quest for power projection. The Chinese are attempting to overcome this problem in a variety of ways. One of these ways is by building up airbases on islands in the South China Sea. Andrew S. Erickson and Austin Strange's *Foreign Affairs* article "Pandora's Sandbox: China's Island-Building Strategy in the South China Sea" highlights how the effort to construct islands containing "radars, satellite communication equipment, anti-aircraft and naval guns, a helipad, a dock, and even a wind turbine" indicates a substantial investment in coastal defense and offensive capabilities.[24] Such new Chinese capabilities are presenting a nightmare scenario, where the U.S. military might lose its ability to freely operate throughout the region.[25] This makes many wonder if the rise of China will be as a bellicose dragon or a pacific panda.[26]

Currently, China's message to the international community is one of peaceful intentions. In their article "China's Airfield Construction at Fiery Cross Reef in Context: Catch-Up or Coercion?," Michael S. Chase and Benjamin Purser note that "although China is not the first state to build an airstrip in the South China Sea, it is the first state to employ island-building technologies to transform a contested maritime feature into a military base that extends the reach of offensive military capabilities."[27] The buildup of austere Chinese airstrips represents a challenge to U.S. interests both in the sea and air domains, yet there appears to be little slowing of the Chinese desire to project power.

When compared to how the USAF views the effect of air refueling, it is possible to gain insight into another potential reason for the China's artificial island chains.



An Air Force B-2 Spirit bomber approaches a KC-135 Stratotanker for refueling 29 August 2019 during a training exercise over England. (Photo by Staff Sgt. Jordan Castelan, U.S. Air Force)

JP 3-17, *Air Mobility Operations,* states that air refueling "allows air assets to rapidly reach any trouble spot around the world with less dependence on forward staging bases … [and] significantly expands the force options available to a commander by increasing the range, payload, loiter time, and flexibility of other aircraft."[28] However, in China's view, building islands with airports extends the range of aircraft without investing in air assets capable of conducting sustained in-flight air refueling.

Air refueling remains one of the cornerstones of strategic air support. Garafola identified that China's 2013 edition of *Science of Military Strategy* discusses a "need for the development of a strategic air transport system [which] is an important mark of a strategic air force."[29] Air refueling is seen as a "critical force multiplier across the full range of global and theater employment scenarios," thus making it a necessity to project power throughout the globe.[30]

What is most remarkable is that the "PLAAF is the largest air force in Asia and third largest in the world, with more than 2,700 total aircraft," yet it has only purchased "a small number of IL-78 MIDAS … from Ukraine to conduct aerial refueling."[31] While power projection appears to be a goal of Chinese leadership throughout the PLAAF, the employment of one of the world's largest air forces gets exponentially more difficult when it only has a handful of air assets capable of providing in-flight refueling.

Aircraft Production and Sustainment

A country that is trying to develop an air component will often acquire various assets through purchase, yet this places the PLAAF in a perplexing situation. A starting point for examination is military spending. In Bill Carey's article "Pentagon: China is 'Closing the Gap' in Air Power," he notes that in 2016 "China announced a 7 percent increase in military spending, to $144.3 billion, sustaining its position as the second largest military spender after the U.S."[32] While spending totals can paint a dramatic picture, further examination reveals a different

explanation. Carey goes on to note that "China's aircraft industry still relies on foreign-sourced components for high-performance aircraft engines."[33] Such reliance on foreign-produced parts incurs a risk should a conflict break out and outside production or sustainment is cut off.

> While the Chinese are at risk relying on outside procurement, some believe that it is an obstacle that can easily be overcome.

While the Chinese are at risk relying on outside procurement, some believe that it is an obstacle that can easily be overcome. Sebastien Roblin's *National Interest* article "China's Air Force: 1,700 Combat Aircraft Ready for War" states that "most Chinese military aircraft are inspired by or copied from Russian or American designs, so it's not too hard to grasp their capabilities if you know their origins."[34] Roblin infers that if China can copy the design, it can manufacture the design in bulk. This remains a counterpoint to the challenge of relying heavily on borrowed or stolen technology and does not validate the ability of a country to mass produce aircraft during a conflict.

Future Considerations

The Chinese military, specifically the PLAAF, is in a time of transformation, and the United States, notably the USAF, needs to consider three indicators as a change in comparative advantage in the air domain. The first indicator would be a successful air campaign launched against a formidable air defense. While unlikely, the USAF should closely study how the PLAAF would respond to an adversarial threat. More simply, how would it conduct an air campaign?

A second indicator would be increased joint training exercises with land and naval forces. The United States needs to proceed with caution in concluding that if the PLAAF's integration does not mirror that of the USAF, it is a failure. Rather, any attempts at integration need to be studied to see what progress has been made in the complex formation of joint operations.

A third indicator would be Chinese production of aircraft across a broad spectrum. This would include infrastructure dedicated to all types of aircraft, which are needed to effectively project joint forces through multi-domain airpower operations.[35] Should the Chinese decide to start production of all its aircraft organically, this could possibly signal the ability to maintain or even increase production should hostilities break out. Such organic production would demonstrate self-reliance that negates the risks associated with dependence on foreign production and procurement. This is the crucial ingredient for the rise of Chinese military might, as the U.S. Navy with its eleven carrier groups could easily impose a blockade that would eventually exhaust the ability of the Chinese military to conduct and sustain military operations.

Conclusion

At this time, the PLAAF is not capable of demonstrating global reach or air superiority due to three distinct factors: an inability to successfully integrate into the joint fight, minimal aerial refueling capabilities, and a lack of military-industrial infrastructure to support aviation production and procurement. Any one of these three areas would take a vast amount of time and resources to overcome, and all three together represent a monumental challenge to Chinese leadership. The significant organizational challenge for the PLAAF is to transition from a supportive role to a strategic role. While all three of these shortcomings are not insurmountable, the odds of overcoming them are not favorable. Joint warfare requires the ability to make decisions at the lowest level possible, with commanders understanding their specific roles and responsibilities and conducting operations accordingly. This fluidity would be challenged by the construct currently employed by the PLA and PLAAF, whereas Western militaries rely on centralized command of air forces but with decentralized execution.[36]

Second, while the PLAAF has a significantly high number of aircraft in its inventory, there is a great disproportionality with respect to aerial refueling assets. Air refueling is a vital part of not only projecting regional power but also global power. While artificial islands are a stopgap for a lack of air refueling capabilities, they remain a temporary solution for regional power projection and will not contribute to global Chinese power projection.

Finally, aircraft production and sustainment is a vital part of any country's air force. While simplistic in nature, it is important to remember that aircraft break, and reliance on foreign manufacturers and suppliers to produce replacement parts incurs a risk to long-term operational capability. Production is also a vital part of a country's ability to maintain a reputable air force. Should a conflict break out, there is the potential to lose aircraft, and without a robust production process in place, a country will again be at risk by depending on another country to produce aircraft for combat and other aspects of air operations.

In closing, if we are to assume that the rise of China will be that of a dragon, for the foreseeable future, it will be one with clipped wings. The PLAAF lacks the capability to achieve (or sustain) air superiority should a conflict break out against the U.S. military. The USAF retains the competitive advantages of air integration into the joint fight, the ability to conduct robust air refueling, and an established production and procurement process necessary to sustain an air force during a conflict. These competitive advantages cannot be taken for granted. Rather, time and resources need to be devoted toward their enhancement to maintain dominance in a potentially contested future domain. ■

These views do not reflect the views of the U.S. Air Force, the Department of Defense, or the U.S. government.

Notes

1. Cristina L. Garafola, "The Evolution of PLAAF Mission, Roles and Requirements," in *China's Evolving Military Strategy,* ed. Joe McReynolds (Washington, DC: The Jamestown Foundation, 2017), 75.
2. Ibid., 76.
3. Ibid.
4. Dennis J. Blasko, "Always Faithful: The PLA from 1949 to 1989," in *A Military History of China*, ed. David A. Graff and Robin Higham (Lexington, KY: University Press of Kentucky, 2012), 250.
5. Larry M Wortzel, *The Dragon Extends Its Reach: Chinese Military Power Goes Global* (Lincoln, NE: Potomac Books, 2013), 65.
6. Ibid.
7. Ibid.
8. Ibid.
9. Garafola, "The Evolution of PLAAF," 76.
10. Ibid.
11. Ibid., 76–77.
12. Ibid., 77.
13. Ibid.
14. Dean Cheng, "Chinese Lessons from the Gulf Wars," in *Chinese Lessons from Other Peoples' Wars*, ed. Andrew Scobell, David Lai, and Roy Kamphausen (Carlisle, PA: U.S. Army War College Strategic Studies Institute, 2011), 153.
15. Max Boot, "The New American Way of War," *Foreign Affairs* 82, no. 4 (2003): 41–58.
16. Cheng, "Chinese Lessons," 159.
17. Joint Publication (JP) 3-0, *Joint Operations* (Washington, DC: U.S. Government Publishing Office [GPO], 2017), I-2, accessed 30 September 2019, http://www.jcs.mil/Portals/36/Documents/Doctrine/pubs/jp3_0_20170117.pdf.
18. Ibid., III-1.
19. Ibid.
20. Ibid., III-6.
21. Lyle J. Morris, "China's Air Force Is Fixing Its Shortcomings," *The RAND Blog*, Rand Corporation, 14 October 2016, accessed 30 September 2019, https://www.rand.org/blog/2016/10/chinas-air-force-is-fixing-its-shortcomings.html.
22. Ibid.
23. Ibid.
24. Andrew S. Erickson and Austin Strange, "Pandora's Sandbox: China's Island-Building Strategy in the South China Sea," *Foreign Affairs* 13 (13 July 2014).
25. Stephen Biddle and Ivan Oelrich, "Future Warfare in the Western Pacific: Chinese Antiaccess/Area Denial, US AirSea Battle, and Command of the Commons in East Asia," *International Security* 41, no. 1 (2016): 7–48.
26. Randall Peerenboom, "The Fire-Breathing Dragon and the Cute, Cuddly Panda: The Implication of China's Rise for Developing Countries, Human Rights, and Geopolitical Stability," *Chinese Journal of International Law* 7 (2006): 17.
27. Michael S. Chase and Ben Purser, "China's Airfield Construction at Fiery Cross Reef in Context: Catch-Up or Coercion?," Asia Maritime Transparency Initiative, 29 July 2015, accessed 30 September 2019, https://amti.csis.org/chinas-airfield-construction-at-fiery-cross-reef-in-context-catch-up-or-coercion/.
28. JP 3-17, *Air Mobility Operations* (Washington, DC: U.S. GPO, 2019), VI-1, accessed 30 September 2019, http://www.jcs.mil/Portals/36/Documents/Doctrine/pubs/jp3_17.pdf.
29. Garafola, "The Evolution of PLAAF," 91.
30. JP 3-17, *Air Mobility Operations*, VI-4.
31. Office of the Secretary of Defense, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2017*, 15 May 2017, 28, accessed 30 September 2019, https://dod.defense.gov/Portals/1/Documents/pubs/2017_China_Military_Power_Report.PDF.
32. Bill Carey, "Pentagon: China Is 'Closing the Gap' in Air Power with U.S.," AIN Online, 8 June 2017, accessed 30 September 2019, https://www.ainonline.com/aviation-news/defense/2017-06-08/pentagon-china-closing-gap-air-power-us.
33. Ibid.
34. Sebastien Roblin, "China's Air Force: 1,700 Combat Aircraft Ready for War," *The National Interest* (blog), 28 October 2017, accessed 30 September 2019, http://nationalinterest.org/blog/the-buzz/chinas-air-force-1700-combat-aircraft-ready-war-22940.
35. Jahara Matisek, "Multidomain Airpower Strategy: Integrating Air, Space, and Cyber Assets" in *Military Strategy, Joint Operations, and Airpower: An Introduction*, ed. Ryan Burke, Michael W. Fowler, and Kevin McCaskey (Washington, DC: Georgetown University Press, 2018), 89–103.
36. Kevin McCaskey, "Rapid Global Mobility and Agile Combat Support," in Burke, Fowler, and McCaskey, *Military Strategy*, 131–40.

Information on the Twenty-First Century Battlefield

Proposing the Army's Seventh Warfighting Function

Capt. Charles M. Kelly, U.S. Army

In May 2013, Ukrainian artillery officer Yaroslav Sherstuk designed a smartphone application to decrease the artillery targeting process from minutes to less than fifteen seconds.[1] The application experienced initial success with upward of nine thousand Ukrainian soldiers using it to conduct fire missions against Russian forces.[2] However, the independent security firm CrowdStrike reported a Russian information attack on the application via malware offered Russian forces "the potential ability to map out a unit's composition and hierarchy,

determine their plans, and even triangulate their approximate location."[3] Russian forces presumably used the malware to target Ukrainian artillery units employing the application. This example aptly demonstrates the character of war confronting modern militaries in the information age. The U.S. Army's current warfighting model does not adequately reflect the reality of this evolution. The Army should adopt information as the seventh warfighting function because the rapid change in the character of war brought about by the advent of the internet enables the weaponization of information. Furthermore, the information warfighting function would enable the adequate integration of information in operational planning and execution and provide an improved ability to apply force below the threshold of lethal effects.

Current Model: The Elements of Combat Power

Prior to discussing the information warfighting function in detail, some background on the Army's current paradigm is necessary. The Army uses the term "combat power" to describe the "total means of destruction, constructive, and information capabilities that a military unit … can apply at a given time."[4] Combat power is comprised of eight elements: the six warfighting functions (command and control, movement and maneuver, intelligence, fires, sustainment, and protection) with the addition of information and leadership (see figure, page 64).[5] The warfighting functions provide structure for commanders and staffs to plan and execute operations. Army Doctrine Publication (ADP) 5-0, *The Operations Process*, states, "The staff … integrates forces and warfighting functions to accomplish the mission."[6] In the current model, commanders achieve battlefield effects using the warfighting functions, while information and leadership simply aid in the optimal application of these functions. Field Manual 3-13, *Information Operations*, defines information operations (IO) as "the integrated employment … of information-related capabilities (IRCs) in concert with other lines of operation to influence, disrupt, corrupt, or usurp the decision-making of adversaries and potential adversaries while protecting our own."[7] Examples of some of these IRCs are military deception, civil affairs operations, and cyberspace operations.[8] Information operations are currently listed as staff tasks under the intelligence and fires warfighting functions.[9] However, IO is rapidly exceeding the bounds of tasks already required of these two functions. The rapid developments in information technology have induced newfound importance and relevance of information on the twenty-first-century battlefield. This article demonstrates the increasingly important role of information in warfare and the subsequent necessity of elevating information to a warfighting function.

Previous page: Photo illustration by Justin Rakowski, U.S. Army

Information's Explosive Rise

The Army's current warfighting doctrine presents an antiquated view of the role of information in combat. History is replete with examples of the successful use of information in conflicts. During World War II, for example, the U.S. Army famously employed military deception using inflatable tanks and airplanes to deceive German forces in France. The rise in information technology increases the relevance and consequences of information in warfighting and offers opportunities for increased application. The North Atlantic Treaty Organization's Strategic Communications Centre of Excellence recently conducted an experiment in support of a large-scale military exercise using a simulated cyber red cell, "the opposing force in a war game," in order to evaluate friendly forces' signature in the online information environment.[10] Using only open-source information, social media, and sixty dollars, the red cell identified 150 soldiers, found the locations of several battalions, tracked troop movements, and compelled service members to engage in illicit behavior such as leaving their positions against orders.[11] The lack of institutional awareness of the effects and capabilities of information demonstrated by this example indicates the Army's current archaic model does not fully grasp the ramifications of information on today's battlefield.

Maintaining Supremacy

In order to maintain a competitive advantage

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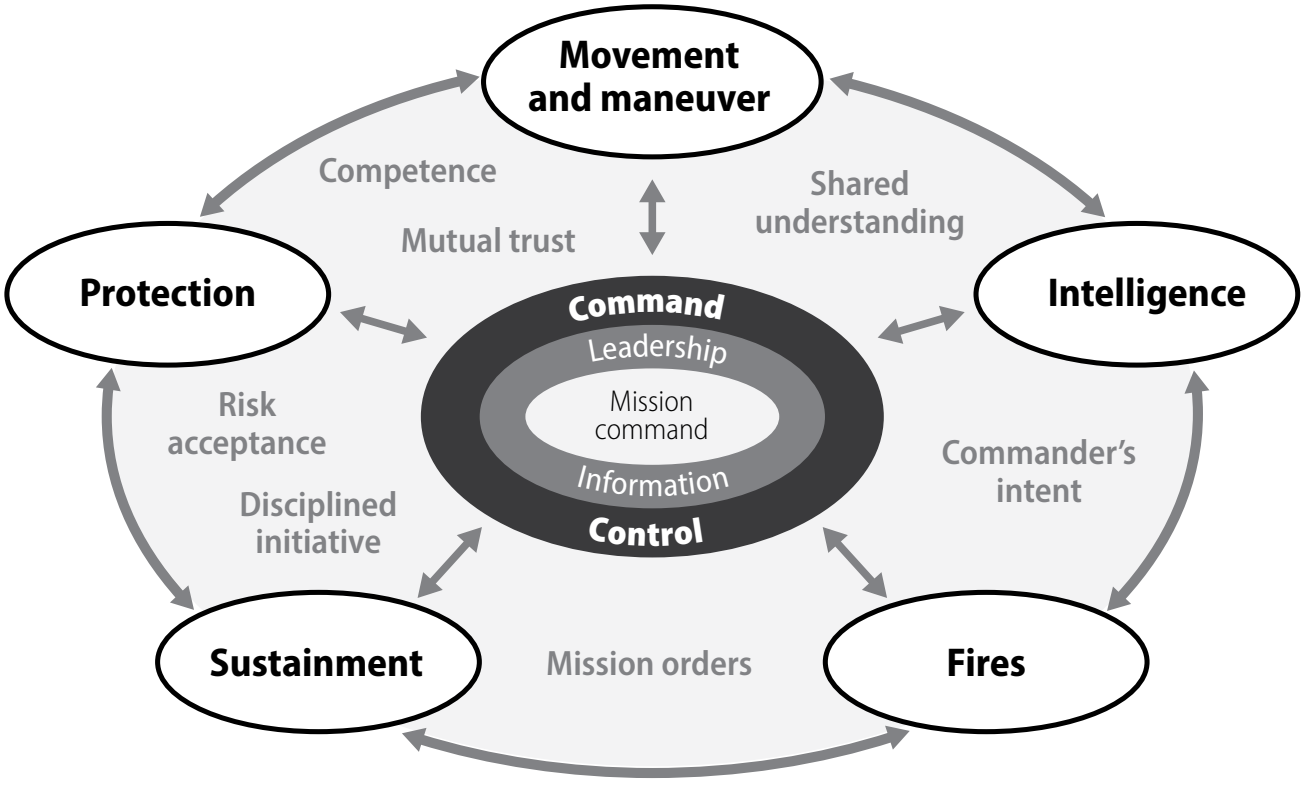

(Figure from Army Doctrine Publication 3-0, *Operations*)

Figure. Elements of Combat Power

over our peer and near-peer adversaries, the Army must place a larger emphasis on the use of information as an instrument of war. Two decades of low-intensity conflict characterized by combating violent extremist organizations in the Middle East justifiably consumed much of the focus of the U.S. military. The relatively low sophistication level of the enemy enabled U.S. forces to become complacent on many of the tasks required to fight conventionally outfitted militaries in the twenty-first century. Former chairman of the Joint Chiefs of Staff Gen. Joseph Dunford stated, "The challenges of a decades-long campaign against violent extremism adversely affected our own modernization and capability development efforts."[12] Accordingly, participation in these wars presented America's peer and near-peer adversaries the opportunity to aim their force-modernization efforts on defeating U.S. tactics, techniques, and procedures. To further exacerbate this challenge, the concurrent meteoric rise in information technology enabled adversaries to integrate many of these advancements into their force-modernization efforts.

In a 2013 article, Russian Chief of the General Staff Valery Gerasimov outlined what he believed to be the necessary approaches for twenty-first-century war. From his perspective, future conflicts must include an information element. He avers information asymmetrically lowers an adversary's combat potential and creates "a permanently operating front through the entire territory of an enemy state."[13] The ongoing Russian-Ukrainian conflict displays the practical application of his sentiments. When Russian forces entered the Crimean Peninsula on 2 March 2014, they preemptively shut down Crimea's telecommunications infrastructure, disabled major Ukrainian websites, and jammed the mobile phones of key Ukrainian officials.[14] Russian forces effectively isolated Crimea in the information environment, which contributed to setting the necessary conditions for the rapid physical attack.[15] While many factors contributed to Russia's ability to successfully annex Crimea, this example demonstrates how adversaries are leveraging the capabilities offered by information technology and meticulously integrating these capabilities in the planning

and execution of operations. Elevating information to a warfighting function enables the Army to exploit information capabilities to the degree that technology allows and that maintaining a competitive advantage requires.

The Adequate Integration of Information in Planning and Execution

The absence of information from the warfighting functions inhibits the complete and adequate integration of IO into planning and execution. In America's most recent conflicts, resource and technological overmatch against relatively unsophisticated enemies allowed the Army to sideline IO without perceived negative consequences. In future fights against peer adversaries, this approach is likely to produce devastating effects. Contemporary examples demonstrate the Army's challenges with IO integration. In a review of IO in "Information Operations in Operations Enduring Freedom and Iraqi Freedom – What Went Wrong?," Joseph Cox identified three factors inhibiting the effects of IO: (1) Army doctrine does not provide commanders adequate guidance for integrating IO, (2) intelligence doctrine and resourcing do not allow intelligence support to IO to be effective, and (3) the Army has not resourced itself to conduct IO effectively.[16]

Early IO against the Taliban and al-Qaida focused on the employment of kinetic engagements and "only later did commanders work to convince Afghans that attacks on Taliban fighters were not attacks on the Afghan populace."[17] Failure to adequately integrate IO into the planning with the early kinetic operations negatively impacted the U.S. military's ability to garner the local Afghan support required to secure long-term peace.[18] A 2012 RAND Corporation report on the use of information and psychological operations in Afghanistan stated, "The current disconnect between official IO doctrine and how it is practiced in the field is counterproductive" to effective and efficient operations.[19] Three years later, RAND Corporation published a follow-up perspective on the report and concluded, "It is evident that there is still a great deal of work that must be done to integrate and harmonize doctrine [with IO practice] to achieve the greatest results."[20] As noted in ADP 3-0 and ADP 5-0, warfighting functions are the mechanisms used to synchronize and integrate all available capabilities in an operational plan.[21] Without a warfighting function, the Army does not have the doctrinal means to sufficiently integrate information into operational planning and execution.

Beyond Physical: Expanding the Concept of War

The Army's narrow definition of tactical and operational conflict subverts attempts at strategic victory. In his seminal work, *The American Way of War: A History of United States Military Strategy and Policy*, Russell Weigley famously argues that with few exceptions, America's approach to war is aggressive, direct, and with an eye toward total annihilation.[22] Antulio J. Echevarria II argues this as proof that America only demonstrates a way of battle that has not yet matured into a complete and holistic way of war.[23] Although the American military touts the use of Clausewitzian principles, it seems the "American style of warfare failed to internalize Clausewitz's contention that war was the continuation of politics by other means."[24] The Army's failure to recognize the value of information further serves to support this point. The perception of war characterized by simply winning the physical battles, which overwhelmingly occupies the focus of the current warfighting functions, is not enough to win wars.

A Tool for "Gray Zone" Conflict

The Army's warfighting structure does not offer sufficient capabilities in the phases of conflict before and after the highly kinetic and lethal fight. "Gray zone conflict" and "hybrid warfare" are in-vogue terms frequently used to describe low-intensity conflicts or conflicts employing methods short of conventional war. Echevarria contends that this "new" form of war is, in fact, historically the norm and more common than the romanticized World War II style of fighting.[25] Failing to realize this phenomenon exposes America's unrealistic and self-limiting concept of war.[26] This style of warfare is also increasingly likely because it occurs below the North Atlantic Treaty Organization Article 5 threshold and below the level of violence necessary to prompt a United Nations Security Council resolution.[27] The near-exclusive orientation of the Army's warfighting functions toward lethal actions is an accurate reflection of this flawed concept.

This era of renewed great power competition necessitates a mechanism for employing nonlethal force. Adversaries seek to win battles below the threshold of America's narrow definition of war in order to score victory before the United States even realizes the conflict

has begun. The elevation of information to a warfighting function provides the Army with the practical flexibility and means to employ capabilities and address adversarial actions occurring below the threshold for lethal force. The Army must "account for more than just the use of kinetic military force during wartime, and it must accommodate more than just the goal of dominating an adversary through decisive operations."[28] The Army needs to develop its warfighting style to reflect the reality of war's political context as opposed to a struggle for domination of wills devoid of broader implications.[29] The information warfighting function would provide the capabilities to influence adversarial actions outside of lethality and would help to serve as a catalyst for the required institutional mindset change.

Evaluating Adversaries

Analysis of the Chinese People's Liberation Army (PLA) indicates an astute understanding of the asymmetric potential of information. Long before the information age and the advent of the internet, Mao Tse-tung worked to instill the notion of the military as a body to carry out the political will, not solely a physical fighting entity. In his 1929 resolution, titled "On Correcting Mistaken Ideas in the Party," Mao stated that members of the party who held a purely military view "think the task of the Red Army … is merely to fight. They do not understand that the Chinese Red Army is an armed body for carrying out the political tasks of the revolution … The Red Army fights not merely for the sake of fighting but in order to … help establish revolutionary political power."[30] Mao's expression also seems to closely follow Sun Tzu's famous maxim: "Supreme excellence consists in breaking the enemy's resistance without fighting."[31] This idea was further codified into Chinese military doctrine in 2003 when the Communist Party's Central Committee and Central Military Commission approved a new warfare concept for the PLA titled "three warfares." These are public opinion warfare (media), psychological warfare, and legal warfare.[32]

The Chinese information strategy focuses on using stratagems to build and maintain information superiority in order to compensate for its deficiencies in technology-based weapons.[33] According to a report to the U.S. Congress, the PLA views the United States as a militarily superior foe whose advantages can be overcome through strategy and information operations. The report, which cites *Unrestricted Warfare: China's Master Plan to Destroy America*, states, "The U.S. reliance on technology … creates a vulnerability that can be exploited, along with 'theoretical blind spots' and 'thought errors,' such as the absence of a comprehensive theory in DOD doctrine that combines all elements of information warfare."[34] These are exactly the sort of asymmetries Mao referred to nearly nine decades ago. The Army uses the warfighting functions to not only structure friendly planning and execution but also to assess the capabilities of the enemy. Failing to include information as a warfighting function hinders the Army's ability to comprehensively understand our adversaries' capabilities and mentality.

Embracing the Burdens of Change

Some may argue the addition of the information warfighting function is an unnecessary institutional burden. Making a change of this nature has complex implications across doctrine, organization, training, materiel, leadership and education, personnel, and facilities. Information is already an element of combat power, and Field Manual 3-13 and Army Techniques Publication 3-13.1, *The Conduct of Information Operations*, give specific guidance on applying and using information.[35] Therefore, the focus should be on better applying information as it currently exists in the Army's lexicon. However, based on the evolving technology and the adversarial capabilities, it is clear that the status quo is not adequate. In its current form, "many continue to skeptically view it [IO] as a marginal military activity or as a failing enterprise."[36] This mindset must change if the United States is to maintain supremacy on future battlefields. Military professionals have a responsibility to achieve an objective reality of war and adapt accordingly. Imagine if the U.S. military did not institute the Air Force after World War II due to institutional inconveniences. The burdens of change and inconvenience outweigh the consequences of strategic defeat.

Information Beyond the Joint Level

In September 2017, then Secretary of Defense James Mattis signed a memorandum elevating information to a warfighting function at the joint-force level.[37] Critics may argue against the idea of an information warfighting function at the service level because information is viewed as a strategic capability that belongs centralized at the Department of Defense. It is certainly useful for the joint force to integrate information into operational and strategic plans, and some of the decisions germane to IRCs belong at that level. However, as evident by the

An inflatable OH-58C Kiowa helicopter and inflatable fuel blivets simulate a forward arming and refueling point during a deception operation on 10 November 1990 carried out by the XVIII Airborne Corps Deception Cell in the Eastern Province of Saudi Arabia approximately forty-five kilometers northwest of An Nuariya. (Photo by Pfc. Randall R. Anderson, XVIII Airborne Corps)

examples above, information is already proving useful in tactical scenarios. Additionally, as technology continues to improve, the tactical solutions will continue to emerge. The information warfighting function provides the Army with a method to integrate these critical capabilities and help drive a change in the self-limiting centralization of IRCs when able.

The role of information in future conflicts is becoming exceedingly important given the explosive rise of information technology. Our adversaries are using information to achieve effects and secure their political objectives. Russian military sources even go so far as to claim the "role of nonmilitary means of achieving political and strategic goals has grown, and, in many cases, they have exceeded the power of force or weapons in their effectiveness."[38] While the elevation of information is not a panacea for all the Army's warfighting challenges, it provides a method to better integrate these rising technological advances and offers the flexibility to apply force in conflicts occurring below the appetite for lethality. The last eighteen years of conflict characterized by extreme technological overmatch lulled the American military into a sense of complacency and hubris, which precipitated the marginalization of information capabilities.[39] If the U.S. Army wants to maintain supremacy in this era of renewed great power competition, it must adapt to the challenges brought on by the changing character of war. ■

Notes

1. CrowdStrike Global Intelligence Team, "Use of Fancy Bear Android Malware in Tracking of Ukrainian Field Artillery Units," CrowdStrike, updated 23 March 2017, accessed 31 July 2019, https://www.crowdstrike.com/resources/reports/idc-vendor-profile-crowdstrike-2/.
2. Ibid.
3. Ibid.

4. Army Doctrine Publication (ADP) 3-0, *Operations* (Washington, DC: U.S. Government Publishing Office [GPO], 6 October 2017), 5-1, accessed 3 October 2019, https://armypubs.army.mil/epubs/DR_pubs/DR_a/pdf/web/ARN18010_ADP%203-0%20FINAL%20WEB.pdf.

5. Ibid.

6. ADP 5-0, *The Operations Process* (Washington, DC: U.S. GPO, 31 July 2019), 4-5, accessed 3 October 2019, https://armypubs.army.mil/epubs/DR_pubs/DR_a/pdf/web/ARN18323_ADP%205-0%20FINAL%20WEB.pdf.

7. Field Manual (FM) 13-3, *Information Operations* (Washington, DC: U.S. GPO, 6 December 2016), 1-2, accessed 31 July 2019, https://armypubs.army.mil/epubs/DR_pubs/DR_a/pdf/web/FM%203-13%20FINAL%20WEB.pdf.

8. Ibid., 1-3.

9. ADP 3-0, *Operations*, 5-3–5-4.

10. "A Guide to Red Teaming: DCDC Guidance Note" (Shrivenham, UK: The Development, Concepts and Doctrine Centre, February 2010), lexicon-2, accessed 5 August 2019, https://www.act.nato.int/images/stories/events/2011/cde/rr_ukdcdc.pdf.

11. Sebastian Bay et al., *Responding to Cognitive Security Challenges* (Riga, Latvia: NATO Strategic Communications Centre of Excellence, January 2019), 13–14, accessed 31 July 2019, https://www.stratcomcoe.org/responding-cognitive-security-challenges.

12. Joseph Dunford, "The Character of War and Strategic Landscape have Changed," *Joint Force Quarterly* 89 (2018): 2, accessed 5 August 2019, https://ufdc.ufl.edu/AA00061587/00089.

13. Valery Gerasimov, "The 'Gerasimov Doctrine' and Russian Non-Linear War," *In Moscow's Shadows* (blog), 6 July 2014, accessed 31 July 2019, https://inmoscowsshadows.wordpress.com/2014/07/06/the-gerasimov-doctrine-and-russian-non-linear-war/.

