



(AI image by Gerardo A. Mena Jr., Army University Press)

Restless Sage, Clouded Crystal

Future War, Institutional Change, and the Perils of Impatient Learning

1st Lt. Harrison Manlove, U.S. Army

Wars, like all intense human historical endeavors, are windows on both the past and future. Historians pick and cull through the events and evidence again and again,

examining, testing, and questioning. Futurists gaze into the conflict's bloody crystal.

—Austin Bay and James Dunnigan

The Russo-Ukrainian War that began in late February 2022 shows no signs of slowing down, as the war has shifted back and forth between large columns of maneuver elements moving through towns and cities, and across the countryside in a grinding conflict of attrition.¹ Since then, news columns, magazines, and national security journals have been flooded with articles on lessons from the war and what should be learned from the fighting thus far. The war merits deep discussion, but it is far too early to provide a comprehensive lessons-learned product or sweeping conclusion on which warfighting domain is now most critical in future war.

Preliminary lessons and observations are a good place to start and should be the focus for analysts as the war continues to its unknown conclusion, when more concrete lessons may be drawn to change institutional behaviors.² The current lessons offered through various outlets are often for a specific perspective. Many of these lessons also generalize the environment or weapon system upon which many articles make their case. For example, fighting in Ukrainian cities has been significant thus far and in other recent conflicts like Nagorno-Karabakh. *The future of war is urban!*³ Drones and loitering munitions have made easy work of apparently poorly trained and poorly disciplined Russian

armor and infantry units. *The future of war is drones overhead!*⁴ Antitank weapons continue to make quick work of Russian tanks maneuvering unsupported by infantry. *The tank is dead!*

Some of these points are a continuation of the supposed lessons learned from Nagorno-Karabakh. At their best, the dramatics of such writing creates engaging discussions during which theories and their consequences are tested. At their worst, these arguments proliferate alarmism in military studies for seemingly dubious purposes, generalizing observations on technological performance on the battlefield. These discussions have also collided with the U.S. Marine Corps' Force Design 2030 and the United Kingdom's Integrated Review, where tanks have been eliminated by the former and reduced by the latter. This has complicated force design discussions, placing misguided focus on equipment without consideration of larger assertions made in both reviews that changes to force structure better align with global commitments and identified threats.

There are parallels between the period of the 2021 Afghanistan withdrawal and wars in Nagorno-Karabakh and Ukraine, and the period after U.S. involvement in Vietnam, when the U.S. Army looked elsewhere to find institutional healing after deteriorating for years in South Vietnam's forests, rice paddies, and numbered hilltops.⁵ The 1973 Yom Kippur War offered that healing opportunity. The establishment of the U.S. Army's Training and Doctrine Command (TRADOC) at nearly the same time created the conditions for a successful and comprehensive lessons-learned process that reinvigorated the post-Vietnam U.S. Army, reviving it as the primary force to take on the Soviets in Central Europe. The Yom Kippur War had seemingly validated an armor-centric combined arms force.

In a similar way, the war in Ukraine could provide an

1st Lt. Harrison Manlove, U.S. Army, is a tank platoon leader assigned to "Bandido" Charlie Company, 1st Battalion, 16th Infantry Regiment at Fort Riley, Kansas. He previously served as a battalion assistant operations officer. Manlove received his degree in history from the University of Kansas.



Israeli troops move across the Sinai Desert to fight off Egyptian forces in October 1973. Egypt and Syria launched a coordinated surprise attack on Israel on Yom Kippur, 6 October 1973, the holiest day on the Jewish calendar, also known as the Day of Atonement. (Photo courtesy of the Israel Defense Forces and Defense Establishment Archives)

opportunity to validate assumptions on the future of war, particularly the Army's *Multi-Domain Operations (MDO)* 2028 doctrine in the aftermath of the 2021 U.S. withdrawal from Afghanistan.⁶ In November 2001, President George W. Bush explained the decision to invade Afghanistan as a mission to "defend not only our precious freedoms, but also the freedom of people everywhere to live and raise their children free from fear."⁷ Now, twenty years of war have yet to be processed by the institutions and veterans that participated.⁸ A host of articles and early postwar lessons-learned efforts followed the withdrawal covering a range of topics that only two decades of war could generate.⁹ These publications and others attempted to capture lessons for future interventions and stabilization efforts, and as a postmortem for America's longest war.

The conversation, however, was not sustained after the Russian invasion of Ukraine. "Modern" war and its latest technologies had again taken center stage, with seemingly all available effort poured into the first few months of the conflict. Two decades of potential lessons have been traded instead for a war that participants in Afghanistan could believe in once again. This reality was made clear in a speech by President Joseph R. Biden on the Russian invasion in February 2022: "Putin's actions betray his sinister vision for the future of our world—one where nations take what they want by force. But it is a vision that the United States and freedom-loving nations everywhere will oppose with every tool of our considerable power."¹⁰

Army leaders must patiently observe the war in Ukraine and its various battlefield developments to determine their effects from the tactical to the policy levels of war while also striving to consider twenty years of experience in Afghanistan, lest the latter sit neglected in an archive at Carlisle Barracks or Fort Leavenworth. It is critical to avoid concept validation and continue to test multi-domain operations (MDO) against battlefield conditions in Ukraine and other recent conflicts. Noise generated by sweeping discussions on the future of the tank, drone, or other new technology must be managed to allow for an honest assessment of those platforms without giving in to hype. Now is an opportunity to more carefully understand the lessons-learned process and execute effective institutional learning as analyses on recent conflicts continue.

Any lessons-learned endeavor should strive for one goal: change. Whether change is a result of positive or negative lessons learned, learning itself implies some sort of behavioral shift to either repeat or avoid a particular course of action in the future. If Army leaders are serious about learning, they must be serious about change to train for and fight future wars more effectively.

What Are Lessons Learned?

