

The Direction of the Armor Branch: Waiting for Another Yom Kippur War is Too Late

A Monograph

by

MAJ Erik M. Miller
US Army



School of Advanced Military Studies
US Army Command and General Staff College
Fort Leavenworth, KS

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14. ABSTRACT Over the last fourteen years, the Army focused on counterinsurgency and stability operations. This resultant loss of functionality and competency in the ability to conduct ground operations of sufficient scale and ample duration against a highly competitive peer adversary in the unforgiving environment of ground combat, is General Milley's greatest concern. The US Army was in a similar situation following the Vietnam conflict and it took the Yom Kippur War of 1973 for the United States to recognize its own significant vulnerability. Observing the effects of the Yom Kippur War, the Army transitioned to face the near-peer threat of the Soviet Union. In doing so, the Army focused on rebuilding its armored formations equipped with new materiel solutions, paired with increased readiness and improved training. Seen as a watershed event, the US military's campaign in Desert Storm and Desert Shield appeared to validate the new principles of the AirLand Battle concept developed following Vietnam. However, since 9/11, the US Army transitioned its training, materiel, and readiness focus away from its previous Gulf War experience of large scale combat operations. As the nation faces rising near-peer competitors, the US Army must again require its maneuver forces to be more agile and flexible, rather than a myopic focus on COIN. This recognized shortfall should serve as the catalyst to bring about a change in the Armor Branch to refocus readiness on large scale combat operations. Waiting for another Yom Kippur to stimulate the sense of urgency may be too late.					
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Name of Candidate: MAJ Erik M. Miller

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Approved by:

_____, Monograph Director
Mark T. Calhoun, PhD

_____, Seminar Leader
Richard A. Martin, COL

_____, Director, School of Advanced Military Studies
James C. Markert, COL

Accepted this 24th day of May 2017 by:

_____, Director, Graduate Degree Programs
Robert F. Baumann, PhD

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Abstract

The Direction of the Armor Branch: Waiting for Another Yom Kippur War is Too Late, by MAJ Erik Miller, US Army, 37 pages.

Over the last fourteen years, the US Army focused on counterinsurgency and stability operations. General Milley has described as his greatest concern the resultant loss of functionality and competency in the ability to conduct ground operations of sufficient scale and ample duration against a highly competitive peer adversary in the unforgiving environment of ground combat. The US Army was in a similar situation following the Vietnam conflict and it took the Yom Kippur War of 1973 for the United States to recognize its own significant vulnerability. Observing the effects of the Yom Kippur War, the US Army transitioned to face the near-peer threat of the Soviet Union. In doing so, the US Army focused on rebuilding its armored formations equipped with new materiel solutions, paired with increased readiness and improved training. Seen as a watershed event, the US military's campaign in Desert Storm and Desert Shield appeared to validate the new principles of the AirLand Battle concept developed following Vietnam. However, since 9/11, the US Army transitioned its training, materiel, and readiness focus away from its previous Gulf War experience of large scale combat operations. As the nation faces rising near-peer competitors, the US Army must again require its maneuver forces to be more agile and flexible, rather than a myopic focus on COIN. This recognized shortfall should serve as the catalyst to bring about a change in the Armor Branch to refocus readiness on large scale combat operations. Waiting for another Yom Kippur to stimulate the sense of urgency may be too late.

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To my wife, Cathy, thank you for enduring this process. Your patience, love and support are more than I deserve. I cannot thank you enough.

Acronyms

ARFORGEN	Army Forces Generation
ABCT	Armor Brigade Combat Team
ADP	Army Doctrine Publication
ADRP	Army Doctrine Reference Publication
ARTEP	Army Training and Evaluation Program
ARVN	Army of the Republic of Vietnam
ATGM	Anti-Tank Guided Missile
AUSA	Association of the United States Army
CAC	Combined Arms Center
CONARC	Continental Army Command
CGSC	Command and General Staff College
COIN	Counterinsurgency
CSI	Combat Studies Institute
CTC	Combat Training Center
FLVN	Fort Leavenworth, Kansas
FM	Field Manual
FY	Fiscal Year
FORSCOM	Forces Command
GWOT	Global War on Terrorism
IADS	Integrated Air Defense System
IDF	Israeli Defense Forces
LSCO	Large Scale Combat Operations
MCoE	Maneuver Center of Excellence
NATO	North Atlantic Treaty Organization
NCO	Non-Commissioned Officer

NTC	National Training Center
PCS	Permanent Change of Station
RAND	Research and Development Group
REFORGER	Return of Forces to Germany
RORO	Roll On, Roll Off
SRM	Sustainable Readiness Model
TRADOC	Training and Doctrine Command
TRICAP	Triple Capability
USSR	Union of Socialist Soviet Republics

Introduction

However, as I observe Armor today from my vantage point, there is an air of complacency—one officer called it a ho-hum attitude—about us that is alarming and I believe out of character. So, let me talk about that a little tonight, just to get your attention and keep your thoughts moving. If I make you angry, so much the better. Perhaps you'll accept the challenge and do something instead of resting on your laurels.

— General Donn Starry, Armor Conference, Fort Knox, Kentucky, 1980

Although nearly forty years have passed, General Starry's comments echo today's situation. The US Army was in a similar situation after its departure from Vietnam. It took the Yom Kippur War to serve as a catalyst for change. The US Army has spent the last seventeen years focused on counterinsurgency and nation-building operations with few instances of high-intensity conflict and is now preparing to transition out of Iraq and Afghanistan. The potential is at hand for the US Army to retain its proficiency, while shifting focus to a new threat—peer or near-peer.¹ The US Army's current Chief of Staff General Mark Milley understands the risk associated with not adapting to meet the likely future threat and states that the US Army has lost its ability to fight a peer or near-peer.² Speaking at the 2017 Association of the US Army (AUSA) meeting on 9 October 2017, Milley said,

In sum, we're risking the ability to conduct ground operations of sufficient scale and ample duration to achieve strategic objectives or win decisively at an acceptable cost against a highly lethal hybrid threat or near-peer adversary in the unforgiving

¹ As defined by the December 2017 version of Training and Doctrine Command's *Multi-Domain Battle: Evolution of Combined Arms for the 21st Century*, Multi-Domain Battle is the convergence of capabilities to create windows of advantage (often temporary) across multiple domains and contested areas throughout the depth of the battlespace to seize, retain, and exploit the initiative; defeat enemies; and achieve military objectives. The document defines a peer adversary as those nation states with the intent, capabilities, and capacity to contest US interests globally in most or all domains and environments. US Department of the Army, Army Doctrine Reference Publication (ADRP) 3-0, Operations (Washington, DC: Government Printing Office, 2017), 1-18.

² Patrick Murphy and General Mark Milley, *A Statement on the Posture of the United States Army 2016* (Washington, DC: Government Printing Office, 2016); Lieutenant General John Murray, Lieutenant General Joseph Anderson, Lieutenant General Paul Ostrowski, and Major General Robert Dyess, *A Statement on Army Modernization Before the Subcommittee Airland Committee on Armed Services United States Senate* (Washington, DC: Government Printing Office, February 7, 2018).

environment of ground combat. While we focused on the counter-terrorist fight, other countries—Russia, Iran, China, North Korea—went to school on us. They studied our doctrine, our tactics, our equipment, our organization, our training, our leadership. And, in turn, they revised their own doctrines, and they are rapidly modernizing their military today to avoid our strengths in hopes of defeating us at some point in the future.³

The challenge the US Army faces does not simply involve the way each individual branch should adjust doctrine or training; the larger challenge is making those adjustments for each branch while remaining a capable member of the US Army’s total combined arms force. The Armor Branch has faced such a challenge before.

When the Vietnam War ended in 1973, the US Army had spent the previous eight years fighting an unconventional conflict. Although relatively few, the South Vietnamese—supported by American armored forces—did engage in in tank-on-tank engagements against the North Vietnamese Army (NVA).⁴ This led to a deterioration of skills associated with effective combined arms employment to a point that the Armor Branch believed its proficiency had fallen below that of the Soviet Union.⁵ When paired with the demonstration of Soviet equipment capability in the Yom Kippur War of 1973, the Armor Branch—along with key leaders like General William DePuy, commander of US Army Training and Doctrine Command (TRADOC)—recognized the need to change.⁶

The Yom Kippur War began in Israel on October 6, 1973, and ended less than three weeks later, on October 25. While the war did not last long, it had far-reaching and long-lasting

³ David Barno and Nora Bensahel, “Three Things the Army Chief of Staff Wants You to Know,” *War on the Rocks*, May 22, 2017, accessed December 28, 2017, <https://warontherocks.com/2017/05/three-things-the-army-chief-of-staff-wants-you-to-know>.