14. Azhar Unwala and Shaheen Ghori, "Brandishing the Cybered Bear: Information War and the Russia-Ukraine Conflict," *The Journal of the Military Cyber Professionals Association* 1, no. 1 (2015): 1, accessed 31 July 2019, https://scholarcommons.usf.edu/cgi/viewcontent.cgi?article=1001&context=mca.

15. *"Little Green Men": A Primer on Modern Russian Unconventional Warfare, Ukraine 2013-2014* (Fort Bragg, NC: U.S. Army Special Operations Command, n.d.), 51, accessed 31 July 2019, https://permanent.access.gpo.gov/gpo107669/14-02984_LittleGreenMen-UNCLASS-hi-res.pdf.

16. Joseph L. Cox, *Information Operations in Operations Enduring Freedom and Iraqi Freedom - What Went Wrong?* (Fort Leavenworth, KS: United States Army Command and General Staff College, 2006), iii, accessed 31 July 2019, https://fas.org/irp/eprint/cox.pdf.

17. Walter E. Richter, "The Future of Information Operations," *Military Review* 89, no. 1 (January-February 2009): 106–7, accessed 31 July 2019, https://www.armyupress.army.mil/Portals/7/military-review/Archives/English/MilitaryReview_20090228_art001.pdf.

18. Ibid., 107.

19. Arturo Muñoz, "U.S. Military Information Operations in Afghanistan: Effectiveness of Psychological Operations 2001–2010" (Santa Monica, CA: RAND Corporation, 2012), xx, accessed 23 September 2019, https://www.rand.org/pubs/monographs/MG1060.html.

20. Arturo Muñoz and Erin Dick, "Information Operations: The Imperative of Doctrine Harmonization and Measures of Effectiveness (Santa Monica, CA: RAND Corporation, 2015), 3, accessed 23 September 2019, https://www.rand.org/content/dam/rand/pubs/perspectives/PE100/PE128/RAND_PE128.pdf.

21. Ibid., 5-2; ADP 5-0, *The Operations Process*, 4-5.

22. Russell F. Weigley, *The American Way of War: A History of United States Military Strategy and Policy* (Bloomington, IN: Indiana University Press, 1973), xxii.

23. Antulio J. Echevarria II, *Toward an American Way of War* (Carlisle, PA: Strategic Studies Institute, 2004), 1, accessed 31 July 2019, https://ssi.armywarcollege.edu/pubs/display.cfm?pubID=374.

24. Antulio J. Echevarria II, *Reconsidering the American Way of War: US Military Practice from the Revolution to Afghanistan* (Washington, DC: Georgetown University Press, May 2014), 46.

25. Antulio J. Echevarria II, *Operating in the Gray Zone: An Alternative Paradigm for U.S. Military Strategy* (Carlisle, PA: Strategic Studies Institute, April 2016), xi, accessed 31 July 2019, https://ssi.armywarcollege.edu/pubs/display.cfm?pubID=1318.

26. Ibid., 40.

27. Charles T. Cleveland, Shaw S. Pick, and Stuart L. Farris, "Shedding Light on the Gray Zone: A New Approach to Human-Centric Warfare," Association of the United States Army, 17 August 2015, accessed 31 July 2019, https://www.ausa.org/articles/shedding-light-gray-zone-new-approach-human-centric-warfare.

28. Ibid., xii.

29. Echevarria, *Operating in the Gray Zone*, 41.

30. Mao Tse-tung, "On Correcting Mistaken Ideas in the Party," in *Selected Works of Mao Tse-tung*, vol. 1 (Beijing: Foreign Languages Press, 1965), accessed 31 July 2019, https://www.marxists.org/reference/archive/mao/selected-works/volume-1/mswv1_5.htm#s1.

31. Sun Tzu, *The Art of War*, trans. Lionel Giles, Project Gutenberg, updated 14 January 2012, accessed 24 September 2019, http://brainab.com/site_images/files_books/war_sun.pdf.

32. Larry M. Wortzel, *The Chinese People's Liberation Army and Information Warfare* (Carlisle, PA: Strategic Studies Institute, 2014), 29, accessed 31 July 2019, https://publications.armywarcollege.edu/pubs/2263.pdf.

33. Catherine A. Theohary, *Information Warfare: Issues for Congress*, Congressional Research Service (CRS) Report No. R45142 (Washington, DC: CRS, 5 March 2018), 11, accessed 31 July 2019, https://fas.org/sgp/crs/natsec/R45142.pdf.

34. Ibid.

35. FM 3-13, *Information Operations*, iv; Army Techniques Publication (ATP) 3-13.1, *The Conduct of Information Operations* (Washington, DC: U.S. GPO, 4 October 2018), v, accessed 31 July 2019, https://armypubs.army.mil/epubs/DR_pubs/DR_a/pdf/web/ARN13138_ATP%203-13x1%20FINAL%20Web%201.pdf.

36. Scott Thompson and Christopher Paul, "Paradigm Change: Operational Art and the Information Joint Function," *Joint Force Quarterly* 89 (2nd Quarter, 2018): 11.

37. Secretary of Defense Memorandum, "Information as a Joint Function," 15 September 2017, accessed 31 July 2019, https://www.rmda.army.mil/records-management/docs/SECDEF-Endorsement_Information_Joint%20Function_Clean.pdf.

38. Ben Sohl, "Influence Campaigns and the Future of International Competition," The Strategy Bridge, 12 September 2017, accessed 31 July 2019, https://thestrategybridge.org/the-bridge/2017/9/12/influence-campaigns-and-the-future-of-international-competition?rq=Gerasimov.

39. Nick Brunetti-Lihach, "Information Warfare Past, Present, and Future," The Strategy Bridge, 14 November 2018, accessed 31 July 2019, https://thestrategybridge.org/the-bridge/2018/11/14/information-warfare-past-present-and-future.

Next page: Chinese Defense Minister Wei Fenghe salutes 21 October 2019 after delivering his opening speech for the Xiangshan Forum, a gathering of the region's security officials, in Beijing. Wei issued a stinging rebuke of the United States at the defense forum, saying China was not fazed by sanctions, pressure, and military intimidation. (Photo by Andy Wong, Associated Press)

Military Review

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The Peoples' Republic of China has made it clear that it intends to annex Taiwan, and, if necessary, will seize the island by force. *Military Review* is soliciting articles regarding this potentially volatile situation between China, Taiwan, and the international community, and how the United States should respond. Papers could address, but are not limited to, the following topics:

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- How has China been preparing diplomatically, informationally, and economically to foster the conditions for such an attempt?
- How might the conflict unfold? What kind of forces would China likely use and where? How long would China calculate the conflict lasting?
- What would China need to accomplish annexation without letting the situation expand into a larger conflict?
- What is the likelihood of the United States and Taiwan's few global allies coming to Taiwan's assistance?

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"No one and no force will be able to stop the course" of China's annexation of Taiwan, Wei said at the security conference in Beijing, which featured a theme this year of "Maintaining International Order and Promoting Peace in the Asia-Pacific" [said, Wei Fenghe]. China "will never allow the separatists for Taiwan independence to take their chances or any external forces to interfere into the Taiwan affairs," he added. "Reunification of the motherland is a justified course and separatist activities are doomed to failure."

Chinese Defense Minister Wei Fenghe,
The 9th Beijing Xiangshan Forum,
21 October 2019


HALL

The Army's Gap in Operational-Level Intelligence for Space as Part of Multi-Domain Operations

Maj. Jerry V. Drew II, U.S. Army

As the Army moves toward its strategic vision of a multi-domain force by 2028, it faces no shortage of challenges. Equipment modernization, maintaining a global presence, and training for large-scale combat operations are just a few of the most pressing challenges. In the midst of these efforts, the Army continues to support the establishment of a new combatant command for space operations while reevaluating its own roles and responsibilities vis-à-vis the space domain.

In this effort, there are many ideas for making space operations more effective for the ground force, but the need to reframe operational-level intelligence through the lens of space operations is one area that demands immediate consideration. Specifically, the gap exists in applying space domain considerations to operational-level intelligence processes. To become an effective multi-domain force, the operational-level Army must begin linking both strategic- and tactical-level space intelligence to plan the operational-level fight, to convey the Army's intelligence needs to the joint force, and to provide meaningful analysis to tactical echelons—as is currently done for ground and air threats.

For the operational-level Army today, the mental model of space intelligence largely equates to the tasking, collecting, processing, exploiting, and disseminating (TCPED) process. Operational-level intelligence professionals use this process to leverage intelligence, surveillance, and reconnaissance assets to inform the commander's decision-making for a ground campaign.[1] This process is certainly an important one, but it addresses only one aspect of space capabilities—the collection aspect—and it does not mirror the way in which intelligence professionals consider other domain capabilities in the intelligence preparation of the battlefield (IPB) process. In simplest terms, "space intelligence" should not be a separate effort but an institutionalized part of the overall intelligence effort for operational-level formations.

A more holistic view of operational-level IPB—one that includes the space domain—provides the opportunity to consider what expertise is necessary within an operational-level command and how the Army as an institution might begin to think about a clearly defined space operational environment, potential gaps in the understanding of the space environment's effects, and the enemy's multi-domain capabilities. This discussion is necessary to scope the current gap in the Army's operational-level intelligence, especially if the Army (and the joint force) is to become an effective multi-domain force capable of defeating enemies with space and counterspace capabilities.

Soldiers with 2nd Platoon, Company A, 1st Battalion, 503rd Infantry Regiment, 173rd Airborne Brigade Combat Team, set up a tactical satellite communication system 9 August 2010 in Shekhabad Valley, Wardak Province, Afghanistan. (Photo by Sgt. Russell Gilchrest, U.S. Army)

IPB Process

All Army commanders employ the IPB process that consists of four doctrinal steps: (1) define the operational environment, (2) describe the environmental

Medium earth orbit (MEO)

–Satellites are transient

–Satellites traverse the area of responsibility (AOR) in hours

–Example: GPS, global navigation satellite system (GLONASS) constellations

Geosynchronous orbit (GEO)

–Satellites are nearly stationary relative to the Earth's surface

–Satellites remain generally over the equator but provide services to the entire hemisphere

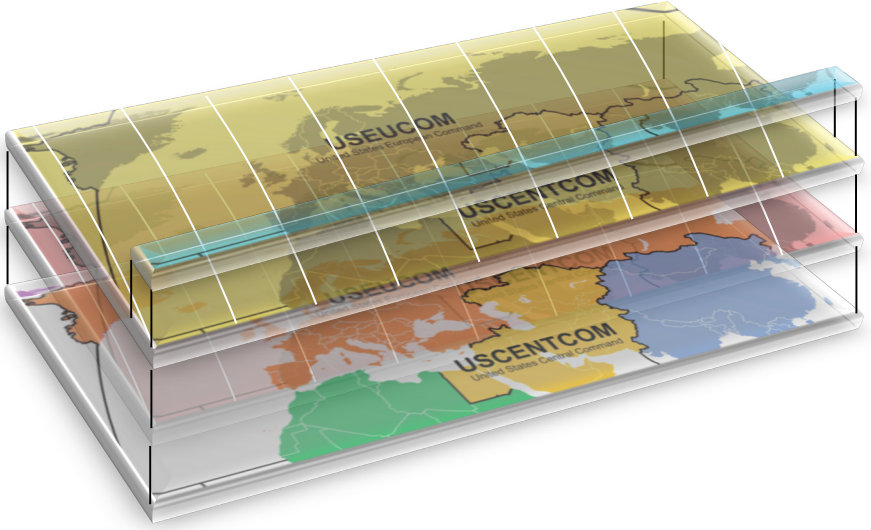
–Examples: wideband global satellite communication (WGS), ultra-high frequency follow-on (UFO) constellations

Low earth orbit (LEO)

–Satellites are highly transient

–Satellites traverse the AOR in minutes

–Examples: imagery satellites, the Iridium constellation



(Figure by author. This graphic depicts the three primary orbital regimes and provides the salient characteristics and typical mission types/constellations found in each.)

Figure 1. Initial Considerations for Defining the Orbital Aspects of the Operational Environment

effects on operations, (3) evaluate the threat, and (4) determine the threat courses of action.[2] For the extended, multi-domain battlefield, these steps take on new meanings uncodified in doctrine as yet.

Step 1: Define the operational environment. Since space operations encompass both on-orbit assets and globally positioned assets, the first problem that arises is attempting to define the operational environment in a meaningful way. In Army doctrine, the first step of defining the operational environment requires defining the commander's area of operations and area of interest (AOI). Importantly, the AOI is the area that is of concern to the commander and "from which information is required to facilitate planning and the successful conduct of the command's operation."[3] By this definition, the AOI of every operational-level commander includes portions of orbital space and possibly terrestrial locations of space assets in the AOR of a different combatant command. In addition, the orbital portion of the AOI has multiple layers that all interact differently with the ground force.

To begin understanding these layers, a deep/close/support operational framework may be a useful point of departure if adapted vertically. In the case of space operations, the framework translates into geosynchronous orbits (GEOs, ~23,000 miles from Earth) as the deep area and low-Earth orbits (LEOs, up to 1,000 miles from Earth) and medium-Earth orbits (MEOs, ~12,000 miles from Earth) as the close area.[4] This close area could be further subdivided into close-LEOs and close-MEOs.

Figure 1 depicts these orbital regimes and provides the salient characteristics and typical mission types/constellations found in each. Importantly, GEO satellites (e.g., many communications satellites) remain relatively stationary over their equatorial orbital slots, but satellites in the other two orbital regimes become more transient as their altitudes decrease. As a result, LEO satellites may traverse over an AOR within minutes and require

different considerations in the IPB process (e.g., shorter uplink or collection windows) than the GEO satellites. The ground stations that control these satellites or channel data from them constitute the "support area," but this support area will be noncontiguous; ground stations may be in the corps' consolidation area, the theater army's joint security area, or the strategic support area. Following this line of thinking, the operational-level commander now has a horizontal deep/close/support/consolidation construct and a vertical deep/close/support construct to frame the operating area.

Step 2: Describe the environmental effects on operations. Broadly, space operations require consideration of space environmental effects and terrestrial environmental effects. The space environment may affect the space and link segments of space systems, and the terrestrial environment may affect the link and ground segments of space systems. Intelligence professionals will likely be more familiar with terrestrial environmental effects, but as with the terrestrial environment, the space environment can and does affect military operations.

Gravity itself is the dominant physical force within the space environment. Because of gravity, the orbital patterns of satellites are repetitive and are therefore predictable for both friendly and enemy assets. Furthermore, it is because of their gravitational properties that GEO locations are highly valuable. Planners should consider the orbital slots themselves for designation as key terrain; the satellites in those slots may qualify as critical/defended assets.

If gravity was the only consideration, the space environment would be fairly benign, but three other factors contribute to the space environment's general harshness: extreme temperatures, solar and galactic radiation, and sixty years of orbital debris. Because of these factors, satellites may fail in orbit at any time, and it is thus important for intelligence and operational planners to address contingencies for the potential loss of space systems that bear directly on the mission. Thankfully, the temperatures a satellite will experience are fairly predictable, and engineers build satellites to withstand these anticipated temperatures.

Solar activity, however, is largely unpredictable. Such activity may disrupt normal function of the satellite by causing errant electrical discharges within the spacecraft. Solar activity may also affect the link segment either directly, by interfering with the signal as it travels through space, or indirectly, by causing charging of the ionosphere—which degrades space-to-ground communications. Since disruptions related to solar activity are as hard to predict in advance as solar activity itself, it is best to develop robust communications plans, especially for those systems whose signals may be affected.[5]

Orbital debris routinely puts satellites at risk. To protect on-orbit assets, maintaining situational awareness in space, largely through ground-based radars, is an essential support mission for successful space operations, and intelligence planners should keep in mind the Combined Force Space Component Command (CFSCC), the unit responsible for space situational awareness, as a source of intelligence.

Inside the atmosphere, the assessment of environmental effects must also include terrain and weather effects on both the link and the ground segments of space systems. For these segments, terrain may block GPS or satellite communications (SATCOM) signals—effects that organic, operational-level space staff can model throughout planning and execution. Terrestrial weather, of course, brings its own effects. For space systems, rainstorms may limit SATCOM connectivity on certain frequencies, employment options for mobile space or counterspace assets, and launch timetables. Furthermore, cloud cover or periods of limited visibility may hinder imagery collection and delay satellites' warnings of missile launches. As with a communications plan, the intelligence collection plan and the theater missile warning/defense plan

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must consider the limitations of available assets and the possibility of employing alternate means. Furthermore, friendly key terrain (on the ground) may demand measures designed to protect them from space-based surveillance (e.g., camouflage, radio silence procedures, military deception, or counterspace operations).

Finally, civil considerations come into play with space operations just as they do with traditional fire and maneuver. Does the civilian population get its information from government-controlled satellite broadcasts? Are there local television or radio stations that ground forces could commandeer? How vulnerable are ground stations to peering locals or projected refugee flow patterns? How will the local use of electromagnetic radiation affect the ability of friendly forces to operate in the way that it wants (green-on-blue interference)? For that matter, how will the use of friendly systems interfere with other friendly systems (blue-on-blue interference)? All of these questions require consideration to holistically assess the environmental effects. Figure 2 provides a synopsis of general battlefield effects of the space environment and of the terrestrial environment on space systems.

Step 3: Evaluate the threat. Doctrinally, space systems consist of three segments: the space segment (satellites), the ground segment (control and data processing stations), and the link segment (the electromagnetic radiation that connects the two and allows for the passage of data). Closely tied to—but not part of—the space system are the servers, networks, and software programs that allow for the transfer of data from ground site to ground site; these elements are within the cyber domain but bear consideration in both the conduct of space operations and in multi-domain IPB.

Just as with ground operations, a space-centric evaluation of the threat requires extensive knowledge of the enemy's order of battle (OOB) for all segments and the manner in which the enemy typically employs their forces. Thus, just as large-scale combat operations require OOBs, doctrinal templates, and situational templates for the enemy ground force, multi-domain operations require the same basic products for the enemy's space forces. At present, the most significant limitation to holistic analysis is the development of the four constituent OOBs for enemy space forces: satellite, link segment, ground segment, and cyber segment. As the cyber segment falls outside of the space domain, it is not herein addressed in detail. However, each of the other OOBs bears explanation.

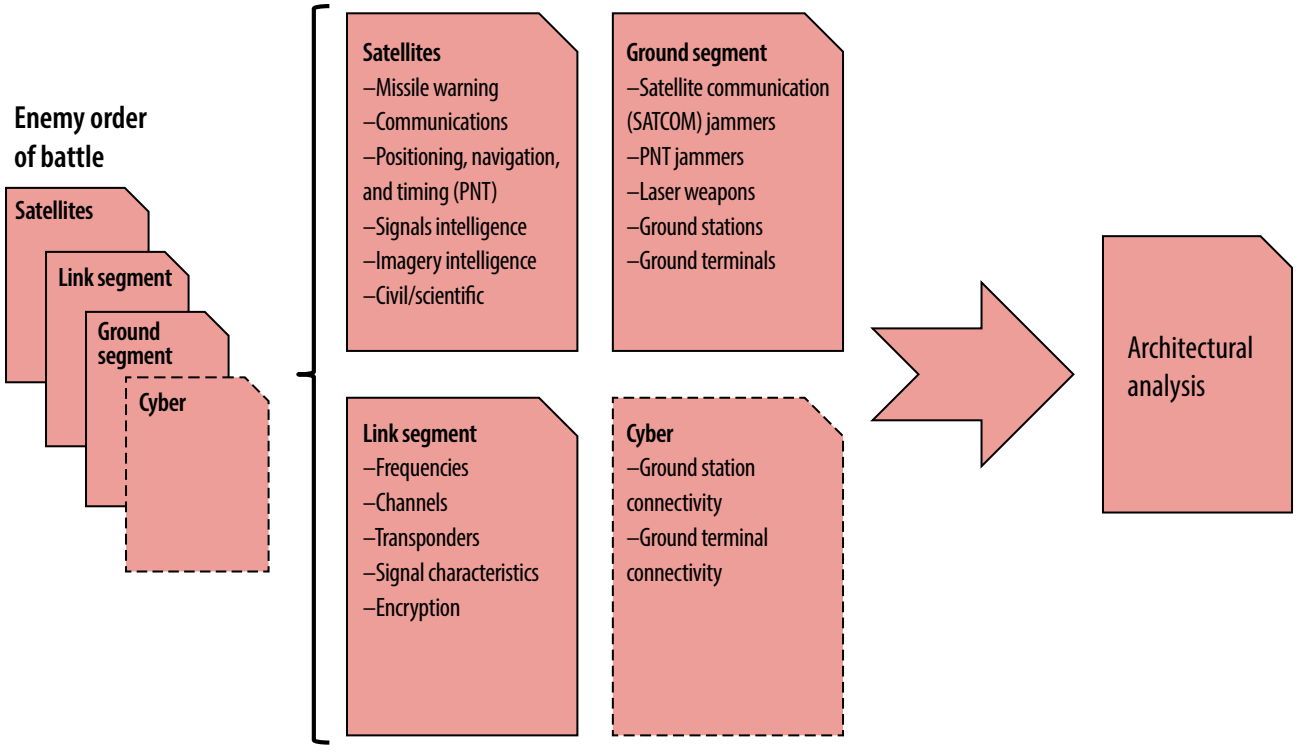
1. Due to gravitational effects, orbital patterns repeat and are therefore predictable. Geosynchronous orbits are highly valuable and should be considered for designation as key terrain; the systems in those slots are likely candidates for critical/defended asset designation.
2. The harshness of the environment may cause spacecraft failure at any time; robust alternate, contingency, and emergency plans are necessary for all systems.
3. Orbital debris may put satellites at risk; space situational awareness is essential for protection of on-orbit assets.
4. Solar activity may disrupt normal satellite operations/signal propagation, causing perception of intentional interference.
5. Terrestrial weather may interfere with certain transmission frequencies; employment of mobile space/counterspace assets; and conduct of reconnaissance, early warning, and launch missions.
6. A crowded electromagnetic spectrum may cause interference with space-based signals.
7. Civil populations may depend upon satellite systems for information/entertainment; ground stations may be vulnerable to negative public opinion, hostile observation, or refugee flow.

(Figure by author)

Figure 2. Initial Considerations for Defining Space Domain Environmental Effects on Operations

An enemy satellite OOB may take on many forms. A satellite OOB may group satellites by orbital regime, ownership, function, or some combination thereof. An orbital regime grouping would divide capabilities along the lines of orbits described above (GEO, MEO, LEO) with the addition of a fourth type of orbit, the highly elliptical orbit, which is particularly useful for polar surveillance or communications.

An ownership grouping would divide satellites by who operates them. Typically, satellites belong to



*A comprehensive order of battle will drive intelligence collection, the targeting process, force protection measures, development of options for the joint force commander, and an appreciation for the options available to the enemy.

(Figure by author. The graphic outlines a framework of the products and analysis that emerge from step 3 of the intelligence preparation of the battlefield process. Though not a constituent part of the space order of battle analysis, the cyber order of battle is necessary for a complete architectural analysis.)

Figure 3. Evaluate the Threat Products and Analysis Framework

four types of owners: militaries, intelligence communities, civil-government agencies (e.g., the National Aeronautics and Space Administration or the National Oceanic and Atmospheric Administration), or commercial entities (e.g., Intelsat, Iridium, and Eutelsat). In large-scale combat operations, all government satellites of the enemy may be legitimate targets, and it may be possible to target commercial assets, depending on circumstances. It may, however, not be wise to target all types. A Cold War norm, for example, holds that the targeting of an enemy's strategic missile warning satellites may be viewed as a prelude to a nuclear strike.

The third type of grouping is by function. Satellites that support joint operations include communications; missile warning; position, navigation, and timing; intelligence, surveillance, and reconnaissance; and environmental monitoring. Satellites with an attack function, so-called kamikaze or "kidnapper" satellites, form another category.[6] According to the Union of Concerned Scientists, approximately two thousand operational satellites currently orbit Earth.[7] Simply maintaining situational awareness of all these satellites (not to mention other orbital debris that require tracking) is a full-time endeavor; translating what this information means to an operational-level commander is an entirely different effort that requires a significant dedication of resources.

If the prospect of compiling and analyzing a comprehensive satellite OOB is daunting, doing the same for a comprehensive link segment OOB may be nearly impossible. Satellite links come in two broad types: command-and-control links to manage satellite operations (uplinks) and data links that provide the data that fulfills the satellite's purpose (downlinks). Communications satellites, for example, operate through a command-and-control uplink. To fulfill its downlink function, a satellite may use multiple beams, channels, frequencies, waveforms, and types of encryption. Furthermore, controllers switch users from channel

to channel or from frequency to frequency as the mission requires. Again, building the catalog is only part of the problem. Determining which part of the catalog is relevant to the operation at hand and how to make it operationally useful is a problem that requires a full-time commitment and expansive employment of signals intelligence assets and experts.

The results of step 3 will reveal options:

1. On-orbit options may include repositioning satellites to optimize the constellation or employing an on-orbit space situational awareness satellite to observe a particular satellite of an adversary.
2. Within the link segment, the enemy may reprioritize user traffic, reduce the size of their beams to focus support and reduce vulnerability to jammer attack, or update encryption protocols.
3. Ground-based options may involve the employment of jammers, the displacement of ground-station operators to more secure facilities, or preparations for the launch of a new satellite to provide additional capability.

Consideration of these options by phase/effort allows planners to develop holistic, multi-domain enemy courses of action, which will, in turn, drive comprehensive friendly courses of action.

(Figure by author; a synopsis of general threat options that may combine with other domain options to form a holistic threat course of action.)

Figure 4. Determine Threat Courses of Action

Finally, the ground segment bears consideration, and for this analysis, the operational-level Army is better postured. While numbers of enemy infantry divisions, armored brigades, and bridging assets are important, so too are the enemy's ground-based space assets. This OOB includes ground stations for satellite control and data processing, the headquarters that give the ground stations their orders, fixed and mobile SATCOM jammers, GPS jammers, and ground-based lasers or antisatellite missiles. Also included in the ground segment are radar and optical sensors that track satellites in order to maintain the orbital catalog. For the ground segment, the discipline of navigation warfare (NAVWAR) becomes particularly important. NAVWAR deals with understanding how friendly and enemy forces use position, navigation, and timing data to enhance operations. For example, the enemy may use GPS or a variety of GPS-like systems to employ precision-guided munitions, to achieve accurate timing for their encryption systems, or to command and control ground forces (as U.S. forces do through Blue Force Tracking systems). A detailed investigation of NAVWAR capabilities often involves the study of specific types of warheads, radios, receivers, or other hardware.

With comprehensive space, link, and ground-segment OOBs available, the next step is to piece together the enemy's space systems architectures. Each constellation—sometimes each individual satellite—will have its own architecture for command and control and for data dissemination. With a complementary cyber OOB, the architecture becomes more complete. These architectures become part of the threat models that are the output of step 3 of the IPB process.[8] A second type of threat model that emerges is the concept of how enemy operations might employ their ground-segment forces, particularly mobile counterspace systems. Figure 3 (on page 75) depicts a schematic of the products and analysis that emerge from this process, which feed into step 4 of the IPB process.

Step 4: Determine the threat courses of action. With an agreed-upon definition of the expanded battlefield, an understanding of its effects, and a comprehensive threat evaluation, the next step is to determine the threat courses of action. These courses of action, of course, are situationally dependent, so a general discussion of possible enemy options must suffice. On-orbit options may include repositioning satellites to optimize a constellation of satellites or employing an on-orbit space situational awareness satellite to observe an enemy satellite. Ground-based options may involve the employment of jammers, the displacement of ground-station operators to more secure facilities, or preparations for the launch of a new satellite to provide additional capability. Within the link segment, the enemy may reprioritize user traffic, reduce the size of their beams to focus support and reduce vulnerability to

jammer attacks, update encryption protocols, or offload military traffic onto commercial systems.

At the operational-level, integrating these space-domain options into a wider course of action that considers all domains is essential. Very often, the traditional maneuver and fires plan emerges with concepts for the other warfighting functions, and space and cyber aspects are "bolted on" near the end of the process. Without courses of action that include enemy space options, however, operational-level intelligence planners cannot develop holistic courses of action that force the ground formation to anticipate the enemy across all domains. Figure 4 (on page 76) provides a synopsis of the discussion on step 4.

"At the operational-level, integrating these space-domain options into a wider course of action that considers all domains is essential."

Who Is Responsible and for What?

By function, strategic-level organizations like combatant commands focus on joint processes, which are more holistic; as a consequence, they are less detailed. Tactical-level organizations, like Army divisions, focus primarily on their domain-specific segment with consideration of the most relevant capabilities of the other domains (e.g., air support capacity throughout the operation). As one might expect, Army divisions dedicate significant effort to detailed understanding of the battlefield and the enemy's potential within it. Linking the strategic level and the tactical level, however, are the operational-level commands, and this is where the connective tissue in the intelligence picture of the space domain is lacking across the Army.

Presumably, three types of Army formations bear the responsibility for conducting operational-level IPB: the field army, Army corps headquarters, and the Army service component command (ASCC). Among these, the United States currently only fields one field army, the Eighth Army in South Korea. Given the proximity and nature of the threat this field army faces, its IPB is singularly focused. On the other hand, while the Chinese and Russians field significant space-based capabilities that bear consideration in the regional analysis, the North Koreans have little to speak of, except counterspace systems.

According to Field Manual 3-94, *Theater Army, Corps, and Division Operations*, "a corps headquarters is the Army's predominant operational-level formation," but it can also serve as a tactical-level formation as part of a joint or combined force land component command.[9] In either role, it prepares for combat operations that control multiple divisions and support assets based on its theater planning priorities. I Corps, for example, aligns to U.S. Indo-Pacific Command planning priorities and is currently leading the Army in its multi-domain task force (MDTF) experimentation. Although a tactical element, the MDTF, with its organic intelligence, information, cyber, electronic warfare, and space (I2CEWS) battalions, seems a likely candidate to contribute to operational-level intelligence for space operations, but it will require significant support from its corps headquarters and possibly from ASCCs with which its corps headquarters will be in coordination.

It is important to note that ASCCs currently come in two types: ASCCs to functional combatant commands and ASCCs to geographic combatant commands (or theater armies). The functional ASCCs are presently U.S. Army Special Operations Command, Surface Deployment and Distribution Command, and U.S. Army Space and Missile Defense Command (USASMDC). The rest of the Army's ASCCs (including the U.S. Army Cyber Command) are designated theater armies, though the U.S. Army Cyber Command, in its organizational structure and mission sets, exhibits a functional flavor.[10]

Among these ASCCs, USASMDC retains the preponderance of the Army's space operations personnel and significant intelligence production capabilities and seems to have the greatest responsibility for linking strategic intelligence of the space domain to tactical

action. As a peer organization to the theater armies, USASMDC formally serves as a force provider of allocated forces and a supporting organization for things like satellite communication management. Informally, however, USASMDC often provides modeling and analysis, opines on tactics and techniques for the employment of low-density assets, and incorporates feedback from the field for capability development. Additionally, it enjoys a close working relationship with the CFSCC, which is currently an operational-level space organization under U.S. Space Command (USSPACECOM). While important resources in the quest for comprehensive operational-level space intelligence, neither USASMDC nor the CFSCC currently have the capacity or the mandate to answer the operational-level space intelligence needs of the Army; and despite the formal establishment of the U.S. Space Command, it will likely require multiple years to achieve full operational capability.