A comprehensive lessons-learned process emphasizes *observations* that are distilled into *lessons*. Fort Leavenworth's Center for Army Lessons Learned (CALL) defines an observation as "a statement of the conditions experienced or observed."¹¹ Lessons can be positive, as in best practices, or negative to avoid repeating a certain action in the future. In short, it is something that should be learned. CALL defines lessons learned as "an implemented corrective action that leads to improved performance or an observed change in behavior."¹² They can affect behavior which, in this context, can be defined as doctrinal thinking, training, and acquisition of new or upgraded equipment. A lesson should not be a detailed observation of one's own behavior in war—or someone else's—left to sit in an online archive or library shelf with no change instituted.¹³

It is critical that lessons learned from any conflict start from the bottom up. The smallest echelons at the tip of the spear are typically the first to learn lessons. Fire teams, squads, sections, platoons, and companies are usually the first to make contact and adjust their doctrinal knowledge of tactics to the reality of the enemy they are engaging. The adjustments that prove most effective over time become tactics, techniques, and procedures (TTP) to be passed throughout an organization. TTPs "incorporate the Army's evolving knowledge and experience. They support and implement fundamental principles, linking them with associated applications."¹⁴ Additionally, "best practices and lessons learned are disseminated along with enduring principles and TTP identified from historical analysis."¹⁵

When captured and distilled by the appropriate higher echelons, battlefield lessons can effectively influence doctrine, training, battlefield employment of capabilities, acquisition programs, strategy, and even policy as part of the learning process. When TTPs fail against an opposing force, they are adjusted for a new reality. TTPs can indicate a flexible learning organization that



Material from the Center for Army Lessons Learned (CALL) is made available to soldiers from 3rd Armored Brigade Combat Team, 1st Cavalry Division 27-29 March 2018 during Umbrella Week. CALL, along with other agencies including the U.S. Army Training and Doctrine Command and the Consumer Research Team, provided an opportunity for agencies to meet with soldiers following a recent deployment. (Photo by Capt. Scott Kuhn, U.S. Army)

changes with battlefield conditions. Failure to do so can result in attrition and defeat. Even still, there is a balance that must be struck between applying learned TTPs and avoiding the pitfalls of applying the lessons an organization wishes to implement, regardless of relevance. More importantly, though, how can an organization know it is making the “right” changes? There is a risk that organizations observe and attempt to learn the most convenient lessons to the detriment of its personnel, equipment, and political objectives. It is not enough to simply change one’s approach on the battlefield. Political expectations and objectives must be managed as conditions change. Disconnection between battlefield learning and policy can be disastrous, putting lives in danger and wasting badly needed equipment. This is on display in Ukraine, as Moscow has shifted its approach from the attempted speedy capture of Kyiv and other major cities to a grinding war of attrition over the summer in the long-contested eastern regions

of Ukraine and a hardening of lines with local counterattacks as the cold returns.¹⁶ That change came months after Russian tempo had slowed at the cost of thousands of lives and hundreds of helicopters, tanks, trucks, and other vehicles.¹⁷ The surprise Ukrainian offensive at the end of August 2022 broke the deadlock and pushed Russian forces to the east in a near rout, further changing political and battlefield conditions and forcing President Vladimir Putin to call up thousands of Russian reserves, setting off protests and an exodus of reservists from the country.¹⁸

Battlefield learning and its influence on changing military objectives indicate the dynamic nature of lessons learned, particularly as lessons spread across the oft-stratified levels of war. The U.S. Army has already begun implementing tactical observations from Ukraine into scenarios at the National Training Center (NTC), while other propositions for learning preliminary lessons continue to be published.¹⁹ Preliminary



In an undated photo, a Ukrainian soldier is shown with a commercial quadcopter unmanned aircraft. Unmanned aircraft system (UAS) utilization in Ukraine is not just about military-specification systems. Ukraine will create strike companies using commercial and military UAS for surveillance and attack missions. (Photo courtesy of the Ukrainian Joint Forces Command)

lessons are, essentially, observations that *should* drive future behavioral or institutional change and can be tested in places like NTC, regardless of a conflict's outcome, because of their critical battlefield effect. In this case, disinformation and the importance of social media played a role at a recent NTC rotation in April 2022. Both have played outsized roles in the fighting in Ukraine's east since 2014, and in the months since the Russian invasion began in February 2022. Ukraine's Ministry of Defense and a large community of social media users have proven adept at using memes to ridicule Russian tactical failures and turn broad public opinion in Ukraine's favor.²⁰

It is difficult to determine the point at which a comprehensive lessons-learned process should begin. The end of a conflict appears ideal, as the military effects on the conclusion of a conflict can be analyzed, though studying the long-term consequences of such a conclusion never ends. Such a process should be informed by careful observation throughout

the duration of a conflict. As reported by *Breaking Defense* in May 2022, Marine Corps Commandant Gen. David H. Berger said that "he's learned to be patient when trying to draw conclusions about ongoing wars because he, and others, have gotten things wrong in the past when they made significant decisions or policy changes too early in the fight. But that isn't to say he's not taking notes."²¹

Those who see parallels between the lessons-learned opportunities in Ukraine and the post-Vietnam U.S. Army often cite the comprehensive process undertaken by TRADOC in the immediate aftermath of the 1973 Yom Kippur War.²² While this seems like an ideal example, it would be difficult to apply to a war that has not yet ended, not to mention the pitfall of TRADOC's endeavor: confirmation bias. This is a danger to any observation and learning process focused on Ukraine, as the war will likely serve to confirm a service's doctrinal development process, new acquisitions in technology or equipment, and a preferred regional focus.

Missing from this comparison are the lessons eschewed by the U.S. Army following the Vietnam War and the speed at which the war in Afghanistan has fallen out of topic. The lessons-learned articles and analyses from Afghanistan remain at a trickle nearly eighteen months after the U.S. withdrawal, compared to the proverbial firehose of lessons from Ukraine. While Berger noted the importance of patience in drawing early conclusions in Ukraine, he also observed that in Ukraine, “the more distributed nature of combat that the Navy and Marine Corps have been discussing for several years now is looking like the right way to go.”²³



Gen. William E. DePuy's command portrait, taken while he served as commanding general of the U.S. Army Training and Doctrine Command. (Photo courtesy of Wikimedia Commons).

