# The Principles for the Future of Warfare & Stand-Off Warfare

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*This is the third article in an AUSA series examining the future of armed conflict. The first two papers in the series,* Western Military Thinking and Breaking Free from the Tetrarch of Modern Military Thinking *(Landpower Essay 23-6, August 2023) and* Myths and Principles in the Challenges of Future War *(Landpower Essay 23-7, December 2023), are available at* **www.ausa.org/studies***.*

*Building on the principles and inverse principles of war introduced in the previous article, this installment examines the principles and inverse principles of warfare and their roles in the changing landscape.*

## Introduction

Writing about the principles of war in 1949, American military strategist Bernard Brodie posited, "The rules fathered by Jomini and Clausewitz may still be fundamental, but they will not tell one how to prepare for or fight a war."[1] Brodie's comments in the wake of World War II meant to account for the vast amount of change experienced by all sides during that conflict. At the time, Brodie attributed the longevity of the principles of war, which had changed little since J.F.C. Fuller formalized them in the 1920s and 1930s, to three factors. First, the principles provided military practitioners "exceptional convenience," and second, in their current form, they lent themselves well to "indoctrination."[2] Third, because of their convenience and ease for indoctrination, the existing principles of war remain ideally suited for professional military education, which is short and thus rewards lightweight material that can be learned quickly with simple mnemonics, acronyms and other heuristics.[3] Brodie basically argues that the principles of war have not changed because it is simply easier to keep them as they are than it is to develop new principles more reflective of modern technology and methodologies of warfighting. Put another way, intellectual laziness often results in institutions shoehorning new technologies and seemingly novel techniques into extant language, taxonomies and doctrines.

In recent years, a few forward-thinking thought leaders have bravely pushed for reform in military thinking despite institutional recalcitrance quite similar to that which Brodie highlighted some 70 years ago. This advocacy is not limited to principles of war or warfare but also encourages new theories, methodologies and terminology that attempt to keep pace with or even set the pace for advances or general evolutions in military and dual-use technology. The emergence of formations like the Multi-Domain Task Force (MDTF) and the theater fires command and new weapon systems therein, for instance, require a rebalance of how and why the Army organizes the battlefield the way it does. This is nothing new. In 1925 J.F.C. Fuller wrote, "Changes of weapons must be accompanied by a change in tactical ideas."[4]

This article attempts to fulfill the charge of both Brodie and Fuller. A previous article addressed the principles of war from a historical and theoretical perspective, providing a set of

nine principles of war that were oriented around the idea of large-scale combat operations.[5] This article builds on those ideas but also uses the framework provided in its preceding paper, *Myths and Principles in the Challenges of Future War*.[6] Further, this article balances those principles of warfare against the enduring challenges that armies must address in land wars while examining whether ideas on future warfighting concepts can effectively accomplish what's needed in those situations too. Moreover, this article provides an easy heuristic to help illustrate the concept of future warfare—stylized herein as stand-off warfare—and demonstrates how it is insufficient to meet the challenges of land warfare and cannot keep pace with the principles of warfare.

**Principles of Warfare**

The principles of warfare should be waypoints for how military forces operate when engaged in armed conflict. Moreover, the principles of warfare should be easily identifiable in a military force's strategy, concepts, plans, operations, doctrine and activities. Perhaps more importantly, the inverse principles of warfare should be easy to identify in one's strategy, concepts, plans, operations, doctrine and activities. By being easy to identify, and written in plain language, the principles and inverse principles of warfare help guide military forces along the proven path of military and political victory in a conflict.

*Principle #1: Movement*

Movement is defined as the capability to move at operational, tactical or micro-tactical distances without external support or augmentation. Movement is the fundamental building block for every aspect of warfare. A force cannot advance without the ability to move. A force cannot conduct a coordinated defense without the ability to move. Likewise, a force cannot conduct maneuver or positional warfare without being able to move.

> Like the principles of war, the principles and inverse principles of warfare represent the first-order principles militaries must adhere to when engaged in armed conflict. They are the animating forces that underpin the basic requirements which transcend technology of land forces.

Movement is a fundamental element of warfare. A military force incapable of movement is ripe for attack and destruction. It is thus paramount for a force to possess inherent movement capability and not be bound by either (a) dependency on another organization for movement or (b) dependency on another service for movement. In practical terms, light forces that have no organic movement capability are not the most useful forces. They have to be transported to battle by someone else and then they have to be outfitted with vehicles by someone else or remain dependent on movement capability. The same holds true for airborne forces. By not possessing sufficient lift/transport aircraft to support their independent operations, their utility is not maximized.

The ability to move quickly in warfare is also extremely important because it allows a military to either take advantage of a fleeting temporal opportunity or create its own situations of advantage relative to its adversary.

*Principle #2: Pragmatism*

In warfare, adhering to a singular way of thinking about how to address military problems is a very dangerous proposition. Warfare, by its nature, is chaotic and ever-changing. Further, warfare is subject to the rules of reality, which manifest in varying degrees of determinism. For instance, if a theater of war is populated by mountainous terrain intermixed with several lakes and rivers—like the U.S. and NATO forces experienced during World War II's Italian Campaign or the Korean War's Chosin Campaign—all the forces involved in the conflict are subject to geographical determinism. The terrain, in this situation, causes a military force to operate most often along the road network. Room for exception applies. If

a combatant is composed of a large number of non-vehicular (i.e., light infantry) elements, it can mitigate the impact of geographical determinism by operating off the road network and moving, albeit at a slow rate, through rough terrain on foot. A force whose fighting elements are motorized or mechanized, on the other hand, must operate along the road network because of its vehicles' inability to navigate through rough terrain. In this scenario, the vehicular formation is more powerful from a capability comparison, but the terrain all but nullifies those capability advantages. The slower dismounted force, however, is better able to close with the road-bound vehicular force and destroy it with anti-vehicular weapon systems from hidden locations in rough terrain. The same comparison is valid if applied to urban terrain.