⁴ The first notable tank engagement took place in April of 1972 against the NVA 203rd Armor Regiment at Dong HA and Tan Canh, and the second occurred during Operation Lam San 719 in February 1971. See Don Starry, *Mounted Combat in Vietnam Studies* (Washington, DC: Department of the Army, 1978), 150-153.

⁵ US Army Armor School Pamphlet 360-2, “This is Armor” (Fort Benning, GA: Maneuver Center of Excellence, Office of the Chief of Armor, April 13, 2017), 43.

⁶ William E. DePuy, Richard M. Swain, Donald L. Gilmore, and Carolyn D. Conway, *Selected Papers of General William E. DePuy: First Commander, US Army, Training and Doctrine Command, 1 July 1973* (Fort Leavenworth, KS: Combat Studies Institute, US Army Command and General Staff College, 1994), 72.

implications—particularly with respect to the US Army’s conception of future warfare.⁷ The conflict began with simultaneous attacks on Israel from Egypt and Syria to recapture land lost in the Arab-Israeli War of 1967. In the first twenty-four hours of the conflict, the Egyptian forces crossed the Suez Canal and penetrated the Bar-Lev line, surprising the Israeli Defense Force (IDF) and rendering it unable to counterattack.⁸ Simultaneously, Syrian forces attacked IDF forces on and around the Golan Heights. Over the next three weeks, the Israelis and Arabs fought several battles that tested modern weapons, pitting modern Soviet weapons and doctrine, employed by both Egypt and Syria, against Israelis in American equipment.⁹ Both sides suffered significant materiel losses, and although the Israelis ultimately overcame the setbacks of the war’s early stages, the implications were clear. Soviet equipment could defeat American equipment. Precision-guided munitions, wire-guided anti-tank missiles, and new air defense missile systems had changed the character of modern combat. This conflict demonstrated the lethality and potential cost of modern warfare.¹⁰

Starting with an academic review of the Yom Kippur War, the US Army implemented changes and began training based on a new conception of the future threat. Under the leadership of General DePuy, TRADOC assumed the mantle of identifying the capability gap and shifting focus from jungles to Eastern Europe, and from Counterinsurgency (COIN) to conventional warfare against a peer enemy—the Soviet Union. That focus on near-peer, conventional combat—which lasted from 1973 to 1986—ultimately resulted in three versions of Field Manual

⁷ Insight Team of the London Sunday Times, *The Yom Kippur War* (Shelter Island Heights, NY: I Books, 2002), 492.

⁸ Ḥasan Badrī, Tāhā Majdūb, and Ḍiyā’ al-Dīn Zuhdī, *The Ramadan War, 1973* (Dunn Loring, Va.: T. N. Dupuy Associates, 1977), 51.

⁹ Lester Sobel, *Israel & the Arabs: The October 1973 War* (New York: Facts on File, 1974).

¹⁰ Robert Doughty, *The Evolution of US Army Tactical Doctrine, 1946-76*, Leavenworth Papers Vol. 1. (Fort Leavenworth, KS: Combat Studies Institute, US Army Command and General Staff College, 1979), 41.

(FM) 3-0, Operations, with the final version containing what became AirLand Battle doctrine.¹¹ The creation of TRADOC, the transition to an all-volunteer force, and renewed focus on a peer threat spurred significant changes in army equipment, doctrine, and organization, including a re-forging of the Armor Branch. The focus paid off when the US Army effectively executed a campaign grounded in and guided by AirLand Battle doctrine during the first Gulf War. It appeared that the US Army had reached a pinnacle in the employment of mechanized and armored forces.

In a similar situation to the Vietnam War era, both the US Army and its Armor Branch have focused over the last seventeen years on counterinsurgency and stability, while losing proficiency in Large Scale Combat Operations (LSCO). The Department of the Army published updated doctrine to address this issue. A new, updated FM 3-0, Operations, published in October 2017 describes how the US Army, as part of a joint force, will conduct large-scale combat operations against a peer threat in the twenty-first century. The declaration of a conflict against a peer threat in doctrine carries with it a series of expectations that the Armor Branch must be prepared to fulfill. Thus, the Armor Branch must review and adjust its culture and develop leaders and soldiers trained in the execution of the new doctrine to fill the gaps left in the branch's institutional knowledge after seventeen years of focus on low-intensity conflict.¹² The US Army is transitioning away from operations focused on stability and counterinsurgency, and returning its focus to perceived peer threats to include Russia, China, North Korea, and Iran who are

¹¹ Walter E. Kretchik, *US Army Doctrine: From the American Revolution to the War on Terror* (Lawrence, KS: University Press of Kansas, 2011), 190.

¹² For more information, see Frederic Wehrey, *The Iraq Effect: The Middle East After the Iraq War* (Santa Monica, CA: RAND Corporation, 2010); Seyom Brown and Robert Scales, ed. *US Policy in Afghanistan and Iraq: Lessons and Legacies* (Boulder, CO: Lynne Rienner Publishers, 2012); Ahmed Hashim, *Insurgency and Counter-Insurgency in Iraq* (Ithica, NY: Cornell University Press, 2006).

advancing in technology and capability.¹³ This transition must include a review of the materiel, readiness, and training of the US Army, and the Armor Branch in particular.

Methodology

The following analysis evaluates three historical cases using materiel, readiness, and training as criteria to draw evidence that supports the conclusion and recommendations. The three independent case studies are the Yom Kippur War of 1973, the Gulf War of 1991, and the Global War on Terror (GWOT) from 2003 to 2017. The cross-case analysis and conclusion provide a summary of the findings and offer a recommendation for further focus.

The first criteria, materiel, draws its relevancy through identification of specific needs of the US Army to complete its assigned missions and as a general term to describe the changing needs of a functional army.¹⁴ The second criteria, readiness, serves as a gauge of the US Army's readiness for any challenge that it has faced in the past, or may potentially face in the future.¹⁵ The final criteria, training, is relevant due to the need to maintain performance and ability to fight the nation's wars and win against any of the United States' potential adversaries. The paper examines all three case studies through these three common threads.

The Yom Kippur War of 1973

The Arab-Israeli War of 1973 drew its origins in 1948 with Israel's independence and follow-on victory in May of 1948. The resulting ceasefire lasted until 1967, ending when Israel conducted a ground offensive to seize the Gaza Strip. Israel decimated Egypt's air force and ground forces in a quick, decisive war. Unwilling to accept an Israeli presence on the shores of

¹³ US Government, "The National Security Strategy of the United States of America, 2017," Donald Trump, accessed January 23, 2018, <https://www.whitehouse.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905.pdf>, 1-2.

¹⁴ Materiel, defined as "all items necessary to equip, operate, maintain, and support military activities without distinction as to its application for administrative or combat purposes." Department of Defense, *Department of Defense Dictionary of Military and Associated Terms* (Washington, DC: Department of Defense, Aug 2017), 148.

¹⁵ Readiness, defined as "the ability of military forces to fight and meet the demands of assigned missions." Ibid., 193.

the Suez Canal, Egyptian President Anwar Sadat signed a military assistance treaty with the Soviet Union in 1971.¹⁶ The Soviet Union provided an Integrated Air Defense System (IADS), Anti-Tank Guided Missiles (ATGMs), and other equipment to defeat Israel's armor and air force. Despite a decline in relations with the Union of Socialist Soviet Republics (USSR), Egypt massed its military materiel, conducted training exercises, and prepared to declare war.

Although the tension between Egypt and Israel required mediation at the international level, peace talks were ongoing and eventually, the two reached a stable cease-fire. Urged by the international community, both Egypt and Israel agreed to halt aggressions. The cease-fire did not hold and both countries took time to conduct planning for the offensive operations that would eventually take place.

