ABSTRACT: This article encourages operational thinkers to apply the philosophies of Carl von Clausewitz, Thucydides, and Mao Zedong when integrating technology into future war strategy to remember that humans not only begin wars but also end them.

The contemporary literature on future war remains too focused on the tactical level. General John R. Allen and Amir Husain’s recent article in Proceedings entitled “On Hyperwar” illustrates this fixation. Similar to other writings, Allen and Hussain argue victory, in future war, will be predicated upon integrating increasing levels of artificial intelligence and bypassing human decision-makers.\(^1\) Such an operational concept claims wars will become more efficient, synchronized, and quick to solve the limitations of human endurance and the natural propensity for indecision in the face of uncertainty.

Seeking game-changing capabilities to neutralize potential US adversaries is clearly important; however, writers of this literature often overlook operational applications of future capabilities. Thus, impacts are viewed in isolation.\(^2\) Undeniably, senior leaders have a practical grasp of the nature of war due to the breadth and depth of their experience.

Military and civilian leaders can, however, interpret tech-centric solutions as indications that overcoming near-peer adversaries simply requires technological superiority. Consequently, we run the risk of embracing hardware that conflicts with the nature of war, and we avoid a serious discussion of how a thinking enemy may respond and adjust.

The key failure of most discussions on future systems stems from the claim that these capabilities can somehow override the factors of fog, friction, and uncertainty—or even change human nature. Ultimately, this assumption obscures the fact that war is the use of violence to impose one’s will on the enemy. This article argues that separating the nature of war from the character of warfare makes understanding the integration of innovative technologies and their roles in future wars easier.

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2. For more on the 4+1 framework, which includes Russia, China, North Korea, Iran and transnational violent extremism, see Fred Dews, “Joint Chiefs Chairman Dunford on the “4+1 Framework and Meeting Transnational Threats,” Brookings Now (blog), Brookings, February 24, 2017, https://www.brookings.edu/blog/brookings-now/2017/02/24/joint-chiefs-chairman-dunford-transnational-threats/.
Nature of War versus Character of Warfare

Does distinguishing between the nature of war and character of warfare matter? Yes, and the difference is more than nuance and actually determines how we think about war. Antulio J. Echevarria II argues “our understanding of war’s nature, or whether we believe it has one, influences how we approach the conduct of war—how we develop military strategy, doctrine and concepts, and train and equip combat forces.”³ An understanding of the nature of war establishes the intellectual foundation upon which the character of warfare develops. In other words, a flawed foundation compromises the entire structure.

Therefore, a common understanding of the nature of war should be achieved before discussing types of warfare like drone, artificial intelligence (AI), and cyber. Echevarria warns “many discussions of the nature of war, however, fail to distinguish between war, as an act of violence, and warfare, as the technique of applying that violence.”⁴ This oversight results in conflating the two terms. Just as a sailboat tossed by the wind and the sea risks landing on rocks when the captain lacks situational awareness, a discussion of future capabilities will result in operational failure if strategists do not maintain a clear eye on the nature of war.

Carl von Clausewitz compared warfare in each age to a chameleon in the sense that societal values influence the character of warfare. Moreover, Clausewitz reminds us “war is more than a true chameleon that slightly adapts its characteristics to the given case.”⁵ For Clausewitz, war is a phenomenon dominated by three interrelated tendencies generally translated as enmity, reason, and chance and probability.⁶ Each tendency is associated with a particular entity, specifically the civilian population (enmity), the government (reason), and the military (chance and probability). Aspects of each tendency exist within each category—for example, the military realm, characterized by chance and probability, also contains elements of enmity and reason. The distinction highlights the inherent interdependent interactions among the tendencies and defies reductionist attempts to treat the tendencies as variables within an algebraic equation.

What is War?

War constitutes an extreme contest among conscious beings. The clash of wills relates to the three tendencies, especially enmity, informing the means selected (violence) to fulfill the aim (disarmament) and to achieve the purpose (impose will). In this way, the level of enmity—or hostility—acts as a wellspring supporting the will. Likewise, enmity applies equally to supranational organizations and the individuals

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⁴ Echevarria, *Clausewitz and Contemporary War*, 57.
⁶ Clausewitz, *On War*, 89.
occupying the battlefield. “Peace may be the ultimate object of war,” as Clausewitz acknowledged, “but war . . . occurs whenever one party resists the violent actions of another.” In other words, war only occurs when a defender opposes the attacker.