Nonetheless, the example illustrates that preference and idealism regarding how to fight fall prey to the deterministic impact of terrain. Other factors such as time, the tactical or operational situation, the forces available and the enemy's activities within an area of operation all work together to necessitate pragmatism.

Pragmatism is thus defined as possessing the will, knowledge and skill to do what a military situation requires, while not being wedded to idealistic or dogmatic prescriptions. Understanding a situation is not just looking for similarities associated with doctrinal templates and then applying an institutional solution. Rather, pragmatism requires unshackling a military force from a prescriptive doctrine and mindset. That force must instead possess a strong appreciation for the variety of warfighting techniques that they might encounter, as well as how terrain, time and adversarial military activities all contribute to the situation's shape. Beyond just understanding the range of potential battlefield challenges a force might confront, it must also possess the skill, knowledge and capability to fight within the situation to do what is situationally appropriate to survive and win against an adversary. Dogmatic adherence to idealistic views on war and warfare, which come on the back of axiomatic statements, is unhelpful for military forces, both institutionally and in the field.

U.S. General Christopher G. Cavoli, Supreme Allied Commander Europe and Commander, U.S. European Command, for instance, is noted for stating that precision beats mass.[7] This comment was made in regard to Russia's method of warfare against Ukraine's armed forces in the Russo-Ukrainian War. Cavoli implies that with sufficient quantity of precision munitions and precision strike capability, Ukraine could militarily defeat Russia. The problem with this sentiment is that it is unproven, and using the Russo-Ukrainian War as a case in point, it is incorrect. More than 12 months following Cavoli's statement, Ukrainian forces are no closer to expelling Russian land forces from the Donbas, the "Land Bridge to Crimea," nor the Crimean Peninsula.[8] Moreover, Kyiv is no closer to forcing the Kremlin to negotiate an end to the conflict despite the massive amounts of precision strike capability and precision munitions that the United States and other Western states have provided to Ukraine since the start of the conflict. It appears that Cavoli is wrong—mass does overcome precision.

General James Rainey has made similar idealistic statements. On several occasions, Rainey has stated that the U.S. Army "does not do attrition" and that the U.S. Army exclusively uses maneuver warfare because it cannot exchange in a one-for-one exchange in casualties on the battlefield.[9] Rainey's comments are ironic, considering his own experience as a battalion commander during Operation Iraqi Freedom's Second Battle of Fallujah (7 November–23 December 2004).[10] Fallujah is the archetype of a battle of attrition—the U.S. military's objective was the elimination of a non-state military force, and the technique to do so was destruction-based warfighting that sought to kill all the fighters, destroy their cohesion and destroy any buildings within the city that they used as protection or command and control locations.[11] The Modern War Institute reports that the battle tallied more than 300 coalition casualties, 1,500 enemy combatants and 800 civilians killed and 60 percent of the city's buildings damaged, with another 20 percent outright destroyed.[12] Fallujah is but one data point in a long line of brutal attritional battles and attritional wars that the United States and

its partners have fought in in the post-9/11 period. Attrition is a characterization of conflict in which the military objective is the destruction of an adversarial combatant. Idealistic assertions about how to think about, equip for and train for conflict, like Rainey's regarding attrition and maneuver or Cavoli's about precision and mass, leave military forces wanting when they come into contact with situations that do not align with their preferred way of warfare.

Moreover, Cavoli's and Rainey's comments are out of step with the true character of war and warfare. Historian Cathal Nolan cautions that the historical record illustrates that wars are won by attrition and exhaustion and that "Great Captains" or revolutionary methods of warfighting occupy an infinitesimal point within a deep and broad study of war and warfare.[13] Wars—at the strategic level and at the level of military operations and engagements—are fought and won through attrition and exhaustion. Therefore, idealistic proclamations about how a force does or does not fight, or that technology can overcome long-standing truths in military thinking and applied military strategy and operations, are troublesome, if not dangerous. Such proclamations can cause states to invest in the wrong technologies, turn off the production of proven warfighting systems, develop improper force design and incorrectly educate their force for the realities and rigors of armed conflict. Pragmatism must be at the fore of thinking, training and executing on the battlefield.

### Principle #3: Unpredictability

Patterns are one of the easiest ways to think and act ahead of potential adversaries. Operating in a way that creates patterns, whether at a strategic or tactical level, is dangerous because it allows an observant and thoughtful adversary to identify many things: fielded forces, supply nodes and distribution points, command elements and common routes of supply and advancement. Western military doctrines contribute to the challenge. The U.S. military, for instance, relies unofficially on the phases of joint operations as a simple heuristic to plan and execute military operations. At the tactical level, professional education in Western militaries often teaches officers an elementary-level sequence of offensive and defensive operations. When applied on the battlefield, these tools create problems because they remove a degree of uncertainty that an adversary would otherwise have to address. Statements like those of Cavoli and Rainey contribute to the problem of certainty.

On the other hand, military forces must strive to create uncertainty in their adversary by operating in unpredictable ways or with unpredictable weapon systems. Operating in unpredictable ways can be achieved by not adhering to things like the phases of joint operations or the sequence of the offense (or defense), or by "doing maneuver warfare" and relying on precision strike. Further, unpredictability can be achieved by operating according to seemingly odd timings—accelerating the tempo of operations and tactical activity or, on the other side of the token, dragging the pace of operations down to an irregular tempo.