On the other border of Israel, Syrian President Hafez al-Assad rebuilt the Syrian military following the 1967 war with the intention of becoming one of the dominant military powers in the Arab world. Assad worked with Anwar Sadat and others to form a coalition of Arab nations to attack Israel. The coalition partners developed a materiel solution through Russia, increased readiness, and improved training in preparation for the impending war. The Arab belligerents focused on regaining territory seized by Israel in 1967 which would restore the "rights of the

¹⁶ This served a dual purpose. The first was the immediate Egyptian materiel solution of Soviet bloc weapons and the second was a part of the greater Cold War Russian expansionism. Norman Friedman, *The Fifty-Year War: The Albatross of Decisive Victory* (Annapolis, MD: Naval Institute Press, 2000), 386.

Palestinians.”¹⁷ Israel’s response included air strikes and raids, as well as command-level exercises that demonstrated their abilities and reaffirmed their superior military position.¹⁸

Conduct of the War

Although at least nineteen intelligence publications warned of a possible threat, Israeli Defense Minister Moshe Dayan made a deliberate decision not to conduct a preemptive attack.¹⁹ The IDF ignored the warnings and failed to properly prepare for an Egyptian or Syrian offensive action.²⁰ Having spent the previous three years planning, training, and rehearsing, on October 6, 1973, Egyptian forces rapidly established five crossing points over the Suez Canal, penetrated the IDF positions and established a deliberate defense east of the canal. The IDF’s attempt to contain the offensive resulted in a casualty rate near ninety percent on the Bar-Lev Line.²¹ The only saving grace for the IDF was their ability at the tactical level to improvise, remain flexible, and employ modern weapon systems. Although Egyptian troop movement alerted Israel of activity indicating a possible attack, this brief warning did not allow time for an orderly mobilization of the reserves and instead led to the hasty mobilization of the land forces. The Egyptians had achieved total surprise. By late Sunday afternoon of October 7, Israel had only 90 tanks left of the

¹⁷ Following the peace treaty of 1967, there were minor continued attacks on both sides ramping up in 1972 and continuing into 1973. There were repeated instances of varying types of terrorist attacks and retaliations that took place. They ranged from guerilla attacks, airliner hijacking, claims on shooting down jets, naval clashes, assassinations, bombings, raids on Lebanon, Syria and Israel, and countless other events not reported in the news. Lester A. Sobel, *Israel & the Arabs: The October 1973 War* (New York: Facts on File, Inc, 1974), 4-84; Saad Shazly, *The Crossing of the Suez* (San Francisco, CA: American Mideast Research, 2003), 12.

¹⁸ As an example of the back and forth incursions, in December of 1969 the IDF landed on the Red Sea and raided an isolated radar station. The IDF dismantled it, loaded it on an aircraft, and flew back to Israel to prove a point. In June 1970, Egypt shot down two Israeli F4 raiders. Abraham Rabinovich, *The Yom Kippur War: The Epic Encounter that Transformed the Middle East* (New York: Schocken Books, 2017), 67.

¹⁹ Sobel, 90.

²⁰ Meir Finkel, *On Flexibility: Recovery from Technological and Doctrinal Surprise on the Battlefield* (Stanford, CA: Stanford Security Studies, 2011), 12.

²¹ Donn Starry and Lewis Sorley, *Press On!: Selected Works of General Donn A. Starry* (Fort Leavenworth, KS: US Army Combined Arms Center, 2009), 50.

original 250 on the border. The IDF's lack of readiness combined with Egypt's swift attack had proven lethal.

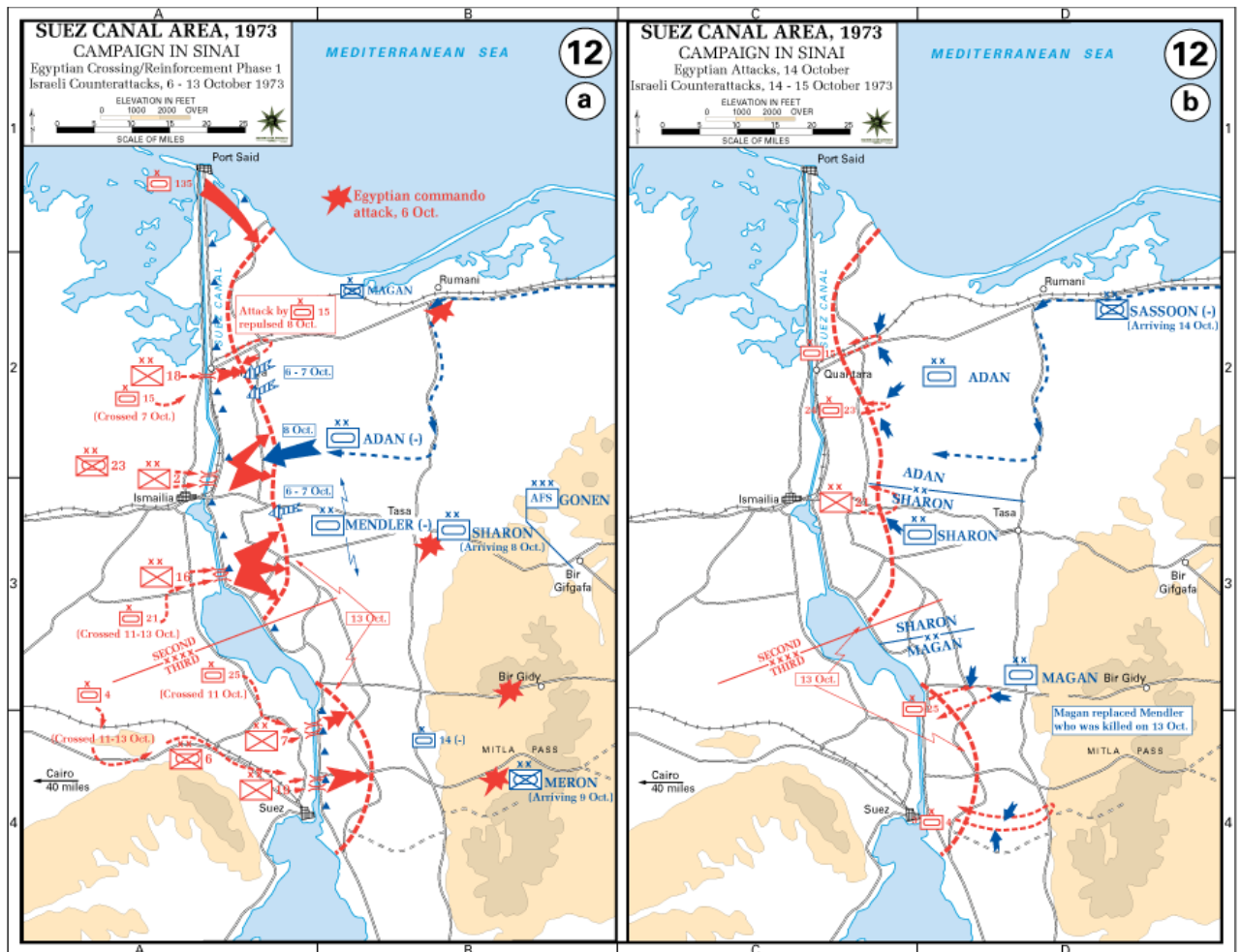


Figure 1. The Campaign in the Sinai, 6-15 October 1973. Department of History, United States Military Academy, "Arab Israeli Wars Atlas," accessed February 8, 2018, <https://www.usma.edu/history/SiteAssets/SitePages/Arab%20Israel/ArabIsraeli12Combined.gif>.

On October 8, the third day of the war, IDF mounted the first major counterattack aimed at Egyptian Second division's bridgehead at El Firdan. The attack was a disaster, even with the unit at an estimated ninety percent manned. The IDF division faced an Egyptian hasty defense with dismounted personnel arrayed in depth with Anti-Tank Guided Missiles (ATGMs). The Egyptian forces gained overwhelming success over the Israeli tank force, which was unprepared and untrained to face the dismounted threat. This counterattack with both aircraft and armored units, called the Battle of El Firdan, lacked the use of combined arms. As the war continued, the

IDF modified its tactics and proceeded as combined arms task forces rather than tank-pure formations.²² Despite the overwhelming victory in 1967, the Israeli lack of preparedness and combined arms training showed, leading to their initial defeat. The early Egyptian success was a shock to both the IDF and the world.