The nature of war also remains oriented on destroying the enemy’s forces and seizing terrain, an interaction often overlooked in the current preoccupation with drones and artificial intelligence technology. In order to achieve war’s purpose, it is necessary to wage violence and render an enemy powerless. Discussions of technological developments related to drone, swarm, and cyber warfare obscure this reality—or at a minimum, undersell how difficult it is to impose one’s will on the enemy—in favor of focusing on supporting friendly force efforts to reduce fog and friction and devising ways to keep humans off the battlefield.

Although empty battlefields have been a trend since at least the mid-nineteenth century, battles and decisive engagements occur among humans. This sentiment is not merely romantic but relates to an appreciation of war as an extreme contest of wills among conscious beings, which requires a series of purposeful engagements oriented toward disarming the enemy and imposing one’s will.

The following section offers historical examples that illustrate how concepts drive doctrine, and it explains the consequences when either fails to embed the character of warfare within the nature of war. Concepts drive doctrine by anticipating future requirements and framing the discussion; however, the real work of converting concepts into doctrine involves the painstaking task of socializing concepts. The DOTmLPF-P analysis process, which examines doctrine, organization, training, matériel, leadership and education, personnel, facilities, and policy, exemplifies this complexity. In the United States, this effort requires appealing to Congress for funding and gaining the active support of the affected military services. Frequently, such concepts are organized around some kind of technological innovation.

Likewise, advancements in technology are not sole factors that enable military revolution. Future war discussions often base conclusions on a capability’s game changing—and theoretical—contributions at the tactical level. This posture limits the accuracy of efforts to capture efficacy at the operational level. Historian Clifford J. Rogers argued technological change accounts for only one of four essential ingredients needed to generate a revolution in military affairs. Others noted, “Military revolutions recast society and the state as well military organizations” whereas revolutions in military affairs (RMAs)

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7 Echevarria, *Clausewitz and Contemporary War*, 143.
take advantage of the transformative nature of military revolutions to innovate a “new conceptual approach to warfare or to a specialized sub-branch of warfare” since “the most effective mix is rarely apparent in advance.” Other components include systems development, operational innovation, and organizational adaptation.

Evolution of Warfare
In other words, technology alone is no more likely to result in a military revolution than buying grapes allows you to make great wine. Nonetheless, technological advancements are often touted as reducing fog and friction, or at least making wars quicker and less violent. This perspective, probably a hangover of the European Enlightenment, received broad support even into the twentieth century. But Clausewitz noted, “The invention of gunpowder and the constant improvement of firearms are enough in themselves to show that the advance of civilization has done nothing practical to alter or deflect the impulse to destroy the enemy, which is central to the very idea of war.” This fact remains true.

Industrial Weaponry
In the years leading up to World War I, European leaders, especially in Germany, appreciated the lethality of modern weapons and expanded rail lines to enable mobilization and concentration on a massive scale. The ability to concentrate force, combined with increased lethality, was argued to ensure wars would be short precisely because they would be so violent. Strangely, armies, supported by inexhaustible moral fortitude, were assumed to retain their ability to mount spirited offensives into prepared defenses and withering machinegun fire; however, not all were convinced. In 1899, a Polish banker named Ivan Stanislavovich Bloch published a startlingly accurate, largely ignored, treatise that disagreed with the popular opinion and sought to convince political leaders that wars of entrenchment would dominate the immediate future. The war’s opening moves offered a lethal laboratory for the ongoing debate regarding the changing character of warfare.