Moreover, applied combined-arms theory is paramount in operational and tactical warfighting. However, the mix and application of arms beneath the umbrella of combined-arms theory can also be manipulated to create what appears to an adversary as an odd and unpredictable scheme of military activities. What's more, using a combat arm in the place of another combat arm to create the effect of the latter is another example of how manipulating combined-arms theory can create unpredictability. This idea can be thought of as the substitution principle of combined-arms theory. This idea can become quite heady without a few tangible examples, and therefore it is illustrative to briefly examine Iraqi defenses during the United States' 2003 invasion of Iraq and how Chechens greeted the Russian armed forces in Grozny in 1995.

The Iraqi resistance to the 2003 U.S. invasion of Iraq—both organized government forces and irregular militias—was aware of the perils of using air defense systems to protect against U.S. airstrikes. As Michael Gordon and Bernard Trainor recall, the Iraqis understood

that if they turned on their air defense systems and engaged U.S. forces and inbound strikes, the United States would quickly target those systems.[14] As a result, the Iraqis often resorted to using nonstandard combat arms to replace air defense systems to generate the same combined-arms effect of short-range air defense.

The most notable example of this was during the U.S. push toward Baghdad. As the U.S. Army's 11th Attack Helicopter Regiment—the leading edge of U.S. V Corps' spearhead fighting north from Kuwait to Baghdad—approached at the twin cities of Haswah and Iskandariyah, the regiment took note that both cities were fully illuminated. At 1:00 a.m., this was an odd situation. Shortly thereafter, the Iraqis fired their S-60s (high-altitude air defense weapons) at the U.S. Army helicopters. However, instead of firing them at high altitudes, the Iraqis fired the air defense missiles at just over 500 feet, or a bit higher than the U.S. helicopters were flying.[15]

To avoid the S-60s' direct and indirect impact, U.S. aviators descended their helicopters to much lower altitudes.[16] Descending in altitude was exactly what the Iraqis wanted the U.S. aviators to do because that brought the U.S. helicopters into striking range of Iraqi small arms fire. The Iraqis defending Haswah and Iskandariyah then opened up on the U.S. helicopters with a torrent of small arms and short-range air defense. The Iraqi attack quickly overwhelmed the regiment, causing it to retreat to the safety of a rear area.[17]

The Iraqis' use of signaling, short-range air defense and small arms as a substitute for long-range air defense and sophisticated sensor and communications systems is an innovative example of the combined-arms theory's substitution principle. The Iraqis understood how the U.S. military wanted to fight—lead with airpower and attack aviation, follow that with cavalry and then follow through with the main body and support troops. In that regard, the U.S. military, and specifically the Army, were quite predictable and therefore a simple challenge for the Iraqis defending that sector of real estate. The First Chechen War's Battle of Grozny provides another demonstrative example of combined-arms theory's substitution principle.

With rebellions and disassociations rising after the fall of the Soviet Union, the fledgling Russian Federation worked tirelessly to keep its peripheral constituencies intact. Chechnya and other north Caucasus polities, looking to their north and west, observed other states exert their right to self-rule, and in 1993 Chechnya declared its independence. The Kremlin quickly mobilized what it believed to be an overwhelming force to address Chechen independence.

The Kremlin's plan was to deploy a large, mechanized land force to capture Grozny and destroy the Chechens' political and military elements within and around the city. Russian military strategists assumed the entire operation would take only 15 days to complete.[18] Grozny's defenders—presumably understanding combined-arms theory—did not use airpower or indirect fire in any serious way against the Russian forces, but they used intelligent tactics to compensate for the lack of airpower and indirect fire. The Chechens lured the Russian land forces into the city and then attacked with anti-armor weapon systems from the ground and multilevel buildings to create the effect of being attacked from the air and with indirect fire, such as artillery, missiles and rockets.[19]

Further, the Chechens understood that if they found a way to deny the Russian forces the ability to apply combined arms against them, they might have a chance of overcoming Russia's superiority in numbers and manpower.[20] The Chechens, considering their formal alliance to the Soviet Union and then Russia, likely understood how Russia would structure its operations against the Chechens and Chechnya. In that capacity, the Russians were a predictable foe whose strengths had to be accounted for and offset but were far from being indomitable. In response, the Chechens operated in proximity to, or "hugged," Russian land forces.[21] The Chechens were effective in this technique, finding that the Russians tended

to not use their artillery or airpower against Chechen forces for fear of hitting their own forces.[22] What's more, the Chechens were often so close to Russian forces that tank and infantry fighting vehicle crews were unable to use their main gun systems because they could not depress the guns low enough to engage dismounted targets.[23]

By the time the battle for Grozny culminated, the Chechen fighters placed a high toll on Russian participation. The butcher's bill was high—Russia's 131st Motorized Rifle Brigade (MRB) was annihilated. The 131st MRB lost 20 of its 26 tanks, 102 of its 120 armored personnel carriers and all of its anti-aircraft guns.[24] The brigade's commander—Colonel Ivan Savin—and most of his staff were also killed during the battle.[25]

Russia's 131st MRB was not alone. Russia's 506th Motorized Rifle Regiment (MRR), which was one of the primary units supporting the 131st MRB in Grozny, lost more than a quarter of its manpower.[26] The 506th MRR ran into the same innovative tactics employed by Chechen fighters, in which the Chechens used different techniques and weapon systems to create a combined-arms effect where it would not have otherwise been attainable. By the end of the first month of fighting, Russian combat losses topped 5,000 individuals.[27]

The point of these two lessons in combined-arms theory's substitution principle is to highlight the power that unpredictability has on the outcome of engagements, battles and campaigns. Unpredictable military operations can place a military force in an advantageous position that may in fact unlock strategic military victory.