As the conflict unfolded, the combined efforts of Egyptian air strikes, IADS, and ATGMs proved effective.²³ The Egyptians conducted a skillful, surprise crossing of the Suez Canal and massed forces on the eastern side, overwhelming the unprepared and meagerly supplied Israeli strongpoints. Not planning to strike deep, the Egyptians halted their advance and prevented the IDF from reinforcing the Bar Lev line.²⁴

The Israelis lost approximately 400 tanks during their initial counterattack but did not significantly change their tactics. The Israelis merely perceived the guided missile threat as an additional hazard, not a revolution in warfare.²⁵ This oversight would prove to be deadly. The Israeli Army recognized that a mounted, tank-only approach was not going to defeat well-trained infantry with modern long range anti-tank missiles; only a combined arms approach to close combat would be effective. Having learned from their first failed attack, the Israelis achieved success with their second thrust.

After the Egyptians had a significant force across the Suez, the IDF destroyed nine of the eleven bridges across the canal to isolate the Egyptian force. Once the task-organized brigades cleared and penetrated Egyptian first echelon defenses, the Israeli Army disrupted and ultimately caused the collapse of the IADS umbrella that had protected the Egyptian force. The IDF attack overwhelmed the Egyptian Air Force and contributed to the complete tactical defeat of the

²² Frank Aker, *October 1973: The Arab-Israeli War* (Hamden, CT: Archon Books, 1985), 41.

²³ Sobel, 91.

²⁴ Rabinovich, 128.

²⁵ John Stone, *The Tank Debate: Armour And the Anglo-American Military Tradition* (Amsterdam: Harwood Academic, 2000), 8.

Egyptian Army. Within two weeks of continued tactical victories, the Israelis overwhelmed the Egyptian front. Ultimately, the IDF counterattacks halted just short of Cairo.

On the Syrian front, a different story unfolded. In conjunction with Egypt's attack, Syrian forces attacked Israel on the Golan Heights. Despite the element of surprise, the Syrian offensive did not achieve the same success as the Egyptians. The IDF on the Golan Heights was more familiar with the terrain, better prepared for a potential attack, and made better use of a combined arms defense.²⁶ The IDF rebuffed the Syrian assault, and by October 12, had gained nearly fifteen miles of ground not previously held.

²⁶ Martin van Creveld, *The Sword and the Olive: A Critical History of the Israeli Defense Force* (New York: Public Affairs, 2002), 229-232; Israel Tal, National Security, *The Israeli Experience* (Westport, CT: Praeger, 2000), 178-179.

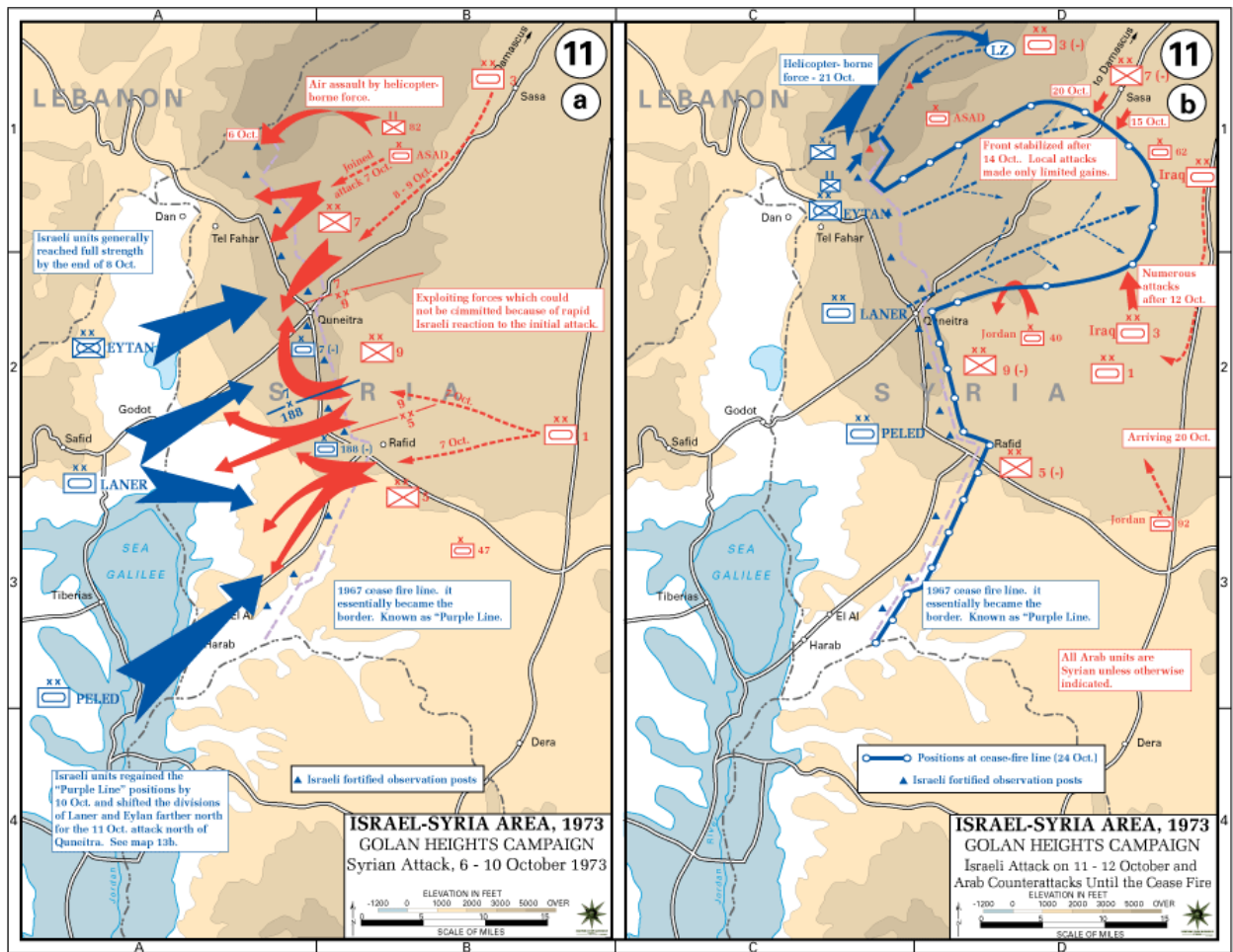


Figure 2. Golan Heights Campaign, 6-12 October 1973. Department of History, United States Military Academy, “Arab Israeli Wars Atlas,” accessed February 8, 2018, <https://www.usma.edu/history/SiteAssets/SitePages/Arab%20Israel/ArabIsraeli11Combined.gif>.

The Israeli advance in Egypt and solid defense in the Golan Heights eventually led to de-escalation and a United Nations brokered cease fire. The IDF regained ground lost at the beginning of the conflict and won the tactical fight decisively through combined arms.

Analysis

The Yom Kippur War ended in 1973 after only three weeks of combat but produced many long-standing lessons. The United States Army gleaned key lessons from the conflict that shaped both the US Army and the Armor Branch. The United States learned from the operational-level dynamics of the conflict, garnering insights that helped the US Army transition from a focus

on limited war in the jungle to conventional operations in Eastern Europe, leading to numerous organizational adaptations in terms of materiel, readiness, and training.

One of the overarching lessons learned was the failure of the Israeli “cult of the offense.” Israeli scholar Shimon Naveh argued that this cult dominated the IDF mentality, resulting in the IDF’s lack of defensive focus or preparation starting nearly thirty years prior to the 1973 conflict.²⁷ Having conducted training with a focus on the offensive, relying on materiel solutions and outmatched by its Arab enemies’ equipment and tactics, Israel failed. Before the 1973 war, offensive action dominated Israeli Army training and war games. A victim of their experiences starting in 1948 and reinforced by their overwhelming success in 1967, the IDF focused on the offense and was only prepared for a war of movement that relied on seizing the initiative.²⁸ The IDF’s poor focus on defensive operations revealed itself during an exercise in 1972 in which only one of the twenty-eight division objectives was defensive in nature, while no defensive objectives existed at the armor brigade level.²⁹ The commander of the Israeli 460th Brigade confirmed by commenting that “During our training, we never took into account the possibility of the Egyptian infantry’s massive use of missiles.”³⁰ The IDF did not know their enemy nor did they gather intelligence to confirm their composition or disposition. These factors, along with overconfidence in their armored forces, led to the strategic upset of October 6-8, 1973.