The French army’s actions to prevent the Germans from reaching the sea led to the so-called miracle of the Marne. Commanders on both sides began to realize that instead of achieving martial glory through bold offensives and skilled flanking maneuvers, men would remain in destitute trenches stretching for hundreds of miles. Swift, violent

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13 Clausewitz, *On War*, 76.
actions were replaced with a methodical battle based on the artillery’s significant firepower. This reality necessitated expending millions of rounds in preparation for costly assaults, which even in the best cases only facilitated small, disconnected penetrations.16

Concepts and doctrine preceding World War I appreciated the devastating power of modern weapons; however, they failed to grasp changes in the character of warfare, specifically the strength of the defense. Additionally, armies on all sides discounted the effects of fog, friction, and uncertainty as well as the depth of enmity animating the will. In other words, they failed to take into account how the enemy would respond and adapt. The nature of war did not change; however, misreading the character of warfare obscured realities.

Tactical Foundations

The famed, and much studied, German blitzkrieg against France in World War II succeeded primarily because French doctrine was flawed. German tactical innovations during the interwar period solved the problems of static defenses that characterized the Great War. The majority of these innovations focused on calibrating a quantitative balance among armored, mechanized, and infantry to penetrate and exploit enemy defenses. The Wehrmacht’s penchant for tactical actions, however, came at the cost of strengthening their intelligence and sustainment capabilities. Arguably, this distaste for supporting functions meant tactical innovations, over the long term, would miss opportunities to link engagements in a meaningful way. Additionally, whether due to cultural, geopolitical, or ideological reasons, German war planners included too many invalid assumptions to support a normative perspective.

In the end, Germany ultimately suffered a decisive defeat. As historians Williamson Murray and Allan R. Millett wrote, “No amount of operational virtuosity . . . redeemed fundamental flaws in political judgment. . . . Mistakes in operations and tactics can be corrected, but political and strategic mistakes live forever.”17 The examples provided by World War II provide a myriad of lessons learned, not least of which includes ensuring war plans reflect geostrategic realities. Germany’s swift defeat of the French army indicated a greater appreciation for the changing character of warfare; however, the Allied response demonstrated the level of will achievable when the wellspring of enmity runs deep.

Pentomic Concept

In the Cold War’s early years, the US Army, under the leadership of General Maxwell D. Taylor, reorganized infantry and airborne

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formations into pentomic divisions. Without doubt this period was transformative for the US military and came on the heels of the Korean War and the French defeat at the Battle of Dien Bien Phu. A strange confluence of high-tech weapons and a resurgence of revolutionary warfare spread across Eastern Europe and Asia. Americans felt a nuclear war with the Soviet Union was a distinct possibility. Civilian and military decision-makers faced a complex set of security challenges and often disagreed on how to solve them.

For the Army, the pentomic design was “adopted as an interim measure for the Cold War” and incorporated tactical nuclear weapons to defeat Soviet invaders in large-scale battles occurring in densely-populated European cities. The guiding doctrine emphasized the concepts of dispersion, mobility, and flexibility. The intent was for infantry formations on the battlefield to avoid the enemy’s nuclear strikes by remaining dispersed, yet retain enough mobility to enable concentration when ordered. The development of the Pentomic Division sought to renew the Army’s relevance as a land force in a postnuclear international system and required competing with the Air Force and Navy for resources.

The Army instituted changes across the DOTmLPF-P continuum and invested in advanced weapon systems including air defense, missiles, space exploration, and a portfolio of tactical nuclear weapons with innocuous names like Little John, Honest John, and Davy Crockett. “Yet having acquired its missiles and nuclear weapons, and having adopted its pentomic structure,” A. J. Bacevich reflects, “the Army found itself by the end of the 1950s organized not to fight but almost solely to deter.” The Army attempted to match its organization for “rapid technological advance.” And in doing so, “the Army dangerously lost its focus, leading to rushed force designs and incomplete testing and wargaming throughout the Pentomic division’s development.”

The military leaders responsible for leading the pentomic era were the heroes of World War II and the Korean War. But, the noise that promoted the changing character of warfare encouraged deviations in force structures and weapon procurement. Ironically, these reductions resulted in an Army that inadvertently violated its own ideal of flexibility and promoted doctrine that lacked realistic application at the operational level. Likewise, “severe equipment and technical shortcomings also ensured that the Pentomic division was simply not prepared to succeed in conventional warfare.” In short, the Army was unprepared to fight an atomic or a conventional war.

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Bacevich adds to Arthur S. Collins’s observation that “‘our American enthusiasm for more gadgets and fewer men has carried us away’ with results that were wrongheaded and even dangerous.”