Conclusion

Given the current organization of the operational-level Army, the designated need for a holistic approach to multi-domain IPB, and a shortage of institutional expertise and capacity, the Army faces a gap that may prohibit it from achieving a multi-domain force by 2028. The roadblocks to operational-level space intelligence practices result from the institutionalization of a faulty model on what space intelligence is, namely the TCPED process. While strategic-level organizations (the Defense Intelligence Agency, the National Security Agency, and others) provide some of the pieces to the space intelligence puzzle (and tactical-level organizations provide others), the connective tissue between the strategic and tactical is missing. The establishment of USSPACECOM has created a military-strategic organization responsible for space, and it seems highly possible that USSPACECOM—at some future date—will be the keeper of the master order of battle and the majority of the Department of Defense's military space expertise. Furthermore, it will coordinate with other combatant commands through formal integrated planning elements, which will augment combatant command staffs throughout the operations process. At tactical echelons, the MDTF with its intelligence, information, cyber, and electronic warfare and space battalions will execute space activities and will likely aid in intelligence collection. But what is in the middle?

It is apparent that a part of the solution is institutional change. The military intelligence community should reevaluate its training programs for space- and cyber-specific skills, and the Defense Intelligence Agency should reevaluate its distribution of responsibilities through a revised Defense Intelligence Analysis Program—one that probably shifts significant space-related TCPED responsibilities to U.S. Space Command. But traditional notions of space operations and a revised Defense Intelligence Analysis Program will not be sufficient for the operational-level Army. Effective incorporation of space systems requires a reconception of the extended battlefield and how to divide responsibilities within it. It further requires a holistic approach to order-of-battle development—the space, link, and ground segments—and an understanding of the architectures that allow them to operate. Such an understanding is essential for friendly as well as enemy forces. With this work done—which is essentially the first three steps of the IPB process—planners can incorporate space operations options into multi-domain courses of action.

The operational level of the Army must be among the first to adopt these changes and must strive to incorporate them into its routine processes. While each of these formations contain both military intelligence and space operations personnel, the intelligence personnel are not typically space experienced, and the space personnel do not typically have an intelligence background. Thus, in cases where space support elements enjoy better-than-average integration with their intelligence partners, the results seem to be in spite of institutional norms not because of them. USASMDC and CFSCC provide valuable resources but neither their structure, capacity, nor designated missions allow them to fulfill the needs of the Eighth Army, the three Army corps, or the eight other ASCCs.

Moving forward, theater armies should insist upon conceptual clarity on the definition of the extended battlefield, including the space portion, within their combatant commands. These concepts are not yet doctrinally defined (a problem for USASMDC to address), and no battlefield frameworks seem quite adequate for the task, although the deep/close/support/consolidation framework may provide a useful starting point. Theater armies should continue to focus on the ground threat and demand support for more extensive space (and cyber) orders of battle. In this effort,

national agencies, USSPACECOM (potentially with a dedicated military intelligence formation organic to it), USASMDC, and CFSCC have parts to play. As global commands, however, these organizations will not have an appreciation for the theater-specific problem sets of the other operational-level commands. Albeit with support through integrated planning elements, allocated forces, and reach-back support, it remains the responsibility of the theater armies to map the intelligence to their particular problem sets and to determine what it means to their projected courses of action.

Regardless of any changes that may or may not occur within the intelligence and space enterprises, the Army will continue to move toward its vision of a 2028 multi-domain force. Space operations are essential to that vision, but gaps that exist in current models and processes may preclude their effective incorporation into the multi-domain fight. It is certainly true that intelligence gained from strategic space systems is essential to the manner in which the joint force wages military operations, but viewing space systems simply as process enablers causes them to be overlooked as critical pieces of the multi-domain operations puzzle. Thus, the Army, as an institution, must address this shortfall to prepare ground combat commands for an uncertain future. ■

Notes

1. The Defense Intelligence Agency manages this process through the Defense Intelligence Analysis Program, which allocates and prioritizes resources across the intelligence community. For example, if U.S. Transportation Command requires geospatial intelligence products, the Defense Intelligence Analysis Program provides for the command to have an external intelligence node that conducts tasking, collecting, processing, exploiting, and disseminating on behalf of the U.S. Transportation Command and provides the command with the desired finished product. This model assumes that space-based intelligence formations do not need to be organic to a particular formation, effectively allowing the Defense Intelligence Agency to outsource this capability on behalf of combatant commands.

2. Army Techniques Publication (ATP) 2-01.3, *Intelligence Preparation of the Battlefield* (Washington, DC: U.S. Government Publishing Office [GPO], 2019), 1-3. Within the context of multi-domain operations, the word "battlefield" itself may imply a false limitation. The Marine Corps' use of "battlespace" or the joint force's use of "operational environment" are more precise terms. The March 2019 version of ATP 2-01.3 retains "battlefield" in the process name but considers the entire operational environment; this is a significant change from the 2014 version of the same publication. The analytical planner or operator must be willing to consider an extended battlefield—one that potentially extends into outer space.

3. Ibid., 3-4. To add to the confusion, areas of operations and areas of interests (AOIs) are operating areas within the area of responsibility (AOR). The commander of the U.S. European Command, for example, is responsible for an AOR as defined in the Unified Command Plan. Prior to the most recent update to the Unified Command Plan, the commander of U.S. European Command was notionally responsible for everything within those defined boundaries—from the bottom of the ocean to the furthest reaches of space. In the most recent update to the Unified Command Plan, the U.S. Space Command AOR was defined as orbital space with altitudes greater than one hundred kilometers. In the future, it is possible that AORs may disappear as a construct altogether. In any event, as a practical matter, an operational-level commander has to consider an AOI for space that is physically and psychologically removed from traditional notions of AOIs. The March 2019 revision of ATP 2-01.3 aids greatly in fostering such a mindset.

4. For additional details on these orbital regimes, see figure I-1, "Orbit Type and Characteristics," in Joint Publication 3-14, *Space Operations* (Washington, DC: U.S. GPO, 10 April 2018), I-11.

5. Although difficult to predict in advance, the Air Force Weather Agency is able to monitor and assess solar activity after it happens. This function is important because it can rule out the possibility of intentional interference, an enemy activity that drives the decision cycle.

6. Jim Sciutto and Jennifer Rizzo, "War in Space: Kamikazes, Kidnapper Satellites and Lasers," CNN, updated 29 November 2016, accessed 1 June 2019, http://www.cnn.com/2016/11/29/politics/space-war-lasers-satellites-russia-china/.

7. "UCS Satellite Database," Union of Concerned Scientists, updated 31 March 2019, accessed 1 October 2019, https://www.ucsusa.org/nuclear-weapons/space-weapons/satellite-database#.XES1xvZFxYc.

8. See ATP 2-03.1, *Intelligence Preparation of the Battlefield*, para. 5-20. It is worth noting that the previous version of ATP 2-03.1, *Intelligence Preparation of the Battlefield/Battlespace* (2014), the Marines adopted the term "adversary model" instead of "threat model," which lends itself toward a more expansive application of the intelligence preparation of the battlefield process across the continuum of conflict.

9. Field Manual (FM) 3-94, *Theater Army, Corps, and Division Operations* (Washington, DC: U.S. Government Printing Office, 2014), 1-2; FM 3-0, *Operations* (Washington, DC: U.S. GPO, 2017), 2-11.

10. For outlines of the specific roles and responsibilities of each of these Army service component commands, see Army Regulation 10-87, *Army Commands, Army Service Component Commands, and Direct Reporting Units* (Washington, DC: U.S. GPO, 2017).

Pfc. Gatwech Both of Company B, 1st Battalion, 297th Infantry Regiment, Alaska National Guard, provides suppressive fire with his team 2 March 2018 during Arctic Eagle 2018 at the Donnelly Training Area outside of Fort Greely, Alaska. The Alaska National Guard has successfully operated in the Arctic and defended Alaska for more than seventy-six years. (Photo by Spc. Michael Risinger, U.S. Army National Guard)

Great Power Collaboration?

A Possible Model for Arctic Governance

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Previously thought of as a frozen landscape of interest only to scientists, the Arctic has increasingly garnered the attention of the international community. Climate change has seen an average rise in global temperatures of 0.9 degrees Celsius in the past 140 years. In the Arctic, however, temperatures have risen twice that of the global average due to a reinforcing feedback loop called "Arctic

amplification," where more dark-colored seawater absorbs heat, and in turn, melts more ice.[1] In the past fifty years, Arctic sea ice has shrunk to about half its original size.[2] While scientists do not yet agree on the exact timeline of the melt, it is estimated that within fifteen to thirty years, parts of the Arctic will be ice-free for significant durations annually.[3]

For the littoral Arctic states—Canada, Finland, Iceland, the Kingdom of Denmark, Norway, Russia, Sweden, and the United States—this melt brings the potential of accessing previously inaccessible resources. It is estimated that a fifth of the world's hydrocarbons is locked under the Arctic ice.[4] Beyond hydrocarbons, a melted Arctic would also bring additional sources of fish; minerals; metals; and hydro, wind, geothermal, tidal, and solar power.[5] On the other hand, the reduction of the natural barrier formed by the ice is a security threat. The Arctic states, therefore, all have distinct interests in maintaining trade routes, resource development, sea ice claims, and regional stability (see figure 1, page 82).[6]

Other non-Arctic states—China, France, Germany, India, Italy, Japan, the Netherlands, Poland, Singapore, South Korea, Spain, Switzerland, and the United Kingdom—have all declared interest in the region and joined the Arctic Council as permanent observers.[7] For them, the most important development is arguably the potential viability of new waterways through the Arctic as the ice melts. If fully opened, the Transpolar Sea Route, Northern Sea Route, and the Northwest Passage can significantly cut shipping times from Europe to Asia.[8] Furthermore, without the canal limitations of traditional shipping routes, bigger cargo ships can provide greater economies of scale each trip.[9] Underwater, the access to more ocean floor means more fiber-optic cables can be laid, making telecommunications more efficient and reliable.[10] As many of these non-Arctic states are beneficiaries of the traditional trade routes, the potential disruption in trade caused by the melting Arctic is possibly an existential threat. Beyond trade routes, many of these states are also highly keen on gaining access to the potential resources in the Arctic.[11]

Against this backdrop, multiple Arctic and non-Arctic states are making moves to gain an edge, or even hegemony, before the ice fully melts. Thus, the question of whether the regional governance should be restricted locally or expanded globally is an important one. To this end, the authors argue that as the environmental, economic, and security impacts of the Arctic are global in nature, its governance should be correspondingly global. Hence, as both an Arctic state and the largest economy in the world, the United States should take the lead in fostering international cooperation in the Arctic.

Collaboration, Competition, and Conflict

At a casual glance, it appears that the trend in the Arctic is one of cooperation rather than conflict, leading to claims that the tensions in the South China Sea can be solved by learning how the Arctic states resolve and manage their conflicts.[12] For example, since its formation in 1996 as part of the Ottawa Declaration, the Arctic Council has established three legally binding agreements on search and rescue, oil pollution preparedness, and scientific research.[13] In addition, countries in the Arctic region and the European Union (EU) have collectively agreed to not increase fishing activities in Arctic waters for at least sixteen years so the scientific community can study the long-term ecological impacts of melting sea ice.[14] Thus far, conflicting territorial disputes in the region are largely arbitrated by United Nations Convention on the Law of the Sea (UNCLOS) submissions or bilateral agreements.[15]

Look below the surface, however, and one can discover a variety of diplomatic, informational, economic, and military posturing by countries with Arctic interests. The official position of most of these countries is primarily

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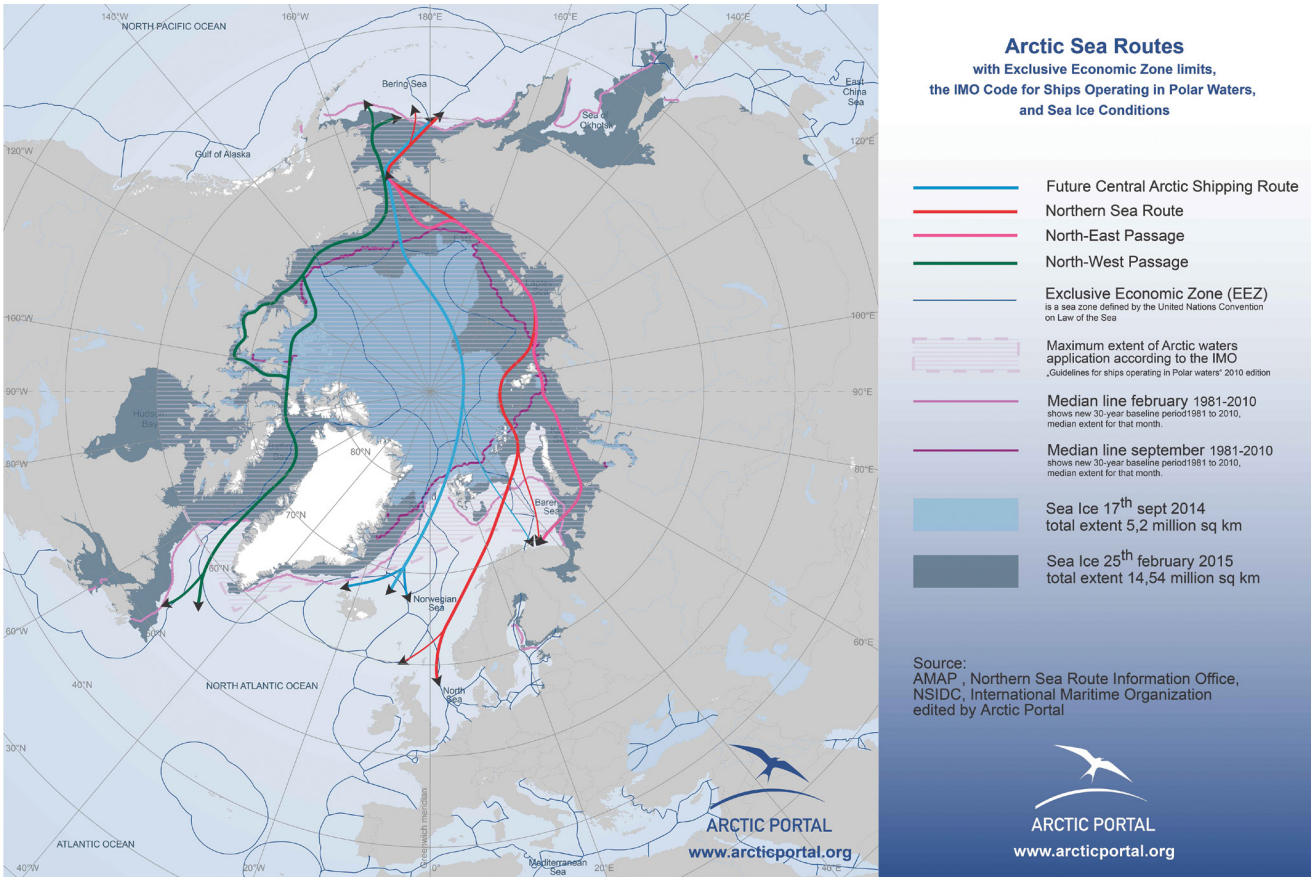


(Figure courtesy of Arctic Portal. Sources: Arctic Monitoring & Assessment Programme, Northern Sea Route Information Office, National Snow and Ice Data Center, and International Maritime Organization)

Figure 1. Arctic Shipping Routes and Economic Exclusion Zones

that of adhering to an international rules-based order and cooperation between states. However, a number of competing claims have not been resolved, and countries are defending their claims with military buildup.

Of the Arctic states, Russia appears to be making the most aggressive moves. With $300 billion in Arctic infrastructure investments, Russia is sending a clear signal about its hegemonic Arctic ambitions.[16] Russian President Vladimir Putin openly declared the Northern Sea Route as an international shipping artery rivaling traditional routes and claimed parts of it as Russia's internal waters, meaning the country can decide who can transit through it, effectively monopolizing the waterway.[17]

Beyond rhetoric, Russia looks prepared to defend its claims militarily. Alarm bells first rang in 2007, when a Russian submarine expedition planted a titanium Russian flag under the North Pole.[18] Since then, it has built up an extensive collection of forty icebreakers, naval ships, land-based military deployments and military infrastructure in the Far North.[19] Antiship missile sites and ports have been established along the northern sea border of Russia, including sites on islands that pose a threat to any vessels that have an interest in the Arctic. Although not directly related to the Arctic, withdrawal from the Intermediate-Range Nuclear Forces Treaty by both Russia and the United States is a cause for concern as it is a sign of hostility.[20] In its defense, the Arctic ice was traditionally seen as a natural barrier between Russia and NATO states.[21] With that natural barrier melting, Russia feels the pressure to bolster its northern defenses.

Uncharacteristically, Canada makes similar claims that parts of the Northwest Passage are its internal waters. Consequently, it protested the 1969 voyage of the USS *Manhattan* as an intrusion by the United States into Canadian sovereignty. To defend its claims, Canada plans to upgrade its Arctic military capabilities with icebreaker ships, offshore patrol ships, snowmobiles, surveillance equipment, and

satellite communications.[22] As a show of deterrence, the Canadian Armed Forces have also conducted annual sovereignty defense exercises in the Arctic under Operation Nunalivit since 2007.[23] In another display of sovereignty, Canada prevented the sale of Canadian radar technology to the United States on grounds of national security in 2008.[24] That said, Canada is taking care not to appear too aggressive with permanent Arctic deployments.[25]

The newest big player in the arena is China. In the 2018 Arctic Policy, China declared itself as a "near-Arctic State" and expressed the desire to build a "Polar Silk Road" through the Arctic.[26] Unlike its hegemonic posturing in the South China Sea, China's Arctic rhetoric has been about trade freedom and respect for UNCLOS.[27] Overtly, China's moves in the Arctic are largely an exercise of soft power via research, investments, and infrastructure development with multiple Arctic states.[28] It currently spends $60 million annually on research in the region.[29] Economically, China engaged with many Arctic states to fund projects in a bid for influence in the region. In 2013, it established a free trade agreement with Iceland, the first with a European country. In 2014, it supplied $12 billion to the Yamal LNG project—a Russian liquefied natural gas (LNG) company—to complete a project when funding fell as a result of U.S. sanctions on Russia. China also engaged with the United States and signed a deal to provide funding for the Alaska LNG project in 2017. Most recently, in late 2018, China is in talks with Greenland on infrastructure projects. However, some government officials fear it may come at a price of Greenland's control over its raw materials.[30] Despite the focus on economy, military buildup is still relevant here, as China recently launched its first domestically produced icebreaker, the *Snow Dragon II*.[31] Furthermore, it is making plans for naval and submarine operations in the Arctic.[32]

Apart from the countries mentioned above, other non-Arctic littoral entities are also putting more focus on the Arctic. The EU is looking to build icebreakers and announced its own Arctic policy. NATO has likewise studied into its future involvements in the Arctic. Asian countries like South Korea and Singapore have also built large icebreakers to access the Arctic shipping routes.[33] All these actions suggest that the attention on the Arctic is global in nature and countries are willing to invest significant capital to get ahead in the Arctic game.

Despite these developments, some scholars believe that hostile competition in the Arctic is a remote scenario due to its current harsh conditions, poor infrastructure, and the relatively peaceful stability of the Arctic states.[34] However, this view may be too temporally and geographically myopic. First, unlike the South China Sea, the resources promised by the Arctic are not ready for exploitation yet. Thus, while there is little benefit currently for overt conflict, many countries are preparing the theater using diplomatic, informational, and economic campaigns while simultaneously building their militaries. Second, China's military developments are running in tandem with its demonstrated ambitions under its global Belt and Road Initiative.[35] Thus, once conditions are ripe, it may well resort to the hard power tactics it is pursuing in the South China Sea to achieve its economic aims.[36] Therefore, to avoid escalation into another Cold War or armed conflict, the priority in the Arctic must be to establish an inclusive governance model to ensure all stakeholders' interests are addressed, wherever their geographical locations may be.

An Ideal Arctic Governance Model

Despite the heavy global influence of the region, the Arctic Council only allows the eight Arctic states to be full members while non-Arctic states can only become permanent observers. With no binding legal powers and mandate to discuss military topics, the Arctic Council, in its current form, is a weak institution to guard against aggressive geopolitical posturing in the Arctic.[37] A stronger governance model based upon sound principles needs to be established.

With such potential for economic growth, it is easy to forget that the Arctic melt poses severe environmental impacts that will far outweigh the economic gains discussed above. First, temperature increases in the Arctic will in turn increase global temperatures and could result in rising sea levels.[38] Irresponsible development and ice breaking in the region may very well add to these temperature increases. Second, native food security is reduced due to the loss of whaling and sealing from the warmer waters, leading to potential relocations of whole communities in the Arctic.[39] To minimize these negative impacts, the primary principle of Arctic governance must be environmental sustainability and climate change prevention.

Given current predictions, however, the Arctic melt is probably more a matter of when than if.[40] As such, development governance and territorial conflicts need to be addressed early. On economy and resources, the most globally equitable position is to treat the Arctic as a global common that is free and open for international trade and resource exploration while maintaining way-of-life safeguards for the four-million-person indigenous Arctic population.[41] This position is aligned with that of the United States, the EU, and most non-Arctic states, suggesting a strong potential for enforcement collaboration.[42] Thus, freedom of trade anchored by an international rules-based order must be a key principle in Arctic governance.

> Given the global impacts of the Arctic, governance of the Arctic's developments and enforcement of the safeguards should be done by a truly international body.

Given the global impacts of the Arctic, governance of the Arctic's developments and enforcement of the safeguards should be done by a truly international body. Membership of the Arctic Council should be expanded to all countries with Arctic interests. In addition, all aspects of Arctic development, including military ones, should be up for debate in the council. A possible model to follow is that of the Antarctic Treaty System that governs resource extraction and scientific exploration in Antarctica. Under the legally binding treaty, all signatories suspended territorial claims and military activities. Instead, they collaborated to jointly facilitate the stipulations of the treaty. The Antarctic Treaty Consultative Meetings are open to all countries as long as they conduct "substantial research activity" as proof of commitment to the region.[43]

Of course, there are significant differences between the Arctic and Antarctica. First, there is little great power competition between the littoral Antarctic states. Second, because it is an actual landmass, the melt in Antarctica will not change trade routes but will instead have a significant impact on global sea levels. As such, the economic and strategic gains in the Antarctic are seemingly less significant, making it easier for countries to focus on environmental factors and be more altruistic in their approaches to the region.[44] Nevertheless, with strong international leadership and advocacy for collaboration rather than competition, a similar system could be achieved in the Arctic.

Implications for U.S. Policy

While it appears to the general American public that Arctic developments only impact the remote Arctic state of Alaska, these developments, in fact, have serious implications on the United States' national security. First, if competition in the Arctic leads to militarization, the consequences of conflict will affect the overall U.S. military and economy. Thus, the U.S. Arctic Region Policy states that "U.S. national security interests [in the Arctic] include such matters as missile defense and early warning; deployment of sea and air systems for strategic sealift, strategic deterrence, maritime presence, and maritime security operations; and ensuring freedom of navigation and overflight."[45] Second, beyond militarization, the U.S. Department of Energy states that the definition of national security with regards to the Arctic must be broad in nature and include security in freedom to conduct economic, resource extraction, and scientific research activities as well.[46] As an Arctic state and an international leader, the United States must take steps to ensure its national security interests in the Arctic are protected.

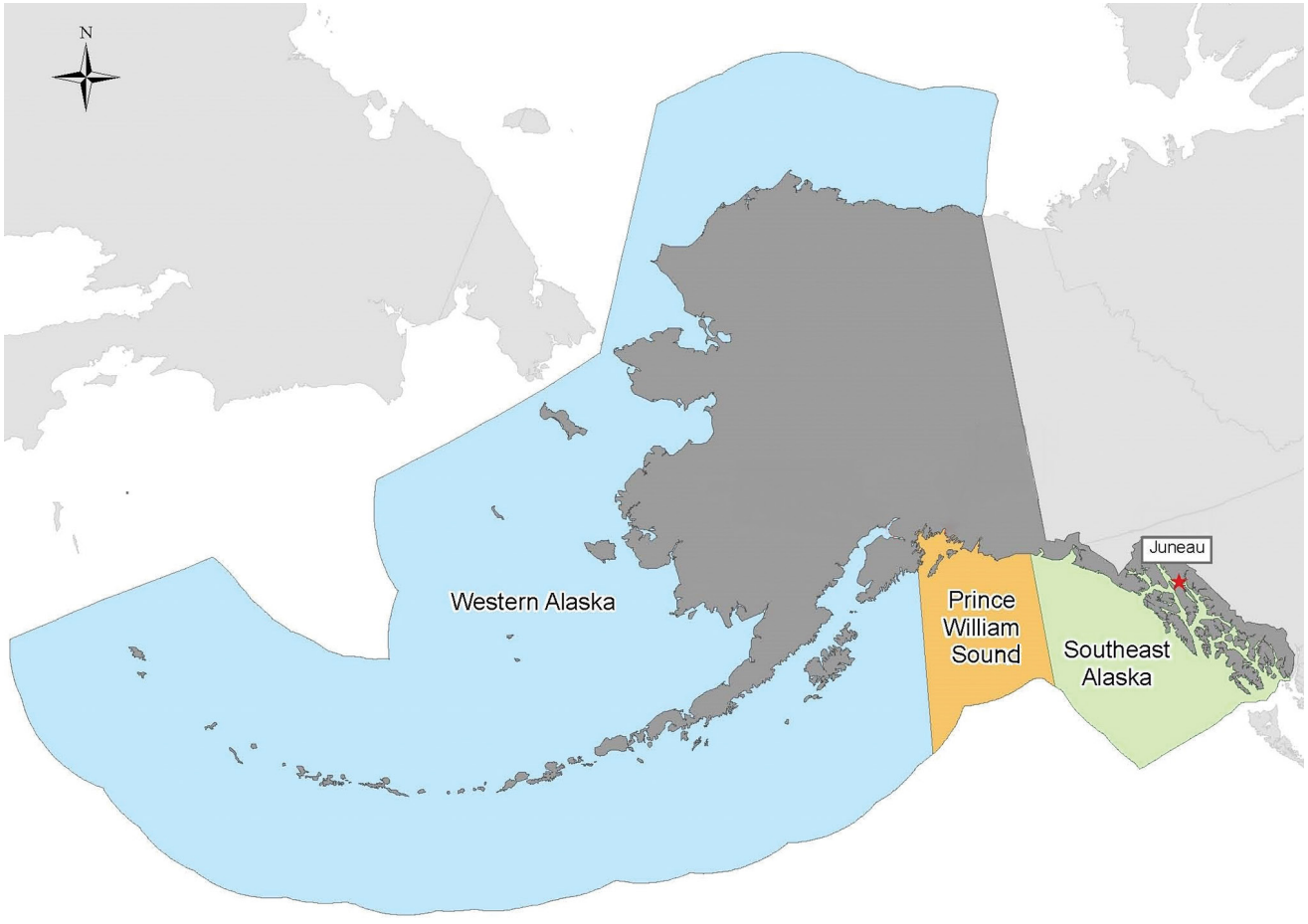
In line with the Department of Defense's desired end state for the Arctic as "a secure and stable region where U.S. national interests are safeguarded, the U.S. homeland is defended, and nations work cooperatively to address challenges," the United States' best strategy in the Arctic is to be a leading voice in advocating for international collaboration in establishing the global governance model described in the preceding section.[47] To do so, the United States will need to utilize its instruments of national power, with particular emphasis on the twin pillars of diplomacy and military deterrence.

A Russian soldier stands guard by a Pansyr-S1 air defense system 3 April 2019 on Kotelny Island, part of the New Siberian Islands archipelago, located between the Laptev Sea and the East Siberian Sea in Russia. Russia has made reaffirming its military presence in the Arctic a top priority amid intensifying international rivalry over the region that is believed to hold up to one-quarter of the planet's undiscovered oil and gas. (Photo by Vladimir Isachenkov, Associated Press)

With just one heavy-class icebreaker and minimal troops in Alaska, the United States' deterrent is not credible on its own.[48] Diplomatically, the United States needs to work out its conflicts with Canada first and then capitalize on its special relationship with the country to convince its leadership to relinquish its internal waters claim on the Northwest Passage and respect the provisions of UNCLOS.[49] Thereafter, the United States should champion international collaboration in lobbying for a more inclusive governance body for Arctic development. This push for global Arctic governance should also be underpinned by multilateral military cooperation with interested nations. In a key demonstration of good faith to rally the nations, the United States should ratify UNCLOS. Given all other Arctic states are abiding by UNCLOS and the United States abides by it in action already, the ratification should be little more than a formality.[50] Establishing multilateral cooperation will also alleviate perceptions of hegemonic Arctic ambitions by the United States.

The twin pillars of deterrence and diplomacy only work if the deterrence is credible. This is especially so if China and Russia collaborate not just economically but also militarily. It is neither cost effective nor timely for the United States to attempt to catch up to Russia's, and potentially China's, over forty icebreakers. However, if it can pair its own icebreaker build up with the twenty-nine icebreakers and other naval assets of the NATO countries and friendly non-Arctic states like Japan and South Korea, it can send a dual message of deterrence and international unity against any country trying to assert hegemony over the Arctic.[51]

Beyond deterrence, there are plenty of other benefits of military collaboration in the Arctic. First,



(Source: U.S. Coast Guard, https://www.pacificarea.uscg.mil/Our-Organization/District-17/)

Figure 2. U.S. Coast Guard District 17 Area of Operations

partner nations can gain much from jointly developing the poor communications infrastructure and navigational data in the region so all vessels can pass through safely.[52] Due to the harsh conditions, cost sharing to develop Arctic-hardy unmanned systems will be of special value. Second, the possibility of oil spills as more oil tankers traverse the Arctic will undoubtedly increase. In the difficult conditions of the Arctic, clean-up operations for spills will likely be even more complex than those of the Exxon Valdez spill in 1989. Thus, joint emergency response plans for this scenario need to be well developed and constantly rehearsed. Finally, search-and-rescue operations in the region will also be fraught with difficulty and would provide a good platform for all nations to collaborate militarily.[53]

For the U.S. military, a number of changes need to be made. Currently, command of operations in the Arctic is split amongst the U.S. North Command, the U.S. European Command, and the U.S. Indo-Pacific Command. This could prove confusing should a large-scale operation be required. Hence, contingency plans for an ad hoc single command structure for Arctic operations must be in place. In terms of deployments, it is paramount that the United States bolsters Coast Guard and Navy presence in the Arctic, namely in Alaska and around the Bering Strait. Maintaining a continued presence of U.S. Coast Guard District 17 assets would support any diplomatic solution with Canada without escalation to conflict (see figure 2). With these changes and the international collaboration mentioned above, the United States will be in a

good position to ensure developments in the Arctic are beneficial to the global community.

Conclusion

The potential economic gains from the melt are tantalizing. If fully realized, global trade currents could shift, threatening countries half a world away while invigorating regions previously frozen out of the international economic community. Perhaps even more than the South China Sea, impacts of developments in the Arctic are global in nature. Thus, the key priority must be in keeping the peace and stability of the region by promoting international collaboration and reducing counterproductive competition. While the current geopolitical situation in the region seems to be generally collaborative, most Arctic states and other interested non-Arctic states are making diplomatic, economic, and military moves in preparation for future competition as the melt progresses.

As an Arctic state and the currently recognized global leader, the United States is in a unique position to shift the current Arctic paradigm. With effective diplomacy and military collaboration, it can be the leading voice for establishing a more inclusive global governance model for the Arctic that will overcome the current weak mandate of the Arctic Council on military issues. The governance model should be based on the three key principles of free and open trade, a rules-based order, and environmental conservation.