The IDF’s hubris caused its disregard of the historical continuity of the power of combined arms, instead gambling on a large-scale, tank-pure counterattack against what turned out to be well-trained troops armed with modern ATGMs.³¹ Although the missiles had only

²⁷ Simon Naveh, “The Cult of the Offensive Preemption and Future Challenges for Israeli Operational Thought” *Israel Affairs* 2, no. 1 (1995): 168.

²⁸ Finkel, 65.

²⁹ Ibid., 66.

³⁰ Ibid., 151.

³¹ DePuy, *Selected Papers of General William DePuy: First Commander, US Army, Training and Doctrine Command, 1 July 1973*, 88.

limited physical effects, the surprise caused by their skillful employment made a significant cognitive impact on the Israelis.³² The Egyptians proved that a relatively inexpensive dismounted Soviet weapon could defeat a very expensive American-designed tank. This technological advance resonated with allied forces in Europe facing the Soviet threat.

The nature of the 1973 Yom Kippur War signaled that the next direct fire conflict would likely be intense, with significant loss of equipment in a short period. The losses of tanks in the first six days exceeded the total number of US Army tanks forward-deployed to Europe in support of the North Atlantic Treaty Organization (NATO).³³ A combination of factors contributed to this high loss rate. From Israel's reliance on tank-pure formations to their inability to properly train or prepare for a potential conflict, there was much the US Army could take from Israel's initial failure.

Finally, more than any specific weapon system, the skillful execution of combined arms tactics reemphasized the fact that no one weapon alone could lead to effective warfighting. The first IDF counterattack against Egypt proved to be a devastating failure. The IDF assumed they could overwhelm the Egyptian forces with a pure-tank force. The Egyptians were prepared for an armor assault and used dismounted systems in depth to disrupt the Israeli counterattack. Recognizing the effectiveness of armor combined with artillery, aviation, and infantry ultimately led to the IDF's reorganization into combined arms teams which overwhelmed the Egyptian Third Army and encircled the city of Suez.

The Yom Kippur War of 1973 confirmed the necessity of skilled gunnery, heavy armor, and long-range marksmanship. The ratio of six Syrian (Russian design) destroyed tanks to one Israeli (Western made) tank in the Golan Heights emphasizes this point.³⁴ The vulnerability of Israeli tanks to the Egyptian's Soviet-manufactured dismounted ATGMs during the early stages

³² Finkel, 150.

³³ Starry, *Press On!: Selected Works of General Donn A. Starry*, 26.

³⁴ Bruce Gudmundsson, *On Armor* (Westport, CT: Praeger, 2004), 174.

of the war captured the attention of armored forces throughout the world. It was clear to the US Army that it needed to re-look how to employ armored forces. Starting in 1973, the US Army entered a period of transition sparked by the effects of the Yom Kippur War, eventually leading to the development of AirLand Battle doctrine, which the US Army used effectively during the first Gulf War.

The Armor Branch in Transition

The combination of the perceived strategic loss in Vietnam and observation of the Yom Kippur War illuminated the need for transition of the Armor Branch. A series of changes and events took place over the next fifteen years—including a refocus on the Soviet threat—that facilitated the emergence of the world’s premier armored force. The evolution started with the formation of TRADOC under the leadership of the first major architect of the modern US Army, General William DePuy.

Modernization efforts during the early 1980s yielded a significant transition based on improvements in training, readiness, and materiel. The publication of Active Defense in US operations doctrine in 1976 started a series of revisions of FM 100-5 into what would become AirLand Battle doctrine. TRADOC analysis of the Yom Kippur War of 1973 highlighted many lessons for the US Army and the Armor Branch. The transformation to AirLand Battle, the refocus on the Soviet threat, and the introduction of a materiel solution predicated a major shift in the US Army’s focus.

Transition in Time – 1966 to 1986

From 1966 to 1986, the United States Army faced a series of complex and difficult challenges. There was an emergence of the proliferation in offensive technology and shifts in global threats that faced the United States. Following Vietnam, the US Army’s experience cast a doubt on its ability to effectively match a peer adversary in terms of materiel, readiness, and training. Soldiers and leaders returned from a war in which they won all the tactical battles, but

the nation lost the war, creating a crisis in confidence with the potential of learning the wrong lessons.³⁵

As an example of tank employment in the Vietnam War, First Infantry Division used the M48 Patton tank in 1966 with mixed results. They were primarily used as ‘jungle busters’ to clear a path through booby traps and land mines. The enemy’s ability to easily avoid tanks in the field negated their firepower. The maintenance cost outweighed the knowledge that a narrow path a few feet wide was temporarily free of Viet Cong.³⁶ The vehicles required extensive maintenance, large amounts of support troops and additional equipment. Another downfall of the tank in Vietnam was the unintended consequence of an indiscriminate application of firepower by the tank crews. Viewed as ‘blunt objects’ in a contest that required surgical precision, the employment of a tank-pure force grew out of favor.³⁷ The use of the Armor Branch as a supporting effort became the unofficial trend.

Despite the trend of a reliance on dismounted infantry, a study titled “Mechanized and Armor Combat Operations,” showed the potential of armored forces.³⁸ The study found that armored cavalry was potentially the most cost-effective force on the Vietnam battlefield. From early March 1965 until the ceasefire in January 1973, US armored units participated in virtually every large-scale offensive operation, although primarily in support of dismounted patrols. After eight years of fighting over land on which tanks were once thought incapable of moving, in weather that was supposed to prohibit armored operations, and dealing with an elusive enemy against whom armored units were thought to be at a considerable disadvantage, armored forces

³⁵ Starry, *Press On!: Selected Works of General Donn A. Starry*, 24.

³⁶ Andrew F. Krepinevich, *The Army and Vietnam* (Baltimore, MD: Johns Hopkins University Press, 1986), 170.

³⁷ *Ibid.*, 171.

³⁸ US Army, “Mechanized & Armor Combat Operations in Vietnam” (Washington, DC: Department of the Army, 1967), 2.

emerged as a powerful, flexible, and essential combat multiplier.³⁹ Their utility was not in performing missions for which they were originally designed—tank versus tank—but rather providing security and direct fire support for small-scale dismounted operations.

Before 1973 one could easily identify the primary reasons for the US Army's degradation of skill in conventional war: the lack of force modernization and the demands on army personnel as they rotated through one-year tours in Vietnam created a short-term focus. One-year tours implied a significant amount of individual turn over, creating personnel turbulence that disrupted a unit's capabilities.⁴⁰ The post-Vietnam military directed its attention back to the nation's commitment to NATO.⁴¹ To prepare the US Army to support the national policies in Europe and the Middle East, the service required new doctrine that proffered a philosophy not only for fighting a future war but one that reestablished confidence in the force's capabilities to deter aggression.⁴² DePuy understood the ramifications of this for the defense of Europe and directed TRADOC's combat developers to ensure that this updated doctrine would prod Congress to procure modern equipment.⁴³

With the withdrawal from Vietnam in 1973, despite the potential to learn service leaders found very few lessons from limited war that applied to the large-scale threat in Europe and they wanted to maintain.⁴⁴ The US Army transitioned to an all-volunteer force as it struggled to find

³⁹ When redeployment began in early 1969, armored units were not included in the first forces scheduled for redeployment, and indeed planners moved armored units down the scale repeatedly, holding off their redeployment until the very end. Donn Starry, *Mounted Combat in Vietnam* (Washington, DC: Department of the Army, 1978), v.

⁴⁰ Ibid.

⁴¹ Starry, *Press On!: Selected Works of General Donn A. Starry*, 23.

⁴² Kretchik, 193.

⁴³ Ibid.

⁴⁴ Earlier, in 1971, the Army had experimented with a TRICAP (triple capability) division Fort Hood, Texas. This concept blended infantry, armor, and airmobile forces into one unit, but never fully fielded throughout the force. Kretchik, 193; The Army introduced the concept of "Division 86" to manage the structure for the emerging equipment in armored and mechanized divisions. Stone, 116.

its place. By 1975 it was apparent to many pundits that the Vietnam War had degraded the US Army's ability to train for a conventional war.