*Principle #4: Transitions*

Transitions are the hinge points in military operations in which phase changes generate. The smooth execution of transitions in warfare allows a combatant to maintain constant and exhaustive pressure on an enemy combatant, accelerating them toward exhaustion, or it allows a combatant to disrupt or deny an enemy combatant's constant and exhaustive pressure on themselves, preventing them from culminating because of resource exhaustion.

A simplistic rendering of this idea might be gained by thinking about the transition from offensive to defensive operations. If properly prepared for—that is, if the transition is appropriately identified and managed—then a military force can smoothly move from conducting offensive operations to a defense that accounts for the principles of war and warfare in meaningful ways. If the transition is inappropriately planned, not properly thought through or perhaps even overlooked, the military force could very well face ruin as it works through the phase change. Ruin, in this case, is the product of being iteratively churned through destruction-oriented engagements or battles that attrit manpower, equipment and other necessities of war and warfare, thereby accelerating the combatant toward culmination by exhausting their resources.

Napoleon Bonaparte provides an important take on the overall importance of transitions to both war and warfare: "The secret of war is to march twelve leagues, fight a battle, and march twelve more in pursuit."[28] Though not explicitly stated, Bonaparte's comment attests to the veracity of transitions in the conduct of warfare.

Reading between the lines of Bonaparte's statement finds that the relentless application of destructive and corrosive operations against an enemy combatant compounds the impact of exhaustion—physical, mental and logistical—and therefore makes the adversary move toward culmination more quickly than it might otherwise. Destructive operations are those that destroy an adversary's people and resources. Corrosive operations are those that do not destroy resources but otherwise generate a suboptimal impact on an adversary. By anticipating, preparing for and conducting smooth transitions, a combatant can nearly constantly maintain destructive and corrosive operations against an enemy, depriving the enemy combatant of the resources required to remain in the conflict, regardless of the level where it occurs.

The secret of war, according to Bonaparte, is not conducting one of these elements and then stopping. Rather, the secret of war is to anticipate the need to conduct each of these elements and then to conduct them in tandem with one another to maintain constant, exhaustive pressure on an enemy combatant so that it culminates at a time or place advantageous to oneself.

Accepting that hinge points exist in the conduct of campaigns, battles and engagements is an important first step toward integrating this principle of warfare into one's course of military operations. The hinges—they can be points or phases—are the mechanism through which transitions occur. Further, hinges are born out of situationally dependent conditions. For instance, in Bonaparte's example, the junction between marching 12 leagues and fighting a battle is a hinge point where a transition from one element of warfare to another occurs. Moreover, the transition of marching to fighting requires a set of conditions to be (a) identified, (b) communicated to that combatant's subordinate elements and (c) then achieved to be successful. In each element of his statement—movement to battle, the transition from movement to battle and battle to movement and the cognitive shift from battle to exploitation—Bonaparte emphasizes the relationship between transitions and the "secret" in war.

Furthermore, Bonaparte's statement affirms the relationship between momentum through progressive transitions and generating the snowballing effect therein to trigger subsystem and system collapse. Ironically, because of the predictability of operational phasing and sequence at the joint and tactical levels, transitions tend to be known unknowns—an actor is often aware of the required transitions of an operation but typically does not know when or where they will occur.

Nevertheless, thorough planning can account for much in relation to transitions and reserves, which are two sides of the same coin. The initiation of a transition or the commitment of a reserve must be tied to decision points developed during planning. Finding answers to these decision points must be linked with a system's feedback loop process; it cannot be the sole responsibility of one organization or one capability. Five basic transitions accompany most operations: (1) transition from movement to attack or defense; (2) transition from attack to defense; (3) transition from defense to attack; (4) transition from an existing form of warfare to a pursuit; and (5) transition from one form of warfare to a retrograde or withdrawal.[29] These should be added to planning priorities, both for an actor's own benefit and for more effectively thwarting an opponent.

Reserves are a critical capability for transitions. A reserve's employment is generally tied to one of three options: (1) exploiting tactical or operational success; (2) overcoming an initial failure toward mission accomplishment or attaining an objective; and (3) initiating a pre-identified transition.[30] As with the five basic transitions, adding these three reserve planning considerations to planning priorities will assist a planning team in accounting for reserve employment and its integration with transitions.

Paresis is transition's inverse principle. Paresis is theoretically similar to paralysis but differs in that in paralysis, an entity does not possess the physical capability to move; whereas with paresis, an entity can move, but it does so at a suboptimal state. The term paresis is used as transition's inverse principle because realists accept that it is nearly impossible to fully deplete an adversary's ability or physical capacity to move. Or to put it another way, conflict realists understand that creating paralysis, whether physical or mental, is nearly impossible. However, creating a situation in which an enemy combatant cannot move—as has already been stated—is a state of being that one actor can impose, through force, on an adversarial combatant. By preventing one combatant from preventing its adversary's ability to move, it can also prevent that adversary from performing transitions. In turn, this can cause an adversary's military operations to stagnate, make their static formations subject to

identification and destruction and generally increase their cost, pushing the adversary one step closer to culmination and exhaustion.

*Principle #5: Information*

Information is the final principle of warfare. Information is the data required to make systems operate. In the case of military forces, this system can be referred to as the warfighting system of a state's military force. Without information, a military force can do little more than blindly move about the battlefield and, because of the absence of information from its senior military leaders and policymakers, blunder about doing what they perceive to be in their best intention.

Data can be good, or true, relative to the individual or entity reporting the information. Good data generates good information, which is what a networked warfighting system needs to thrive on the battlefield. Thus, generating and maintaining good data is the primary goal of any military force and the state that puts that military force into the field.