With current climate observations, the Arctic melt shows no signs of stopping, even if its rate of progress may not always be linear. Hence, the United States needs to make the above preparations for the melt early. Establishing multilateral cooperation will alleviate perceptions that the United States is trying to assert hegemony over the Arctic. With interests of more groups considered, Arctic development is likely to be more sustainable and equitable, leading to the creation of a true global common with benefits for all. ■

Notes

1. E. Osborne, J. Richter-Menge, and M. Jeffries, eds., "Arctic Report Card," National Oceanic and Atmospheric Administration Arctic Program, accessed 12 August 2019, https://www.arctic.noaa.gov/Report-Card; Scott G. Borgerson, "Arctic Meltdown: The Economic and Security Implications of Global Warming," *Foreign Affairs* 87, no. 2 (March/April 2008), accessed 12 August 2019, https://www.foreignaffairs.com/articles/arctic-antarctic/2008-03-02/arctic-meltdown.

2. William Booth and Amie Ferris-Rotman, "Russia's Suez Canal? Ships Start Plying a Less-Icy Arctic, Thanks to Climate Change," *Washington Post* (website), 8 September 2018, accessed 12 August 2019, https://www.washingtonpost.com/world/europe/russias-suez-canal-ships-start-plying-an-ice-free-arctic-thanks-to-climate-change/2018/09/08/59d50986-ac5a-11e8-9a7d-cd30504ff902_story.html.

3. Scott G. Borgerson, "The Coming Arctic Boom: As the Ice Melts, the Region Heats Up," *Foreign Affairs* 92, no. 4 (July/August 2013), accessed 12 August 2019, https://www.foreignaffairs.com/articles/global-commons/2013-06-11/coming-arctic-boom.

4. Eric Roston, "How a Melting Arctic Changes Everything—Part III: The Economic Arctic," Bloomberg, 29 December 2017, accessed 12 August 2019, https://www.bloomberg.com/graphics/2017-arctic/the-economic-arctic/.

5. Clay Dillow, "Russia and China Vie to Beat the US in the Trillion-Dollar Race to Control the Arctic," CNBC, 6 February 2018, accessed 12 August 2019, https://www.cnbc.com/2018/02/06/russia-and-china-battle-us-in-race-to-control-arctic.html.

6. Department of Defense (DOD), "Report to Congress on Strategy to Protect United States National Security Interests in the Arctic Region" (Washington, DC: DOD, December 2016), accessed 12 August 2019, https://dod.defense.gov/Portals/1/Documents/pubs/2016-Arctic-Strategy-UNCLAS-cleared-for-release.pdf; "Maps: Shipping," Arctic Portal, last updated April 2016, accessed 12 August 2019, https://arcticportal.org/maps-shipping.

7. DOD, "Report to Congress on Strategy to Protect United States National Security Interests in the Arctic Region."

8. Paul Waldie, "A Reality Check on the Northwest Passage 'Boom,'" *The Globe and Mail* (website), last updated 11 May 2018, accessed 12 August 2019, https://www.theglobeandmail.com/report-on-business/breakthrough/will-cold-dark-northwest-passage-see-more-ships/article16231502/. The trade route for Panama Canal is navigable year-round: 25,588 km from Rotterdam to Shanghai. The Suez Canal is navigable year-round: 19,550 km. The Northern Sea Route is currently navigable July-October: 15,793 km. The Northwest Passage is currently not yet navigable: 16,100 km. The Transpolar Sea Route is currently not yet navigable: 13,630 km.

9. Roston, "How a Melting Arctic Changes Everything—Part III."

10. Dillow, "Russia and China Vie to Beat the US."

11. Roston, "How a Melting Arctic Changes Everything—Part III."

12. Ian Storey, *Arctic Lessons: What the South China Sea Claimants can Learn from Cooperation in the High North* (Singapore: Institute of Southeast Asian Studies, 16 December 2013), 1, accessed 12 August 2019, https://www.academia.edu/5435334/Arctic_Lessons_What_the_South_China_Sea_Claimants_Can_Learn_from_Cooperation_in_the_High_North.

13. "The Arctic Council: A Backgrounder," The Arctic Council, last updated 13 September 2018, accessed 12 August 2019, https://arctic-council.org/index.php/en/about-us.

14. Jessica Brown, "Thaw in Accord: As Arctic Ice Melts, Territorial Disputes are Hotting Up, Too," *The Independent* (website), 1 March 2018, accessed 13 August 2019, https://www.independent.co.uk/environment/geopolitical-consequences-of-melting-arctic-ice-russia-canada-us-northern-sea-route-shipping-natural-a8229306.html.

15. Eric Roston and Blacki Migliozzi, "How a Melting Arctic Changes Everything—Part II: The Political Arctic," Bloomberg, 16 May 2017, accessed 13 August 2019, https://www.bloomberg.com/graphics/2017-arctic/the-political-arctic/.

16. Dillow, "Russia and China Vie to Beat the US."

17. "The Emerging Arctic," Council on Foreign Relations, accessed 13 August 2019, https://www.cfr.org/interactives/emerging-arctic?cid=otr_marketing_use-arctic_Infoguide%2523!#!/emerging-arctic?cid=otr_marketing_use-arctic_Infoguide%2523.

18. Pavel Devyatkin, "Russia's Arctic Strategy: Aimed at Conflict or Cooperation? (Part 1)," The Arctic Institute, 6 February 2018, accessed 13 August 2019, https://www.thearcticinstitute.org/russias-arctic-strategy-aimed-conflict-cooperation-part-one/.

19. Ibid.

20. "INF Nuclear Treaty: Russia Follows US in Suspending Pact," BBC News, 2 February 2019, accessed 13 August 2019, https://www.bbc.com/news/world-europe-47101429.

21. Devyatkin, "Russia's Arctic Strategy."

22. Adam Lajeunesse, "What Canada's New Defense Policy Means for the Arctic," Arctic Deeply, 16 June 2017, accessed 13 August 2019, https://www.newsdeeply.com/arctic/community/2017/06/16/what-canadas-new-defense-policy-means-for-the-arctic.

23. "Operation NUNALIVUT 2018 Begins in the High Arctic," Department of National Defence/Canadian Armed Forces, 23 February 2018, accessed 13 August 2019, https://www.canada.ca/en/department-national-defence/news/2018/02/operation-nunalivut-2018-begins-in-the-high-arctic.html.

24. *Climate Change and the Arctic: New Frontiers of National Security Hearing Before the House Comm. on Foreign Affairs,* 111th Cong. (25 March 2009) (statement of Scott G. Borgerson, Visiting Fellow for Ocean Governance at the Council of Foreign Relations), accessed 13 August 2019, https://www.cfr.org/report/us-national-security-interests-arctic.

25. Adam MacDonald, "The Canadian Armed Forces and the Arctic: Maintaining a Suitable and Sustainable Role" (Ottawa, Canada: Conference of Defence Associations Institute, May 2016), accessed 13 August 2019, https://cdainstitute.ca/wp-content/uploads/Analysis/MacDonald_Analysis_May_2016.pdf.

26. "China's Arctic Policy," 1st ed. (white paper, Beijing: State Council Information Office of the People's Republic of China, 26 January 2018), accessed 13 August 2019, http://english.gov.cn/archive/white_paper/2018/01/26/content_281476026660336.htm.

27. Nong Hong, "China's New Arctic Policy: Legal Questions and Practical Challenges," The National Bureau of Asian Research, 16 March 2018, accessed 13 August 2019, https://www.nbr.org/publication/chinas-new-arctic-policy-legal-questions-and-practical-challenges/.

28. "The Emerging Arctic."

29. Ibid.

30. John Simpson, "How Greenland Could Become China's Arctic Base," BBC News, 18 December 2018, accessed 13 August 2019, https://www.bbc.com/news/world-europe-46386867.

31. Liu Zhen, "China Breaks the Arctic Ice with Launch of New Research Vessel Snow Dragon II," *South China Morning Post* (website), 12 September 2018, accessed 13 August 2019, https://www.scmp.com/news/china/military/article/2163784/china-breaks-arctic-ice-launch-new-research-vessel.

32. Andrew Tate, "China Planning for Arctic Operations," Jane's Defence Weekly, 18 July 2018, accessed 8 December 2018, https://www.janes.com/article/81520/china-planning-for-arctic-operations (site discontinued).

33. *Climate Change and the Arctic*.

34. Gary Roughead, "Getting Serious about the Arctic: US Interests in the North," *Harvard International Review* 36, no. 3 (14 April 2015), accessed 4 February 2019, http://hir.harvard.edu/article/?a=11048 (site discontinued).

35. While the Chinese government has changed its English translation of this initiative into the Belt and Road Initiative, its Mandarin name in official documents is still 带一路 (One Belt One Road).

36. Despite the United Nations Convention on the Law of the Sea's rulings against China, the country has still continued building up military installations on disputed territory in the South China Sea.

37. Roston and Migliozzi, "How a Melting Arctic Changes Everything—Part II."

38. Eric Roston and Blacki Migliozzi, "How a Melting Arctic Changes Everything—Part I: The Bare Arctic," Bloomberg, 19 April 2017, accessed 13 August 2019, https://www.bloomberg.com/graphics/2017-arctic/.

39. "Ocean Action Agenda: Supporting Regional Ocean Economies and Ecosystems: Ocean Priorities for the Trump Administration and Congress" (Washington, DC: Joint Ocean Commission Initiative, March 2017), accessed 13 August 2019, https://oceanactionagenda.org/wp-content/uploads/2017/04/OceanActionAgenda.pdf.

40. Borgerson, "Arctic Meltdown."

41. "Arctic Peoples," The Arctic Council, last updated 3 November 2016, accessed 13 August 2019, https://arctic-council.org/index.php/en/our-work/arctic-peoples.

42. Hong, "China's New Arctic Policy."

43. Trevelyan Wing, "Poles Apart? The Antarctic Treaty System as a Model for Arctic Governance" (Washington, DC: The Climate Institute, October 2017), accessed 13 August 2019, http://climate.org/wp-content/uploads/2017/11/Trevelyan_Wing_10-2017_Poles_Apart.pdf.

44. Roughead, "Getting Serious About the Arctic."

45. DOD, "Report to Congress on Strategy to Protect United States National Security Interests in the Arctic Region."

46. Denali Daniels and Associates, "National Strategy for the Arctic Region (NSAR) – Ten Year Renewable Energy Plan" (Washington, DC: U.S. Department of Energy, April 2015), accessed 13 August 2019, https://www.energy.gov/sites/prod/files/2015/04/f21/NSARDraftPlan_v6.pdf.

47. DOD, "Report to Congress on Strategy to Protect United States National Security Interests in the Arctic Region."

48. Dillow, "Russia and China Vie to Beat the US."

49. Carolyn Beeler, "Who Controls the Northwest Passage? It's Up for Debate," PRI's The World, 4 September 2017, accessed 13 August 2019, https://www.pri.org/stories/2017-09-04/who-controls-northwest-passage-its-debate.

50. Brian Finneran, ed., "U.S. Policy in the Arctic: The Implications of the South China Sea Arbitration Award on American Policy and UNCLOS," *Penn State Journal of Law & International Affairs* 6, no. 1 (June 2018), accessed 13 August 2019, https://elibrary.law.psu.edu/cgi/viewcontent.cgi?article=1184&context=jlia.

51. Roston, "How a Melting Arctic Changes Everything—Part III."

52. Roughead, "Getting Serious About the Arctic."

53. DOD, "Report to Congress on Strategy to Protect United States National Security Interests in the Arctic Region."

Evaluating Our Evaluations

Recognizing and Countering Performance Evaluation Pitfalls

Lt. Col. Lee A. Evans, PhD, U.S. Army
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Selecting the right person for the right job at the right time is a persistent challenge faced by organizations. Performance evaluations are a fundamental component of selection processes, and their use in the Army is nearly as old as the service itself. Some early evaluation systems consisted of a list of officers in a regiment with observations noted for each ranging from "a good-natured man" to "merely good—nothing promising" to "a man of whom all unite in speaking ill."[1] While our current evaluation form adds a bit more science to the art of performance evaluation, a constant in the Army's performance evaluation system is the reliance on raters to render their judgment on the potential of a subordinate for service at higher levels.

Raters need to be better equipped to exercise these judgments. While we recognize the calls for personnel management reform and the initiatives underway to better manage the Army's talent, our purpose is not to add another voice to these suggestions for structural changes to the Army's evaluation system.[2] Instead, we focus on the process of discretionary judgment exercised by raters that is and will continue to be an integral part of performance evaluation. Our aim is to recognize the structural and cognitive biases inherent in our evaluation system and provide recommendations to help senior raters more objectively evaluate their subordinates.

While we think the importance of this topic is self-evident, educating raters on the potential for bias in their evaluations is especially important in the type of rating system used by the Army. This system places great emphasis on the person serving as the senior rater. Although the evaluation forms include assessments from raters and sometimes intermediate raters, the senior rater comments are widely acknowledged to carry the most weight for promotion and selection decisions due to the small amount of time available to evaluate a soldier's file.[3] Most positions involve work that is highly interdependent on other members of the organization, which places a considerable demand on raters to assess and articulate how much an individual contributed to the output of the group.[4]

While the performance of an officer is undoubtedly important to his or her chances for promotion or selection, the abilities of the officer's senior rater to convey the level of this performance through an evaluation is also vital to talent management. Previous studies demonstrate that exposure to a high-quality mentor increases

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an officer's likelihood of an early promotion to major by 29 percent, perhaps because high-quality mentors are skilled at communicating their protégé's potential in their performance evaluations.[5] Equipping raters to make their best possible judgments of subordinates and clearly articulating these judgments is vital to fostering a meritocratic Army talent management system.

Evaluating the Performance Evaluation Tool: Structural Biases in the Department of the Army Form 67

In 1922, the Army introduced a formalized performance appraisal system, the War Department Adjutant General's Office (WD AGO) Form 711, *Efficiency Report*, rebranded two years later as the WD AGO Form 67, to assess officers in the domains of physical qualities, intelligence, leadership, personal qualities, and general value to the service.[6] Since 1922, the Army modified DA Form 67 ten times; the most recent iteration was the DA Form 67-10 series (hereafter referred to collectively as DA Form 67-10).[7] Each iteration of the officer evaluation form contained nuanced approaches to segment the population in order to accurately represent the spectrum of officer performances from the highest performing officers to those who should not be retained in the service. DA Form 67-10 uses a forced distribution technique where senior raters of lieutenant colonels and below can award "most qualified" evaluations to fewer than half of their subordinates. (For comparison, an example of the 1934 efficiency report format is shown on pages 94–95 to highlight the perennial challenges the Army has faced over time in capturing and expressing an effective and fair means of comparing the performances of officers.) Forced distribution rating systems have been common in the Department of Defense and the civilian sector because of the problem of appraisal distortion in the absence of forced distribution.[8] For example, prior to implementing a forced distribution performance appraisal system, the U.S. Navy saw the majority of its officers rated in the top 1 percent.[9] In theory, forced distribution decreases ratings inflation and provides the means for a variety of human resources decisions, including promotion, training, and assignment of personnel.

However, even under a best-case scenario (with the absence of cognitive biases), system structure induces error in a forced distribution performance appraisal system. Allan Mohrman alluded to this problem in his argument that forced distribution systems should be applied to large enough groups of employees, specifically over fifty.[10] While he failed to provide mathematical support for this number, his argument relies on the statistical qualities of large sample sizes. For example, if a reasonably large sample, typically $n > 30$, is drawn from a population with a normal distribution, the sample mean and the standard deviation of the sample are nearly indistinguishable from that of the population.[11] In the context of officer performance and potential, assuming both are normally distributed, this suggests that larger samples of officers will provide a more accurate representation of performance levels across the force. While larger samples are typically a good representation of performance level distribution, they are in direct conflict with the concept of pooling introduced by Army Regulation (AR) 623-3, *Evaluation Reporting System*.

AR 623-3 defines pooling as "elevating the rating chain beyond the senior rater's ability to have adequate knowledge of each Soldier's performance and potential, in order to provide an elevated assessment protection for a specific group."[12] The word "pooling" appears more than ten times in the most recent version of AR 623-3, which states that pooling runs counter to the intent of the evaluation system and erodes soldiers' confidence in the fairness and impartiality of their leaders.[13]

Creating a rating scheme that minimizes the number of subordinates under each rater ideally allows raters to have an intimate knowledge of the strengths and weaknesses of the soldiers they rate. The idea of an organizational structure that limits the number of subordinates under a rater's span of control is also a common practice in the civilian sector. The manager-to-employee ratio across industries worldwide is approximately 1:4 for companies with five hundred or fewer employees and 1:9 for companies with greater than five hundred employees.[14]

While there are many sound reasons that the Army seeks to decrease a rater's span of control, an often overlooked downside of this practice is the presence of errors resulting from a forced distribution system, especially in small rating pools. According to AR 623-3, a senior rater should award "most qualified" evaluations to the top one-third of officers, and the number of "most qualified" evaluations they award must be less than 50 percent of the total number of evaluations he or she writes.

With a few simplifying assumptions, such as officers distributed randomly into rating pools of five

and the raters having perfect clarity on whether a subordinate is a top one-third officer, the hypergeometric distribution (as explained below) provides insight into the mathematical pitfalls of a forced distribution performance appraisal system.

The hypergeometric distribution has three parameters: N, R, and n. The parameter N represents the number of items in the population, R represents the number of "successes," and n is the sample size drawn from the population. Using this nomenclature, we can determine that the random variable is $X \sim Hypergeometric(N, R, n)$ and calculate the probability that X (in our case, the number of "most qualified" officers in a rating pool) takes on particular, discrete values.

> Creating a rating scheme that minimizes the number of subordinates under each rater ideally allows raters to have an intimate knowledge of the strengths and weaknesses of the soldiers they rate.

For example, if there are five thousand officers of a particular rank, 1,667 of them would be considered the top one-third based on established criteria. We can calculate the probability of receiving exactly x top one-third officers in a group of n size. If we assume a pool size of five officers, we would use $X \sim Hypergeometric(5000, 1667, 5)$ to calculate the probability that we receive exactly x top one-third officers in our rating pool, notationally $P(X = x)$. That is, $P(X = 2)$ represents the probability that exactly two top one-third officers were assigned to a rating pool of five. In fact, $P(X = 2) = 0.329$, meaning there is a 32.9 percent chance that there would be exactly two top one-third officers in a rating pool of five, assuming officers are randomly distributed into ratings pools. Thus, given the current profile constraint of less than 50 percent, raters could only award two "most qualified" evaluations to a pool of five officers.

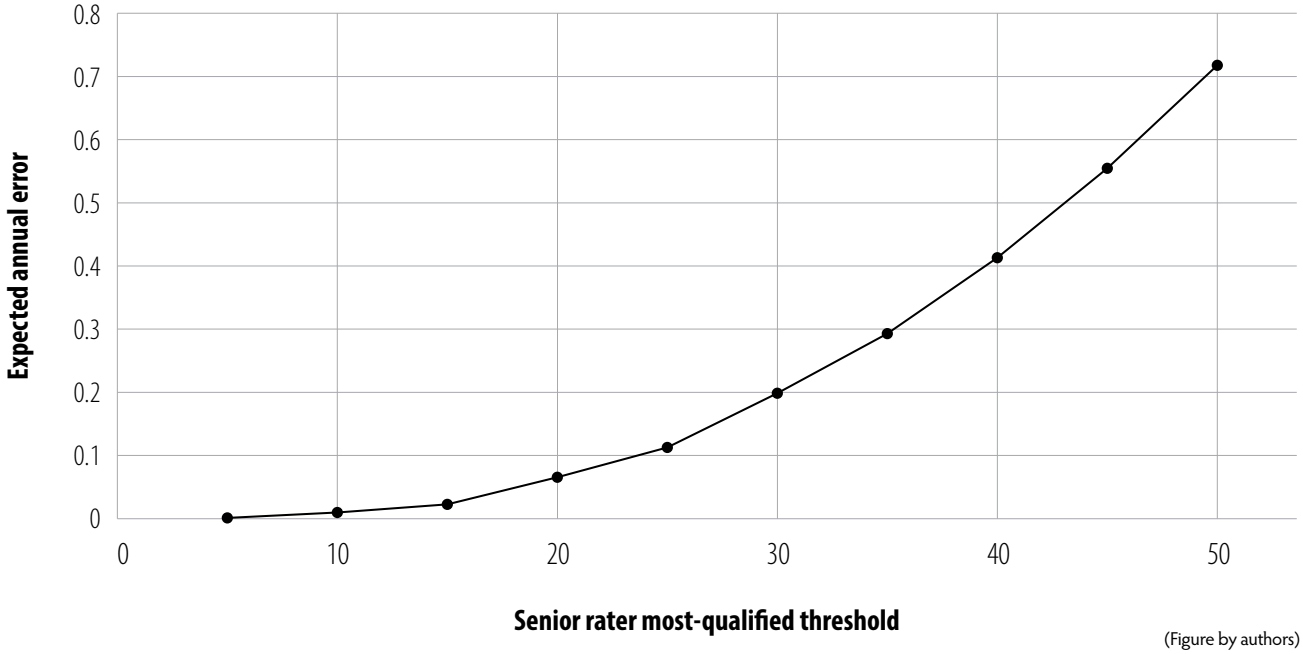
The rater's ability to discern the two top one-third performers is affected by cognitive biases, but mathematically, the rater may be obligated to award an evaluation that is not commensurate with a subordinate's level of performance due to forced distribution requirements. For example, if a rater has a pool size of five, but has more than two top one-third performers, at least one rated officer will receive an inaccurate evaluation due to the rater's profile constraint. We can calculate this expected annual error with $E[Annual\ Error]$. Notationally, for a rating pool of five officers, this is represented by $E[Annual\ Error] = \sum_{i=3}^{5} (i - 2) P(X = i) = P(X = 3) + 2P(X = 4) + 3P(X = 5)$. That is, when there are three top one-third officers in a rating pool of five, one officer is adversely affected by the profile constraint. When there are four top one-third officers, two officers are affected by the profile constraint. When all five officers are top one-third officers, three officers are affected by the profile constraint.

An $E[Annual\ Error] = 0.259$ means that for each rating pool of five officers, 0.259 (or about one officer per rating pool every four years) would not receive the top evaluation they deserved. If five thousand officers are randomly placed into pools of five, even under conditions of perfect clarity of the rater to discern performance level and follow the guidance in AR 623-3 to reserve "most qualified" evaluations for the top one-third officers, we would expect that 259 officers per year do not receive the evaluation they deserve.

Addressing Structural Biases

We suggest three ways to counter structural biases. First, senior raters should follow the guidance in AR 623-3 and reserve "most qualified" evaluations for the top one-third officers. This requires a discerning eye, and as previously mentioned, will result in an expected annual error of about one officer per rating pool every four years for a rating pool of five officers. According to the U.S. Army Human Resources Command, "the limitation of less than 50% translates to an average use of 37–42% depending on the grade (of the rated officer)."[15] Within this relatively small range, there is a significant difference in the expected annual error.

If a senior rater uses the top 37 percent of officers as the cutoff for most "qualified" evaluations, it would result in an expected annual error of 0.340 whereas a 42



(Figure by authors)

Figure 1. Expected Annual Error as a Function of a Senior Rater's "Most Qualified" Threshold

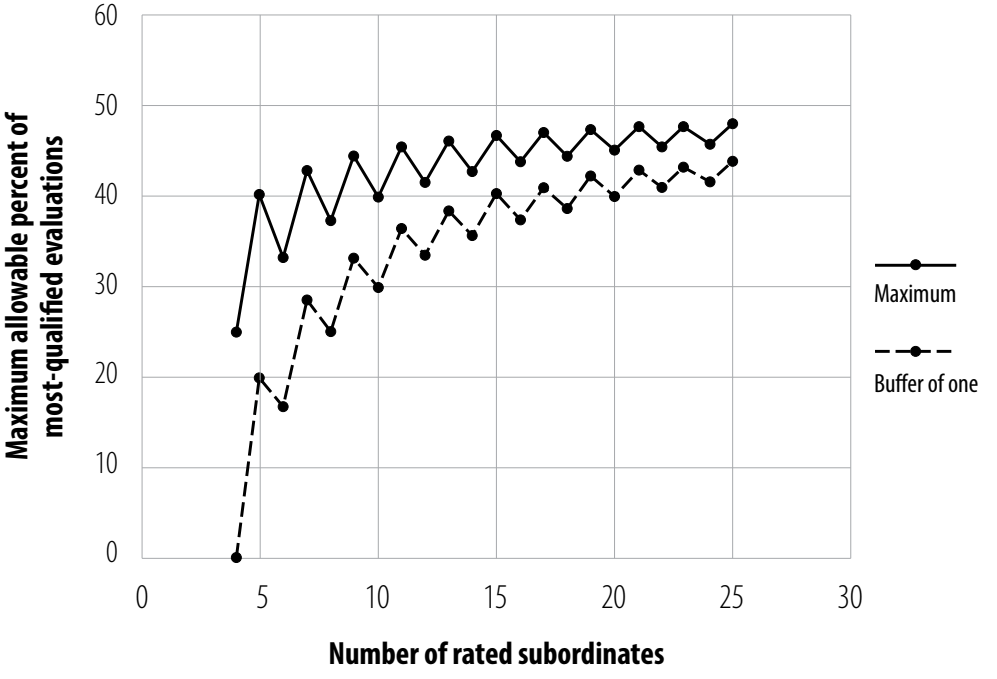
percent threshold increases the expected annual error to 0.469. As seen in figure 1, higher thresholds for what percentage of officers should receive a "most qualified" evaluation result in monotonically higher than expected annual errors. However, senior raters who place these thresholds below those of other raters disadvantage some of their subordinates who would have received "most qualified" evaluations in other rating pools. Therefore, a senior rater would want to award a similar percentage of "most qualified" evaluations as other senior raters across the Army to ensure his or her subordinates are not disadvantaged but low enough to prevent instances where the number of "most qualified" officers within their rating pools exceeds the profile constraint.

Second, we recommend senior raters have a multiyear focus and refrain from maximizing the number of "most qualified" evaluations awarded each year. The U.S. Human Resources Command stated that the 37–42 percent use of "most qualified" evaluations by senior raters is "indicative of senior raters correctly retaining a buffer."[16] This guidance assumes that anything less than 50 percent constitutes a buffer. However, figure 2 (on page 93) shows that the maximum allowable percentage of "most qualified" evaluations does not remain above 42 percent until a senior rater completes twenty-five evaluations. For example, if a senior rater completes eight evaluations, at most, three of them can be "most qualified" evaluations, putting the senior rater profile usage at 37.5 percent. If the senior rater kept a buffer of just one evaluation, the profile usage drops to 25 percent.

Maximizing the number of "most qualified" evaluations awarded often results in either a Type I or Type II error. In the context of performance appraisals, a Type I error is incorrectly identifying an officer as most qualified, whereas Type II error is not identifying a most qualified officer as such. If a senior rater has a rating pool of five officers and is predetermined to award the maximum of two top evaluations, there is only a 34.6 percent chance that there are exactly two top 40 percent officers in a pool of randomly distributed officers. There is a 33.7 percent chance that there are fewer than two top 40 percent officers, leading to a Type I error, and a 31.7 percent chance there are more than two top 40 percent officers, leading to a Type II error. A senior rater's profile constraint can

induce a Type II error, but a Type I error is caused by either cognitive biases or conscious decisions.

A conscious decision to award a "most qualified" evaluation to an undeserving officer can have compounding effects since rating profiles are cumulative. We analyze this effect by calculating the expected two-year error. If a senior rater plans to maximize the number of "most qualified" evaluations awarded, presumably off of a top 40 percent standard, it will result in an expected annual error of 0.415 and an expected two-year error of 0.830 for a pool size of five. However, if a senior rater can use the top one-third standard for awarding "most qualified" evaluations, there will be an expected annual error of 0.259 and an expected two-year error of 0.416.



(Figure by authors)

Figure 2. Profile Usage for Senior Raters Who Maximize Their "Most Qualified" Evaluations and Those Who Keep a Buffer of One

The reason that the expected two-year error is not double that of the expected annual error is that if there is only one top one-third officer in the rating pool the first year, the senior rater can award up to three "most qualified" evaluations the second year. Similarly, if there are no top one-third officers in the rating pool the first year, a senior rater can award up to four "most qualified" evaluations the second year. In summary, by resisting the urge to award the maximum allowable number of top evaluations each year and maintaining a top one-third standard, senior raters can reduce Type II errors by nearly 50 percent. Consequently, coaching officers to have a multiyear focus is especially important since recent research shows how an officer's seniority affects the evaluations they receive in the evaluation process.[17]

Third, consistent with AR 623-3, we recommend that senior raters structure rating schemes to provide flexibility to reward the best subordinates. When discussing the establishment of rating chains, AR 623-3 provides general guidance, such as commanders rating commanders, and prohibits the practice of pooling. However, it gives organizations the latitude to establish and publish their rating scheme at the beginning of each period. While the recommended size of rating pools cannot be generalized across nonhomogeneous units, organizations should establish rating chains that do not disadvantage officers at each grade level.

For example, increasing our sample rating pool of five officers to ten officers decreases both the expected annual error and the expected annual two-year error. As previously stated, using the criteria of top one-third officers deserving "most qualified" evaluations, the expected annual error for a pool size of five is 0.259 and the expected two-year error is 0.416. Doubling the size

(USE TYPEWRITER IF POSSIBLE. IF NOT, PRINT PROPER NAMES)

EFFICIENCY REPORT

(SEE AR 600-185)

A. OFFICER REPORTED UPON Fissell, John T. (Surname) 0746842 (Serial No.) Lt. Col. (Grade) 100th Infantry (Organization)

A's official status with respect to you Bn. Commander in my Regiment.

B. PERIOD COVERED BY THIS REPORT 7 22/30 months, from November 9, 1942 to June 30, 1943

C. STATIONS AT WHICH HE SERVED Fort Dix, New Jersey

D. CONSIDER CAREFULLY THESE DEFINITIONS, KEEP THEM IN MIND WHEN RATING, TAKING INTO CONSIDERATION HIS LENGTH OF SERVICE AND THE OPPORTUNITIES AFFORDED HIM, WHICH MIGHT HAVE A BEARING UPON HIS PERFORMANCE OF DUTY, PERSONAL CHARACTERISTICS, OR PROFESSIONAL QUALIFICATIONS.

UNSATISFACTORY: Performance of the particular duty reported upon or personal characteristics or professional qualifications below minimum standard—inefficient.

SATISFACTORY: Performance of the particular duty reported upon or personal characteristics or professional qualifications up to minimum standard—passably efficient.

VERY SATISFACTORY: Performance of the particular duty reported upon in an efficient manner. Personal characteristics, professional qualifications, or efficiency above that acceptable as **SATISFACTORY.**

EXCELLENT: Performance of the particular duty reported upon in a very efficient manner. Personal characteristics, professional qualifications, or efficiency above **VERY SATISFACTORY** but below **SUPERIOR.**

SUPERIOR: Outstanding and exceptional performance of the particular duty reported upon. Personal characteristics, professional qualifications, or efficiency above that considered **EXCELLENT.**

UNKNOWN: To be used in all cases in which the reporting officer has had insufficient opportunity during the period covered by this report to observe the officer reported upon to permit a rating as to the performance of the particular duty, his personal characteristics, or professional qualifications.

E. DUTIES HE PERFORMED: (State separately. Where possible show duration of each in months. Example: Co. Comdr. ordinary garrison training, 8 mos. Summary court, 6 mos. Brig. Adj. prepared training schedules, Supply Officer.) In describing the manner of performance of duty, use one of six classifications as given under D, and consider carefully the obstacles encountered by the individual in the performance of each duty listed. **THE OPINIONS EXPRESSED UNDER "MANNER OF PERFORMANCE" ARE BASED ON—**

INTIMATE DAILY CONTACT,
FREQUENT OR INFREQUENT OBSERVATION OF THE RESULTS OF HIS WORK,
ACADEMIC RATINGS.