Successful Lessons Learned?

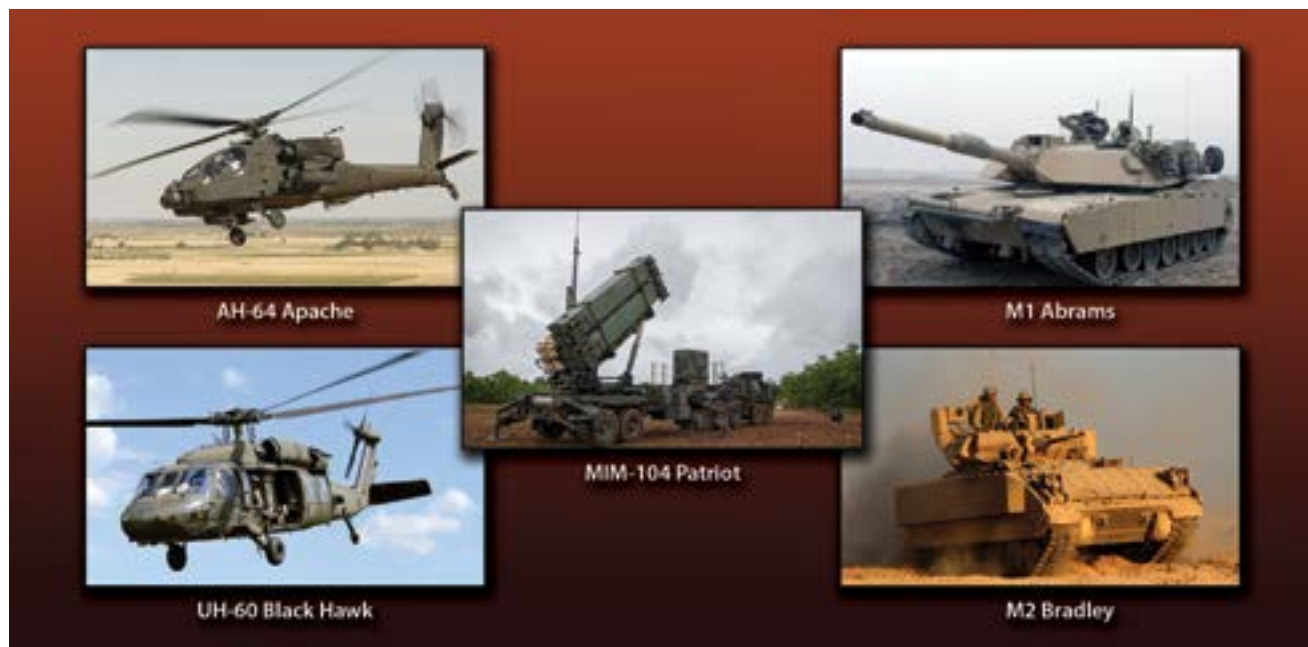
In October 1973, a coordinated offensive against Israel was launched by the Egyptian and Syrian militaries. Pitched battles featuring tank-on-tank combat initially surprised and drove the Israelis back. The Israelis counterattacked the Egyptian crossing of the Suez Canal armor-heavy formations, but the Egyptians were waiting with antitank weapons able to engage at long range. The Israelis stalled in the face of accurate

antitank guided missiles (ATGM) until their tanks received infantry support that attacked Egyptian antitank positions. Air support to the embattled tank formations was initially scarce because of sophisticated Egyptian air defenses, complicating the overall Israeli response to the expanding Egyptian presence flowing across the Suez. Eventually, the Israelis gained momentum through a combined arms approach that saw infantry directly participating in the armor fight to protect their tanks against ATGMs, while the tanks were focused on Egyptian armor.²⁴

In July 1973, the U.S. Army established TRADOC, headed by Gen. William E. DePuy, to write and publish new doctrine and manage soldier training. The war in Israel became one of TRADOC's first new focuses in a post-Vietnam world. DePuy was ordered to start on a lessons-learned report, and he sent his deputy, career armor officer Gen. Donn A. Starry, to Israel to begin the process.²⁵ The war became an important vehicle for the Army, and both DePuy and Starry, to transition from infantry-centric search-and-destroy air assault missions to an armored defense of central Europe. Soviet ATGMs had proven their worth against unsupported armor in the Sinai and would surely be important in any war between NATO and Warsaw Pact forces.²⁶ This necessitated an emphasis on combined arms training and doctrine within the Army and the addition of layered air defense to protect ground forces, the latter having been vital in delaying Israeli air support to ground troops.

In Israel, observations and experiences were drawn from commanders at the corps to the battalion levels. Starry made several visits to Israel on orders from DePuy. Starry had a specific request from then Army Chief of Staff Gen. Creighton W. Abrams, also a career armor officer, to understand and learn the broad lessons of the war as a way to gauge “the war's potential impact on tank procurement decisions at senior levels in Washington, D.C.”²⁷

While these were collected, assessed, and applied to Army force structure, security cooperation programs with the West German *Bundeswehr* were the next stage of the lessons-learned process for the post-Vietnam Army. American and German ideas for the defense of central Europe were similar in that both recognized the likelihood of defending against far superior numbers of Warsaw Pact tanks.²⁸ Thus, the West German and



(Composite graphic by Beth A. Warrington, *Military Review*)

American defense would essentially rely on forward defense of armor-heavy formations that could ambush the Soviet tank hordes with supporting mechanized infantry using ATGMs.²⁹ Where the Yom Kippur War had given the newly created TRADOC an example to argue for an armor-centric future war concept, security cooperation with the Bundeswehr created a doctrinal space in which to pursue this idea.