Data can be bad. Bad data are facts fraught with holes because the individual or entity reporting the data does not have access to sufficient vantage points to generate a sufficiently accurate picture. Avoiding bad data is paramount for a military force and its state because bad information moving through a warfighting system often leads to suboptimal operations and incomplete battlefield outcomes.

Data can be corrupt. Corrupt data tends to be the result of an adversary's attempt to mislead its opponent by injecting delusive data into a combatant's warfighting system. Like bad data, corrupt data can cause suboptimal operations and incomplete battlefield outcomes, but corrupt data can also mislead a combatant to the point that it conducts incorrect or unneeded military activities.

Data can be denied. Donella Meadows, a critical thought leader in systems thinking, writes, "Missing information flows is one of the most common causes of system malfunction."[31] From a self-oriented, defensive position, data denial means that a combatant can prevent the release of data or prevent the observation of its operations such that an adversary cannot depict the observed force's actions, intentions or capabilities. Data denial can also be a threat-focused offensive activity. A combatant can target an adversary's ability to collect information, whether that is its physical forces or its sensors and networks, to deny data to the adversary.

Data can also be interrupted. While denied data is severed from reaching its target, interrupting data means that some data still makes it to the intended receiver. Interrupted data is useful because it can force an adversary into a situation in which it does not possess a sufficient flow of data to make predictable decisions or address novel situations as they arise.

Lastly, data can be temporal, or subject to the impact of time. Within the temporal category, data can move so quickly that it overwhelms the individual or entity attempting to make sense of the data, causing the data analysis to be incomplete and allowing incomplete information to be fed into a combatant's system. Further, within the temporal category, data can move so slowly that it does not provide opportune data, thus feeding futile information into the warfighting system.

Ignorance is information's inverse principle of war. If information enables warfighting, then the absence of information—or ignorance—disrupts warfighting. If obtaining, maintaining and protecting information is vital for an actor, then it must follow that denying information to one's adversary is of the same critical importance. Thus, the inverse goal of information is to keep an adversary situationally and strategically ignorant while making every effort to prevent that from happening to themselves.

Table 1 provides a condensed list of the principles and inverse principles of warfare.

**Principles and Inverse Principles of Warfare**

| Principle | Inverse Principle |
|---|---|
| Pragmatism | Idealism |
| Unpredictability | Predictability |
| Movement | Immobility |
| Transitions | Paresis |
| Information | Ignorance |

Like the principles of war, the principles and inverse principles of warfare are not just a disparate collection of words but rather the reduction of a basic statement for the first-order principles militaries must adhere to when engaged in armed conflict. The following narrative is a useful tool:

*In armed conflict, a combatant must always remain mentally flexible and be prepared on a wide and deep range of education and experience to address situationally unique battlefield situations (pragmaticism). When conducting military operations and activities, a combatant must not fall victim to predictable forms, methods and timings. Instead, it must do its utmost to remain elusive and become harder to identify, target and destroy (unpredictability).*

*Moreover, the ability to move allows a military force to conduct military operations, reposition forces across the theater of operations, sustain the force—operationally and tactically—and react to changing civilian situations on the battlefield (movement). The inability to move all but obviates a military force's usefulness on the battlefield. Transitions are the mechanism by which pragmatic military forces operate unpredictably and react in a self-interested manner to the political-military situations on the ground for operational and/or tactical betterment (transitions). Executed correctly, transitions can bypass the expensive "start-up" costs of a tactical or operational military activity by using a situation's existing conditions to facilitate quickly moving from a successful attack into a deft pursuit, or perhaps from a stalwart defensive operation into a pulverizing counterattack.*

*None of this can happen, however, without information, for information is the lifeblood that animates military operations. Therefore, the pursuit, obtainment, maintenance and protection of data and information is, next to movement, the second most important aspect of warfare (information). Operations for information, to maintain information and to protect information are first-order priorities for all military forces, whether they be state, non-state or some other form of irregular or non-state actor.*

Further, it is important to take a holistic look at the inverse principles of war to provide a better appreciation for what military forces must do and must protect against in armed conflict:

*In armed conflict, military forces must refrain from becoming idealistic about any type of warfare, weapon system or any other thing that dogmatic beliefs could be associated with. Idealism clouds a military force's mind to the realities in warfare, which often exceed the bounds of dogmatic beliefs about warfighting. This makes a*

*military force less, not more, effective on the battlefield because it must then wrestle with its gaps in preparedness for the situation at hand (idealism). In a similar vein, an idealistic adversary is preferable for non-aligned military forces. This is because the idealistic combatant is often predictable. A predictable foe simplifies the problems of incomplete and private information—a predictable foe simply acts one or two ways in any given scenario and is therefore a much more economical problem to solve than an unpredictable adversary (predictability). A military force must therefore do its best to make its adversary predictable while remaining aware of its own problem of remaining predictable.*

*Movement makes a military force able to operate both pragmatically and unpredictably, whereas the absence of movement capability causes a force to operate lethargically and in an easily identifiable pattern (immobility). Moreover, a military force that is lacking movement capability is more prone to identification, tracking, targeting and destruction. Considering that exhaustion and the elimination of an enemy combatant's resources are the ways in which wars are won, making an enemy force immobile is a catalytic event toward battlefield success. Likewise, caution must be rendered toward this concept applied to one's own military force. A force that lacks movement capability has limited utility for military commanders and political leaders. When working through force design considerations, force designers must ensure that they do not fail to account for ample movement capability within their military forces.*