(Line out inappropriate words or amplify under par. P according to circumstances)

RESERVE (In red ½ inch letters)

Duty	Months	Manner of performance
Bn. Commander, 3rd Bn., 100th Inf. (Prin duty)	7 20/30	Excellent
Sick in hospital	2/30	

F. What degree of success has he attained under the following headings: ENTRIES BASED ON PERSONAL OBSERVATION OR OFFICIAL REPORTS DURING PERIOD COVERED BY THIS REPORT. (See par. D above.)	Unsatisfactory	Satisfactory	Very satisfactory	Excellent	Superior	Unknown
1. Handling officers and men					X	
2. Performance of field duties				X		
3. Administrative and executive duties				X		
4. As an instructor				X		
5. Training troops				X		
6. Tactical handling of troops (units appropriate to officer's grade)				X		

G. Enter on lines below any outstanding specialties of value in the military service. **MAKE NO ENTRIES EXCEPT WHERE STATEMENT IS BASED ON PERSONAL OBSERVATION OR OFFICIAL REPORTS DURING PERIOD COVERED BY THIS REPORT.** Show pilot and/or observer ratings of Air Corps officers here.

H. To what degree has he exhibited the following qualifications? Consider him in comparison with others of his grade and indicate your estimate by marking X in the appropriate rectangle. (See par. D above.)	Unsatisfactory	Satisfactory	Very satisfactory	Excellent	Superior	Unknown
1. Physical activity (agility; ability to work rapidly)						
2. Physical endurance (capacity for prolonged exertion)						
3. Military bearing and neatness (dignity of demeanor; neat and smart appearance)						
4. Attention to duty (the trait of working thoroughly and conscientiously)						
5. Cooperation (acting jointly and effectively with another or others, military or civilian, to attain a designated objective)						
6. Initiative (the trait of beginning needed work or taking appropriate action on his own responsibility in absence of orders)						
7. Intelligence (the ability to understand readily new ideas or instructions)						
8. Force (the faculty of carrying out with energy and resolution that which on examination is believed reasonable, right, or duty)						
9. Judgment and common sense (the ability to think clearly and arrive at logical conclusions)						
10. Leadership (capacity to direct, control, and influence others in definite lines of action or movement and still maintain high morale)					X	

W. D., A. G. O. Form No. 67—July 1, 1936. 3—6308

① Front.

FIGURE 35.

(Form published in Technical Manual 12-250, *Administration*, 10 February 1942)

Sample of U.S. Army Efficiency Report from 1936

Name of officer reported on Fissell, John T. Name of reporting officer Atwater, John O.

I. During the period covered by this report has he taken advantage of the opportunities afforded him to improve his professional knowledge?

J. Has he exhibited any weaknesses—temperamental, moral, physical, etc.—which adversely affect his efficiency? If yes, describe them. (FACT or OPINION. Line out one.)

K. Proper authority having decided on the methods and procedure to accomplish a certain end, did he render willing and generous support regardless of his personal views in the matter?

✓L. Since last report has he been mentioned favorably or unfavorably in official communications? No. (See par. 1b, AR 600–185.)

✓M. During the period covered by this report was he the subject of any disciplinary measure that should be included on his record? No. If yes, enclose separate statement of nature and attendant circumstances.

✓N. Write a brief general estimate of this officer in your own words This officer has performed all duties in an excellent manner. He is loyal, exact and efficient, and has displayed initiative and ability in handling men. He is a well-informed officer, both in military and non-military subjects. In comparing this officer with all other officers of his grade and component known to me, I would place him among the upper third.

O. How well do you know him?

✓P. Remarks ([redacted])

RESERVE (In red ½ inch letters)

✓Q. In case any unfavorable entries have been made by you on this report, were the deficiencies indicated hereon brought to the attention of the officer concerned while under your command and *prior* to the rendition of this report? If yes, what improvement, if any, was noted? No unfavorable entries.

If no improvement was noted, what period of time elapsed between your notification to him of his deficiencies and the rendition of this report?

R. Based on your observation during the period covered by this report, give in your own words your estimate of his GENERAL VALUE TO THE SERVICE

✓S. I certify that to the best of my knowledge and belief all entries made hereon are true and impartial and are in accordance with AR 600–185.

NOTE: Initiated by reporting officer or rating officer. Only paragraphs checked (✓) are to be filled out. ONE COPY ONLY.

(Signed) John O. Atwater
(Name typed) John O. Atwater
(Grade and Org.) Colonel, Infantry
(Comdg. what?) Comdg., 100th Infantry
(Place) Fort Dix, New Jersey
(Date) Jan. 22, 1942 Incls.

1st INDORSEMENT GW/ddb

Hq. 20th Inf. Div., Fort Dix, N.J., July 5, 1943. To: TAG

The officer reported upon is unknown to me, but I have confidence in the judgment, fairness of impartiality of the reporting officer.

/s/ Gregory Winslow
/t/ GREGORY WINSLOW
Major General, U.S. Army,
Commanding.

Write nothing below this line.

② Back.

FIGURE 35—Continued.

(Form published in Technical Manual 12-250, *Administration*, 10 February 1942)

Sample of U.S. Army Efficiency Report from 1936 (continued)

of the rating pool to ten officers while maintaining the top one-third most qualified officer threshold drops the expected two-year error to 0.364. Since the expected two-year error is for two years of officers in a pool size of ten, we can compare it to the expected two-year error for a pool size of five by dividing by two. Doubling the rating pool size from five to ten thus results in a 56 percent decrease in Type II errors.

> The more bias we can divest from evaluations, the better positioned selection boards will be to make the difficult choices inherent in talent management of a large pool of candidates.

Evaluating the Evaluator: Cognitive Biases

As evidenced in the previous section, there are structural biases introduced by the DA Form 67-10 that make it difficult for raters to consistently reward the best officers. In addition to these structural biases, because of the discretionary nature of performance evaluation, there are also cognitive biases that may affect the judgment of senior raters. We focus on five cognitive biases that may lead to a difference between the performance of an officer and how this performance translates to the potential described by a senior rater in an evaluation report.

A cognitive bias occurs when a rater unknowingly renders judgments that are unrelated to an officer's performance. Because raters have great discretion in how they articulate the potential of an officer in an evaluation, cognitive biases have the potential to influence the enthusiasm they use to describe a soldier in the narrative portion of the report.

These choices are especially important because there is likely a small talent differential between officers just above and just below the cutline in promotion and selection boards. There is anecdotal evidence to support this point from officers who served on promotion boards, but we also see empirical support for small differences between primary and alternate selectees in other fields.[18] Since selection boards have little time to review files and consider a relatively minimal amount of information, reducing the effects of cognitive bias can make a difference in the identification and selection of officers with the greatest potential for service at higher levels.[19] Stated differently, the more bias we can divest from evaluations, the better positioned selection boards will be to make the difficult choices inherent in talent management of a large pool of candidates.

A key point on cognitive bias is that it is unintentional. Evaluating a person's performance is undoubtedly complex. How much of performance is due to a person's talent versus the interactive effects from the group? And how does their performance compare to their peers who faced similar tasks but did so under different conditions with different teammates? Psychologist Daniel Kahneman shaped much of what we understand about complex decision-making with his insights on System 1 and System 2 thinking. System 1 thinking normally guides our decisions as it operates automatically and enables us to make most decisions with little or no effort. When faced with more complex tasks, System 2 thinking enables us to focus our attention on more complex computations. While we like to think we can put System 2 in control when needed, Kahneman suggests that System 1 often takes over in the face of complexity.[20]

For instance, if asked what you think the president's popularity will be six months from now, what system would you use? Kahneman claims this is a System 2 task since an accurate answer would require a person to consider the events between present time and six months in the future that would potentially affect the president's popularity and render judgment on the likelihood of these events. Instead of performing these complex calculations, we rely on System 1 thinking, which would use the president's current popularity to gauge what his popularity will be six months from now.

A similar process unfolds for performance evaluation. To complete the difficult task of assessing someone's

performance, we use shortcuts that rely on information that is already stored in memory. The benefit of System 1 thinking is that it enables us to rely on intuition to perform such complex tasks, but the downside is that this process invites bias. Our System 1 thinking may succumb to the following five sources of bias when faced with the complexity of performance evaluation. The more we are aware of these biases, the better equipped we are to slow down our System 1 thinking and engage some System 2 functions to counter these biases.

Halo effects. As the name implies, halo effects occur when we use performance in one dimension to influence our evaluation of a person in all other dimensions. The primary problem of halo effects is that they decrease the number of opportunities for a person to demonstrate his proficiency, thereby precluding the rater from evaluating the ratee accurately across different dimensions of performance.[21] Raters are especially susceptible to halo effects in systems where a single evaluator rates a person on multiple dimensions—as is the case with our evaluation system and the Army leadership requirements model with its core competencies and attributes.[22]

The halo effect can be positive or negative. For example, an officer who performs well in the attribute of competence by projecting self-confidence and a commanding presence may enjoy a positive halo effect across the other competencies and attributes. Conversely, an officer who shows a lack of self-confidence and commanding presence may suffer a negative halo effect across the other competencies and attributes.

First impression error. This bias stems from initial impressions, either favorable or unfavorable, that influence a rater's evaluation. Similar to halo effects, the primary problem of initial impression error is that a rater may suppress or discount subsequent information about a ratee if it is counter to their initial impression.[23] This effect can be especially prevalent when a senior rater rates a large pool of a particular position or rank and has few interactions with each individual.

Similar to me effect. This bias stems from a tendency of some raters to judge a person favorably when he or she resembles the rater along dimensions such as his or her attitude or background.[24] Some recent studies indicate that the military may be especially susceptible to this bias in comparison to other professions. A study of Army War College students found that this population scored lower on openness than the general U.S. population.[25] A characteristic of people with low scores on openness is that they prefer familiarity over novelty; thus, lower scores for openness may be associated with less favorable judgments of ratees who are significantly different than the raters. Other studies indicate service academy cadets score lower on innovative cognitive style (which is positively correlated with a willingness to adopt new ideas) than students at comparable civilian universities, and those who left the academy after their first year scored higher on innovation than those who remained.[26]

A study of the relationship between cognitive ability and promotion/selection found that officers with significantly higher cognitive abilities had 29 percent lower odds of selection below the zone (ahead of peers) to major, 18 percent lower odds for selection below the zone to lieutenant colonel, and 32 percent lower odds for selection to battalion command.[27] One explanation for these results is that officers with high cognitive abilities may make "worse" junior officers since they may be less likely to be hypercompliant in comparison to those of average or lower cognitive ability. By this reasoning, the "similar to me effect" may contribute to these results.

Central tendency error. The central tendency error occurs when raters score most ratees as average or slightly above average.[28] Although there are four blocks on the officer evaluation report, raters rarely use the "qualified" or "not qualified" box. While there are consequences for a rater to "bust their profile" by scoring too many officers as "most qualified," there are no consequences for placing too many officers in the "highly qualified" category.

In situations where there are no consequences for too many average ratings, there is a greater potential for ratings inflation.[29] Qualified or not qualified ratings involve additional work for the rater in terms of greater potential for interpersonal conflict with the ratee or the requirement for performance counseling documents if the rated officer appeals the evaluation. Since no consequences exist for establishing gradations in the quality of performance for those who are not "most qualified," it is easier to rate someone as "highly qualified" than to use the lower two rankings. While our professional ethos is a check against this bias, we include it in this discussion since the potential exists for this bias.

Duration neglect. The essence of duration neglect is the tendency to place greater emphasis on peak time periods and recency when recalling events. To illustrate this effect, Kahneman discussed

a study of how patients recalled a colonoscopy. While the duration of the procedure had no effect on the patients' ratings of total pain, the average level of pain at the worst moment of the procedure and at the end of the procedure were strong predictors of the overall evaluation of pain.

Hopefully, pain is not an emotion that raters recall during an evaluation, but the general principle applies for how this bias may influence evaluations. Instead of engaging System 2 processes to consider the performance of a ratee over a series of events, it is easier to use a key event such as an inspection, a training exercise, or the most recent training event to shape the impression a senior rater wishes to convey in an evaluation.

Addressing Cognitive Biases

We suggest three ways to counter these cognitive biases. Reading this article and becoming aware of countering sources of cognitive bias is the first step. While we hope that readers will find this information helpful, we think it is especially important to include education on these biases as part of professional military education. While professional military education courses often cover board processes and trends, they do not currently include training on these biases. We think that just as future battalion and brigade commanders receive training on managing their profile, they should receive training on rater biases to become better evaluators.

Second, since the source of these biases is a system that relies on evaluations by a single rater, we recommend that raters seek input from different sources to help form their judgment of a ratee. One of the authors has experience with this technique while serving as a battalion executive officer. The battalion commander asked the operations officer, command sergeant major, senior chief warrant officer, and the author to rank the six company commanders. After submitting the feedback, the author compared his recommendations with those of the operations officer and found that his ratings were the opposite for the six commanders. While differences of opinion will probably not always be this stark, there is value in raters receiving a diversity of opinions to counter possible sources of cognitive bias.

Third, frequent feedback to subordinates can help counter bias, especially if a rater is aware of the potential biases discussed above. Frequent feedback can foster agreement on performance standards and increase acceptance of feedback by subordinates.[30] This is an area that many leaders struggle with. In the *2016 Center for Army Leadership Annual Survey of Army Leadership*, over one-third of respondents reported their supervisors rarely or never took time to discuss how they were doing with their work and what they could do to improve their performance.[31]

Conclusion

In reality, the Army's performance appraisal system is a multiyear assessment that is prone to disparities between senior raters and the profiles they maintain. As this article demonstrates, there are structural and cognitive biases that may affect the rating an officer receives. These biases undermine the meritocratic principles that we seek in our performance evaluation system. The more that we are aware of these biases, the better position we will be in to counter their effects. ■

Editor's note: We wish to express our appreciation to library research archivists Russell Rafferty and Elizabeth Dubuisson of the Ike Skelton Combined Arms Research Library, Fort Leavenworth, Kansas, for their support in locating early versions of Army efficiency reports and references to them in period official technical manuals.

Notes

1. David P. Kite, "The U.S. Army Officer Evaluation Report: Why are We Writing to Someone Who Isn't Reading?" (master's thesis, Air Command and Staff College, 1998), 8, accessed 17 September 2019, https://apps.dtic.mil/dtic/tr/fulltext/u2/a398598.pdf.

2. For examples of reform efforts, see *Building a F.A.S.T. Force: A Flexible Personnel System for a Modern Military Recommendations from the Task Force on Defense Personnel* (Washington, DC: Bipartisan Policy Center, March 2017), accessed 17 September 2019, https://bluestarfam.org/wp-content/uploads/2017/04/BPC-Defense-Building-A-FAST-Force.pdf; Susan Bryant and Heidi A. Urben, "Reconnecting Athens and Sparta: A Review of OPMS XXI at 20 Years" (Arlington, VA: The Institute of Land Warfare, Association of the United States Army, October 2017), accessed 17 September 2019, https://www.ausa.org/publications/reconnecting-athens-and-sparta-review-opms-xxi-20-years; for an example

of the efforts of the U.S. Army Talent Management Task Force, see Brian Hamilton, "Talent Management Enhances Total Force Readiness," U.S. Army Talent Management Task Force, accessed 17 September 2019, https://talent.army.mil/talent-management-enhances-total-force-readiness/.

3. *Officer Mock Board Video*, YouTube video, 47:06, posted by "ARMYHRC," 15 Febuary 2017, accessed 17 September 2019, https://www.youtube.com/watch?v=zeqGrAUMMiY.

4. Kevin R. Murphy and Jeanette N. Cleveland, *Understanding Performance Appraisal: Social, Organizational, and Goal-Based Perspectives* (Thousand Oaks, CA: Sage, 1995).

5. David S. Lyle and John Z. Smith, "The Effect of High-Performing Mentors on Junior Officer Promotion in the US Army," *Journal of Labor Economics* 32, no. 2 (April 2004): 229–58.

6. Allan C. Hardy and Keith B. Harker, "U.S. Army Officer Perceptions of the New OER (DA Form 67-8)" (master's thesis, Naval Postgraduate School, 1982), 20–21, accessed 2 October 2019, https://apps.dtic.mil/dtic/tr/fulltext/u2/a126773.pdf.

7. Army Regulation (AR) 623-3, *Evaluation Reporting System* (Washington, DC: U.S. Government Publishing Office, 2019), accessed 17 September 2019, https://www.cs.amedd.army.mil/FileDownloadpublic.aspx?docid=4ab544f9-841b-45df-9650-2b2751187003.

8. E. Donald Sisson, "Forced Choice—The New Army Rating," *Personnel Psychology* 1, no. 3 (September 1948): 365–81.

9. David G. Bjerke et al., *Officer Fitness Report Evaluation Study* (San Diego: Navy Personnel Research and Development Center, 1987), accessed 17 September 2019, https://apps.dtic.mil/dtic/tr/fulltext/u2/a189377.pdf.

10. Allan M. Mohrman Jr. et al., *Designing Performance Appraisal Systems: Aligning Appraisals and Organizational Realities* (San Francisco: Jossey-Bass, 1989).

11. William C. Navidi, *Statistics for Scientists and Engineers* (New York: McGraw-Hill, 2014).

12. AR 623-3, *Evaluation Reporting System*, 7.

13. Ibid.

14. Barbara Davison, "Management Span of Control: How Wide is too Wide?," *Journal of Business Strategy* 24, no. 4 (1 August 2003): 22–29.

15. "OER FAQs," The Adjutant General Directorate (TAGD), United States Human Resources Command, 6 June 2019, accessed 17 September 2019, https://www.hrc.army.mil/content/OER%20FAQs.

16. Ibid.

17. Lee A. Evans and Ki-Hwan G. Bae, "Simulation-Based Analysis of a Forced Distribution Performance Appraisal System," *Journal of Defense Analytics and Logistics* 1, no. 2 (2017): 120–36.

18. Richard A. DeVaul et al., "Medical School Performance of Initially Rejected Students," *JAMA* 257, no. 1 (January 1987): 47–51.

19. Adam L. Taliaferro, "Understanding the Army Selection-Board Process," *eARMOR* (April-June 2015), accessed 17 September 2019, http://www.benning.army.mil/armor/eARMOR/content/issues/2015/APR_JUN/2ArmorBranchUpdate15.pdf.

20. Daniel Kahneman, *Thinking, Fast and Slow*, 1st ed. (New York: Farrar, Straus, and Giroux, 2011).

21. Timo M. Bechger, Gunter Maris, and Ya Ping Hsiao, "Detecting Halo Effects in Performance-Based Examinations," *Applied Psychological Measurement* 34, no. 8 (2010): 607–19.

22. Emily R. Lai, Edward W. Wolfe, and Daisy H. Vickers, "Differentiation of Illusory and True Halo in Writing Scores," *Educational and Psychological Measurement* 75, no. 1 (2015): 102–25. For a description of the core competencies and attributes of the leader development model, see Army Doctrine Reference Publication 6-22, *Army Leadership* (Washington, DC: U.S. Government Printing Office, August 2012 [obsolete]), 1-5, accessed 17 September 2019, http://data.cape.army.mil/web/repository/doctrine/adrp6-22.pdf.

23. J. Edward Kellough, "Managing Human Resources to Improve Organizational Productivity: The Role of Performance Evaluation," in *Public Personnel Management: Current Concerns, Future Challenges*, ed. Norma M. Riccucci, 5th ed. (Boston: Longman, 2012), 173–85.

24. Gary P. Latham and Kenneth N. Wexley, *Increasing Productivity Through Performance Appraisal*, 2nd ed. (Reading, MA: Addison-Wesley, 1994).

25. Stephen J. Gerras and Leonard Wong, *Changing Minds in the Army: Why Is It so Difficult and What to Do about It* (Carlisle, PA: U.S. Army War College Press, October 2013), accessed 17 September 2019, https://ssi.armywarcollege.edu/pdffiles/PUB1179.pdf.

26. Tom Mitchell and Alice M. Cahill, "Cognitive Style and Plebe Turnover at the U.S. Naval Academy," *Perceptual and Motor Skills* 101, no. 1 (August 2005): 55–62.

27. Everett S. P. Spain, J. D. Mohundro, and Bernard B. Banks, "Intellectual Capital: A Case for Culture Change," *Parameters* 45, no. 2 (Summer 2015): 77–92.

28. Kellough, "Managing Human Resources to Improve Organizational Productivity."

29. Murphy and Cleveland, *Understanding Performance Appraisal*.

30. Ibid.

31. Ryan P. Riley et al., *2016 Center for Army Leadership Annual Survey of Army Leadership (CASAL): Military Leader Findings* (Fort Leavenworth, KS: The Center for Army Leadership, U.S. Army Combined Arms Center, August 2017), accessed 17 September 2019, https://usacac.army.mil/sites/default/files/documents/cal/2016CASALMilitaryLeaderTechnicalReport.pdf.

German prisoners of war line a funeral procession for one of their own at a POW camp in Fort Bend County, Texas, during the Second World War. (Photo courtesy of Fort Bend County Libraries/University of North Texas Libraries)

Option 17

Military Law and Vigilante Justice in Prisoner of War Camps during World War II

Mark M. Hull, PhD, JD, FRHistS

In the movie *Stalag 17*, American prisoners in wartime Germany suspect a traitor in their midst. Having no recourse to the normal systems of military justice, the prisoners themselves conducted an investigation. The evidence was collected and compared, the guilty party was identified, and justice took its course when the collaborator—Peter Graves in a most un-*Mission Impossible* role—was sent to his death.[1] It would be understandable if most people believe that if and when this situation arises, as it has on numerous occasions in modern wars, the result is similar: the senior officer among the prisoners convenes an ad hoc trial, witnesses are heard, the accused has some sort of representation and the right to both speak and question the witnesses, and then judgment is rendered. The American military's Code of Conduct might lay the foundation for such a course of action. In the close confinement of a prisoner-of-war (POW) camp, there may as well be no other choice than to silence the informant and to protect the lives of other prisoners and families back home. But is it legal?

As it happens, the answer to the question is a surprising "no"—it is not legal, but the reasoning is conflicted and contradictory and goes against the obvious exigent circumstances of captivity in enemy territory during wartime. There are several cases during World War II and afterward that serve as precedents for self-help among prisoners. They may or may not clarify the central questions: What was (and is) the law in such extreme situations? Can, or should, prisoners punish other prisoners for treason and collaboration? Is there a meaningful difference between what is necessary, what is legal, and what is done?

Machinist Werner Drechsler

In 1943, German submarine U-118 was attacked and sunk off the U.S. coast.[2] There were but a few survivors, one of whom was machinist Werner Drechsler. Unlike his other shipmates, Drechsler repudiated his allegiance to Germany and quickly indicated a willingness to help U.S. Naval Intelligence. For seven months, Drechsler "worked" at the Joint Interrogation Center in Fort Hunt, Virginia, where he had many aliases as he bounced from cell to cell, telling incoming German submarine crewmembers that he was one of them and encouraging them to reveal the kind of sensitive information that they might only share with a comrade. In March 1944, Drechsler was abruptly transferred to Army control and sent to the internment camp at Papago Park, Arizona. There is some speculation that this was done with full knowledge of the danger to Drechsler, who had outlived his usefulness as an informant. The Navy said later that they specifically stamped his file with the notation, "Do not intern with U-boat men."[3] If that were the case, the Army disregarded it; Papago Park was the primary POW camp for U-boat crews. Drechsler was recognized immediately by some of his former cellmates, each of whom knew the same man by different names. He lived for six hours after his arrival. Prisoners found him the next morning badly beaten and hanging from a makeshift noose in the shower room.

Army investigators focused their attention on the 125 men in Drechsler's barracks, particularly those in the immediate vicinity of his bunk, where the assault seemed to have started. Some crewmembers of the U-615 and the U-352 had bruises they could not explain. Suspects were polygraphed, interrogated at length, and subjected to other "enhanced" techniques. Once Otto Stengel broke and gave names to the interrogators, other confessions followed.

The defendants maintained that they were German sailors following German military law, which they believed to be in force during captivity, and that the killing of Drechsler was a matter of self-defense. Drechsler was a proven traitor and collaborator; his presence at Papago Park could only be interpreted by the sailors as another attempt to adduce treason, and he had to be stopped. Reporting Drechsler's past actions on behalf of the Americans to American camp authorities was obviously absurd (he had been spying for the Americans after all), and the Germans concluded they had no other way to handle the situation. Drechsler had committed the capital

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Junior members of U-118's crew arrive 20 June 1943 for physical examination and initial POW processing at Naval Operating Base Norfolk Hospital in Norfolk, Virginia. The POWs are (*front row, left to right*) Herman Polowzyk, Gustav Behlke, Walter Schiller, and Wilhelm Bort, and (*back row, seated left to right*) Werner Drechsler, Paul Reum, Erhard Lenk, and Klaus Preuss. (Photo courtesy of the U.S. Navy)

crime of treason, and the U-boat crews merely applied the just penalty to one of their own. There was some evidence suggesting that the U-boat men had presented their proof to the senior noncommissioned officer and that this was a "sanctioned" operation.

The court-martial panel rejected these assertions. Drechsler was murdered, not executed by the legal authority of National Socialist Germany, which, in any case, did not apply in captivity. The panel found that Drechsler's past was irrelevant and sustained prosecution motions to exclude most of that evidence. The court applied the 1929 Geneva Convention, then in force, which permitted the detaining power to try prisoners for offenses that, if committed by their own forces, were punishable by death.[4] Nothing in the convention recognized the right of prisoners to stand as judge, jury, and executioner, regardless of what the victim did or did not do. Although there was no probative physical evidence against any of the defendants—the only evidence of any kind was their own statements—the panel sentenced all defendants to hang for murder. The sentence was kept secret from them, and they only learned of it a year later when they were informed of their upcoming execution.

Cpl. Johannes Kunze

Drechsler's case was not unique. In 1943, German prisoners at Camp Tonkawa, Oklahoma, found themselves in a similar quandary.[5] One of their

fellow detainees, Cpl. Johannes Kunze, who had long expressed his antipathy toward the German army (he was captured while involuntarily serving with 999th Light Afrika Division in Tunisia) and National Socialist Germany, visited the camp infirmary and presented the American doctor with a note in German; Kunze spoke no English. The doctor could not make sense of it and gave it to a German orderly to return to Kunze. The orderly read the note that described places in Hamburg, Germany, and suggested targets that the Allies should bomb. The prisoners were aware that the city was almost obliterated in a series of Royal Air Force (RAF) firestorm raids in July 1943, which caused more than forty thousand civilian deaths.

Werner Drechsler (*left*), recovering from a bullet wound to his right knee, disembarks USS *Osmond Ingram* 20 June 1943 at Naval Operating Base Norfolk, Virginia, assisted by Herman Polowzyk. (Photo courtesy of the U.S. Navy)

At Papago Park and Camp Tonkawa, and at most other internment camps, lackadaisical American standard practice allowed the Germans to run the interior camp themselves, and they efficiently took care of all administrative and health/welfare functions for their fellow prisoners. When shown the incriminating note, the senior German prisoner in the Tonkawa subcamp, Sgt. Walther Beyer, launched an investigation, compared the writing on the note with handwriting on outgoing mail, and then called a prisoners-only meeting in the mess hall to present the evidence. He first read aloud the "Hamburg letter." Realizing that his identity was about to be revealed, Kunze became frightened and started running from the building. German prisoners followed and started beating and kicking him. He made it a short distance outside and fell, and he either died from a previous blow or was struck by an object once outside. Americans would find his body the next day.

Just as with Papago Park, the homicide investigation focused on those prisoners who had traces of blood on their clothing, and they were pressured and encouraged to make statements implicating others. While this worked well at Papago Park, none of the Camp Tonkawa witnesses implicated Beyer beyond stating that he had called the prisoners' meeting. Beyer freely admitted this and added that he had tried to regain control once the crowd started after Kunze; this was corroborated by other testimony. Despite the fact that the cause of death could not be conclusively established by the Army pathologist, Beyer and four other prisoners were arrested and put on trial for felony murder—that is, for a death that occurs in connection with a felony crime. The Army's case was that the felony (inciting a riot) directly led to the death (from whatever cause), and that the death was a murder because it was the direct result of the riot (that Beyer caused). Under the Articles of War, the penalty was death.

Geneva Convention

The 1929 Geneva Convention states in article 46 that "prisoners of war shall not be subjected by the military authorities or the tribunals of the detaining Power to penalties other than those which are prescribed for similar acts by members of the national forces," and article 66 allows for the prisoners to face the death penalty, if other aspects of article 46 (and others) have been complied with.[6] By the same token, the Germans understood that they were still subject to their own military

laws, particularly the *Militärstrafgesetz* (Military Penal Code) § 7 of 1940, which (1) provides the death penalty for treason and (2) explicitly allows soldiers to assume disciplinary enforcement functions in the absence of a commissioned officer in the chain of command.[7] In the German view, everyone is a safety officer when it comes to soldiers committing treason.

Is it legal for soldiers to assume special functions when they are separated from their normal, recognized chain of command? Yes, sometimes they can, as American law recognizes. Title 32 of the Code of Federal Regulations (which also existed in this form during World War II) states, "It is conceivable that most unusual and extraordinary circumstances may arise in which the relief from duty of a commanding officer by a subordinate becomes necessary … but such action shall never be taken without [Senior Command] approval, *except when reference to such higher authority is undoubtedly impractical because of the delay involved or for other clearly obvious reasons* [emphasis added]."[8] While the U.S. Code (and Navy Regulations, in this instance) certainly does not green-light vigilante justice or drumhead court martial, it does at least recognize that exigent circumstances in war can sometimes mean playing by a different set of rules.

It follows what the Germans might consider the fair administration of justice against a traitor who would be viewed quite differently by his American captors. Contemporary political pressure undoubtedly played a role in the American decision to investigate, try, and sentence the German prisoners to hang. Several national newspapers focused unwelcome attention on rampant "Nazification" in the German POW camps, and that discipline (at least the United States-administered kind) was breaking down. When twenty-five prisoners escaped from Papago Park in December 1944, the Army was forced to reimpose discipline on German prisoners who, the public and politicians believed, had gone wild.[9] Newspaper stories claimed as many as two hundred extrajudicial murders among German prisoners suspected of collaboration; the actual number was five.[10] Perhaps out of sympathy with the internees' predicament, Americans often chose to look the other way, accepting that the camps ran smoother when the Germans governed themselves.

Holland

The Allied position on prisoner-administered justice was inconsistent.[11] Following the surrender of some 150,000 German troops in Holland in 1945, the victorious Canadians thought it necessary for many thousands of German forces to continue with their normal duties, as per the surrender agreement, and the German commanding general, Johannes von Blaskowitz, was charged to be "responsible for the maintenance and discipline of all German troops in Western Holland."[12] The Canadians classified German prisoners as "surrendered enemy personnel," rather than POWs, to allow more flexibility vis-à-vis the new arrangement. Blaskowitz continued to give orders to subordinate formations, with the formality of first routing those communications through the I Canadian Corps. When two German navy deserters (Bruno Dorfer and Rainer Beck) were returned—via the Dutch Resistance and the Seaforth Highlanders of Canada—to German custody on 13 May 1945, the senior German camp officer notified the Allies that he intended trying the returned fugitives, with the expectation of a death sentence if convicted.

The accused were represented by German military lawyers and the trial, all fifteen minutes of it, was held before an audience of almost two thousand prisoners. Under questioning from the presiding judge—who was, in fact, a military judge (*Marineoberstabsrichter*)—the defendants did not attempt to deny their actions and both were sentenced to death. The German commandant then asked the Canadians for weapons and ammunition to carry out the executions.