Ultimately, the realities of this unworkable design gave way to a more realistic, although equally tenuous, doctrine of active defense. Army leaders justified the pentomic design to the public by heedlessly leaping between tactics and strategy while ignoring the elements of fog, friction, and chance. The key takeaway from this period is to recognize the danger of restructuring organizations and doctrine to fit an invalid character of warfare, especially when it precludes purposeful analysis and honest wargaming at the operational level.

**Operational Tactics**

In the case of Vietnam, Secretary of Defense Robert S. McNamara sought to match a vigorous bombing campaign with diplomatic overtures in an attempt to demonstrate American power and compel Hanoi to negotiate. The approach failed because it was premised on flawed assumptions and did not account for the extreme measures the North Vietnamese were willing to take to continue fighting. This scenario is an example of the complexity created by the interdependent relationship of the three tendencies (enmity, reason, and chance) and increased by the factors of fog, friction, and uncertainty.

Likewise, failing to anticipate an enemy’s response is characteristic of flashy technological pitches claiming “shock and awe” will drain the enemy’s will and paralyze its decision-making. This outcome rarely happens, and it certainly does not last long enough to exploit the advantage and achieve decisive victory. Domino warfare, for example, and its related subcategories of effects-based operations, network-centric warfare, and systemic operational design are entrancing as characters of warfare but fail when they are nested within the nature of war. Each one overlooks war as an extreme contest among conscious beings.

Effects-based operations and similar constructs fail because they misjudge the relationship between combatants. When employed in situations where actors are willing to modify their behavior to preserve the system’s structure, effects-based operations work. In hierarchical organizations with an observable power differential, such as those that exist between a boss and employee or a parent and child, the construct will be successful because one entity is willing to be subordinate to the other. Therefore, one can impose his will without using physical violence to disarm the opponent: there is no defense and thus no war.

This principle suggests that accounting for the enemy’s response requires the ability to explain how tactical engagements are likely to unfold and to set the conditions for subsequent actions. This capability

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requires developing both friendly and enemy operational approaches to envision how an enemy may adapt to new technologies. As such, the development of an enemy’s possible operational approach is iterative and it must be refined as enemy actions either confirm or deviate from the strategist’s assumptions.

The character of warfare calibrates the means necessary to achieve the aim and fulfill the purpose; however, it must act according to the nature of war and not seek to make war something foreign to itself. Clausewitz wrote, “Strategy is the use of the engagement for the purpose of the war. The strategist must therefore define an aim for the entire operational side of the war that will be in accordance with its purpose.” This concept underscores the necessity of thinking at the operational level and not relying on sleight of hand or a deus ex machina to shift between tactics and strategy.

**Digital Battlefields**

The Persian Gulf War demonstrated that the integration of digitization and precision-guided munitions could accelerate decision-making and shorten the kill chain against a large, and presumably modern, military. Coalition actions during the conflict expertly calibrated efforts across war’s means, aim, and purpose. America’s unanswered technological overmatch sought to replace fog, friction, and uncertainty with high degrees of efficiency, lethality, and synchronization. But, the total dominance exhibited by coalition forces prompted several adversarial nations, including Russia and China, to commission studies analyzing ways to overcome the emergent character of warfare, which resulted in publications such as *Unrestricted Warfare*.

Over time, America’s adversaries developed ways to mitigate and to overcome the US military’s conventional superiority by calculating our threshold for the employment of war’s means. Their goal is to shift the character of warfare from digitization and precision-guided munitions toward gray-zone activities while simultaneously preparing for conventional war. Conversely, the intoxicating effects of the Persian Gulf War revalidated the US obsession with high-tech systems and the importance of maintaining that character of warfare.

America’s pursuit of new offsets seeks to minimize further, if not eliminate, the factors of fog, friction, and uncertainty. Arguably, the original intent behind the development of digitization and precision munitions was to make war’s means more lethal and effective; however, precision munitions can lull decision-makers into a false sense of superiority while increasing sensitivity to perceptions of collateral damage. Ultimately, the inability to discern between the nature of war

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27 “Pity the theory that conflicts with reason!” Clausewitz, *On War*, 136.
28 Clausewitz, *On War*, 177.
and the character of warfare constrains military actions and often results in protracted limited wars for limited aims.