*Moreover, a military force should be self-contained and able to move itself. Land forces, as an example, should not be dependent on air or naval forces for movement within, throughout or across a theater of operations. If transitions are central elements of pragmatic operations built around the fluidity of tactical and operational movement, then protecting the ability to operate in that fashion is a first-order principle, yet at the same time, it is equally important to induce the opposite effect in an adversary. While the idea of triggering cognitive paralysis is common among commenters, that idea overlooks the magnitude of things that must occur for that to happen. However, a more metered approach—preventing transitions—can have a comparable impact, with less cost. Therefore, while a combatant works to protect its ability to conduct transitions, it must actively work to inject suboptimization into its adversary's military operations (paresis).*

*Finally, continually depriving an adversary of situational and environmental context and denying its ability to communicate forces a combatant into predictable behavior that is much easier to identify, target and destroy (ignorance). At the same time, a force must not allow itself to become ignorant. In this case, however, preventing ignorance goes beyond the battlefield. To prevent ignorance, a force must embrace diversity and inclusion or risk becoming idealistic, predictable and cognitively immobile.*

Table 2 provides the consolidated list of principles and inverse principles of war and warfare collected from this article and the preceding article in this series.

**Consolidated Principles and Inverse
Principles of War and Warfare**

|  | Principle | Inverse Principle |
|---|---|---|
| War | Winning | Loss |
|  | Survival | Extinction |
|  | Order | Disorder |
|  | Durability | Embrittlement |
|  | Power | Starvation |
| Warfare | Pragmatism | Idealism |
|  | Unpredictability | Predictability |
|  | Movement | Immobility |
|  | Transitions | Paresis |
|  | Information | Ignorance |

## Conclusion

Brodie points out that one of the reasons so little change occurs in military thought is not conservatism or the lag of tactical and strategic concepts behind developments in materiel but rather "the absence of the habit of scientific thinking."[32] Perhaps Brodie's assessment is a bit harsh, but maybe he's also correct to some extent. For the Army's principles of war to remain relatively unchanged for nearly 100 years does not reflect their timelessness but rather the community of interests' unwillingness to engage with the material in any meaningful way. This neglect should be alarming, especially considering that we are transitioning from a very human-centric era of warfare into one that will arguably be dominated by artificial intelligence, human-machine integrated formations and a multitude of autonomous systems. Therefore, a handful of considerations might be helpful for evolving Army concepts and doctrine as we continue to integrate novel information age technology into how the Army might operate, organize and equip for conflicts in the future.

First, the principles and inverse principles outlined here might not correctly address the challenges presented by those technologies. Nor will those principles necessarily support all the ways in which systems theory and networked, data-centric warfare will impact Army and joint operations. Nonetheless, we must not sit on our hands and continue relying on hundred-year-old ideas to define modern and future principles for war and warfare. Concept developers, doctrine developers, military thought leaders and Army leaders must boldly push into new and challenging cognitive areas to help forecast how the future of war and warfare might change. Yet in doing so, they must use new language where appropriate and make sure to not shoehorn existing terminology, concepts and doctrinal ideas into future idea space not yet tainted by institutional bias. This will allow clarity

*As we transition from a human-centric era of warfare into one that will arguably be dominated by artificial intelligence, human-machine integrated formations and a multitude of autonomous systems, Army concepts and doctrine must evolve. The Army must boldly push into new and challenging cognitive areas to help forecast how war and warfare might change, remaining open to novel terminology, concepts and doctrinal ideas.*

of thought and, hopefully, the articulation of operating concepts and operations doctrine that clearly identifies causal mechanisms, feedback loops and network pathways into a coherent warfighting approach, not just another dusting off of AirLand Battle.

Second, the emphasis on futurists and "mad scientists" has outlived its utility. The post-9/11 wars piqued the interest of drone and cyber enthusiasts, especially after Azerbaijan's titillating use of drones during the 2020 Nagorno-Karabakh War. But for the true conflict scholar, overemphasis on Nagorno-Karabakh reflects cherry-picking a conflict to represent the data that one wants to present—a practice that is wholly unacademic and generally un-ethical. Thus, while the future of armed conflict will most certainly see an increasing use of artificial intelligence, human-machine integrated formations and autonomous systems and a decreasing role for human soldiers physically fighting on the battlefield, this does not mean that battle itself, nor the inherent challenges of land warfare, will decrease in the future.

The U.S. Army, and the U.S. military as a whole, is fundamentally an expeditionary force and thus must always deploy to and enter a zone of conflict. Once in that zone, it must secure itself while conducting the seven basic requirements of land forces. These require-ments transcend technology and are listed below:

- Armies must be capable of taking or retaking territory.

- Armies must be capable of clearing enemy armies from specific territorial holdings.

- Armies must be capable of holding territory.

  – Armies must not culminate when taking or retaking territory.

  – Armies must not fritter away combat power and thus make themselves prone to counterattack when taking or retaking territory.

- Armies must be capable of protecting populations.

- Armies must be capable of encircling a hostile force.

- Armies must be capable of holding (or fixing) a hostile force in place.

- Armies must be capable of sealing boundaries.

Given the transcendentalism of these requirements, it is imperative that concept developers, doctrine developers, science and technology experts and force designers work together to develop pragmatic ideas and designs for future forces that integrate the key aspects of future technology—artificial intelligence, human-machine integrated forma-tions and autonomous systems—that do not wish away the varieties of land warfare, but place them at the heart of what future Army forces must be capable of accomplishing. The principles and inverse princi-ples of warfare must also be placed at the heart of this discussion be-cause they are the animating forces that underpin each of these seven basic requirements.

> Concept developers, doctrine developers, science and technology experts and force designers must work together to develop pragmatic ideas and designs for future forces that integrate the key aspects of future technology without neglecting the enduring challenges of land warfare.