Previous instructions from the 21st Army Group advised that German field courts remained responsible for "internal discipline within their own forces under the supervision and control of the Allied Military Authorities," with the stipulation that any sentence over two years required confirmation by the Canadian authorities.[13] Messages sent by 2nd Canadian Infantry Brigade to higher headquarters (1st Canadian Infantry Division) about the Beck and Dorfer case went unanswered. The Canadian brigade thereupon issued the Germans eight captured rifles and sixteen rounds of ammunition, and the prisoners were shot.

Perhaps feeling uneasy at their conduct, the Canadians afterward adopted a more strict policy of classifying German deserters as POWs and not returning them to unsupervised German control. Nevertheless, the Canadians acknowledged that within certain limits, what happened in the German camp

stayed in the German camp, including lethal punishment of those who violated German law.

Geneva Revisited

Further exploration of these inconsistent results—forbidding prisoner-administered judicial action on the one hand and allowing it on the other—came to an end with World War II. The next significant event was the creation of the 1949 Geneva Convention Relative to the Treatment of Prisoners of War. Whereas the 1929 Convention was silent on the subject of command and discipline among the prisoners, it allowed that "the senior officer prisoner of the highest rank shall be recognized as intermediary between the camp authorities and [the prisoners]."[14] By contrast, the 1949 Convention showed awareness of at least some of what happened behind prison wire during World War II and showed an equal determination to limit future occurrences. In a commentary to the articles, the drafters specifically state, "During the Second World War, some camp commanders permitted disciplinary powers to be exercised [in cases of offenses committed by one prisoner of war against his fellow prisoners of war] by the prisoners' representatives or even by a tribunal composed of prisoners of war. This practice is now forbidden."[15]

That determination creates certain real-world difficulties. In the only scholarly examination of this question, the *Military Law Review* concludes that "there is no means for the Senior to punish PWs who refuse to obey his lawful orders; punishment, if appropriate, must await repatriation."[16] Several articles of the Uniform Code of Military Justice (UCMJ) are applicable, to wit: article 92 (Failure to Obey Order or Regulation), article 104 (Aiding the Enemy), article 105 (Misconduct as Prisoner), and article 134 (General Article). During time of war, article 104 carries the death penalty.

The Code

This makes it all the more curious when, in 1955, President Dwight D. Eisenhower promulgated the Code of Conduct, which is specifically designed to prescribe acceptable conduct by American servicemen when captured by enemy forces—a direct response to prisoner misconduct during the Korean War. Article IV of the Code states, "If I become a prisoner of war, I will keep faith with my fellow prisoners. I will give no information nor take part in any action which might be harmful to my comrades**.** *If I am senior, I will take command.* If not I will obey the lawful orders of those appointed over me [emphasis added]."[17] Further, "Informing or any other action to the detriment of a fellow prisoner is despicable and is expressly forbidden … *the responsibility of subordinates to obey the lawful orders of ranking American personnel remains unchanged in captivity* [emphasis added]."[18]

Prisoner of War Medal. (Photo by Jim Varhegyi, U.S. Air Force)

In a nod to the previously discussed provisions in Navy Regulations, the Code of Conduct goes on to say, "As with other provisions of this code, *common sense and the conditions of captivity will affect the way in which the senior person and the other POWs organize to carry out their responsibilities.* [emphasis added]."[19] The Code of Conduct acquired quasi-legal significance when it was issued as Department of Defense (DOD) Directive No. 1300.7 and was further strengthened by Executive Order 12633.[20] While it is not a federal law recognized under the U.S. Code, failure to follow the DOD directive would be a prima facie violation of UCMJ article 92 (Failure to Obey Order or Regulation).[21]

What then of the obvious conflict between the Geneva Convention and the Code of Conduct? The Convention (which became federal law once ratified by the United States in 1955) specifically forbids the notion of command in a POW setting, while the Code of Conduct mandates "I will take command."[22] The distinction is vital. If a command relationship exists among prisoners, the wording of the Code of Conduct implies that prisoners may be subject to discipline for infractions during captivity, rather than having to wait for an end to hostilities and delayed justice after the war; it would effectively encourage "self-help" inside a POW camp in a way that is quite apart from the captor/captive relationship set out in the Geneva Convention.

Conclusion

In the complete absence of any case in U.S. law that touches on prisoner-administered justice, there is an uncertain road map for future conflicts. Prisoner misconduct (as defined by the Code of Conduct and UCMJ article 105 [Misconduct as Prisoner]) is a constant, with allegations of it as recent as the Iraq War in 2003, and can reasonably be expected to resurface. The legal supremacy of the 1949 Geneva Convention trumping DOD Directive 1300.7 as it relates to discipline in captivity should, in theory, make the answer plain—that there is no contemporary recourse when prisoners collaborate with the enemy.

This answer is unsatisfactory. A review of the two cases of German POWs highlights why. Drechsler was an informant and a traitor, but the damage he could have caused was limited and based exclusively on what he could have learned from other prisoners. While it is understandable that fellow U-boat sailors would want him punished, he could instead be ostracized and kept away from sensitive information. This might push him closer to the American enemy but at little cost to Germany; the Geneva Convention rules would work just fine. Kunze is a different story. His willingness to offer information about his hometown to the Allies to destroy it constituted a more insidious and immediate threat. Ostracism would not suffice to stop it, and it constituted an exigent and existential threat to both German soldiers in Camp Tonkawa and to German civilians back home. Even if, as seems likely, Kunze's information was of little practical use, the leak had to be sealed, and there was only one way to do that.

Neither the Drechsler nor Kunze cases are textbook and are distinguishable from the case in liberated Holland. There was no court, no judge, no law books, no defense and prosecution, and no impartial jury in the POW camps in the United States. The Drechsler and Kunze cases were less about the law of nations and more about the law of survival in the jungle. Drechsler was assaulted and murdered, and an ad hoc determination that he deserved it does not lessen the crime. It is unclear how and when Kunze died or who might have delivered the fatal blow, if there even was a single causation. In that case, spontaneous anger and fear were ignited and events took on a life of their own, seemingly without intent or plan. The first is a case of vigilantism and the second a case of a group reacting spontaneously to the worst provocation imaginable—and with a deadly result.

Is there a balancing point between the calming rules of the Geneva Convention, the imperative that soldiers in captivity are answerable for crimes they commit while prisoners, and the simple need for self-preservation? At the very least, the Code of Conduct should be rewritten in accord with the controlling language of the Geneva Convention, and other language in the code should be changed to reflect the ideal that prisoners do not have disciplinary power over other prisoners, regardless of circumstances.[23] Whether that is sufficient to deter and regulate future prisoner misconduct or criminal behavior in captivity remains to be seen. At the very least, we should make it clear up and down the force that the Code of Conduct is not what it at first glance appears to be. ■

Notes

1. *Stalag 17* (Los Angeles: Paramount, 1953), DVD.

2. Meredith Adams, *Murder and Martial Justice: Spying and Retribution in World War II America* (Kent, OH: Kent State University Press, 2011), 23.

3. Kenneth Knox Collection, D-547, University of California at Davis, General Library, Department of Special Collections. The crime scene is today subsumed by the Phoenix Zoo and Botanical Garden.

4. "Geneva Convention of 27 July 1929 Relative to the Treatment of Prisoners of War," International Committee of the Red Cross, 6 April 1988, accessed 12 July 2019, https://www.icrc.org/eng/resources/documents/misc/57jnws.htm.

5. Adams, *Murder and Martial Justice*, 13.

6. "Geneva Convention of 27 July 1929 Relative to the Treatment of Prisoners of War"; Convention Relative to the Treatment of Prisoners of War, 27 July 1929, 118 L.N.T.S. 343 (entered into force 19 June 1931). Article 61 of this convention states that "no prisoner shall be compelled to admit that he is guilty of the offence of which he is accused," a provision that was, arguably, not followed either at Camp Tonkawa, Oklahoma, or Papago Park, Arizona, following interrogation by Army intelligence.

7. *Militärstrafgesetz* (Military Penal Code) § 7 (Berlin: E. G. Mittler and Sohn, 1940), 13.

8. United States Navy Regulations, 32 C.F.R. § 700.867 (1974). This section figured prominently in the book and movie, *The Caine Mutiny*.

9. It took over a month to recapture the escapees. The senior escaped German, Capt. Jürgen Wattenberg of the *Kriegsmarine*—who had previously escaped Uruguayan captivity in 1939 and returned to Germany—finally walked into Phoenix and was apprehended when a street sweeper detected his accent and called the police.

10. Adams, *Murder and Martial Justice*, 156–57.

11. Chris Madsen, "Victims of Circumstance: The Execution of German Deserters by Surrendered German Troops under Canadian Control in Amsterdam, May 1945," *Canadian Military History* 2, no. 1 (1993).

12. Ibid.

13. Ibid.

14. 118 L.N.T.S. 343 (1929), art. 43.

15. Jean S. Pictet, ed., *The Geneva Convention of 12 August 1949, Commentary III, Geneva Convention Relative to the Treatment of Prisoners of War* (Geneva: International Committee of the Red Cross, 1960), 460.

16. Elizabeth Smith, "The Code of Conduct in Relation to International Law," *Military Law Review* 31 (Department of the Army Pamphlet 27-100-31, January 1966): 117.

17. Proclamation No. 10,631, 20 Fed. Reg. 6057 (17 August 1955).

18. Ibid.

19. Code of the U.S. Fighting Forces (Washington, DC: Department of Defense, 1988), § IV.

20. Department of Defense Directive 1300.7, *Training and Education to Support the Code of Conduct (CoC)* (Washington, DC: U.S. Government Printing Office, 8 December 2000, certified current 21 November 2003); Proclamation No. 12,633, 53 Fed. Reg. 11355 (30 March 1988).

21. Following the Korean War, five Americans were charged and convicted under article 104 for unauthorized communication with the enemy. See *U.S. v. Batchelor*, 22 C.M.R. 144, 7 USCMA 354 (1956). Cpl. Claude Batchelor, in addition to even worse outrages against U.S. prisoners, participated in the trial of a fellow prisoner, conducted by Chinese captors and American prisoner collaborators. Batchelor was sentenced to life, but that sentence was reduced to twenty years, and he served three years.

22. Proclamation No. 10,631.

23. The Code of Conduct has never been used as the basis of a criminal prosecution under any Uniform Code of Military Justice article, although it is technically possible to do so.

Key Ingredient in Army Leader Development

Graduate School

Maj. George Fust, U.S. Army

Developing adaptive leaders is the bridge to overcoming readiness shortfalls and the unpredictability of future conflicts, and the increasingly ambiguous nature of threats in the contemporary operating environment coupled with finite resources makes leader development a reasonable goal.[1] However, leader development as employed by the Army is ambiguous and vague. What type of leader is the Army striving to develop? Strategic leaders? Operational leaders? What evaluation mechanisms are in place to determine if a leader has become more developed in responding to ambiguity?[2] These questions deserve continued debate and understanding but will not be the focus here. Instead, this article will tackle one small piece of the larger puzzle: graduate-level education.

Rigorous advanced education is a bridge between strategic and operational leadership.[3] It provides individuals a greater intellectual tool set for dealing with complexity, and it is arguably one of the best institutional opportunities to build strategic thinkers.[4] Further, advanced education opportunities can "help shape strategic leaders" by cultivating a foundation for critical thinking.[5] The best place to begin this research project is by examining the education of the Army's current strategic leaders, those at the three- and four-star level. These individuals embody the culture and values of the organization. A systematic analysis of one component of their career path, graduate school, can provide insight into the value placed on it and identify potential shortcomings. Utilizing a robust resume dataset of senior officer education contextualizes the data within trends in scholarship and Army strategy in order to provide the U.S. Army feedback to better understand the results of its current graduate school policy. A secondary purpose of this study is to identify how to better leverage graduate school to develop strategic leaders who can then be more effective in strategic-level positions.

The Current Leader Development Process

A review of the Army's current leader development process will help us understand where graduate school can be leveraged to improve strategic thinking. The Army defines strategic leaders as representing "a finely balanced combination of high-level thinkers, accomplished warfighters, and geopolitical military experts."[6] If we accept that advanced education "fosters breadth of view, diverse perspectives, critical and reflective analysis, abstract reasoning, comfort with ambiguity and uncertainty, and innovative thinking, particularly with respect to complex, ill-structured or non-linear problems," then we can conclude it is a necessary step to develop strategic leaders.[7] The logic follows that any shortcomings in the Army's graduate school application will likely result in shortcomings in leader development and thus a suboptimal force.[8]

The Army has made great strides recently to better prepare leaders for the changing international environment. The prioritization of leader development was a necessary first step in the process. The visionary insight of Gen. Ray Odierno, the thirty-eighth chief of staff of the Army, culminated in *Army Leader Development Strategy 2013* (*ALDS 2013*).[9] The document explains the importance of leader development and outlines a plan

Maj. Gen. Robin Fontes (*right*), then commander of Combined Security Transition Command-Afghanistan (CSTC-A), meets with Maj. Gen. Monawari (*far left*), commanding general of Afghan Logistics Command, and Brig. Gen. Fahim (*second from left*), commander of the Afghan National Army Material Management Center-Afghanistan on 9 August 2017. Fontes is a 1986 graduate of the U.S. Military Academy. She then graduated from the University of Washington with a master's degree in international relations and from the George C. Marshall European Center for Security Studies. She speaks Russian, Dari, and Farsi. (Photo courtesy of Sgt. 1st Class E. L. Craig, U.S. Army/CSTC-A)

for the Army to achieve its stated goals. The strategy suggests ends, ways, and means alignment and specific tools to aid in the process. *ALDS 2013* is a great starting point for assessing and promoting leader development, but it does not go far enough in capturing the importance of advanced education. Annex E of the document does highlight strategic leader ends and ways; however, it stops short in institutionalizing strategic thinking across the entire force. *ALDS 2013* also does not offer enough specific details for measuring its effectiveness, likely because the document is not intended as a standalone product. The overarching strategy of *ALDS 2013* is nested with other mutually supporting strategies including the Army Education Strategy, which is visually represented in figure 1 (on page 110).[10]

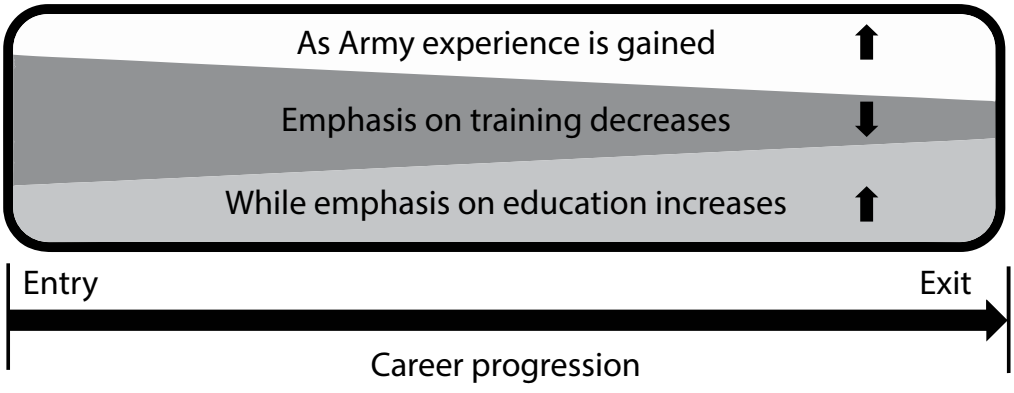
As figure 1 indicates, the Army places increasing emphasis on education as a career progresses. Therefore, any education opportunity has increasing returns on investment. One can conclude that the sooner an Army leader attends graduate school and the more such opportunities exist, the better it will be for the Army. The next section evaluates the degree to which the Army's renewed emphasis on leader development translates to more graduate school opportunities. But before reviewing those

results, a look at the larger conversation on strategic leader development plans is helpful.

Where the *ALDS 2013* falls short, there does exist a growing body of literature related specifically to developing strategic thinkers in the Army. This body of research offers insight into why it is important for the Army to specify the process and expected outcomes for development of strategic leadership. The large volume of literature available in the "developing strategic leaders" genre is a favorite topic among attendees at the Army's Command and General Staff College (CGSC) and in military-related publications.[11] The key theme among these publications is that the Army can be better at developing strategic leaders. The recommendations suggest that the Army should identify strategic leaders earlier in their career timeline and that the Officer Personnel Management Directorate (OPMD) should be adjusted to better develop strategic leadership skills. The arguments center on the idea that the increasing complexity and interconnectedness of the international environment is outpacing the antiquated Army leader development model. This theme is not unique to today's generation. Articles have been routinely published for the past fifty years extolling the inability of the Army to keep leader development on pace with contemporary affairs.[12] In short, what worked in the past will not work today. We cannot rely on luck but must instead design a system to develop the strategic leaders the Army needs.

An outlier to this plethora of publications argues that the Army system is good enough.[13] The outlier's dissertation employs three case studies, only one from the modern era, and it lacks empirical evidence. The lack of robustness and potential bias of this outlier diminishes the potential findings. Of more concern, the paper fails to consider that the case studies selected could have been lucky (exactly what the larger community argues) or that they had the appropriate development for the their time period. The paper also fails to adequately differentiate varying levels of leadership (operational versus strategic) or the subcategories of leader development.

The subcategory of graduate school within the larger strategic leader development genre is routinely addressed by academics and the military alike. Countless quantitative and qualitative articles have been published with varying degrees of effectiveness.[14] This article serves as a contemporary update that seeks to leverage a new dataset and method of identifying senior leader trends. The larger body of strategic leader development literature will be used to highlight schools of thought related to better integrating or reforming how graduate school should be employed in the development of Army officers.



(Figure from TRADOC Regulation 350-70, *Army Learning Policy and Systems*, 2017)

Figure 1. Relationship of Experience, Training, and Education

Before continuing, it is useful to formally outline the definition of the term "strategic leader" as it will be used throughout this article. A summary of how the Army defines a strategic leader is "a leader who is an expert, not only in his own domain of war fighting and leading large military organizations, but also in the bureaucratic and political environment of the nation's decision-making process."[15] Further, it is important to differentiate a person in a "strategic leadership position" from someone who is an actual "strategic leader."[16]

Training versus Education

The resounding theme of literature published on the topic of Army strategic leader development is clear: the

Army needs strategic leaders but is not doing enough to develop them. Arthur T. Coumbe argues in *Army Officer Development: Historical Context* that "the apogee of graduate education in the Army took place in 1972," and that "the Army's commitment to, and emphasis upon, fully funded graduate education for officers gradually eroded after 1973."[17] A shift in priority by Gen. William DePuy in 1973, "one that subordinates intellectual and strategic astuteness to tactical and operational expertise," is what led to the cultural shift and decline in graduate school attendance.[18] Are we still operating under the same culture despite rhetoric declaring leader development is the priority? If the leader development focus is tactical and operational leadership, then the Army is on the right track. If, however, the shift is toward education, then steps must be taken to increase graduate school opportunities.

Jeffrey McCausland and Gregg Martin argued in a 2001 *Parameters* article that there is a "significant qualitative difference" between "training" and "education."[19] They go on to explain that "education is all about teaching *how* to think and what the *questions* ought to be …. Training is most frequently used when the goal is to prepare a leader or an organization to execute specified tasks. It often includes repetition of task, not unlike an athletic team learning to execute plays."[20] If we agree with the Army's newest operating concept, then it is even more critical to invest in graduate school as a method to educate and develop strategic thinkers:

> This concept, for the first time, focuses on all three levels of war; tactical, operational, and strategic. The environment the Army will operate in is unknown. The enemy is unknown, the location is unknown, and the coalitions involved are unknown. The problem we are focusing on is how to "Win in a Complex World."[21]

In an unknown environment, leaders will not know what play to execute. They must be prepared to think through problems and respond to dynamic situations. Merely promoting the vague concept of leader development is not enough. The Army must leverage all broadening opportunities of its members to maximize the benefit to their strategic development. One such broadening assignment is graduate school. As previously argued, advanced education is one of the best institutional mechanisms for developing strategic thinking. So where does the Army currently stand?

Senior Leader Trends

The logical starting point for a discussion focused on leader development is with those who have achieved the senior leadership positions of the organization. Within the Army, those positions are at the three- and four-star level. The Army's officer management system is a closed hierarchy whereby the institution selects those its deems most qualified to advance. While the president, and ultimately the Senate, have final approval, the Army has great discretion in selecting its senior leaders.[22] Therefore, those it selects for promotion "reflect the character traits and leadership qualities that the organization seeks to sustain" and thus the "character traits the Army prefers within the institution."[23] By reviewing the graduate school trends of the Army's three- and four-star officers, we can get a glimpse of what the Army values and if changes have occurred. The database used for the study includes all three- and four-star officers who retired or served after 1986, including officers who commissioned as far back as year group 1943.[24] The database uses standardized resume data that includes graduate degrees attained and the institution conferring the degree. With approximately 500 observable datapoints (102 four-star and 391 three-star officers), the database offers a sizable basis for understanding the Army's senior leader graduate school experience.

Degrees Earned by Generals

Over time, a master's degree has become necessary for advancement, though it is not a formal requirement. While some career paths in the Army such as those of lawyers and doctors require a specific advanced degree, most do not. Where an officer acquires a degree is not

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Table 1. Number and Percentage of Degrees by Type Earned by Four-Star Officers

Degree type	Number of degrees earned	Percent of degrees earned
Administration (public)	13	10%
Administrative/personnel management	2	2%
Administrative education	3	2%
Advanced military studies	1	1%
Applied mechanics	1	1%
Area studies	1	1%
Business	1	1%
Business administration	8	6%
Business management	1	1%
Civil engineer	1	1%
Civil government	1	1%
Electronic warfare	1	1%
English	5	4%
History	6	5%
Human resources	1	1%
Information technology	2	2%
Instructional technology	1	1%
International relations	12	9%
International relations and economics	1	1%
Law	1	1%
Logistics management	4	3%
Management	5	4%
Master of arts	1	1%
Mathematics	1	1%
Mechanical engineering	3	2%
Military arts and science	9	7%
National resource strategy	1	1%
National security/strategic studies	20	15%
Nuclear engineering	1	1%
Operations research	3	2%
Philosophy	2	2%
Philosophy, politics, economics	2	2%
Physical education	1	1%
Physics	1	1%
Politics, economics, government	1	1%
Political science	6	5%
Psychology	3	2%
Public and international affairs	1	1%
Sociology	1	1%
Systems management	1	1%
Total	**130**	**100%**

(Table by author)

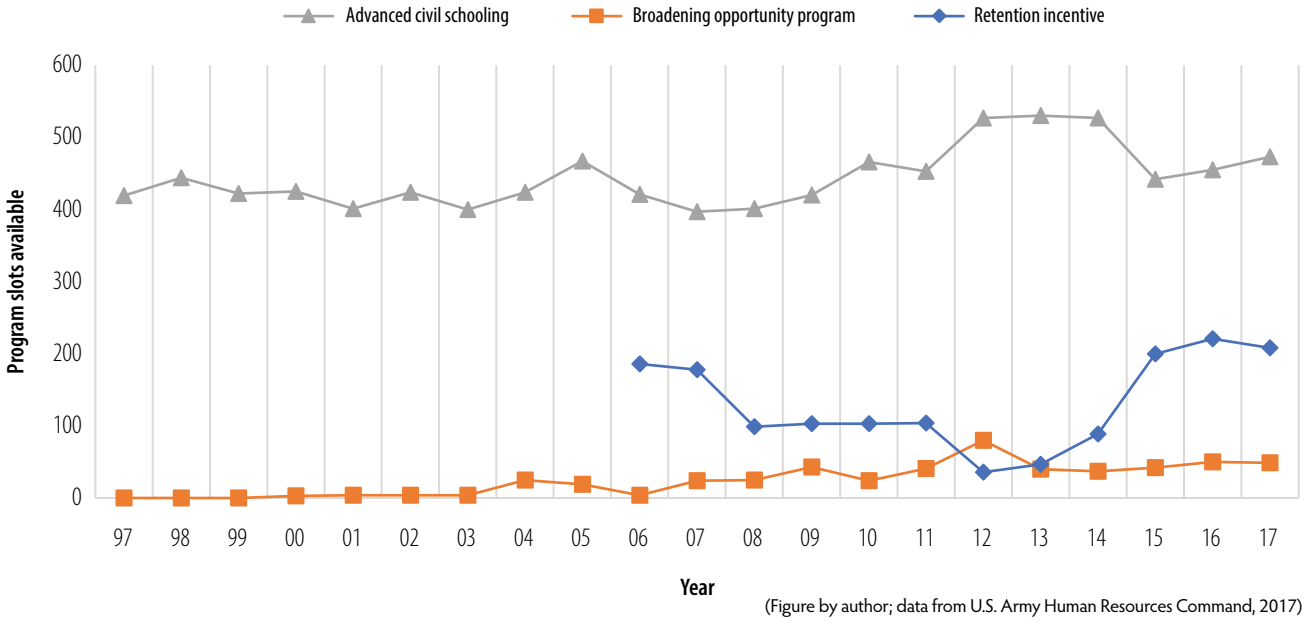
considered important. The Army considers a degree from Duke University in political science to be equivalent to an online degree in any subject. There is no institutional mechanism in place to incentivize attaining a degree from a challenging program. Nor is there a requirement or incentive to attain a degree with relevance to strategic leadership. All that matters is that an officer gets a graduate degree, preferably around the midcareer mark. Of the ninety-seven four-star officers in the dataset used for this study, forty different graduate degree types have been attained out of a total of 130 earned graduate degrees (see table 1).[25]

Given the diversity of degrees at the senior-most level, it can be inferred that even greater diversity exists at lower ranks. If one accepts the universal benefit of graduate school as the development of critical thinking, then the recommendation would simply be to expand the number of graduate school slots available for in-resident programs to maximize program benefits. If, however, the Army maintains or decreases its current number of slots, then it must maximize utility. One method is to dictate specific degree programs. There is ample precedent in the Army's history to support this course of action.[26] In 1966, the Army commissioned a study titled "Report of the Department of the Army Board to Review Army Officer Schools" (later known as the Haines Board) that "stipulated that such training [graduate school] must be for recognized and specific Army requirements."[27] Today's requirements (if enacted) should dictate that these programs be related to national security, international relations, political science, or strategic studies.[28] Of the degrees earned by the observed four-star generals, 33 percent fall into the national security/strategic studies category. The remaining 67 percent do not. This lends evidence to the importance of graduate school's ability to develop strategic thinking skills regardless of degree program. A closer look at the Army's current graduate programs will help illuminate a way forward.[29]

Current Graduate Programs

The U.S. Army's current graduate studies program is composed of three major categories: Advanced Civil Schooling (ACS), Broadening Opportunity Program (BOP), and Retention Incentive. ACS has seven subgroupings: Acquisition, Basic Branch, Functional Area, Professor Army War College, PhD, Special Branch, and U.S. Military Academy.[30] The groupings indicate the specific use of the degree and are mostly generated by funding allotments. For example, the U.S. Military Academy grouping provides a master's degree to those who are en route to teach at the U.S. Military Academy at West Point, New York. Another major category is BOP. The four subgroupings under the BOP category include congressional fellow, Harvard strategist, Joint Chiefs of Staff intern, and scholarship. Much like the groupings under ACS, the BOP groupings indicate the intended use of the degree following completion.

Finally, the Retention Incentive category has three subgroupings. These include Expanded Graduate School Program, Graduate School for Active Duty Service Obligation, and Performance-Based Graduate School Incentive Program for Top-Performing Basic Branch Captain. The Retention Incentive groupings are intended as incentives to retain specific year groups or top performers. All the groupings within the three categories are fully funded by the Army. The other primary option for acquiring a graduate degree is tuition assistance. This option is utilized while the officer is working full-time and at his own expense. As such, it falls outside the scope of the research presented here.

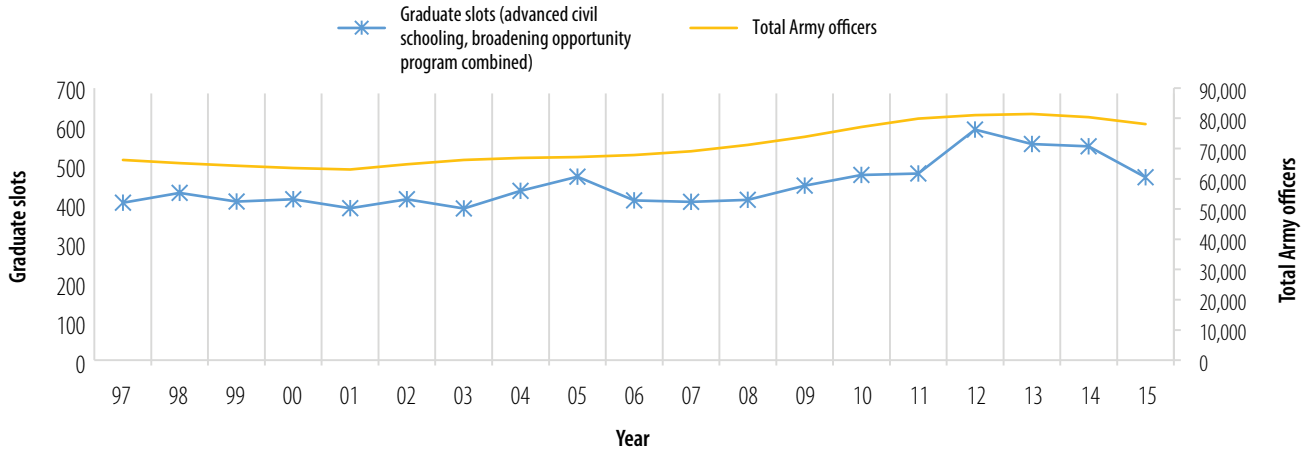


(Figure by author; data from U.S. Army Human Resources Command, 2017)

Figure 2. Army Graduate Program Slots Available by Year and Category

Figure 2 is a visual representation of the Army's three categories for officers to acquire a graduate degree paid for by the Army. This figure demonstrates trends over the last twenty years. The information is helpful for two reasons: it shows the trajectory and the total number of slots over time.

The key takeaway from figure 2 is the stagnant nature of graduate school slots over the past twenty years. This is especially true if one considers the new directive to prioritize Army strategic leader development, *ALDS 2013*, was published in 2013. The year following the publication had a net decline in ACS slots. In other words, the rhetoric does not match the execution. Another point that stands out is the relatively low total number of program slots. There have been on average fewer than five hundred ACS slots available per year since 1997. Figure 3 (on page 114) highlights how this compares to the total officer population across the same time frame. This



(Figure by author, data from http://www.cna.org/research/pop-rep)

Figure 3. Army Officer Total and Graduate Program Slots Available by Year

figure also suggests a stagnant trajectory for program slots over the past eighteen years in the two primary strategic degree-producing categories: ACS and BOP. The number of graduate program slots is largely dependent on the total officer end strength.

If the Army assumes that more strategic leadership will be required to face an increasingly ambiguous threat environment in the future, then the *graduate slots available* trend line should be increasing at a faster rate than the total officer population. The Army's closed personnel system requires a "long time horizon to observe change in senior army leadership."[31] For example, officers who complete a graduate degree in 2017 are not eligible for senior leadership positions for at least a decade or more. It is thus imperative that the Army provide more graduate school opportunities at a faster rate. Figure 3 clearly shows that the graduate school slots available are in proportion to the number of available candidates. The percentage of slots available to the total population has averaged .64 percent since 1997.[32] In 2015, that rate was .61 percent, slightly lower than the average.

An alternate demonstration of this data also suggests that the total numbers of slots are too low. Table 2 (on page 115) shows the number of active duty officers in the Army in 2015 by pay grade.

Those primarily eligible to attend graduate school are at the O-3 (captain) and O-4 (major) pay grade. Taking just the O-3 pay grade into consideration, the Army has around 29,000 officers and fewer than 600 graduate school slots available as demonstrated in figure 2 (on page 113). There are even fewer slots when the categories that will not reach the four-star level (such as special branch, functional area, and acquisition) are removed. In 2015, this would have generated 484 graduate school slots for a population of 29,166 (45,738 if you include those eligible at the O-4 pay grade).