Just three years after the end of the Yom Kippur War, TRADOC released Field Manual (FM) 100-5, *Operations*, which espoused a doctrinal concept known as “Active Defense.”³⁰ Materiel acquisition became an essential part of this doctrinal development process, with new equipment, including a new main battle tank, a mechanized infantry carrier, an attack helicopter, a troop transport helicopter, and a missile defense system. Together these became known as the Big Five.³¹

The 1976 version of FM 100-5 was much criticized and debated upon publication. Though, this led to a new manual in 1982 whose doctrinal concept became known as “AirLand Battle.”³² The development of Active Defense is often seen as a model for successful implementation of a comprehensive lessons-learned process that affects key change in an organization. Observations blossomed into lessons that altered doctrinal thinking. This altered thinking then created space for changed institutional behavior through training, materiel acquisition, and deployment.

However, the war the Army prepared for never came. Operation Desert Storm is often characterized as the best example for what AirLand Battle might have looked like, though the Army was used instead for a variety of contingency and humanitarian missions throughout the 1980s and 1990s. The Army was largely unprepared for these missions, as it fell outside what was traditionally considered to be the service’s “true” mission of fighting and winning the Nation’s large-scale conventional wars.

While certainly a positive that the Army was not needed in a world-ending thermonuclear war against the Soviets, the Army that DePuy had helped to build after Vietnam was designed for a narrow purpose, despite global commitments and a variety of security challenges. The lessons-learned process that had forged this new Army was based largely on assumptions about the future based on a very recent past with the Yom Kippur War. Seeing an opportunity to retool the Army for the “right” war, DePuy placed an emphasis on training and doctrine that reflected the tank-on-tank fight supported by ATGM-wielding infantrymen seen in 1973. Acquisition programs also reflected these assumptions, with immediate concern from Gen. Abrams on the impact of the Yom Kippur War on procuring the new XM1 tank then under development. Strategic attention had shifted to the defense of central Europe, yet by the twilight of the decade and the next two, U.S.

soldiers would be involved in contingency operations in Iran, Grenada, Panama, Nicaragua, El Salvador, Somalia, Bosnia, Kosovo, and others.

Misguided Characterizations

The proliferation of cheap drones on battlefields worldwide has called into question more traditional methods of combat and exposed the consequences of poor training. In Yemen, Houthi insurgents used a drone to assassinate a top government official during a military parade.³³ Drones used by the so-called Islamic State in Syria to drop small amounts of ordnance presented the coalition to counter the Islamic State the immediate problem of protecting their forces against a technology in which Western militaries once held a monopoly.³⁴ Regardless of payload, the ability to loiter above an enemy position for surveillance and targeting created a worrying precedent that has extended to more conventional force-on-force conflicts in Nagorno-Karabakh and Ukraine.

The Azeri use of drones during its war against Armenia helped accelerate a two-pronged debate: the future of tanks and the future of war itself as defined by loitering munitions. Soon after the conclusion of the 44-Day War (Second Nagorno-Karabakh War), commentary with titles like “Drone Wars: In Nagorno-Karabakh, The Future of Warfare Is Now” and “How Azerbaijan’s Drones Show what the Future War Looks Like” swept online discussions.³⁵ Effective concealment was now revealed to be extremely limited by drones and ground sensors that can detect military formations several kilometers from a defensive position or observation post. Observers noted that maneuvering across open terrain in a sensor-swept environment is something Western militaries will have to contend with in any future engagement with a near-peer or peer adversary or perhaps even a nonstate actor.³⁶ Azeri sensors and affordable drones exploited this gap in protection for armored vehicles, particularly tanks, which has been a key discussion point on the war in Ukraine.³⁷

Numerous videos on social media showed drones striking Armenian forces maneuvering across open ground or while maintaining a concealed defensive position, all of which could be easily observed and exploited by Azeri drones. Some of this was attributed to poor training, as were many of the early Russian military failures in Ukraine, while armored

vehicles—specifically the tank—came under renewed scrutiny for having potentially outlived their usefulness on future battlefields.³⁸ While frontal and side armor are the strongest points on a tank, the top of the turret is one of the most vulnerable. This has also been exploited in Ukraine repeatedly by the very same drones used by the Azeris in 2020.³⁹ Further demonstrating this point, antitank munitions like the Next-Generation Light Antitank Weapon and Javelin have continued the social media spectacle from Nagorno-Karabakh when, after a warhead struck a Russian-made T-series tank, the turret flew into the air with the help of an exploding ammunition rack within the tank. For some, this reality has exemplified why militaries should reduce or get rid of tanks altogether, a point made even more clear by a British and U.S. Marine Corps reduction of tanks.

The British armed forces and U.S. Marine Corps have nearly simultaneously worked to revise their respective force postures to focus more narrowly on a specific military threat: China.⁴⁰ This is a drastic move away from the counterinsurgency operations that both have participated in since 2001. Both redesigns have collided with ongoing discussions to determine the next dominant piece of battlefield technology and what should be left behind. These redesigns warrant deep discussion on the assumptions surrounding their respective visions, but the noise of debates on drone supremacy and tankless future battlefields have instead had more pull on some military forums.⁴¹ These debates are necessary in pushing for adaptation to emerging technologies that threaten tanks and can defeat drones. However, they miss larger questions about operating concepts and force design, focusing criticism on specific technologies and platforms.

For the UK, the Integrated Review focused on reshaping the British armed forces around a “Global Britain,” essentially a new vision for the UK’s role in the world. A summary of the UK’s defense command paper—the detailed modernization plan to implement the vision from the Integrated Review—notes expanded shipbuilding and naval deployments, new F-35 aircraft acquisitions, and troop cuts for the Army.⁴² The debate over the future of British tanks after the Integrated Review has vacillated between getting rid of armor altogether or maintaining the fleet, though nuanced arguments have attempted to bridge this gap by



Marines with the Maritime Raid Force, 31st Marine Expeditionary Unit (MEU) provide security during a simulated visit, board, search, and seizure (VBSS) mission aboard dock landing ship USS *Germantown*, 6 September 2020. VBSS is a part of maritime interception operations that aim to delay, disrupt, or destroy enemy forces or supplies in the maritime domain. *Germantown*, part of the America Amphibious Ready Group (ARG), 31st MEU team, is operating in the U.S. 7th Fleet area of operations to enhance interoperability with allies and partners, and serve as a ready response force to defend peace and stability in the Indo-Pacific region. (Photo by Sgt. Danny Gonzalez, U.S. Marine Corps)

offering infantry fighting vehicles as a more cost-effective way forward.⁴³ In any case, much of the Challenger tank fleet will be retired while a select number will be retrofitted, seemingly satisfying both camps.⁴⁴ Even still, the debate has taken away from larger discussions on the Integrated Review, with a misguided focus on turretless hulls than the merits or drawbacks of the Review. This has affected the Marine Corps Force Design 2030 in a similar way.