Lastly, when thinking about the future of armed conflict, we should not be so haughty to suggest that Army forces "do not do" one type of warfighting over another. As this article's principles and inverse principles suggest, Army forces, leaders and formations should be adaptive, pragmatic and reflexively operating with surviving, winning and gaining and maintaining advantages at the fore of their minds. As-sertions such as Army forces "do not do attrition" might resonate well across an audience of individuals undereducated in the reality, nuance, conditionality and situationism of war and warfare, but they are hardly accurate. Bloody, brutal battles such as the Siege of Kobani (2014–2015), the Battle of Mosul (2016–2017), the Battle of Marawi (2016), the Battle of Raqqa (2016), the Battle of Khasham (2018) and the Army's support to Ukraine in its fight

for survival against Russia clearly suggest that attrition, or destruction-oriented warfighting, lies smack at the center of how Army forces approach warfare.

Moreover, we are seeing the continued growth in the idea of distancing Army forces from combat as the Army outsources combat to third parties. In Iraq, against the Islamic State, Iraqi security forces were the third party. In Syria, against the Islamic State, the Syrian Democratic Forces were the third party. In Ukraine, against Russia, the Ukrainian armed forces are the third party. These are just three of many examples.

The U.S. military likes to use the term "partner" for most non-alliance arrangements, but by definition, these third-party conflicts are proxy wars.[33] Proxy wars are inherently much more attritional than non-proxy wars because most states today are less apt to use their traditional military forces in wave attacks.[34] Jack Watling and Nick Reynolds note, however, that Russia has made significant use of this tactic in Ukraine with both its regular army forces and contractual proxy forces like the Wagner Group in what they describe as "meat tactics."[35]

In addition, the increasing push to replace close combat land forces with long-range strike forces like the MDTF and the theater fires command also reflects the diminishing importance of tactical and operational mobility and the increasing importance of tactical and operational indirect fire power (i.e., cannon, rocket and missile fire). This situation—the decreased emphasis on mobility and the increased emphasis on long-range strike (i.e., indirect fire)—is the womb in which attrition not only develops but matures into a full-blown categorization of war. World War I is an excellent example of this dynamic: as mobility decreased along the western front, and indirect firepower increased, the front calcified as attrition gripped the conflict.[36] A very similar situation has unfolded in Ukraine. Russia stymied Ukraine's counteroffensive oriented on retaking the territory that Russia stole early in 2022. In doing so, mobility along the front decreased. As mobility decreased, both sides increased their emphasis on long-range strike and other forms of indirect firepower. Ukraine received significant amounts of assistance from the U.S. Army in this regard. Nevertheless, attrition—already high in the conflict—remained high as both sides used firepower along a static front to keep the other from taking or retaking territory from the other. This idea can be classified as "stand-off warfare."

Furthermore, stand-off warfare can be depicted with a simple heuristic to help quickly illustrate the dynamics at work. If $\downarrow M$ is the decreased emphasis on mobility, $\uparrow F$ is the increased emphasis on long-range strike (i.e., indirect fire) and $\uparrow A$ is the increase in attrition, then stand-off warfare is: $\downarrow M + \uparrow F = \uparrow A$. The problem with stand-off warfare, which is the direction that the Army is trending toward with its emphasis on long-range precision strike at the cost of resilient, hard-hitting and gritty land forces, is that it will quickly be misaligned with the principles and inverse principles of warfare. The Army's restructuring guidance—or ARSTRUC—will gut land forces over the coming years by removing significant numbers of cavalry and engineer units, among many other units.[37] Cavalry and engineers, however, are critical for land forces to accomplish the seven challenges of land warfare, in addition to helping a force unlock the potential associated with pragmatism, unpredictability, movement, transitions and information. Moreover, those formations are key drivers of predictability in enemy operations, increasing immobility and paresis for the enemy and keeping the enemy relatively ignorant—or at least less informed—about one's operations.

As we continue to think about the future of war and warfare, we must not get caught up in the fetishism of new technology. We must think about how new technology changes the principles of war and warfare and how it impacts, both positively and negatively, the character of war and warfare. From there, we must look at how new technology interacts with the enduring requirements of armies in land warfare. Armies fighting other armies—regardless

of whether those forces are state or non-state actors—will always have to take or retake territory. Armies will always have to clear a hostile force from a piece of territory. Armies will always have to protect populations. Armies will always have to hold territory. Armies will always have to encircle other armies. Armies will always have to fix other armies in place, and armies will always have to seal borders. Robots, human-machine integrated formations, autonomous systems and drones can assist armies with some of these tasks, but ultimately, they cannot replace human soldiers and human-dominated formations, operating with the principles and inverse principles of warfare in the backs of their minds, as the most valuable asset on the future battlefield. Lastly, long-range precision strike will be able to accurately hit enemy target locations on future battlefields. But the first principle of war is survival, so our enemies will quickly adapt to precision strike by finding ways to elude the lethal effects of our strikes. In turn, the U.S. Army will again require resilient, hard-hitting and gritty land forces to address the problems of an adaptive enemy looking to survive and win on the battlefield.

As we think about force design for future Army forces—forces that can meet the principles of warfare and attain the goals associated with the challenges of land warfare—we should not be looking at small, light forces. These types of forces might be more deployable, but they will be quickly identified, easily encircled, unable to accomplish any of the seven challenges of land warfare and likely destroyed piecemeal. We should thus look to develop larger formations—think resilient, hard-hitting and gritty. These formations should be protected—armored, local air defense, anti-drone, cyber, etc. Armor should be lighter, not heavier, so that tanks and armored fighting vehicles can be more deployable.