This number of slots is simply too low when accounting for attrition, nonadvancement, and the increasing complexity of the threat environment. Junior leaders are increasingly asked to make decisions with potentially strategic-level impacts. Where a senior leader can rely on years of experience, a junior leader must rely on his ability to think critically. In-resident graduate programs provide officers the best environment to develop as critical thinkers because such programs allow officers to set aside other tasks to focus entirely on building the skills of strategic leadership. To guarantee a greater likelihood of success at the strategic level, the Army must provide more in-resident graduate school opportunities.

Civilian versus Military Degree-Producing Programs

How important is the difference between civilian and military degree-producing programs? Does it matter if an officer receives his only graduate degree from a military school? At set points in an officer's career he will attend military schools. Examples include CGSC and the Army War College. Over time, these schools have become accredited and are capable of conferring graduate degrees. Officers attending military schools have the option of

Table 2. Active Component Commissioned Officer Corps by Pay Grade for Fiscal Year 2015

Pay grade	0-1	0-2	0-3	0-4	0-5	0-6	0-7	0-8	0-9	0-10	Total
Total	8,132	12,181	29,166	16,572	9,302	4,201	139	126	48	11	**79,878**

(Table by author, data from http://www.cna.org/research/pop-rep)

increasing their workload in order to pursue an advanced degree. In short, they are not mandated to complete the requirements for a graduate degree but have the option. Recently, the Army determined that all officers would attend intermediate level education in some capacity with the top 50 percent of majors attending CGSC as residents.[33] This increase in students resulted in a subsequent increase in faculty and capability for the school to confer graduate degrees. Many officers with limited flexibility in their career timeline will take advantage of the degree offering while foregoing an opportunity to complete an advanced degree at a civilian institution. Recall that the source and type of the master's degree is not institutionally important if critical thinking is the most important goal. If, however, the Army seeks to maximize the graduate school experience to develop strategic leaders, these leaders "must be schooled in matters both military and political" in order to become "masters of the geopolitical realm."[34] Military officers will receive other forms of professional military education throughout their careers that will make them experts in the warfighting domain.[35] Graduate education is the best opportunity to train them in the geopolitical context necessary for strategic leaders. If degree-producing military schools balance their curriculum to include a healthy dose of international relations, political science, security studies, etc., then any trends toward officers only obtaining their degree from military schools will not be inherently negative.

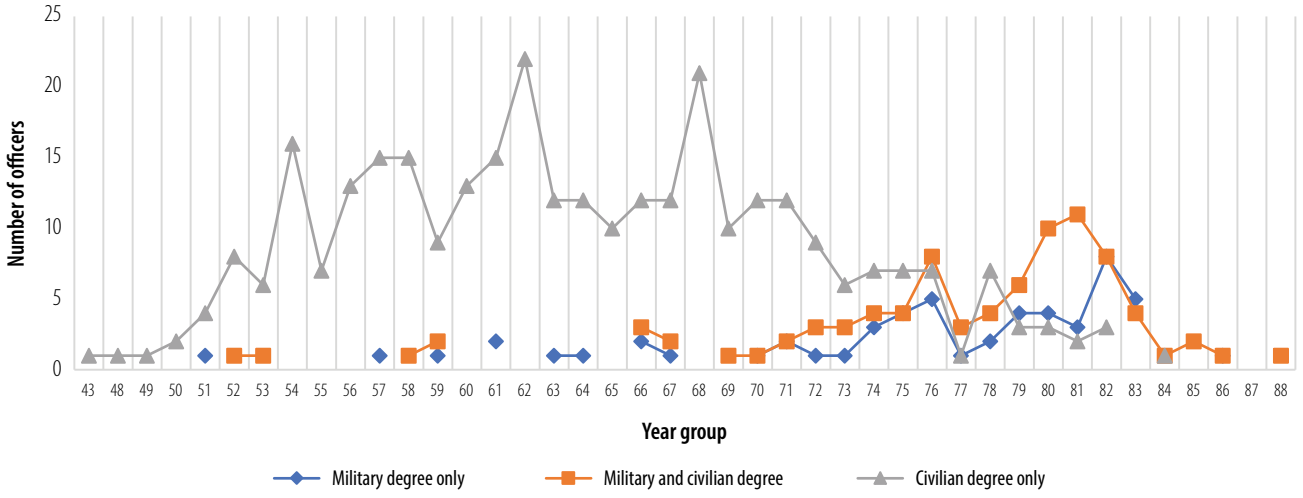
The resume dataset highlights degree trends among Army senior leaders. The data is divided into three categories: officers who obtained a degree only from military schools, officers who obtained a degree only from civilian schools, and officers who have obtained a degree from both a military and a civilian school. A simple time-series line graph represents the data shown in figure 4 (on page 116). It should be noted that the youngest active duty four-star generals are from year group 1982. Therefore, the data will drop because only three-star generals are represented after 1982.

The results of the data show that there is a decreasing trend in attaining a degree only from a civilian institution, with a corresponding increase in acquiring a degree from a military institution. There is also an increasing trend in attaining a degree from both a civilian and military institution. Army senior leaders are still obtaining degrees from civilian institutions but are also more likely to get a degree from a military institution.

The results of figure 4 show a positive trend toward the central goal of this research: *to provide the U.S. Army feedback to better understand the results of its current graduate school policy*. Military institutions control their curriculum and can tailor it to precisely develop strategic leaders. However, the benefits of allowing military officers to broaden themselves at civilian institutions cannot be overstated. Thus, a combination of attending both is optimal. Current trends indicate progress in this regard. The follow-up question then becomes whether this was intentional. The Army can benefit from a holistic approach to generating strategic leaders by encouraging attendance at civilian institutions through an increase in the total number of slots available. Additionally, other structural changes in the Army's OPMD would be necessary to institutionally incentivize attending a civilian graduate school. This would ensure a larger pool of officers with a formal critical-thinking foundation is available to draw on.

Options for the Future

The Army has always striven to develop leaders. Various programs and structural changes have been implemented to adjust training to reflect contemporary threats. Today's ambiguous threat environment requires another shift focused on developing strategic leaders. The above research has identified several weaknesses in



(Figure by author)

Figure 4. Graduate Degrees Awarded by Year Group and Type for Three- and Four-Star Officers

the Army's use of graduate school to maximize strategic leader competency. There are, however, three approaches that can help maximize the Army's strategic leader development process: the Junior Officer Strategic Leader Development Program (JOSLDP), Scales's 350 method, and a culture shift toward education.[36]

Option 1: JOSLDP. In 2007, Maj. Larry Burris published a paper on how to best develop strategic leaders. His central finding was that a centrally selected, four-year program focused on a small group of officers (twenty to thirty per year) would be the best approach to identify and develop the Army's future strategic leaders. The JOSLDP approach would select the best strategic candidates from across the Army. The candidates would then complete their military education (possibly attaining a graduate degree from a military institution) in their first year of the program. Year two would be spent in a civilian graduate school "resulting in a master's level degree in strategy, national security studies or foreign affairs," whereby the thesis project would "have to address a strategic issue currently being faced."[37] Year three would consist of service as an intern on the joint or Army staff, and year four would be in a non-Department of Defense agency.

The JOSLDP approach coincides with the research presented here in several aspects. Hand-selecting the best officers for the program will generate an incentive and promote the seriousness of the Army with respect to developing strategic leaders. This approach will also overcome the deficiencies of program slots tied to population density by forcing officers to focus extensively on strategy-related degrees. Finally, the approach intentionally builds on the success identified by sending officers to both a military and civilian institution for graduate degree completion.

Option 2: Scales's 350 method. A more recent approach, published in 2016 by retired Maj. Gen. Robert Scales, "seeks to guarantee that only those gifted with strategic genius become strategic decisionmakers and commanders."[38] To accomplish this, Scales's method counsels selecting about 350 young officers to attend a civilian graduate school "to study the art of war."[39] After graduate school, they would attend the School of Advanced Military Studies in residency for two years in order to meet the "requirements for a PhD in strategic studies."[40] Later in their career, the cohort would attend another version of the School of Advanced Military Studies at the U.S. Army War College. The program should be rigorous and supervised by the highest levels of the Army staff. Additionally, Scales argues that there should be a set number of duty position quotas to ensure members of the program are placed into strategic positions. Attrition, resignations, and retirements

Lt. Gen. Paul E. Funk II (*left*), then commanding general of Combined Joint Task Force-Operation Inherent Resolve, and Iraqi Maj. Gen. Najm Abdullah al-Jibouri (*right*), commander of Nineveh Liberation Operation, walk through a busy market 4 October 2017 near the University of Mosul. Funk attended Montana State University where he received a bachelor's degree in speech communications and earned a Reserve Officers' Training Corps commission as an armor officer. Later, Funk earned a master's degree in administration from Central Michigan University, and his most recent educational experience was as a War College Fellow at the University of Texas Institute for Advanced Technologies. (Photo by Spc. Avery Howard, U.S. Army)

would winnow out all but the best and justifies 350 officers as the starting number.

Scales's 350 method differs from the JOSLDP in several ways. The Scales method places officers in positions to utilize their strategic expertise between schooling, whereas the JOSLDP is a continuous four-year program. Scales's approach seeks to groom strategists over the length of a career and therefore many more initial applicants would need to be accepted to account for attrition. The method ensures strategic thinkers will reach the senior-leader level because of the size of the candidate pool. Similar to the JOSLDP approach, Scales's 350 method seeks to dictate the graduate degree program into a strategic studies field. It also seeks to expand the number of graduate students to meet future demand. Finally, the approach seeks to maximize the benefits of both civilian and military graduate degree institutions.

Option 3: Culture shift toward education. The goal of this option is to formally recognize civilian graduate education as critical to developing strategic leaders capable of winning in a complex world. To execute this plan, additional resources need to be allocated to increase the number of officers attending fully funded, in-resident graduate schools. The number of slots should not be tied to population density but rather the needs of the force. To accommodate an increase in midcareer officers rotating out of tactical units, the OPMD should be restructured. These updates would include an increase in the total number of

officers at the O-3 and O-4 pay grade, incentives for promotion for officers who attain degrees from both civilian and military schools, incentives for advancement for degrees attained in specific fields deemed critical to strategic leadership, and the removal of year groups to allow officers a utilization tour following graduate school completion. These structural changes will incentivize advanced education and influence a culture shift toward education.

Final Thoughts

There is inherent tension between preparing for the tactical fight (training) and dedicating time to learning how to think critically (education). If leader development is the Army's priority, then the organization has a responsibility to clearly articulate how much of each category is desired. This article has demonstrated the Army's consistent commitment to graduate school opportunities. It has also revealed trends among its senior leaders. The Army can use this data to fine-tune its policies to meet emerging needs. The periodic cycles of tactical versus critical thinking skills is again at the forefront of conversation because of the changing threat environment.[41] Army doctrine and rhetoric from senior leaders is pointing toward critical-thinking skills rather than tactical.

This research article focused on the graduate school aspect of developing strategic leaders and determined three key areas of improvement. First, the Army must provide more graduate school opportunities.[42] An increase in the pool of officers with a graduate degree in strategic studies increases the probability of promoting to the senior-leader level someone with a related degree. Secondly, careful consideration should be given to maximize the utility of graduate school degrees earned by officers. This may include dictating the degree earned. Finally, the Army must take a deliberate approach to encourage and incentivize graduate degree completion at both military and civilian schools.

Three approaches were outlined that would facilitate a solution to this article's central research goal of providing the U.S. Army feedback to better understand the results of its current graduate school policy. The approaches can be integrated with various structural and budgetary changes.

Because leader development is a central goal of the Army to address future national security issues, every aspect of the process must be analyzed. This article was an effort to analyze the graduate school portion of that process for senior officers. Graduate school can deliver the foundation necessary to win today and tomorrow. ■

Notes

1. Training and Doctrine Command (TRADOC) Pamphlet (TP) 525-3-1, *The U.S. Army Operating Concept, Win in a Complex World 2020-2040* (Fort Eustis, VA: TRADOC, 7 October 2014 [obsolete]).

2. Daniel H. McCauley, "Rediscovering the Art of Strategic Thinking," *Joint Force Quarterly* 81 (2nd Quarter, 2016): 26–33, accessed 2 October 2019, https://ndupress.ndu.edu/JFQ/Joint-Force-Quarterly-81/Article/702006/rediscovering-the-art-of-strategic-thinking-developing-21st-century-strategic-l/. See also James M. Hardaway, "Strategic Leader Development for a 21st Century Army" (monograph, Fort Leavenworth, KS: School of Advanced Military Studies, 2008), 33–37.

3. Jeffrey D. McCausland and Gregg F. Martin, "Transforming Strategic Leader Education for the 21st-Century Army," *Parameters* 31, no. 3 (Autumn 2001): 17–33.

4. Anna L. Sackett et al., "Enhancing the Strategic Capability of the Army: An Investigation of Strategic Thinking Tasks, Skills, and Development," Research Report 1995 (Fort Belvoir, VA: U.S. Army Research Institute for the Behavioral and Social Sciences, February 2016), 20–21, accessed 2 October 2019, https://apps.dtic.mil/dtic/tr/fulltext/u2/1006147.pdf.

5. George B. Forsythe, "The Preparation of Strategic Leaders," *Parameters* 22, no. 1 (Spring 1992): 45, accessed 2 October 2019, https://apps.dtic.mil/dtic/tr/fulltext/u2/a528179.pdf.

6. Army Doctrine Reference Publication 6-22, *Army Leadership* (Washington, DC: U.S. Government Printing Office, 2012 [obsolete]), 11-1.

7. TRADOC Regulation 350-70, *Training Development Management, Processes, and Products* (Fort Eustis, VA: TRADOC, 1995 [obsolete]), 21.

8. Henry H. Shelton, "Professional Education: The Key to Transformation," *Parameters* 31, no. 3 (Autumn 2001): 4–16.

9. *Army Leader Development Strategy 2013* (Washington, DC: Department of the Army, 2013), accessed 4 October 2019, https://usacac.army.mil/sites/default/files/documents/cal/ALDS5June%202013Record.pdf.

10. Ibid., Annex H.

11. See Michael Flowers, "Improving Strategic Leadership," *Military Review* 84, no. 2 (March-April 2004): 40; Gordon B. Davis Jr. and James B. Martin, "CGSC: Developing Leaders to Adapt and Dominate for the Army of Today and Tomorrow," *Military Review* 92, no. 5 (September-October 2012): 63–74; Volney J. Warner, "Preparing Field Grade Leaders for Today Tomorrow," *Military Review* 86, no. 1 (January/February 2006): 104; McCauley, "Rediscovering the Art of Strategic Thinking," 26–33.

12. See Amos A. Jordan and William J. Taylor Jr., "The Military Man in Academia," *The Annals of the American Academy of Political and Social Science* 406, no. 1 (1973): 129–45.

13. Jonathan L. Hawkins, "Is the Army Developing Strategic Leaders?" (master's thesis, Command and General Staff College, 2015).

14. Jordan and Taylor, "The Military Man." For a thorough history, see also Arthur T. Coumbe, *Army Officer Development: Historical Context* (report, Fort Monroe, VA: U.S. Army Cadet Command, 2010).

15. Larry Burris, "Strategic Leadership: A Recommendation for Identifying and Developing the United States Army's Future Strategic Leaders" (Fort Leavenworth, KS: U.S. Army Command and General Staff College, January 2007), 2, accessed 4 October 2019, https://usacac.army.mil/sites/default/files/documents/cace/DCL/dcl_First_Place_Essay_2006_2007.pdf.

16. Stephen J. Gerras, ed., *Strategic leadership Primer*, 3rd ed. (Carlisle, PA: U.S. Army War College, 2010), 3.

17. Coumbe, *Army Officer Development: Historical Context*, 11.

18. Ibid., 14.

19. McCausland and Martin, "Transforming Strategic Leader Education," 22.

20. Ibid.

21. TP 525-3-1, *U.S. Army Operating Concept*, iii.

22. David Barno et al., "Building Better Generals" (Washington, DC: Center for a New American Security, October 2013).

23. George Fust, "Grading the Army's Choice of Senior Leaders" (master's thesis, Duke University, 2018), 37.

24. Ibid, 6.

25. A total of 102 four-star officers are in Fust's database. One officer does not have degree information available and four only have a BS degree.

26. Coumbe, *Army Officer Development: Historical Context*, 7–13.

27. *Report of the Department of the Army Board* [Haines Board] *to Review Army Officer Schools: Vol. II, Description of Current Educational and Training Materials* (Washington, DC: Department of the Army, February 1966), 263.

28. Burris, "Strategic Leadership," 3.

29. Fust, "Grading the Army's Choice of Senior Leaders," database.

30. "Fully Funded Graduate Programs Policy and Procedures Fiscal Year 2018" (Fort Knox, KY: U.S. Army Human Resources Command, July 2017), 9.

31. Michael J. Meese, "The Army Officer Corps in the All-Volunteer Force," *Contemporary Economic Policy* 20, no. 2 (2002): 107.

32. This percentage was determined by dividing the number of graduate slots in a particular year by the corresponding number of total active duty officers in the same year. All years from 1997 to 2015 were then averaged. The highest percentage was .73 percent in 2012. The lowest, .58 percent in 2009.

33. Davis and Martin, "CGSC."

34. Shelton, "Professional Education," 4.

35. Reference is to "management of violence" as described by Samuel P. Huntington, *The Soldier and the State: The Theory and Politics of Civil–Military Relations* (Cambridge, MA: Harvard University Press, 1957), 11.

36. Burris, "Strategic Leadership," 17–19; Robert Scales, "Are You a Strategic Genius?: Not Likely, Given Army's System for Selecting, Educating Leaders," *Army Magazine* 66, no. 11 (November 2016), accessed 2 October 2019, https://www.ausa.org/articles/army-system-selecting-educating-leaders.

37. Burris, "Strategic Leadership," 18.

38. Scales, "Are You a Strategic Genius?"

39. Ibid.

40. Ibid.

41. Coumbe, "Army Officer Development: Historical Context," 10.

42. A 2015 article suggest this will occur. See Andrew Tilghman, "DoD Plans to Send More Officers to Civilian Grad Schools," *Military Times* (website), 20 August 2015, accessed 2 October 2019, http://www.militarytimes.com/story/military/benefits/education/2015/08/20/graduate-school-proposals/32063579/.

Palestinian protesters participate in a violent demonstration 1 June 2018 against Israel's eleven-year blockade of Gaza and its refusal to allow refugees to return to their villages inside the zone. From March to June 2018, estimates of approximately one hundred thousand protesters fired weapons and threw rocks at Israeli soldiers and sent balloon-transported firebombs and explosives into Israel, resulting in burnt forests and farmland, numerous Israeli injuries, and the death of at least one Israeli soldier. Israel's strong response to the protest over the period resulted in approximately two hundred Palestinian deaths (many were from organized militias) and several thousand injuries. Hamas leaders inside Gaza stoke domestic instability and resentment against Israel and use the resulting violence to recruit and organize militia groups to conduct asymmetric insurgent warfare against Israel. (Photo courtesy of the Israel Defense Forces)

The Reemergence of Gray-Zone Warfare in Modern Conflicts

Israel's Struggle against Hamas's Indirect Approach

Omer Dostri

Over the last decade, the use of gray-zone warfare—part of a coercive strategy—has increased. Various actors in the international system use this kind of warfare to achieve political, economic, and military advantages while minimizing risks and the reactions of their opponents. The means of gray-zone warfare are based on ambiguity and low signature that provide politicians and decision-makers with a strategic capacity of plausible deniability. These include surgical, restrained, and limited use of kinetic forces—mainly the use of special operations forces or irregular forces; cyber warfare by governments or nonstate actors; information warfare; and other nonviolent means of coercive diplomacy such as economic sanctions and the use of trade to impose an actor's will on its opponent (see figure, page 122).

In 2015, the U.S. Special Operations Command issued a white paper defining the "challenges" of gray-zone warfare as "competitive interactions among and within state and non-state actors that fall between the traditional war and peace duality. They are characterized by ambiguity about the nature of the conflict, opacity of the parties involved, or uncertainty about the relevant policy and legal frameworks."[1] Gray-zone threats are defined as "actions of a state or non-state actor that challenge or violate international customs, norms, and laws for the purpose of pursuing one or more broadly defined national security interests without provoking direct military response."[2] An April 2017 panel discussion in Crystal City, Virginia, by the U.S. Department of Defense's Strategic Multilayer Assessment team—published later as a special document in June 2017—defined the gray zone as "conceptual space between peace and war, where activities are typically ambiguous or cloud attribution and exceed the threshold of ordinary competition, yet intentionally fall below the level of large-scale direct military conflict."[3]

The study of gray-zone warfare intensified after Russia took control of the Crimean Peninsula in February 2014. Russian involvement in the Ukrainian civil war began with the apparent intent to provide internal and international legitimacy and legality for its actions in the international arena. Moscow clearly articulated its intention to rely more on an integrated strategy of using military and nonmilitary tools that took advantage of significantly vague legal concepts.

Among other things, Russia places great emphasis on psychological and political warfare, economic manipulations (e.g., disruption of access to the supply of natural gas), cyber activity, and lawfare. Russia also manipulates public opinion at home and abroad by using information warfare and disseminating "fake news" as a means of creating confusion and skepticism.[4]

Gray-Zone Warfare as a Renewed Phenomenon

While some researchers see gray-zone warfare as a new phenomenon, others believe it has been used in the past. According to Antulio Echevarria, what is now known as the gray zone is actually a version of coercive strategies that have been reinforced by technological development.[5] Michael Mazarr stresses that countries have used such approaches for centuries—in some ways, for thousands of years. However, Mazarr continues Echevarria's line and argues that there are at least three innovations in the gray-zone phenomenon. First, an increasing number of aggressive nations—mainly China, Russia, and Iran—are making extensive use of gray-zone strategies. Second, the cost of significant aggression has grown enormously, and the economic and social interdependence of the world has grown so much that countries with aggressive intent are looking for alternative ways to achieve their goals. Finally, while some tools of gray-zone warfare have been used since antiquity, others (e.g., cyber warfare, advanced forms of information warfare, and the processing and refinement of civilian tools for policy and strategic purposes) are relatively new phenomena.[6]

According to James Wirtz, revisionism, which he sees as characteristic of gray-zone warfare, occurred during the Cold War but was limited by the desire of the great powers to avoid changes in the status quo that could lead to nuclear conflict.[7] Wirtz, in effect, states that the gray zone is indeed similar in its characteristics to the Cold War, but the scale and scope of the operations are more intense, aggressive, and varied.

In contrast, Joseph Votel et al. view the Cold War as a forty-five-year struggle for the gray zone during which the West coped with the spread of communism. To avoid confrontations of superpowers that might escalate into nuclear war, the Cold War was largely a proxy war where the United States and the Soviet Union supported various state and nonstate

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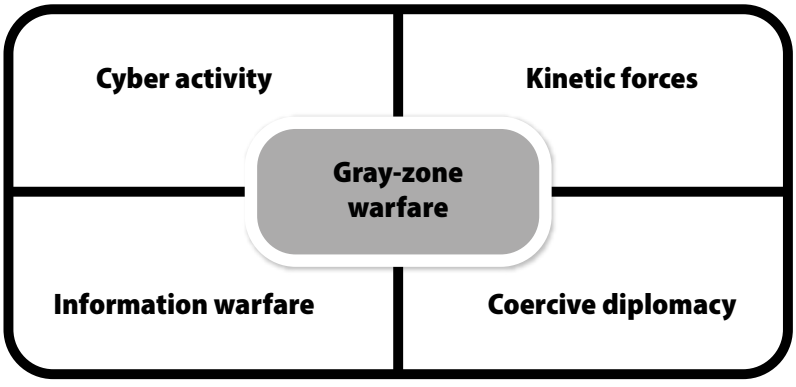
actors in small regional conflicts and intervened directly in countries around the world. Votel et al. argue that U.S. operations in Korea and Vietnam were under constraints that made a total victory by the United States or its allies almost impossible for fear of an American escalation with the Soviet Union.[8]

Philip Kapusta supports Wirtz's approach. For him, the relative certainty the world experienced during the Cold War was simpler than today's global environment. Whereas during the Cold War, nation-states mainly faced other nation-states, state actors are now forced to deal with hybrid phenomena and nonstate and substate actors such as powerful and institutionalized terrorist organizations. The challenges of today are that actors and nonstate actors do not respect the norms and rules of the international law. According to Kapusta, even when nation-states made a deliberate choice to engage in activities in the gray zone during the Cold War, their actions were still subject to the rules and norms that characterized international relations. Other differences that Kapusta finds between the Cold War and the geopolitical reality today are the growing number of potential gray-zone actors, the tools available to them, and the rapid changes in the world.[9]



(Figure by author)

Figure. Nonstate Actors' Involvement in the Gray Zone

Maren Leed also mentions the changes and developments in the various tools of warfare regarding the gray zone. He argues that the roots of gray-zone warfare may be found in technological advances, especially in information technology, which allows an unprecedented level of globalization.[10] Miroslaw Banasik, who served in the Polish army, follows Leed and mentions in his study that the innovations of warfare in the gray zone include new technological means, development and dissemination of information, and the transfer of the spheres of state functioning and citizens' lives to the virtual world. These innovations have made it difficult to discern and unequivocally distinguish where modern conflicts rest along the continuum of war or peace.[11]

Isaiah Wilson and Scott Smitson mention in their study the territorial dimension in the arguments of the strategic historian Walter Russell Mead. The latter described the changes in the nature of geopolitical competition and defined the current and future global security environments in the context of geography. He believed the current struggle between state actors on the world stage is over control of territory rather than ideology. However, he then claimed that territorial struggles are unique in their character to the various actors and focus on certain historical places.[12]

While some researchers agree that the gray zone is an existing or additional phenomenon, other researchers point out that this is a phenomenon with new features expressed in modern tools and a means developed by the advancement of technology and the expansion of globalization. The strategies, tactics, and means of gray-zone warfare have been used in the past and by different actors. Hence, it is neither an innovative phenomenon nor an old one. Instead, gray-zone warfare is a description of trends in the geopolitical and strategic environment, and in fact is a renewed phenomenon applied by modern technologies and tools.

Gray-zone warfare is not limited to use by state actors only. Various nonstate actors who develop into substate actors (e.g., Hezbollah and Hamas) and hybrid actors (e.g., the Islamic State) also use this kind of warfare. The political transformation and changes that occur within various nonstate actors—in the form of de facto control of territories and populations—led to the development of political institutions and semi-institutional structures, and to the responsibility of substate actors over territory and population, through which the actors

derive their popular power and legitimacy. The fear of damaging the economic and political assets of substate actors has led to a reduction in the use of conventional forces and classic terrorist acts as well as an increased use of gray-zone warfare to continue achieving these substate actors' goals while avoiding a strong military response to their actions by state actors.

While many nonstate actors operate primarily in the military and economic sphere, Hezbollah has had some success in diplomatic and information warfare. Al-Qaida and the Islamic State have placed great emphasis on information warfare, and the Islamic State in particular exploited social networks on the internet to gain broader support for its organization. The decision of these actors to adopt the tactics of the gray zone makes the security challenge of actors who confronted them even more difficult to deal with.

Israel's Gray-Zone Warfare

Israel is one of the significant actors who use gray-zone warfare. In recent decades, Israel has been secretly working to prevent the acquisition, reinforcement, and military buildup of its regional rivals in the Middle East. Thus, in June 1981, Israel launched a military strike to destroy a nuclear reactor in Iraq, destroyed Syria's nuclear reactor in September 2007, and launched a series of covert cyber operations and targeted assassinations of Iranian scientists with the aim of delaying an Iranian military nuclear project. During the Syrian Civil War, which broke out in March 2011, Israel carried out hundreds of attacks and extensive covert military operations to prevent the transfer of strategic weapons from Syria to Hezbollah in Lebanon.[13] Israel also attacked Iranian assets and forces in Syria to thwart Iran's entrenchment in the country.[14]

This unofficial policy, called the "Campaign between the Wars," has become a strategy for the Israel Defense Forces (IDF).[15] This military strategy expresses the idea of unified strategic logic—the management of *campaigns* that are carried out in multiple domains (military, economic, law, information, and diplomacy). The modus operandi of the "Campaign between the Wars" is to be offensive and proactive without crossing the threshold of war and in an ambiguous manner.[16] This ambiguity allows Israel to achieve its coercive strategy by reducing the capabilities of the enemy in the event of a future war while avoiding war now.[17]

Gray-Zone Warfare: A Case Study of the Conflict between Hamas and Israel in 2018-2019

Five years have gone by since the end of Operation Protective Edge—a military operation launched by Israel on 8 July 2014 in the Hamas-ruled Gaza Strip after nearly 250 rockets were fired at civilian-populated areas in southern Israel—of which three-and-a-half were relatively quiet, and Israel's deterrence vis-à-vis Hamas was maintained.[18] However, since March 2018, there has been a significant escalation in aggressive activity on the Gaza Strip due to Hamas's decision to organize and lead mass violence demonstrations near Gaza's perimeter fence with Israel. According to the Palestinian Ministry of Health, by the end of a year, more than 260 Palestinian rioters were killed, with tens of thousands more injured during demonstrations.[19] The escalation stemmed from the change in Hamas's strategy; Hamas is trying to recover from the difficult economic and political situation it has experienced in recent years, especially after Operation Protective Edge.

On the political level, Hamas is isolated. Even before Operation Protective Edge in 2013, Egypt had outlawed the Muslim Brotherhood—Hamas's mother movement—and declared war on it.[20] In addition, in June 2017, Qatar demanded that Hamas representatives leave the country in an attempt to avoid the Arab boycott imposed on it by Saudi Arabia, the United Arab Emirates, Bahrain, Libya, Yemen, and Egypt.[21] On the economic level, neutralizing the tunnels on the Egyptian side of the border with the Gaza Strip caused severe damage to Hamas's economy that was based, inter alia, on the collection of taxes from smuggling through tunnels to Sinai.[22] Likewise, the expulsion of Hamas representatives from Qatar limited Doha's ability to transfer funds to the organization. On the military level, the ability of Hamas to smuggle weapons from Sinai was damaged after the neutralization of its tunnels by the IDF and the Egyptian army. In addition, Operation Protective Edge led to severe losses in infrastructure and assets for Hamas in the Gaza Strip.

Despite its difficult situation, Hamas understood that another military operation against Israel would not serve it well since the cost of war would exceed the benefits of the current situation, its assets and infrastructure most likely would be damaged, and its political and economic situation would not be improved. In this

reality, Hamas's policy has shifted from one based solely on the use of kinetic measures against Israel and its citizens (from the launching of high-trajectory weapons on the civilian population and the use of terrorist tunnels) to a policy designed to undermine and erode (by attrition) Israel's deterrence strategy using varied tactics that include vague terrorist actions, diplomacy, and propaganda. This policy can be characterized as gray-zone warfare carried out by a weak actor who wants to change the status quo on the one hand while avoiding a military confrontation on the other because of the gap in the balance of power between the two parties.