The debate around Force Design 2030 has generated numerous editorials by former Marine general officers using the online forum Task and Purpose to express their dismay at the changing Corps, seemingly adrift from its “true” mission.⁴⁵ The critique has been harsh toward Berger’s arguments that the mission and future of the Corps will be focused primarily on China and light, stand-in forces in the Indo-Pacific.⁴⁶

One of the most roundly criticized decisions was the divestiture of Marine tanks.⁴⁷ The argument against this decision is twofold: (1) tanks are a core element to the legacy of the Marine Corps, and (2) they are essential to a “true” combined arms team. Like the downsizing of British armor, this has brought Berger’s decision into the wider discussion on whether tanks are still viable in future conflicts.

Army leaders must not be distracted by sensational videos of catastrophic tank kills at the hands of anti-tank weapons, or the comments of former Marine generals. Force Design 2030 has, in the event of large-scale combat operations in the Indo-Pacific, placed the burden of providing mobile protected firepower through armor on the Army. Modernization programs have long been underway to outfit M1A2 SEPv2 and v3 Abrams with active protection systems to mitigate

the proliferation of ATGMs and similar munitions.⁴⁸ However, this modernization is not without increased challenges and risk, as the weight of the Abrams has increased to a point in which many transports cannot carry them.⁴⁹ Discussions will no doubt continue on the use of heavy tanks on modern battlefields given the mechanical and logistical mountains that must be moved to deploy, sustain, and protect them in a range of climes against an array of threats.

The tank discussion also misses larger questions: Are the British armed forces and the U.S. Marine Corps restructuring for all the “right” threats at the “right” scale? And, are both initiatives an outgrowth of assumptions on future warfighting, namely the region and the pacing threat? Tanks are merely a small part of these much larger processes. Key to these questions is whether British and Marine Corps force planners recognize their assumptions within the redesign process. Army planners face the same questions as they continue to watch the war in Ukraine and apply observations toward MDO on future battlefields. These planners and leaders must work to mitigate confirmation bias throughout the observation process, instead looking for gaps within MDO potentially exposed during the fighting in Ukraine and other recent conflicts.⁵⁰

The nature of the tank debate has given in to misguided and generalized lessons learned that make for splashy article titles but less meaningful points of discussion. The character of armored warfare is changing but to conclude the end of tanks as a lesson of recent wars is giving in to hysterics. Perhaps a more nuanced observation from recent conflicts indicates a need for smaller, faster tanks and armored vehicles rather than the heavy main battle tanks that have been the subject of so many ATGM and drone strike videos.

Where similarities are drawn among the conditions for a “doctrinal renaissance” in MDO, Force Design 2030, and the post-Vietnam Army, similarities too must be drawn regarding their narrow focus on one region and one threat. The Yom Kippur War gave Army leaders the necessary opportunity to refocus on a Soviet invasion of central Europe, which these leaders already thought was the Army’s primary threat. For DePuy, the lesson pulled from Vietnam was clear: a dismissal of the value of terrain and a constant reliance on overwhelming firepower had spoiled a generation of soldiers and commanders on the skills required for the

next war. Instead, the Army needed to expect a short, sharp, high-intensity war of combined arms formations maneuvering against each other to control key terrain, destroy the enemy main body, and secure rear areas.⁵¹

The Army seems to face a similar reality in the wake of the war in Afghanistan and discussions on force design. Skills required for the next perceived war have atrophied during twenty years of counterinsurgency in Afghanistan and elsewhere, leaving America’s competitors to fill the gap with a focus on emerging technologies integrated into maneuver formations.⁵² And yet, there seems to be little interest in the lessons of Afghanistan except to learn that opportunities lie elsewhere for the service’s purpose in future warfighting.⁵³

The lessons-learned process led by DePuy and Starry was successful in its technical application of changing behavior down to the tactical level, though the process itself was centered on a major assumption of both threat and region. Essentially, the Army prepared for the war it wanted to fight, which remains a distinct possibility for the post-Afghanistan U.S. Army. The Yom Kippur War also allowed Army leaders to move on from Vietnam, relegating that war to some aberration of American warfighting.⁵⁴

What Can We Observe?

A war does not need to come to its military or political conclusion for the lessons-learned process to begin. TTPs are borne from frontline experiences to provide quick changes on the battlefield to better prepare for future engagements with an enemy. These battlefield changes can influence the trajectory of a conflict, altering preconceived notions and assumptions about its likely result. To this end, it is important that, as battlefield lessons continue to be learned during a conflict, those lessons become institutionalized by higher echelons upon some tangible effect or proof of concept borne out of preliminary lessons learned and observations.

Rapidly turning observations to lessons and then to actionable change, particularly in times of war, can have the effect of watering down a product through generalizations instead of distilling it into something of value. Though, observations and lessons developed over a significant amount of time may also sit dusty on a shelf, if any are developed at all, rather than be used for effective change. This



A soldier from the 2nd Battalion, 327th Infantry Regiment, 101st Airborne Division, points toward incoming fire during a firefight with the Taliban 29 March 2011 in the valley of Barawala Kalet, Kunar Province, Afghanistan. (Photo by Pfc. Cameron Boyd, U.S. Army)

stems, in part, from the confirmation bias attained when applying a particular lens to a conflict, validating one's own concept for future war. Lessons learned from a long, painful conflict may instead be ignored because it is not the type of war a service or military's leaders wish to fight in the future.