**Advancing Technology**

Osama bin Laden’s terror attacks on September 11, 2001, sought to inflict maximum violence against American citizens on American soil. His purpose was to bring the United States to its knees and force an immediate withdrawal from the Middle East. Obviously, the attacks had the opposite effect and he was killed. Despite Saddam Hussein’s execution for crimes against humanity, bin Laden’s death during a US raid of his compound, and the rapid overthrow of the Taliban in Afghanistan, America remains embroiled in a long-term struggle against fundamentalism.

The conflict continues to transform and spread to new geographic locales. The fight is waged against an enemy that lacks—and exploits—America's technological dominance. Nonstate actors, who lack high-tech capacities and cannot prevent friendly access to the sophisticated architecture undergirding command and control, movement and maneuver, and munitions guidance, provide nations, like the United States, with opportunities to test new capabilities.

This superiority can lead to a reliance on systems that makes the means of war easier to employ against terrorists, but the practice may codify a character of warfare unsuitable against a near-peer threat. Historian John A. Lynn noted, “The culture of technological gullibility invites defeat by ignoring the unchanging reality of war as the domain of chance, violence, and politics.”

This technological gullibility can be overcome by paying increased attention to the operational level of war and by envisioning how a thinking enemy, possessing a will buoyed by enmity, may react to and resist war’s aim and purpose.

Likewise, when faced with a near-peer enemy, technological advancements aimed at increasing information flow may result in the opposite effect. Arguably, after a certain point, an increase in information intensifies fog and friction and delays decision-making. The irony is most commanders want more information to validate assumptions and mitigate risk. This phenomenon is not new. Clausewitz wrote, “Many intelligence reports in war are contradictory; even more are false, and most are uncertain.”

Unfortunately, in a future war against a near-peer enemy, an increase in information is likely to increase burdens on the commander, add layers of bureaucracy, and lengthen decision-making timelines. In short, technological pronouncements claiming the ability to increase information flow and shorten decision-making should be met with skepticism.

Technological advances that attempt to subvert or obscure the nature of war are misleading. Readers of Thucydides’s *Peloponnesian War*

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are confronted with the realization that the motives of fear, honor, and interest (or profit) remain just as applicable today as they were in ancient Greece. Likewise, his reconstruction of key speeches highlight human nature’s willingness to replace an understanding of the nature of war with a self-reflecting character of warfare oblivious to the factors of fog, friction, and uncertainty.

**Quo Vadis?**

Humans end wars. This fact relates to war’s purpose and the requirement to impose one’s will on the enemy. Drones and robots certainly have utility as a means to wage violence in pursuit of rendering an enemy powerless, but human political leaders are not likely to surrender to robots. Additionally, the inclusion of drones and artificial intelligence in warfare are likely to make war messier and increase enmity among all entities. Why is this the case? Experience in Iraq and Afghanistan confirmed the natural aversion toward suffering remote attacks: improvised explosive devices have deleterious effects on friendly forces, complicating the operational environment, making simple tasks more difficult, and necessitating more moral and matériel resources. This complexity erodes political will.

Likewise, in the face of effective manned and unmanned air strikes, the enemy has adopted extreme operational security measures. Western scholars and government officials continue to debate the legality and ethics of improvised explosive devices and drone strikes. But, the negative consequences of engaging in protracted war are well documented by Sun Tzu, who advised against them, and Mao Zedong, who used them with success against the Japanese. This dichotomy is one of the reasons defense is the stronger form of warfare. Protraction blunts the attacker’s means and stalls the aim, which prevents achieving the purpose.

Improvised explosive devices and air strikes are low-tech compared with robot-led warfare; however, human responses to the low-tech weapons may indicate future responses to the presence of high-tech assets on the battlefield. As experts grapple with the character of drone and artificial intelligence warfare, the logical starting point must emphasize that *humans end wars*. A failure to orient on this fact risks deviating toward a purely tactical discussion on the character of robotic warfare as opposed to the more meaningful study on integrating such warfare into the nature of war. Again, this detail relates to war’s purpose: drone swarms may be able to start wars, but they cannot end them. Humans retain this responsibility. Authority can be delegated, responsibility cannot.