The US Army's decade-long focus on limited war in Vietnam, combined with Israel's performance in the Yom Kippur War begged the question how the US Army might perform against the Soviet Union in Europe.⁴⁵ The Yom Kippur War helped DePuy understand that modern weapons required combined-arms warfare and improved tactics.⁴⁶ A team from TRADOC, the Armor School, and the Combined Arms Center (CAC) published the Brady Report in 1974 which was the US Army's formal effort to learn the lessons from the Yom Kippur War. The Brady Report, TRADOC's Total Tank Systems Study, and the Tank Force Management Group confirmed US Army's Armor Branch had a degraded combat capability and poor management of resources which needed revision.⁴⁷

As TRADOC and Forces Command (FORSCOM) assessed each branch's performance through a series of inspections and studies, they identified the need for an improvement in the US Army's training methodology. General DePuy made changes to the training organization, including the blending of separate entities into the US Army Training Board. He also introduced the US Army's Training and Evaluation Program (ARTEP) and Skill Qualification Test (SQT), which changed how the US Army viewed its capabilities.⁴⁸ General DePuy looked to refocus the force and, along with other measures, formed the National Training Center (NTC) in California to

⁴⁵ TRADOC Annual Report of Major Activities, FY 1974, 14-19.

⁴⁶ Moenk, 196.

⁴⁷ Richard Trefry, *Tank Weapon System Management: A Program for Maximum Effectiveness* (Washington, DC: Department of the Army, August 1977), 1-2.

⁴⁸ ARTEP was a performance-oriented program for collective training which required unit elements from squad through battalion and their soldiers and leaders to perform to a specified standard, not just put in the training hours. It defined tasks, conditions, and standards that units must meet while decentralizing training by placing the responsibility for execution of the training program directly on the unit. Anne W. Chapman, *The Army's Training Revolution, 1973-1990: An Overview* (Fort Monroe, VA: US Army Training and Doctrine Command, 1994), 7.

help start a movement for the US Army in a positive direction. With these changes, the US Army continued to try to overcome a late start.

While the US government focused on Vietnam, the Soviets revised their warfighting doctrine at the tactical and operational levels. They increased their force structure, improved their training system, and introduced new equipment. As a counter, US Army Chief of Staff Creighton W. Abrams authorized Operation Steadfast, which reorganized the US Continental Army Command (CONARC) into two major components; FORSCOM and TRADOC.⁴⁹ This meant the elimination of CONARC and the Combat Developments Command (CDC). DePuy led TRADOC and began assuming control of training centers, US Army schools, doctrine development, and even the modernization effort. Force modernization had been at a standstill for nearly ten years, but DePuy led the charge for change.

Although Israel won the 1973 war, the Egyptian forces used Soviet technology to easily destroy American tanks. The armored battlefields of the Yom Kippur War yielded striking lessons about what to potentially expect in the next war.⁵⁰ The failure of the tank-pure formations illustrated the power of the combined arms team.⁵¹ The most notable failure of a tank-only force can be seen in the IDF's initial reaction to the Egyptian attack across the Suez Canal. Based on its success in 1967, the Israeli Defense Force focused training on the armored corps, which had two negative repercussions. First, the single focus created a single point of failure. Instead of having to find solutions to multiple dilemmas, any opponent of the Israelis merely had to concentrate on only two major capabilities: airpower and tanks. For both, the Arabs found technological and doctrinal solutions. Second, because the IDF had focused on only two capabilities, once these

⁴⁹ Jean Moenk, "Operation STEADFAST Historical Summary: A History of the Reorganization of the US Continental Army Command, 1972-73" (Fort Monroe, VA: Historical Office TRADOC, 1973), 290.

⁵⁰ Starry, *Press On!: Selected Works of General Donn A. Starry*, 25-26.

⁵¹ DePuy, *Selected Papers of General William E. DePuy: First Commander, US Army, Training and Doctrine Command, 1 July 1973*, 76; Aker, 135.

were effectively neutralized, the IDF had no ready-made solution to the problem. The result was a near catastrophe for the IDF, who only averted the disaster by reintroducing a combined-arms approach to fighting.⁵²

Given the Israeli experience, the US Army recognized Soviet weapons and tactics as so lethal that the first battle might be the last one. This implied that, in modern terms, a *decisive battle* was possible and if the US was not prepared, it could potentially never recover. A conflict in Europe would require winning the first battle outright, despite fighting outnumbered.⁵³ The US Army faced the problem of helping to defend Europe with the forces on hand even though the Warsaw Pact outgunned NATO and had more forces available.⁵⁴

The effectiveness of infantry against tanks and the steady development of mobile, accurate surface-to-air missiles offer a second important lesson: the primacy of the combined arms team. It was the psychological shock, lack of combined-arms response, and unpreparedness that impacted the IDF so profoundly. Far from heralding the death of the tank, it was simply a wake-up call for a return to a combined-arms approach to warfare.

Faced with a change in national strategy of significant proportion, the United States required a reevaluation of the concepts of military organization, mobilization, and deployment, forcing the United States to find a new role for the US Army.⁵⁵ Between 1974 and 1986, officers at TRADOC revised and developed new doctrine that eventually led to the development of the AirLand Battle concept. The first version of FM 100-5—the 1976 revision—contained a concept for the defense of Western Europe called Active Defense that depended on the use of firepower and trading space for time to combat a Soviet deep battle concept.⁵⁶ Doctrine, concepts,

⁵² Finkel, 151.

⁵³ Kretchik, 198.

⁵⁴ Ibid.

⁵⁵ Starry, *Press On!: Selected Works of General Donn A. Starry*, 46.

⁵⁶ Stone, 47.

organizational, and tactical principles embodied in armored cavalry proved central to the solution of many if not most of the problems that the post-Vietnam US Army faced.⁵⁷ The US Army revised the 1976 concept of Active Defense and in its place came AirLand Battle. The doctrine's transition in focus from counterinsurgency to high-intensity conflict increased the focus on readiness and training across the US Army.⁵⁸

Taking up the mantle from General DePuy, the next TRADOC Commander, General Donn Starry, maintained DePuy's organizational momentum. General Starry's study of the Yom Kippur War took six months to complete, and contained evaluations of US Army tactics, weapons, and organizations.⁵⁹ In May 1977, Starry returned to Israel in search of lessons from the Yom Kippur War that he could apply to the forces in Europe. His visit resulted in a reexamination of how to extend the battlefield in time (the campaign) and distance (theater of operations).⁶⁰

Large scale exercises, such as Exercise Return of Forces to Germany (Reforger), modern war games, and other methods revealed that a force in which tanks are either not present, or present in insufficient numbers, simply cannot fight successfully against an enemy equipped with even a modest number of tanks.⁶¹ Unsupported light infantry units equipped with the latest

⁵⁷ Starry, *Press On!: Selected Works of General Donn A. Starry*, 47.

⁵⁸ John Romjue, "The Army of Excellence: The Development of the 1980s Army" (TRADOC Historical Monograph Series, Fort Monroe, VA: Office of the Command Historian, US Army Training and Doctrine Command, 1993), 126.

⁵⁹ This included the "Review of Education and Training of Officers Study in 1977", the "Army Training Study, 1977-78," and the "Long Range Training Base Study of 1978." Chapman, 9.

⁶⁰ Starry, *Press On!: Selected Works of General Donn A. Starry*, 27.

⁶¹ Reforger 87 – annual exercise to move forces from US to Germany. This specifically was a corps level exercise designed to simulate the transition to the theater reserve. Certain Strike was the field exercise associated with Reforger, designed to simulate armored positioning in Germany. It involved a simulated tank battle involving over 400 tanks, 500 guns, 200 helicopters and lasted almost 24 hours—the first real validation of the employment of armor in a simulated environment. Effective August 9, 1976, Lieutenant General (Retired) James Kalergis served as the lead for the Tank Forces Management Group organized to identify and optimize the combat potential of US Army tank forces. Stone, 49, 123.

ATGMs proved only marginally effective against armor supported by infantry and other combat arms.⁶² The power of the combined arms team became evident.