It is important for Army leaders to break from the historical comparison between the post-Vietnam U.S. Army and post-Afghanistan U.S. Army and apply as much attention to learning from the war in Afghanistan as is currently being spent on Ukraine. The character of the fighting in Afghanistan and Ukraine are different, but this should not incentivize Army leadership to sweep the former aside so that the service might be ready for a future very different from the last twenty years of conflict. Two decades of experience in counterinsurgency and stability operations lie in wait, ripe for the same analytical energy given to the "special military operation" in Ukraine. As Jason Fritz wrote in a 2014 *War on the Rocks* article, "As we continue the debates over what

our forces look like, how they are equipped, and how they are trained, it seems that we should assess the lessons we have observed from these wars and others and ensure that we set our forces up for success in the future. We greatly wasted the 20 years between Vietnam and our contemporary wars and we cannot afford to do so again."⁵⁵ Ten years later, this observation rings true. Ukraine cannot be the only war from which lessons are drawn and applied to U.S. military structure, training, and equipment.

The lessons-learned process can and should begin before conflict termination through observations. Upon the war's end in Ukraine, leaders must then strive to learn beyond their own assumptions drawn from these observations. Taken together, the conditions that bring the war to an end, patient observations from throughout the fighting, and an iterative assumptions-check process will aid enormously on the road to a comprehensive lessons-learned process and changed institutional behavior for future conflicts. ■

Notes

Epigraph. Austin Bay and James F. Dunnigan, *From Shield to Storm: High-Tech Weapons, Military Strategy, and Coalition Warfare in the Persian Gulf* (New York: William Morrow, 1992), 7.

1. "War in Ukraine Has Become War of Attrition Likely to End through Negotiations, NATO Chief Says," Radio Free Europe/Radio Liberty, 2 June 2022, <https://www.rferl.org/a/ukraine-war-attrition-stoltenberg-biden/31880711.html>; Dan Peleschuk and Herbert Villarraga, "Russia Intensifies Attacks on Kherson in Ukraine's South, Bakhmut in East," Reuters, 28 December 2022, <https://www.reuters.com/world/europe/russian-missiles-rain-down-ukraine-towns-putin-says-he-is-open-talks-2022-12-26/>.

2. Mykhaylo Zabrodskiy et al., *Preliminary Lessons in Conventional Warfighting from Russia's Invasion of Ukraine: February–July 2022* (London: Royal United Services Institute for Defence and Security Studies [RUSI], 30 November 2022), <https://rusi.org/explore-our-research/publications/special-resources/preliminary-lessons-conventional-warfighting-russias-invasion-ukraine-february-july-2022>.

3. Emma Elfversson and Kristine Höglund, "Have Cities Become the Main Battlegrounds in Armed Conflicts?," Urban Violence Research Network, 27 October 2021, <https://urbanviolence.org/have-cities-become-the-main-battlegrounds-in-armed-conflicts/>; Samir Puri, "Three Weeks of Urban Warfare in Ukraine," Urban Violence Research Network, 22 March 2022, <https://urbanviolence.org/urban-warfare-in-ukraine/>.

4. Franz-Stefan Gady and Alexander Stronell, "What Nagorno-Karabakh Revealed about Future Warfighting," World Politics Review, 19 November 2020, <https://www.worldpoliticsreview.com/what-the-nagorno-karabakh-conflict-revealed-about-future-warfighting/>. These authors provide a more nuanced explanation of tanks and future battlefields rather than the oversimplified conclusion that drones have single-handedly made tanks obsolete.

5. Eric Michael Burke, "Ignoring Failures: General DePuy and the Dangers of Interwar Escapism," *Military Review* 101, no. 1 (January-February 2023): 42–58, <https://www.armyupress.army.mil/Journals/Military-Review/English-Edition-Archives/January-February-2023/Burke/>; David Johnson, "Failure to Learn: Reflections on a Career in the Post-Vietnam Army," War on the Rocks, 24 January 2014, <https://warontherocks.com/2014/01/failure-to-learn-reflections-on-a-career-in-the-post-vietnam-army/>; Rebecca Kheel, "After Messy Afghanistan Withdrawal, Questions Remain," The Hill, 6 September 2021, <https://thehill.com/policy/defense/570810-five-questions-congress-wants-answered-about-afghanistan-withdrawal/>.

6. 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, 6 December 2018).

7. George W. Bush, "Presidential Address to the Nation" (speech, White House, Washington, DC, 7 October 2001), <https://georgewbush-whitehouse.archives.gov/news/releases/2001/10/20011007-8.html>. This speech was delivered at the start of Operation Enduring Freedom.

8. Haley Britzky, "As the World Moves On, Veterans of the Afghanistan Withdrawal Struggle to Join Them," Task and Purpose, 29 August 2022, <https://taskandpurpose.com/news/army-marine-corps-air-force-veterans-afghanistan-withdrawal/>.

9. For example, see Edmund J. "E. J." Degen and Mark J. Reardon, *Modern War in an Ancient Land: The United States Army in Afghanistan 2001-2014 Volumes I and II* (Washington, DC: U.S. Army Center of Military History, 2021), <https://history.army.mil/html/books/059/59-1/index.html>; Craig Whitlock, *The Afghanistan Papers: A Secret History of the War* (New York: Simon and Schuster, 2021); Special Inspector General for Afghanistan Reconstruction (SIGAR), *What We Need to Learn: Lessons from Twenty Years of Afghanistan Reconstruction* (Washington, DC: SIGAR, 2021), <https://www.sigar.mil/pdf/lessonslearned/SIGAR-21-46-LL.pdf>.

10. Joseph R. Biden Jr., "Remarks on the Russian Invasion of Ukraine" (speech, White House, Washington, DC, 24 February 2022), <https://miller-center.org/the-presidency/presidential-speeches/february-24-2022-remarks-russian-invasion-ukraine>.

11. Center for Army Lessons Learned (CALL), *Establishing a Lessons Learned Program: Observations, Insights, and Lessons*, CALL Handbook 11-13 (Fort Leavenworth, KS: CALL, 2015), 6, <https://usacac.army.mil/sites/default/files/publications/11-33.pdf>.