Larger and more resilient forces, not smaller and lighter forces, will allow Army forces to accomplish several things that are being overlooked in the discussion about contemporary and future armed conflict. First, larger resilient forces will arrive at future conflicts more ready than smaller, lighter forces that will likely have exhausted significant amounts of their limited combat power just to get to the fight. Second, large resilient forces will be less likely to culminate short of, or at, a military objective than will a small light force. The Army's greatest contribution to the joint force is not air and missile defense nor sustainment, or any number of other popular talking points circulating throughout the Pentagon. Rather, the Army's greatest contribution to the joint force is not culminating at a military objective, but possessing the capacity, stamina, discipline and focus to exploit the situation immediately following an operational victory by maintaining direct military pressure on the adversary to create further opportunities for U.S. military and political leaders. Going lean, despite how appealing it might sound, severely limits the opportunities Army forces can provide U.S. military and political leaders in military conflicts.

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# Notes

1  Bernard Brodie, "Strategy as a Science," *World Politics* 1, no. 4 (1949): 471.

2  Brodie, "Strategy as a Science," 471.

3  Brodie, "Strategy as a Science," 471.

4  J.F.C. Fuller, "Progress in the Mechanization of Modern Armies," *RUSI Journal* 70, no. 477 (1925): 75.

5  See Amos Fox, *On the Principles of War: Reorganizing Thought and Practice for Large-Scale Combat Operations*, Association of the United States Army, Land Warfare Paper 138, June 2021.

6  Amos Fox, *Myths and Principles in the Challenges of Future War*, Association of the United States Army, Land Warfare Paper 23-7, December 2023.

7  Michael Peck, "Losses in Ukraine Are 'Out of Proportion' to What NATO Has Been Planning For, the Alliance's Top General Says," *Business Insider*, 5 February 2023.

8  Angelica Evans, Kateryna Stepanenko, Nicole Wolkov, Riley Bailey, George Barros and Frederick W. Kagan, "Russian Offensive Campaign Assessment," Institute for the Study of War, 27 December 2023.

9  "AUSA Coffee Series—GEN James Rainey—U.S. Army Futures Command," Association of the United States Army, 14 December 2023, video, https://www.youtube.com/watch?v=i_6zFKK3LoA.

10  "Interview with Lieutenant Colonel James Rainey," *DVIDS*, 16 November 2004, video, https://www.dvidshub.net/video/86271/lt-col-jim-rainey.

11  John Spencer, Liam Collins and Jayson Geroux, "Case Study #7—Fallujah II," Modern War Institute, 25 July 2023.

12  Spencer, Collins and Geroux, "Case Study #7."

13  Cathal J. Nolan, *The Allure of Battle: The History of How Wars Have Been Won and Lost* (Oxford: Oxford University Press, 2017), 573.

14  Michael Gordon and Bernard Trainor, *Cobra II: The Inside Story of the Invasion and Occupation of Iraq* (New York: Vintage Books, 2007), 309.

15  Gordon and Trainor, *Cobra II*, 309.

16  Gordon and Trainor, *Cobra II*, 309–10.

17  Gordon and Trainor, *Cobra II*, 311.

18  Olga Oliker, *Russia's Chechen Wars 1994–2000: Lessons from Urban Combat* (Monterey, CA: RAND, 2001), 9–10.

19  Stasys Knezys and Romanas Sedickas, *The War in Chechnya* (College Station: Texas A&M University Press, 1999), 99.

20  Dodge Billingsley and Lester Grau, *Fangs of the Lone Wolf: Chechen Tactics in the Russian-Chechen Wars, 1994–2009* (Fort Leavenworth, KS: Foreign Military Studies Offices, 2012), 171.

21  Billingsley and Grau, *Fangs of the Lone Wolf*, 171.

22  Oliker, *Russia's Chechen Wars*, 19.

23  Oliker, *Russia's Chechen Wars*, 19.

24  Knezys and Sedickas, *The War in Chechnya*, 99.

25  Knezys and Sedickas, *The War in Chechnya*, 101.

26  Knezys and Sedickas, *The War in Chechnya*, 101.

27  Arkady Babchenko, "The Savagery of War: A Soldier Looks Back at Chechnya," *Independent*, 10 November 2007.

28  Alan Schom, *Napoleon Bonaparte: A Life* (New York: HarperCollins, 1997), 275.

29  Amos Fox, "On the Employment of Cavalry," *ARMOR* 123, no. 1 (Winter 2020), 37.

30  Fox, "On the Employment of Cavalry," 36–37.

31  Donella Meadows, *Thinking in Systems: A Primer* (White River Junction, VT: Chelsea Green, 2008), 157.

32  Brodie, "Strategy as a Science," 473.

33  Amos Fox, "Confronting Proxies," in *Routledge Handbook of Proxy Wars*, ed. Assaf Moghadam, Vladimir Rauta and Michel Wyss (London: Routledge, 2023), 258–59.

34  Amos Fox, "Comparative Proxy Strategies in the Russo-Ukrainian War," *Comparative Strategy* 42, no. 5 (2023): 605.

35  Jack Watling and Nick Reynolds, *Meatgrinder: Russian Tactics in the Second Year of Its Invasion of Ukraine* (London: Royal United Services Institute, 2023), 3–8.

36  Jeremy Black, *The Age of Total War, 1860–1945* (Westport, CT: Praeger Publishers, 2006), 115.

37  "Army Force Structure Transformation," white paper, Department of the Army, 27 February 2024, https://api.army.mil/e2/c/downloads/2024/02/27/091989c9/army-white-paper-army-force-structure-transformation.pdf.

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