Soviet expansion continued after America's war in Vietnam finally ended. During the 1960s and 1970s, the Soviets exported tanks and other mechanized/armored vehicles to multiple countries, four in the Middle East, and one in South Asia. From 1974 to 1981, the Soviet Union out-modernized the United States at a rate of four to one.⁶³ The 1985 Defense Science Board Task Force examined the armor and anti-armor competition between the United States and the Soviet Union and concluded that the United States was behind the Soviets and falling further behind. Three principal factors drove this modernization gap: the way the United States dealt with threats, the development-to-fielding rate, and the program budget system.⁶⁴

Both DePuy and Starry recognized the need to transition and led the efforts to create lasting change.⁶⁵ By 1986, the US Army had revised its doctrine, modernized its armored formations, and began preparing for the next threat; the Union of Soviet Socialist Republics. The AirLand Battle concept that first emerged in the 1982 edition of FM 100-5 had received some improvements. The essence of AirLand Battle combined the best tactical lessons of the Yom Kippur War with operational-level concepts designed to defeat the Soviets, who relied on operational-level principles of mass, momentum, and continuous land combat by attacking in echelon.⁶⁶ AirLand Battle used deep strikes and combined arms to disrupt or destroy follow-on Soviet echelons while front line troops held their positions and reinforced laterally as needed, intent on defeat without the sacrifice of terrain.

⁶² Starry, *Press On!: Selected Works of General Donn A. Starry*, 49.

⁶³ *Ibid.*, 114.

⁶⁴ *Ibid.*, 129.

⁶⁵ Chapman, 4.

⁶⁶ Starry *Press On!: Selected Works of General Donn A. Starry*, 28.

Desert Storm as Validation

The US Army improved training, added materiel solutions, and improved its readiness in the period between the Yom Kippur War and the end of the Cold War.⁶⁷ While the United States military maintained a relative conventional superiority, it developed a competition with the Warsaw Pact to dominate a large, conventionally armed opponent. Fifteen years after DePuy left TRADOC, the United States no longer faced an obvious threat, and US defense policy shifted based on the assumption that LSCO remained likely in the foreseeable future. While the threat of the Soviet Union subsided, a new enemy emerged in Iraq, where Saddam Hussein's actions provided the United States Army an opportunity to validate its materiel, training, and readiness.

Despite ongoing peace negotiations between Iraq and Iran, Saddam Hussein ordered the invasion of Kuwait in early August of 1990. On August 8, Hussein annexed Kuwait as its nineteenth province. The same day, the US Army began to arrive in Saudi Arabia, where a multinational coalition began operations to deter further Iraqi aggression, beginning the first phase of the Gulf War (Operation Desert Shield). Twenty-one nations joined together to liberate Kuwait, but despite Allied-imposed sanctions, diplomatic efforts, and the threat of military action, Saddam Hussein did not withdraw his forces in Kuwait, estimated at over 170,000 troops.⁶⁸

Desert Shield was a defensive operation that positioned large numbers of armored forces along the border between Iraq and Saudi Arabia. The aggressive posture displayed by a highly trained armored force deterred Saddam Hussein from ordering Iraqi forces to seize further terrain.

⁶⁷ The materiel solutions centered on procurement of the *Big Five*. The M1 Abrams tank was one of the new weapon systems that the US Army introduced during the 1980s as part of their materiel solution for a future conflict. The five weapon systems introduced were the AH-64 Apache helicopter, the UH-60 Blackhawk helicopter, the M1 Abrams tank, the Bradley fighting vehicle, and the MIM-104 Patriot Missile System.

⁶⁸ Following the Iran-Iraq War in 1988, the United States Army believed the Iraqi Army had grown from twelve divisions of 350,000 men in 1982 to fifty-six divisions and 1.1 million men by 1989. See Rick Atkinson, *Crusade: The Untold Story of the Persian Gulf War* (Boston, MA: Houghton Mifflin Company, 1993), 244, 340-343.

Over the next few weeks, both the XVIII Airborne Corps and the VII Corps deployed to Saudi Arabia as part of the coalition.⁶⁹

By the end of November 1990, the United Nations decided that if Iraq did not withdraw from Kuwait by the middle of January, the Allies would transition to the offense to drive Saddam's forces out of Kuwait. Iraq failed to comply and by January 16, 1991 the defensive Operation Desert Shield ended as Operation Desert Storm began—first with a five-week-long air campaign, followed by a major ground offensive into Kuwait and Iraq. Operation Desert Storm's ground campaign began on February 24, 1991. By February 28, the US-led coalition had achieved its desired end state. Ground combat lasted only 100 hours. The coalition forces met two of three objectives; removing Iraqi forces from Kuwait and restoring the legitimate government in Kuwait. However, the coalition only partially destroyed the Iraq Republican Guard Division in Kuwait.

Maintaining a high tempo, capitalizing on surprise, and employing the fundamentals of AirLand Battle made Desert Storm an overwhelming victory for the coalition forces. For the US military, the success served as a justification and vindication for the changes made in materiel, readiness, and training during the 1980s. Several factors contributed to the US Army's success, including the luxury of several months in the defense which allowed coalition forces to acclimate to the environment, train as designated combat crews, and increase proficiency on new equipment with range time. These factors proved invaluable to US Army tank crews, as did the introduction of the *Big Five*. During Operation Desert Shield, the US Army took advantage of time to enhance unit cohesion and leadership and give individual tank crews adequate time to perfect crew-level

⁶⁹ Frank Shubert and Theresa Kraus, ed., *The Whirlwind War* (Washington, DC: Center of Military History US Army, 1993), 102.

collective tasks. Many analysts and senior leaders pointed to Operation Desert Storm as proof that the equipment, organization, and training associated with AirLand Battle worked.⁷⁰

Thirteen years after senior leaders like DePuy first recognized the need to change, the US Army executed a campaign guided by AirLand Battle doctrine, which emerged from the effort of translating the tactical lessons of the Yom Kippur War to future conventional war in Europe. Desert Storm turned out to be a limited war that achieved tactical success. The US Army's V Corps trained with new equipment, used combined arms with devastating lethality, and validated the concept of AirLand Battle with employment of the *Big Five*. In the decade following Desert Storm, the US Army downsized and the Armor Branch soon learned that it needed to shift focus again.

Armor and the Global War on Terror

Operations in Iraq and Afghanistan after 2003 necessitated the employment of an Armor Branch previously prepared for high intensity operations against national armies, now focused on a less intense conflict against irregular forces. While this focus helped to make the initial invasion of Iraq in 2003 a success, it left US armored forces unprepared to support fifteen years of COIN operations in Iraq and Afghanistan.⁷¹ The transition to COIN required the Armor Branch to adopt a new and very different doctrine, contributing to the degradation of the US Army's ability to conduct major combat operations. As the US Army looks toward the next potential conflict, it must re-balance by retaining the skills gained from recent counterinsurgency campaigns while gaining the ability to conduct LSCO.

⁷⁰ The arguments of those who opposed the idea of the Gulf War as a validation of AirLand Battle include Iraq's low morale, poor logistics, second-rate military, and lack of time (100 hours) to justify the concept. Stone, 126.

⁷¹ Nicholas Rinaldi, Chad Strickland, and David Winczewski, "Transforming Tanks to Boots," *Armor*, December 2014, 1.

The GWOT and Armor's New Role

Following the initial invasion of Iraq in 2003, the employment of US Army armored forces changed to meet the demands the evolving conflict. Initially a conventional fight, the need for heavily armored and mechanized vehicles changed over time.⁷² The demands of supporting COIN and stability operations forced the Armor Branch to focus less on LSCO.

When coalition leaders decided to use tanks in the urban environment of Iraq and Afghanistan, a political science professor at the University of British Columbia claimed that the tank was simply too vulnerable in that terrain against that enemy.⁷³ However, the Canadian Forces had a very different experience. The Canadian Forces' leaders understood the importance of maintaining heavy armor to enable tactical success. Using combined arms, Canadian tanks gave better protection to dismounted infantry and enabled them to close with and destroy the enemy in extremely complex terrain.⁷⁴

A 2010 Research and Development Group (RAND) Arroyo Center report illustrated the successful use of tanks in employment of combined arms tactics by the Marine Corps from 2003-2009. The British also successfully employed armor and noticed a decrease in enemy activity caused by the presence of a Challenger tank. The Canadian forces achieved success with the employment of their Leopard I tank to support Canadian, Afghan, and British forces in Afghanistan from 2006 to 2012. The accuracy of the main gun significantly reduces the possibility of collateral damage and adds a measure of deterrence by its presence alone.

⁷² Donald Stewart, Brian McCarthy, and James Mullin, "Task Force Death Dealers: Dismounted Combat Tankers," *Armor*, January-February 2004, 9.