12. Ibid.

13. Jason Fritz, "Lessons Observed on Lessons Observed: IEDs, Advising, and Armor," War on the Rocks, 3 February 2014, <https://warontherocks.com/2014/02/lessons-observed-on-lessons-observed-ieds-advising-and-armor/>.

14. John Spencer, "What Is Army Doctrine?," Modern War Institute at West Point, 21 March 2016, <https://mwi.usma.edu/what-is-army-doctrine/>.

15. Army Doctrine Publication 1-01, *Doctrine Primer* (Washington, DC: U.S. Government Publishing Office, 2019), 1-3.

16. Vazha Tavberidze, "Interview: Military Analyst Says Russia's Invasion of Ukraine Is Now a 'War of Attrition,'" Radio Free Europe/Radio Liberty, 23 July 2022, <https://www.rferl.org/a/russia-ukraine-war-attrition-kofman-interview/31956739.html>; Peleschuk and Villarraga, "Russia Intensifies Attacks."

17. Liz Sly and Dan Lamothe, "Russia's War for Ukraine Could Be Headed toward Stalemate," *Washington Post* (website), 20 March 2022, <https://www.washingtonpost.com/world/2022/03/20/russia-ukraine-military-offensive/>.

18. "Russia Calls Up 300,000 Reservists, Says 6,000 Soldiers Killed in Ukraine," Reuters, 21 September 2022, <https://www.reuters.com/world/europe/russias-partial-mobilisation-will-see-300000-drafted-defence-minister-2022-09-21/>.

19. Lolita C. Baldor, "US Army Using Lessons from Ukraine War to Aid Own Training," *Army Times* (website), 16 April 2022, <https://www.armytimes.com/news/2022/04/16/us-army-using-lessons-from-ukraine-war-to-aid-own-training/>.

20. Defense of Ukraine (@DefenceU), "It is clear to us why, under the pressure of our military, the russkies leave behind their weapons and ammunition when fleeing! (this is always the case). But to abandon a washing machine! A trophy won with so much effort! We will never understand this," X (formerly Twitter), 6 September 2022, 1:41 p.m., <https://twitter.com/DefenceU/status/1567221505775308802>; Steve Speece, "On Trolls and Nuclear Signaling: Strategic Ability in the Age of Memes," Modern Warfare Institute at West Point, 13 September 2022, <https://mwi.usma.edu/on-trolls-and-nuclear-signaling-strategic-stability-in-the-age-of-memes/>.