As part of its gray-zone fight, Hamas has indirectly organized and led, through the use of ostensibly civilian organizations, violent demonstrations near the Gaza perimeter fence. Similarly, it has established units that fly burning kites and incendiary balloons as well as ostensibly independent civilian elements whose purpose is to ignite fires in Israel to harm its economy and citizens.[23] In addition, the organization has refused to take responsibility in most cases in which it used kinetic force against Israel by launching rockets targeting Israeli settlements, hiding under a new overall apparatus established in the Gaza Strip—the Joint Operations Room—or arguing that rockets launches at Israel were fired by mistake.[24] The Joint Operations Room in Gaza is an organization formed in the summer of 2017 by Hamas and Islamic Jihad. Its aim is to coordinate militant operations and political goals between the terrorist functions in Gaza. It consists of thirteen militant factions, run by the "Al-Qassam Brigades" (Hamas's armed wing) and the "Saraya al-Quds Brigades" (Islamic jihad's armed wing).[25]

Hamas has also used diplomatic means in its gray-zone fight. In every limited military operation between March 2018 and March 2019, it used an Egyptian delegation to mediate a truce between Israel and itself to put pressure on Israel to end military actions at a time convenient to Hamas, despite Hamas's initiating these restricted escalations itself.[26] And in the information domain, Hamas has used psychological warfare by publishing well-edited images on social media of the Israeli air force's strike in Gaza to falsely and manipulatively claim that the attacks allegedly did not significantly harm the organization. Hamas also used the Israeli media as a tool for negotiations on a cease-fire with the Israeli government. By broadly broadcasting Hamas's recordings from the mass riots near the perimeter fence and the fires inflicted by blowing incendiary balloons into Israeli territories, Israeli media is playing into Hamas's hands and putting pressure on public opinion and on Israeli decision-makers. In addition, during the past decade, Hamas has invested in establishing and upgrading its cyber capabilities, mainly in improving the intelligence gathering effort against the IDF and attempting to carry out a number of cyber activities aimed primarily at IDF soldiers.[27]

The common denominator of Hamas's policy of attrition from March 2018 to March 2019 is ambiguity and uncharacteristic actions to erode Israeli deterrence and gradually change the status quo that was set after Operation Protective Edge. Thus, Hamas correctly estimated that the actions it carried out below the threshold of war would not lead Israel to decide on a broad military operation, while at the same time, the organization could achieve advantages. In contrast to Hamas's gray-zone warfare, Israel has responded with relative restraint, allowing Hamas to gradually erode its deterrence strategy. Although there have been nine rounds of limited operations in the Gaza Strip, which included hundreds of IDF attacks against Hamas's targets (such as the organization's strategic infrastructure and assets), the IDF's activity was not strong enough, and as a result, deterrence was not restored. Hamas continued its gray-zone warfare and even sprayed hundreds of rockets at Israeli communities during limited rounds of fighting as part of the Joint Operations Room in the Gaza Strip (working hand-in-hand with other local terrorist organizations).

Israel's Options Responses to Fighting Hamas's Gray-Zone Warfare

Israel has four options in dealing with the Hamas's gray-zone warfare: (1) preserve the status quo and maintain the strategy of the limited military operations, (2) intensify the quality and quantity of Hamas targets during limited military operations, (3) engage in large-scale military operations, or (4) occupy the Gaza Strip.

Preservation of the status quo and the strategy of the limited military operations. In this option, Israel will be able to continue its current policy vis-à-vis Hamas, with the aim to contain Hamas's gray-zone warfare as a viable and cheap option relative to the possibility of a broad military operation. The advantages of this option are the low-intensity fighting that the IDF could contend with, the relatively large periods between

Palestinian Hamas militants attend a military drill 25 March 2018 in preparation for any upcoming confrontation with Israeli forces in the southern Gaza Strip. (Photo by Ibraheem Abu Mustafa, Reuters)

one operation of fighting to the next, and the relatively short time of each round of combat.

The drawback to this option stems from the gradual erosion of Israel's deterrence strategy and the creeping change in the status quo. This, in turn, will allow Hamas to be more daring and harmful to Israel's citizens, especially residents of the southern communities surrounding the Gaza Strip, and to erode the national resilience of the Israeli people.

Intensify the quality and quantity of targets during limited military operations. This course of action is actually a counterreaction to Hamas's attempt to undermine Israel's deterrence strategy. In this option, Israel chooses to not only continue its current conduct vis-à-vis Hamas but also to increase military responses against the terrorist organizations in the Gaza Strip. The advantage to this is that by intensifying responses and attacking more targets in numbers and quality (e.g., a greater and more rapid impact on terrorist tunnels and Hamas government buildings), there is a greater chance that Israel's deterrence vis-à-vis Hamas will become stronger, and Hamas may reduce or even halt its attempts to change the status quo. The disadvantage of this policy is that more aggressive military operations may lead Hamas and other terrorist organizations into Gaza to drag Israel into a broad military confrontation or a number of large-scale military operations in a relatively short period of time.

Large-scale military operations. In this option, Israel will engage in broader military operations in the Gaza Strip, including the use of air, armor, artillery, and engineering forces in areas close to the perimeter fence. The advantage of a large-scale military operation is the significant restoration and strengthening of the Israeli deterrence and the return to the end point of Operation Protective Edge, which included an Egyptian-mediated truce agreement and years of military and civilian rehabilitation for Hamas. For its part, Israel will gain a two-to-three-year period of relative calm that could be used for economic and military development. The disadvantage of this course of action stems from the high cost of a large-scale military operation, the possible destruction

of civilian infrastructure in Israel, and the damage to tourism and the economy. In addition, it may be possible to achieve this kind of result in significantly less costly ways, whether through military means, diplomacy, or a combination of both. The most significant drawback comes from the endpoint of such a military operation, which is unlikely to be different from previous military operations in the last decade and will probably not improve the situation in the long term.

Occupying the Gaza Strip. In this option, Israel will decide to launch a large-scale military operation into the Gaza Strip with the goal of defeating Hamas and overthrowing its regime. The IDF will have to use air strikes to soften some areas in the Gaza Strip and then use infantry, armor, or special operations forces to maneuver deep into Gaza to break it up into various parts and to control the territories after Hamas and other various terrorist organizations are defeated. The advantage gained from an extensive military operation to conquer the Gaza Strip is the elimination of the main terrorist elements. Israel will be able to decide whether it wants to hold the territory and impose a military regime there or transfer it to the Palestinian Authority.

The disadvantage of this situation stems from the very high economical cost of such an operation and the loss of dozens of Israeli fighters. In addition, there may be a situation in which the IDF will be drawn into a low-intensity conflict that will last many years against remnants of Hamas and other terrorist organizations. This would entail high costs and the use of a large amount of resources for routine security purposes. Moreover, in the case of handing over the Gaza Strip to the Palestinian Authority, this does not necessarily mean that IDF will be able to maintain peace and security against the new terror elements that could emerge from the destruction.

Importance of National Security Policy to Confront the Threat of Gray-Zone Warfare

To decide the wisest course of action for Israel to contend with Hamas's gray-zone warfare, it is not enough to focus only on military aspects; Israel must also consider the variety of power variables within a framework based on security, diplomacy, and economic means.

Regarding security, Israel is interested in completing the underground barrier along the Gaza Strip border to significantly improve its ability to monitor, identify, locate, and thwart terrorist tunnels from the Gaza Strip into its territory, as well as to store weapons inside the Gaza Strip to significantly improve the IDF's preparedness for a military operation in Gaza. In addition, Israel must now divert most of its civilian and security resources and means to counter the threats from the Iranian military's establishment in Syria and from Hezbollah's nuclear and ballistic missile programs' attempts to improve the accuracy of its missiles.

In the diplomacy sphere, Israel is cooperating behind the scenes with Sunni Arab countries, primarily Saudi Arabia, on a range of issues including the Iranian threat. This cooperation is likely to be adversely affected to the extent that Israel will be manipulatively portrayed by Hamas as having significantly harmed many potentially innocent Palestinians during a military operation in Gaza. In addition, Israel's "divide and conquer" de-facto strategy leaves the Palestinians split between the Gaza Strip and the Palestinian Authority territories in Judea and Samaria so that their overall strength is weakened. Thus, the occupation of the Gaza Strip and the transfer of powers to the chairman of the Palestinian Authority would undermine Israeli interests.

In the economic sphere, Israel is interested in a long peaceful period for as long as possible, which can contribute to the economic development of the country. Since Operation Protective Edge, Israeli communities around the Gaza Strip have experienced significant development, including an increase in population.

Conclusion

From March 2018 to March 2019, Hamas has been involved in gray-zone warfare against Israel. The purpose of this kind of warfare is to achieve political, economic, and security advantages by acting below the threshold of war with vague military, diplomatic, cybernetic, and information tools (thereby trying to prevent the rival from responding with force). The strategies, tactics, and means of gray-zone warfare have been used in the past during different periods by different actors. Accordingly, gray-zone warfare is neither an innovative or old phenomenon. Instead, gray-zone warfare is a description of trends in the geopolitical and strategic environments and a renewed phenomenon applied by modern technologies and tools.

Israel must balance the preservation of its deterrent strategy with the need to respond to the

challenge of Hamas's gray-zone warfare. However, this need for balance leads to a contradiction between the two interests, as an ill-advised and simplistic response to Hamas's gray-zone warfare could lead to a broad military operation, and thus to the failure of the Israeli deterrence strategy. On the other hand, the continued containment of Hamas's gray-zone warfare and the continuation of the Israeli military response is not sufficiently strong in its quality and quantity. It may lead to the continued erosion of deterrence and creeping change in the status quo in favor of Hamas. Therefore, a coherent and complex national security policy is needed to find a balance between Israel's deterrence—in the attempt to not use disproportionate force that could lead to an undesirable escalation in contrast to the Israeli interest—and a competent strategy using forceful responses in terms of both quality and quality against the targets of Hamas and the other terrorist organizations in the Gaza Strip, when necessary. ■

Notes

1. Philip Kapusta, "The Gray Zone," U.S. Special Operations Command (USSOCOM) white paper (MacDill Air Force Base, FL: USSOCOM, 9 September 2015), 1.

2. Sarah Canna and George Popp, "Strategic Multi-Layer Assessment (SMA) Panel Discussion on the Gray Zone in Support of USSOCOM" (Crystal City, VA: NSI Inc., 27 April 2017), 7.

3. Ibid., 12.

4. Maren Leed, "Square Pegs, Round Holes, and Gray Zone Conflicts: Time to Step Back," *Georgetown Journal of International Affairs* 16, no. 2 (2015): 133–43.

5. Antulio Echevarria, *Operating in the Gray Zone: An Alternative Paradigm for U.S. Military Strategy* (Carlisle, PA: Strategic Studies Institute and U.S. Army War College Press, April 2016): xi.

6. Michael Mazarr, *Mastering the Gray Zone: Understanding a Changing Era of Conflict* (Carlisle, PA: Studies Institute and U.S. Army War College Press, December 2015): 57.

7. James Wirtz, "Life in the Gray Zone: Observations for Contemporary Strategists," *Defense & Security Analysis* 33, no. 2 (2017): 110.

8. Joseph Votel et al., "Unconventional Warfare in the Gray Zone," *Joint Force Quarterly* 80 (January 2016): 102.

9. Kapusta, "The Gray Zone," 20.

10. Leed, "Square Pegs," 135.

11. Miroslaw Banasik, "Unconventional War and Warfare in the Gray Zone. The New Spectrum of Modern Conflicts," *Journal of Defense Resources Management* 7, no. 12 (2016): 44.

12. Isaiah Wilson III and Scott Smitson, "Solving America's Gray-Zone Puzzle," *Parameters* 46, no. 4 (2017): 58.

13. Dan Shuftan, "The Strategic Logic of the Campaign between Wars," *Dado Center Journal* 15 (March 2018).

14. "Netanyahu Confirms Air Strikes on Iranian Targets in Syria," France 24, 13 January 2019, accessed 1 July 2019, https://www.france24.com/en/20190113-israel-claims-air-strike-iran-target-syria.

15. Graham Allison, "English Translation of the Official Strategy of the Israel Defense Forces," Belfer Center for Science and International Affairs (August 2016).

16. "Netanyahu Confirms Air Strikes on Iranian Targets in Syria."

17. Avi Jager, "The No Comment Policy: Israel's Conflict Management Policy in an Uncertain Middle East," *Infinity Journal* 6, no. 3 (2019): 23–27.

18. "Operation Protective Edge," Israel Defense Forces, July/August 2014, accessed 2 August 2019, https://www.idf.il/en/minisites/wars-and-operations/operation-protective-edge-julyaugust-2014/.

19. "Health Ministry: 270 Killed, Including 52 Children, 16,556 Injured in 1st Year of March of Return Protests," Wafa News Agency, 2 April 2019, accessed 1 July 2019, http://english.wafa.ps/page.aspx?id=i8expva108992850054ai8expv.

20. David Kirkpatrick, "Egyptian Court Shuts down the Muslim Brotherhood and Seizes Its Assets," *New York Times* (website), 23 September 2013, accessed 1 July 2019, https://www.nytimes.com/2013/09/24/world/middleeast/egyptian-court-bans-muslim-brotherhood.html.

21. Jack Khoury, "Palestinians Confirm: Top Hamas Officials Have Left Qatar at Country's Request," *Haaretz* (website), 5 June 2017, accessed 1 July 2019, https://www.haaretz.com/middle-east-news/palestinians/palestinians-confirm-hamas-officials-left-qatar-at-country-s-request-1.5480301.

22. Shaul Shay, "Egypt's War against the Gaza Tunnels," *Israel Defense* (website), 4 February 2014, accessed 1 July 2019, https://www.israeldefense.co.il/en/node/32925.

23. "Arson Terrorism: A New Method Devised by Hamas during the 'Return Marches' to Attack the Communities near the Gaza Strip and Disrupt Their Daily Lives," The Meir Amit Intelligence and Terrorism Information Center, 19 June 2018.

24. Joe Truzman, "Palestinian Joint Operations Room," GroundBrief, 28 April 2019, accessed 2 August 2019, https://groundbrief.substack.com/p/groundbrief-palestinian-joint-operations.

25. Entsar Abu Jahal, "Why Were Rockets Fired toward Tel Aviv?," *Al-Monitor* (website), 21 March 2019, accessed 1 July 2019, https://www.al-monitor.com/pulse/originals/2019/03/gaza-interior-ministry-warn-operatives-rockets-fired-israel.html; Pinhas Inbari, "A 'Joint Operations Room' in Gaza–the New Factor in the Balance of Power in Gaza," The Jerusalem Center for Public Affairs, 15 November 2018, accessed 1 July 2019, http://jcpa.org/a-joint-operations-room-in-gaza-the-new-factor-in-the-balance-of-power-in-gaza/; TOI Staff, "Hamas Chief Says Rocket Fire at Tel Aviv Due to 'Malfunction,'" *Times of Israel* (website), 2 April 2019, accessed 1 July 2019, https://www.timesofisrael.com/hamas-chief-says-rocket-fire-at-tel-aviv-due-to-malfunction/.

26. "Hamas: Egypt Reaffirms Its Role as Mediator Pushing Israel to Sign Truce," Middle East Monitor, 4 March 2019, accessed 1 July 2019, https://www.middleeastmonitor.com/20190304-hamas-egypt-reaffirms-its-role-as-mediator-pushing-israel-to-sign-truce/.

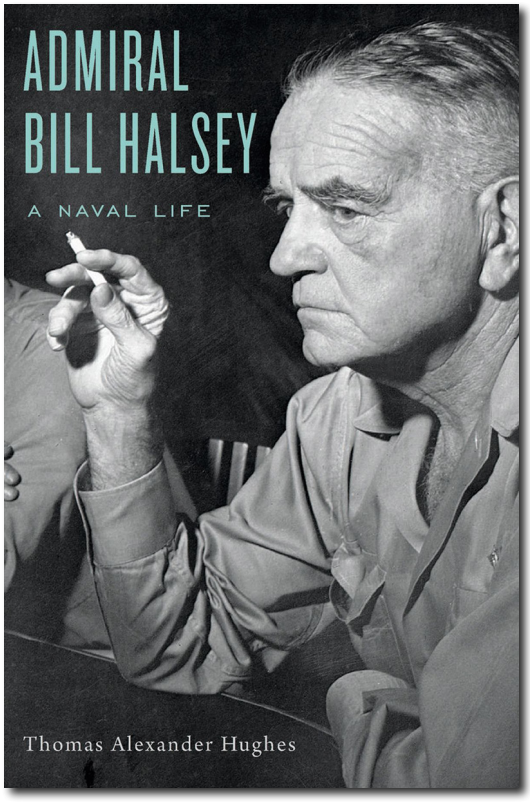
27. Omer Dostri, "Hamas' Cyber Activity against Israel," The Jerusalem Institute for Strategy and Security, 15 October 2018, accessed 1 July 2019, https://jiss.org.il/en/dostri-hamas-cyber-activity-against-israel/.

REVIEW ESSAY

Admiral Bill Halsey

A Naval Life

Thomas Alexander Hughes, Harvard University Press, Cambridge, Massachusetts, 2016, 544 pages



Lt. Col. John H. Modinger, PhD, U.S. Air Force, Retired

What do most of us know about Fleet Adm. William "Bull" Halsey? Generally, very little. While there is no shortage of works about celebrated World War II figures like Gen. Dwight Eisenhower, Gen. Douglas MacArthur, and Gen. George Patton, there is surprisingly little about Halsey. It is surprising because he was arguably the most famous naval officer of World War II and was sometimes called the "Patton of the Pacific."[1] But here, author Thomas Alexander Hughes gives us *Admiral Bill Halsey: A Naval Life,* which is a wonderful exposé about a naval figure who, until now, was more caricature than real. It is quite amazing how much of an enigma Halsey remains.

Hughes's writing is crisp and immensely satisfying to read. He paints a captivating portrait, covering the entirety of Halsey's life—from his earliest days in New Jersey to his tranquil but lonely death at Fishers Island, New York; from Annapolis to his splash-into-active service with the Great White Fleet; and from where he struggled to find himself outside the Navy life to which he had been accustomed to his contentious and ruinous attempts to amend his legacy, which led to his increasing obscurity. Near the end of his life, Halsey was honestly "a fish out of water" without the stability that Navy life had always given him and without the full embrace the Navy had, until relatively recently, afforded him.

Hughes's research is first-rate, offering vivid details. In some ways, the setting of Halsey's death is emblematic of his life; or rather, his life outside the glare of the four years covering World War II that were both a capstone and façade.

Hughes begins the book at the end of Halsey's life, with the now elderly man relaxing where he was most at ease, Fishers Island. It was his regular vacation haunt; it was a sleepy little island near Connecticut with not much to attract big crowds, but it was just right—surrounded by the sea. Halsey would die of a heart attack, alone in his room, at age seventy-six.

The ensuing eulogies captured the myth of the man much more than they did the complicated

man that lay somewhere beneath the image he and others had crafted during the war. To some, he was "a sailor's sailor." To others, a skillful operator whose formula for winning was as blunt as it was simple—"Kill Japs, kill Japs, and kill more Japs."[2] And still, others saw him, as the *Washington Post* described, "A seadog of the old school. Known since his football days at Annapolis as 'Bull,' he was square of jaw, pungent of speech, audacious in combat, and original in his approach to naval tactics."[3]

Halsey was not a Navy intellectual, but he was a "fighting admiral without peer."[4] While that may be true, it may also obscure reality. Consider Halsey's frequent comparisons to Adm. Raymond Spruance. In those comparisons, Halsey is regularly portrayed as more daring, while Spruance is more tentative; however, at times, the opposite was true. It is safe to say that "Halsey was a better thinker and Spruance more of a fighter than their respective reputations allowed."[5]

As Hughes points out, "The Halsey of history is a cartoon, but there, in the South Pacific, he was a man."[6] Not surprisingly, the caricature Halsey (and several all-too-chummy members of his personal staff) created and embellished over time became the popular image of him in both life and death. But "[t]here was so much more to him. Halsey never spent a day outside the cocoon of the American military, a trait he shared only with General Douglas MacArthur out of all the officers in the nation's history."[7]

Without a present father to guide him, the Navy became, very early on, Halsey's de facto family, if not his surrogate father. He would prove to be a bold and inspiring leader to his men, who met the operational hurdles presented by war at sea against Japan by delivering successes when almost no other commanders in the Pacific were able to do so. Yet, Hughes compellingly argues that Halsey's "greatest contribution to the Allied victory was as commander of the combined sea, air, and land forces in the South Pacific during the long slog up the Solomon Islands chain … turn[ing] a bruising slugfest with the Japanese Navy into a rout."[8] He also does not receive due credit for his able management of the constant bickering between Army and Navy leaders—personified by the clash of egos between MacArthur and Fleet Adm. Chester Nimitz. Somewhat inexplicably, he could get along and thrive while working for the super ambitious, self-promoting, prickly MacArthur when seemingly no one else could, while simultaneously juggling his responsibilities to Nimitz and Fleet Adm. Ernest King.

But no discussion of the man can escape delving into his irrepressible zeal, once back at sea as commander of Third Fleet to scratch more Japanese flattops at the Battle of Leyte Gulf in 1944 and to the detriment of other considerations.[9] His subsequent abandonment of the then-exposed invasion force on the beaches mars an otherwise mostly splendid naval career.

Nimitz, Halsey's boss, was keen to leave operational fighting to his commanders afloat. As such, he often pitched horseshoes to occupy his mind as battles raged over the horizon. But as communiques from the Leyte operations began flooding into his headquarters, particularly the pleas for help from Adm. Thomas Kinkaid to Halsey, Nimitz became increasingly alarmed by the unfolding situation. With no communications from Halsey, he exasperatingly radioed Halsey himself: "Where is Task Force 34? The World Wonders."[10] At the time, Nimitz meant this as more of a prompt, but Halsey took it as a genuine swipe at his leadership. After the war he remembered, "I was stunned as if I had been struck in the face."[11] In the heat of the moment, on the deck of his flagship, he threw his cap down and swore, "What right does Chester [Nimitz] have to send me a God-damned message like that?"[12] At that point, one of his trusted confidantes grabbed him and said, "Stop it. What the hell's the matter with you? Pull yourself together!"[13] Once the overall situation at Leyte became clearer, Halsey grudgingly took much of his force back south to alleviate the emerging crisis; however, he was quite far away by then. He was agitated by that necessity and later exclaimed, "It was not my job to protect the Seventh Fleet. My job was offensive, to strike with the Third Fleet."[14] In a moment of reflection, he mumbled to no one in particular, "When I get my teeth into something, I hate to let go."[15]

In the after-action reflective period, many came to believe Halsey had been baited and

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fooled by the enemy, subsequently imperiling the American landings at Leyte Gulf. In the estimation of many in the know, it was only the unexpected retreat of the Japanese force that had come through the straits to savage the landings and "the definite partiality of Almighty God," which saved the day for the United States. Hughes does a stellar job of teasing out the details of this near disaster turned epic success.[16] His sage analysis illuminates the various story lines and perspectives. Convincingly, he uses Halsey's own well-worn maxims concerning violating rules and doing the unexpected to seize and maintain the initiative to show that Halsey essentially violated his own credo at this battle. He concludes that Halsey's basic mistake at Leyte was rooted not in audacity but orthodoxy. He could have protected the invasion force and gone after Vice Adm. Jisaburo Ozawa's decoy fleet by splitting his enormous naval force. However, he rigidly clung to the notion of concentration despite the overall strategic context and overwhelming operational imbalance of forces favoring the United States by late 1944. Despite his mistakes, his bosses (Nimitz at Pearl Harbor and King in Washington) were willing to overlook the incident in light of all his other accomplishments in the end. They also came to realize the near debacle had many fathers, not just Halsey. And that might have been the end of it, if not for Halsey's retelling of the story after the war in a way that incited antagonisms by attempting to shift blame.

Hughes also sheds light on other command blemishes in the wake of the Leyte Gulf incident, such as Halsey's ill-fated decisions, on two separate occasions, to try and either outrun or to circumnavigate huge storms at sea. Those poor decisions wreaked havoc, causing tremendous damage and significant loss of life—arguably much more than the Japanese were capable of inflicting.

The first weather-related incident proved "an inglorious hour for our admiral."[17] To some who knew Halsey well, his mistakes laid bare "just plain goddam stubbornness and stupidity."[18] Underscoring that sentiment, Hughes concludes "throughout the force, rumblings of a bumbling admiral wafted from bluejacket corridors where before mostly admiration had reigned."[19] In the aftermath, a court of inquiry convened to review the matter. It found Halsey largely responsible for the disaster, but the court ultimately gave the widely respected admiral a pass, citing the fickleness of weather forecasting and the inexperience of many destroyer skippers.

Roughly six months later, the weather struck Halsey's fleet again. This time, possibly remembering the unreliable weather forecasting from six months earlier, Halsey dismissed the forecast and turned abruptly into the direction of the approaching storm; his fleet paid dearly. This time, the board of inquiry, confronted with Halsey's "combative, contradictory, and evasive" testimony, was not inclined to forgive him.[20] It concluded Halsey was primarily responsible for the disaster. The similarities between the two incidents deeply troubled the court, which recommended relieving him of command. In this finding, the secretary of the Navy agreed. But Halsey's status as a national hero gave him a layer of protection. Eventually, it was decided that he should remain at his post as the war was ending, and it would not play well at home or do any favors for the Navy. Through these events, one can clearly see that Halsey's judgment was sometimes dubious at best, possibly a result of being at sea too long.

At war's end, Halsey struggled to settle into retirement. It was an alien existence for him. And, of course, he was no spring chicken by then. Undeniably, Halsey was a powerful and effective leader. But after dissecting his career, it is easy to see that his time as fleet admiral overshadows all else. He served in the role for a mere two years, and those two years leading a battle fleet represented less than half his total service time in World War II. Outside of that time frame, Hughes believes that "he was hesitant in his judgments and uncertain in his relationships."[21] His celebrated audacity was a professional skill practiced over decades at sea, which could be summoned in that military environment; however, it was not a personal trait he could tap into outside that semicontrolled environment. This explains much about his strained family relationships, strained Navy relationships after the war, and strained relationships with book authors and filmmakers. In short, his "signature" audacity was situationally dependent, rather than a instinctual attribute he could effortlessly tap into in any circumstance.

Hughes deserves high marks for this overdue profile, for the quality of the research and for his astute insights into the man's complicated persona. This is a wonderful addition to the field of military history and ranks as possibly the finest Halsey biography available today. ■

Notes

1. Thomas Alexander Hughes, *Admiral Bill Halsey: A Naval Life* (Cambridge, MA: Harvard University Press, 2016), jacket.
2. Ibid., 1.
3. Ibid.
4. James Merrill, *A Sailor's Admiral: A Biography of William F. Halsey* (Springfield, OH: Crowell, 1976), as quoted in Hughes, *Admiral Bill Halsey*, 3.
5. Ibid., 381.
6. Ibid., 5.
7. Ibid., 4.
8. Ibid., jacket.
9. Ibid., 328. When Halsey was in charge of the operational Pacific Fleet, it was named Third Fleet; once handed over to Adm. Raymond Spruance for a six-month rotating interval, essentially the same fleet was then called the Fifth Fleet; in effect, the commander and some of the staff changed, but the ships were the same. It was, as Halsey explained, "a sort of pony express in reverse, where the riders and not the horses changed at predetermined moments."
10. Thomas Cutler, *The Battle of Leyte Gulf* (New York: HarperCollins, 1994), 249, quoted in Hughes, *Admiral Bill Halsey*, 370.
11. William Halsey and Joseph Bryan, *Admiral Halsey's Story* (New York: McGraw-Hill, 1947), 220; Carl Solberg, *Decision and Dissent: With Halsey at Leyte Gulf* (Annapolis, MD: Naval Institute Press, 1995), 154; Thomas Cutler, *The Battle of Leyte Gulf* (New York: HarperCollins, 1994), 251, quoted in Hughes, *Admiral Bill Halsey*, 370.
12. Ibid.
13. Ibid.
14. Ibid., 368–69.
15. Solberg, *Decision and Dissent*, 70, quoted in Hughes, *Admiral Bill Halsey*, 369.
16. Ibid., 372–73.
17. Ibid., 383.
18. E. B. Potter, *Bull Halsey* (Annapolis, MD: Naval Institute, 1985), 35; Samuel Eliot Morison, *The Liberation of the Philippines, Luzon, Mindanao, and the Visayas, 1944-1945* (Boston: Little, Brown, 1959), 63; Gerald Bogan, interview by Etta-Belle Kitchen, *Oral History* (Annapolis, MD: U.S. Naval Institute Press, 1970), 125–26; Bob Drury and Tom Clavin, *Halsey's Typhoon* (New York: Atlantic Monthly Press, 2007), 270-271, quoted in Hughes, *Admiral Bill Halsey*, 384.
19. Ibid.
20. Ibid., 389.
21. Ibid., 6.

Staff Sergeant Ronald J. Shurer II

MEDAL OF HONOR

OPERATION ENDURING FREEDOM

President Donald Trump awarded the Medal of Honor to former Staff Sgt. Ronald J. Shurer on 1 October 2018 at the White House in Washington, D.C. The award was an upgrade from the Silver Star that Shurer previously received for his actions on 6 April 2008 while serving as a medical sergeant in Shok Valley, Afghanistan, during Operation Commando Wrath.

While on a mission to capture or kill high-value targets associated with Hizb-e-Islami Gulbuddin, an anticoalition extremist group, Shurer's unit began receiving heavy fire, forcing it into a defensive posture. When he heard that the unit's forward assault element was pinned down and taking casualties, Shurer disregarded the enemy fire and moved quickly to reach the forward element.

For over six hours, he rendered medical aid to wounded U.S. and Afghan soldiers while helping keep the large insurgent force from overrunning friendly positions. In the process, he exposed himself repeatedly to enemy fire and was shot in the helmet and wounded in the arm. However, the arm injury and close call to the head did not deter him from assisting with casualty evacuation down a near-vertical, sixty-foot cliff. Shurer's actions helped save the lives of all the wounded casualties under his care.

The president described the situation in Shok Valley on that day as "a tough, tough situation to be in."

"Ron climbed the rocky mountain, all the while fighting back against the enemy and dodging gunfire left and right," said Trump. "Rockets were shot at him. Everything was shot at him."

Trump described Shurer as "an inspiration to everyone in this room and to every citizen all across our great land."

Shurer was inducted into the Pentagon's Hall of Heroes the day after the Medal of Honor ceremony. He now serves in the U.S. Secret Service.

You can read more about this great American on the Army's Medal of Honor website at https://www.army.mil/medalofhonor/shurer/?from=hp_spotlight. ■

Master Sergeant Matthew O. Williams

MEDAL OF HONOR

OPERATION ENDURING FREEDOM

In the words of President Donald Trump, as he awarded the Medal of Honor to Master Sgt. Matthew Williams on 30 October 2019 at a White House ceremony in Washington, D.C., "Your spirit keeps our flag waving high, our families safe at home, and our hearts beating with American pride. On behalf of the entire nation—our great USA, our incredible United States of America—we are forever grateful for your life of service and your outstanding courage."

Williams received the award for his actions on 6 April 2008 in Shok Valley, Afghanistan, during Operation Commando Wrath. His unit's mission was to capture or kill high-value targets associated with Hizb-e-Islami Gulbuddin, an anticoalition extremist group.

Then-Sgt. Williams, a Special Forces weapons sergeant, was moving up a mountain as part of an assault force comprised of U.S. soldiers and Afghan commandos when the force suddenly came under intense machine gun and rocket-propelled grenade fire. The entire force was pinned down by the ambush, and the lead portion sustained several casualties and was in danger of being overrun.

Demonstrating extreme courage and leadership, Williams took charge of the Afghans around him and led them under fire up the mountain to a position where they could suppress the enemy and protect the lead element. Battling for several hours, Williams repeatedly exposed himself to enemy fire, directing the commandos as they counterattacked and laid down suppressive fire. He continued to face withering enemy fire as he moved the unit's satellite radio to reestablish communications, moved wounded soldiers to the casualty evacuation point, and loaded them onto medevac helicopters.

Williams is credited with saving numerous lives and preventing his unit from being overrun.

On 31 October, Williams was again honored during his induction into the Pentagon's Hall of Heroes.

You can read more about this great American on the Army's Medal of Honor website at https://www.army.mil/medalofhonor/williams/. ■