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34 Sun Tzu observed “no country has ever benefited from a protracted war,” and Mao Zedong advised “energies must be directed toward the goal of protracted war so that should the Japanese occupy much of our territory or even most of it, we shall still gain final victory.” Sun Tzu, *The Art of War*, trans. Samuel B. Griffith (New York: Oxford University Press, 1963), 41; and Mao Tse-tung, *On Guerrilla Warfare*, trans. Samuel B. Griffith II (Mineola, NY: Dover, 2005), 69.
War only exists if the enemy fights back. Offense does not make a war, defense does. As Clausewitz writes, “The animosity and the reciprocal effects of hostile elements, cannot be considered to have ended so long as the enemy’s will has not been broken.”\(^{35}\) If an entity uses robots to conduct a massive offensive and destroys the opponent’s entire robot army, does the war end? Or did a naive population just realize they would have to fight the war themselves? Are they ready? What is the legal justification of the casus belli and enmity animating their will?

In the event of a successful large-scale offensive using robots, the opponent will not likely stop fighting because of drones or robots. The defenders’ enmity will likely increase, thereby hardening their will. Arguably, a robot attack is a humiliating and dehumanizing, if not outright fearful, prospect. In fact, it is more likely incorporating autonomous drones and robots will increase enmity to a fever pitch. In other words, a series of drone battles only delays, and exacerbates, the inevitable clash of human wills. As Clausewitz mentioned, “Theorists are apt to look on fighting in the abstract as a trial of strength without emotion entering into it.”\(^{36}\) A myopic focus on machine warfare may actually cede the physical and moral initiative to an enemy unable, or unwilling, to field a robot army, and may increase the intellectual gap between the military and the civilian society.

Likewise, the United States remains focused on preserving Pax Americana. This priority requires containing or deterring adversaries, supporting allies, and maintaining the status quo, but it also induces a degree of strategic malaise that negatively impacts risk assessment and resource allocation, often leading to protracted conflicts for limited aims. A ceaseless flow of operational requirements results in a high degree of force dispersion, with a constrained ability to concentrate forces, without accepting significant risk in another area. This strategy assumes forces will be reallocated as necessary, but also encourages organizations to adopt a “react to contact” approach.

Arguably, the current paradigm promotes sensitivity to short-term disturbances, especially when the problem is solvable with forces already assigned. This model is less effective for addressing underlying causes over the long term because maintaining the status quo requires a dispersed force lay down. Increasing force levels, even by a small margin, usually necessitates shifting assets across combatant commands, a move that requires justification—and political will—even for very short-term situations. This construct cedes the initiative to the enemy who watches and learns, operating below the traditional US thresholds for employing war’s means. This dichotomy subverts one’s appreciation for the nature of war, replacing it with a ceaseless search for a character of warfare that promises to solve short-term security issues and maintain the status quo. Again, this perspective leads to normative vice empirical theorizing that becomes dominated by a discussion on how a capability or activity

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\(^{35}\) Clausewitz, *On War*, 90.

supports friendly actions instead of the connection with war’s aim and purpose. In short, a discussion on future war should remain wedded to an understanding of the nature of war.

Finally, the current emphasis on promoting high-tech platforms in professional journals, popular science fiction, and the media limits the discussion to the tactical level. Likewise, conflating the character of warfare with the nature of war prevents appreciating how capabilities function at the operational level of war. Therefore, accounting for the operational level—instead of leaping between tactics and strategy—elucidates how a thinking enemy will respond and adjust.

The United States pursues increasingly lethal means for waging war while also striving to reduce occurrences of warfare to the smallest amount possible. This endeavor is not a contradiction, but if unaccounted for, distorts the conceptual nature of war and character of warfare. Historical examples demonstrate the risks of failing to appreciate war’s nature and the importance of thinking like an operational artist. Thus, this article does not diminish the importance of technological innovation outright but serves as a reminder that the blind pursuit of the next “decisive” capability, or offset, may come at the cost of personnel readiness, diverse platforms, and appreciation of war’s objective nature.