21. Justin Katz, "Marine Commandant Talks Ukraine, Force Design 2030 Controversy," *Breaking Defense*, 9 May 2022, <https://breakingdefense.com/2022/05/marine-commandant-talks-ukraine-force-design-2030-controversy/>.
22. Walker Mills and Timothy Heck, "Be All You Can Be: Why the Marine Corps Should Look to the Army for Lessons on Force Design," *Modern War Institute at West Point*, 27 January 2022, <https://mwi.usma.edu/be-all-you-can-be-why-the-marine-corps-should-look-to-the-army-for-lessons-on-force-design/>.
23. Katz, "Marine Commandant Talks Ukraine."
24. Paul H. Herbert, *Deciding What Has to Be Done: General William E. DePuy and the 1976 Edition of FM 100-5, Operations*, Leavenworth Papers no. 16 (Fort Leavenworth, KS: Combat Studies Institute, June 1988), 33, <https://apps.dtic.mil/sti/pdfs/ADA531279.pdf>.
25. *Ibid.*, 30; Ethan Orwin, "Not an Intellectual Exercise: Lessons from U.S.-Israeli Institutional Army Cooperation, 1973–1982," *Military Review* 100, no. 1 (January-February 2020): 45–54, <https://www.armyupress.army.mil/Journals/Military-Review/English-Edition-Archives/January-February-2020/Orwin-US-Israeli/>.
26. Herbert, *Deciding What Has to Be Done*, 34–35.
27. Orwin, "Not an Intellectual Exercise."
28. Romie L. Brownlee and William J. Mullen III, *Changing an Army: An Oral History of General William E. DePuy, USA Retired* (Washington, DC: U.S. Army Center of Military History, 1988), 191, <https://history.army.mil/catalog/pubs/70/70-23.html>.
29. Herbert, *Deciding What Has to Be Done*, 61, 65.
30. Field Manual 100-5, *Operations* (Washington, DC: U.S. Government Printing Office, 1976 [obsolete]).
31. Orwin, "Not an Intellectual Exercise."
32. Field Manual 100-5, *Operations* (Washington, DC: U.S. Government Printing Office, 1982 [obsolete]).
33. Mohammed Ghobari and Aziz El Yaakoubi, "Houthi Drones Kill Several at Yemeni Military Parade," *Reuters*, 19 January 2019, <https://www.reuters.com/article/idUSKCN1P40N3/>.
34. Thomas Braun and Alexander Fleiss, "Miniature Menace: The Threat of Weaponized Drone Use by Violent Non-State Actors," *Wild Blue Yonder*, 14 September 2020, <https://www.airuniversity.af.edu/Wild-Blue-Yonder/Article-Display/Article/2344151/miniature-menace-the-threat-of-weaponized-drone-use-by-violent-non-state-actors/>; Joby Warrick, "Use of Weaponized Drones by ISIS Spurs Terrorism Fears," *Washington Post* (website), 21 February 2017, https://www.washingtonpost.com/world/national-security/use-of-weaponized-drones-by-isis-spurs-terrorism-fears/2017/02/21/9d83d51e-f382-11e6-8d72-263470bf0401_story.html.
35. Mike Eckel, "Drone Wars: In Nagorno-Karabakh, The Future of Warfare Is Now," *Reuters*, 9 October 2020, <https://www.rferl.org/a/drone-wars-in-nagorno-karabakh-the-future-of-warfare-is-now/30885007.html>; Seth J. Frantzman, "How Azerbaijan's Drones Show What the Future War Looks Like," *Newsweek* (website), 7 October 2020, <https://www.newsweek.com/how-azerbajjans-drones-show-what-future-war-looks-like-opinion-1536487>.
36. Jack Watling, "The Key to Armenia's Tank Losses: The Sensors, Not the Shooters," *RUSI*, 6 October 2020, <https://rusi.org/explore-our-research/publications/rusi-defence-systems/key-armenias-tank-losses-sensors-not-shooters>.
37. Piotr Skolimowski, "Destroyed Russian Tanks to be Paraded in Europe by Ukraine," *Bloomberg News*, 20 June 2022, <https://www.bloomberg.com/news/articles/2022-06-20/destroyed-russian-tanks-to-be-paraded-across-europe-by-ukraine>.
38. Robert Bateman, "No, Drones Haven't Made Tanks Obsolete," *Foreign Policy* (website), 15 October 2020, <https://foreignpolicy.com/2020/10/15/drones-tanks-obsolete-nagorno-karabakh-azerbaijan-armenia/>; Emil Filtenborg, "Attack Drones Dominating Tanks as Armenia-Azerbaijan Conflict Showcases the Future of War," *The Daily Beast*, 26 October 2020, <https://www.thedailybeast.com/attack-drones-dominating-tanks-as-armenia-azerbaijan-conflict-showcases-the-future-of-war>.
39. Nailia Bagirova, "Exclusive: After Ukraine, 'Whole World' Is a Customer for Turkish Drone, Maker Says," *Reuters*, 30 May 2022, <https://www.reuters.com/business/aerospace-defense/exclusive-after-ukraine-whole-world-is-customer-turkish-drone-maker-says-2022-05-30/>.
40. U.S. Marine Corps, *Force Design 2030 Annual Update* (Washington, DC: U.S. Marine Corps, 2022), https://www.marines.mil/Portals/1/Docs/Force_Design_2030_Annual_Update_June_2023.pdf; United Kingdom Cabinet Office, *Global Britain in a Competitive Age: The Integrated Review of Security, Defence, Development and Foreign Policy* (London: Cabinet Office, 2 July 2021), <https://www.gov.uk/government/publications/global-britain-in-a-competitive-age-the-integrated-review-of-security-defence-development-and-foreign-policy/>.
41. Scott Cuomo, "On-the-Ground Truth and Force Design 2030 Reconciliation: A Way Forward," *War on the Rocks*, 12 July 2022, <https://warontherocks.com/2022/07/on-the-ground-truth-and-force-design-2030-reconciliation-a-way-forward/>; Keith Dear, "Ukraine, the Integrated Review & Land Power in Europe," *Wavell Room*, 6 April 2022, <https://wavellroom.com/2022/04/06/ukraine-the-integrated-review-land-power-in-europe/>. These articles provide a solid explanation of the varying arguments against Force Design 2030 and the Integrated Review, the latter placing these arguments within the context of Ukraine.
42. Louisa Brooke-Holland, *Defense Command Paper 2021: Summary*, Briefing Paper no. 9181 (London: House of Commons, 19 March 2021), 6–8, <https://commonslibrary.parliament.uk/research-briefings/cbp-9181/>.
43. Jon Hawkes, Sam Cranny-Evans, and Mark Cazalet, "The Tank Is Dead. Long Live the Tank," *Wavell Room*, 1 October 2020, <https://wavellroom.com/2020/10/01/a-critical-analysis-of-the-future-of-the-tank/>.
44. Brooke-Holland, *Defense Command Paper 2021*, 7.
45. Paul Szoldra, "A Fundamental Transformation Is Taking Place within the Marine Corps. Is That a Good Thing?," *Task and Purpose*, 19 April 2022, <https://taskandpurpose.com/news/marine-corps-force-design-intro/>.
46. Anthony Zinni, "What Is the Role of the Marine Corps in Today's Global Security Environment?," *Task and Purpose*, 19 April 2022, <https://taskandpurpose.com/news/zinni-marine-corps-role/>.
47. David H. Berger, "Preparing for the Future: Marine Corps Support to Joint Operations in Contested Littorals," *Military Review Online Exclusive*, 20 April 2021, <https://www.armyupress.army.mil/journals/military-review/online-exclusive/2021-ole/berger-future/>.
48. Sydney J. Freedberg Jr., "Army Tests New Active Protection for Abrams, Bradley, AMPV, Stryker," *Breaking Defense*, 17 February 2021, <https://breakingdefense.com/2021/02/army-tests-new-active-protection-for-abrams-bradley-ampv-stryker/>.
49. Jen Judson, "Creeping Weight of Abrams Tank Concerns Pentagon's Chief Weapons Tester," *Defense News* (website), 26 January 2021, <https://www.defensenews.com/land/2021/01/26/creeping-weight-of-abrams-tank-concerns-pentagons-chief-weapons-tester/>.

50. David Johnson, "The Army Risks Reasoning Backwards in Analyzing Ukraine," *War on the Rocks*, 14 June 2022, <https://warontherocks.com/2022/06/the-army-risks-reasoning-backwards-in-analyzing-ukraine/>.

51. Brownlee and Mullen, *Changing an Army*, 150–54; Herbert, *Deciding What Has to Be Done*, 20; Richard M. Swain, *Selected Papers of General William E. DePuy, First Commander, U.S. Army, Training and Doctrine Command, 1 July 1973* (Fort Leavenworth: Combat Studies Institute, 1994), 113–16.

52. "Army Works to Rebuild Atrophied Skills," Association of the United States Army, 19 April 2019, <https://www.ausa.org/news/army-works-rebuild-atrophied-skills>.

53. Lieutenant General (Ret.) Doug Lute, Dr. Jason Lyall, and Major Sam Wilkins, "The War That Shall Not Be Named: Lessons from Afghanistan for the Army," interview by Kyle Atwell, *Social Science of War*, podcast audio, 23 January 2023, <https://mwi.westpoint.edu/the-war-that-shall-not-be-named-lessons-from-afghanistan-for-the-army/>.

54. Herbert, *Deciding What Has to Be Done*, 19.

55. Fritz, "Lessons Observed on Lessons Observed."