⁷³ Clint Ancker, "Whither Armor," *Military Operations* 1, no. 2 (Fall 2012): 4-8.

⁷⁴ Trevor Cadieu, "Canadian Armour in Afghanistan," *Canadian Army Journal* 10.4 (Winter 2008): 5-25.

Originally considered of little value against insurgents and in urban areas, the tank soon became an invaluable tool to the combined arms team.⁷⁵ Tanks were not only useful in open desert terrain, they also served as an invaluable combat multiplier in urban fighting. As one US Army division commander put it, “No one wants to go downtown without tanks.” The Marines in Fallujah asked for US Army tank units to supplement their own armor, as the Marine commander believed that “Based on intelligence that revealed the formidable strength of the insurgent defenses in Fallujah, the Marines believed they did not have enough tanks and heavy fighting vehicles to quickly penetrate the outer defenses and spearhead the assault.” Units that at first deployed to Iraq without tanks requested them because the combination of mobility, firepower, and protection proved to be invaluable when required to close with a competent enemy.⁷⁶

Although usually associated with high intensity combat, tanks have shown utility in irregular warfare and hybrid warfare environments.⁷⁷ However, after more than fifteen years of limited war in Iraq and Afghanistan, US armor crews tend to display far less proficiency in offensive operations. This requirement has resulted in the loss of functionality and competency by trading mounted skills for dismounted proficiency.⁷⁸

Current Training Trends

US Army leaders understand, as illustrated in the 2016 Army Posture Statement, that the high operational tempo of the past fifteen years has strained their forces’ ability to rebuild and maintain combined arms proficiency.⁷⁹ The transition in pre-deployment training, adjustment to dismounted operations, and a shift away from focusing on tank gunnery is evident through

⁷⁵ John Gordon IV and Bruce Pirnie, “Everybody Wanted Tanks: Heavy Forces in Operation Iraqi Freedom,” *Joint Force Quarterly*, no. 39 (October 2005): 84.

⁷⁶ Anker, 7.

⁷⁷ Johnson, *Observations*, iii.

⁷⁸ Rinaldi. See also, Thomas Spolizino, “Not Just Infantry with Tanks: Who We Should Be and Why the Army Needs Us to Be It,” *Armor*, September 2014, 2.

⁷⁹ Patrick Murphy and General Mark Milley, “A Statement on the Posture of the United States Army 2016” (Washington, DC: Government Printing Office, 2016), 6.

multiple aspects.⁸⁰ For example, deployments without tanks increased, the focus of training doctrine shifted, and a noticeable transition of topics submitted for publishing in the Armor Branch's magazine *Armor* emerged. Other aspects such as the downward trend in tank master gunners, tank gunnery standards, crew turbulence, and poor performance at combat training center (CTC) rotations illustrate the Armor Branch's trend away from near-peer and peer threat training.⁸¹

Despite the Canadian Forces' successful employment of tanks, the US Army Armor Branch has shifted its training to focus to COIN. Although the military still deployed armored forces, their primary function was protection rather than fulfilling their traditional role.⁸² A balance emerged between competing training requirements and armor competencies, which resulted in a lack of repetitions and experience. Prior to GWOT, the annual training calendar for a combined arms battalion typically included two gunneries and a CTC rotation.⁸³ The US Army now has a force in which many of its tankers have not been through multiple gunneries or CTC rotations.

After-action reviews from decisive-action rotational exercises at the US Army combat training centers describe the cause of a lack of proficiency in basic Armor skills: failure to provide maintenance support in conjunction with decisive maneuver; failure to visualize the battlefield with a common operational picture; and failure to provide effects in the engagement

⁸⁰ David Crozier, "Decisive Action: How to Fight and Sustain in the Army's Future Battles," *NCO Journal*, last modified May 28, 2013, accessed October 17, 2017, <http://ncojournal.dodlive.mil/2013/05/28/decisive-action-how-to-fight-and-sustain-in-the-armys-future-battles/>

⁸¹ *Armor*, January-February 2006, 52-53. Lists current articles about OIF and OEF TTPs, and notes where to submit more and where to find others. This is an indicator of Armor Branch's focus at that time.

⁸² James Morningstar, "The Bugle Calls: Armor on the Modern Battlefield," *Armor*, May-June 2002, 13.

⁸³ Irvin Oliver, "Death Before Dismount: A Relic," *Armor*, July-August 2006, 13.

area.⁸⁴ Fiscal Year (FY) 2006 National Training Center (NTC) trends show specific examples of armor crews' lack of proficiency at basic tasks. FY2015 and FY2017 NTC trends have not changed significantly. These trends include a poor ability to conduct an attack by fire or conduct direct-fire planning at the company level.⁸⁵

To provide one example, since 2017 the 3rd Brigade, 1st Armored Division has suffered the consequences of a decade of high operational tempo and focus on counterinsurgency. The unit lacks the necessary senior Non-Commissioned Officers (NCOs) with the requisite experience in LSCO, including seventy-five percent of NCOs in the rank of sergeant through sergeant first class have only completed one gunnery. Just over half of the certified tank crews are manned with soldiers one or two grades below the average. Their continual nine-month rotations over the past few years have stripped the organization of its pre-COIN institutional knowledge.⁸⁶ Although the numbers may change slightly, the personnel turbulence and manning issues are not unique to this unit.

Gunnery took a backseat to other training tasks more closely associated with stability operations and counterinsurgency as Armor Branch personnel maintained their tactical-level focus on counterinsurgency and stability tasks.⁸⁷ While a new generation of armor crews became very good at mounted patrolling on mine-resistant, ambush protected vehicles and at conducting engagements with local tribal leaders, an alarming number know very little about their core military occupation tasks. Even more damaging is the fact that, over the years following the launch of extended campaigns in Afghanistan and Iraq, a culture developed within the Armored

⁸⁴ Capabilities Development and Integration Directorate, August 2014. TCM-ABCT's semi-annual report.

⁸⁵ Center for Army Lessons Learned, "CTC Observations: FY 2015," No. 16-14 (Fort Leavenworth, KS: US Army Combined Army Center, May 2016).

⁸⁶ Colonel Robert E. Lee Magee, interview by author, Fort Leavenworth, KS, October 16, 2017. ABCT-TCM also discussed similar findings in their annual discussions brief in 2016.

⁸⁷ FM 3-0, 1-2.

Brigade Combat Teams (ABCTs) that discarded the importance of gunnery.⁸⁸ Traditional gunnery skills eroded as the US Army focused on COIN, resulting in generations of officers and NCOs well trained in motorized-infantry tactics at the expense of armor/mechanized-infantry tasks, which are gradually returning as the gunnery culture is relearned.⁸⁹

The current global-security environment requires armored-vehicle crews that can maneuver to a position of advantage and rapidly acquire, engage, and destroy enemy forces at extended ranges. Although still part of armor unit training, the US Army should return stabilized gunnery to its rightful place at the forefront of training within ABCTs. The Armor School's mission, key tasks, and end state are all designed to win in a complex environment, but this starts with building and maintaining proficiency at the lowest level—the individual tank and its crew.

Years of neglect have left the US Army with a deficit in the tactical and technical skills necessary to employ combined arms maneuver-oriented protection tasks. Units have shown proficiency in countering IEDs, but struggle with conventional threat systems, including indirect fires, snipers, and attack helicopters. Observations of unit performance during multiple rotations through the CTCs illustrate this assertion.⁹⁰ There has been an attempt to reinvigorate institutional

⁸⁸ Over the course of training on “turn-key” or “roll-on / roll-off (RORO)” range facilities, units lost the training management skills to develop their own scenarios. This resulted in the unit using an existing approved scenario that may or may not have met the standards required. Simple scenario solutions to meet the minimum requirements - maximum number of iterations to improve unit throughput, it did not challenge the crews. Units consistently selected 800-1400 meter targets. Although authorized, targets at these ranges did not reinforce the fundamental skills of target acquisition, identification, and classification required for decisive action engagements. Scott Kelly, “US Army Forces Command Inspector General Home Station Gunnery and Live Fire Exercises Inspection Report,” Memorandum, US Army, November 6, 2017.

⁸⁹ Geoffrey Wright, “Sharpening the Spear: Training the Armor Crewman for Future Battlefields,” *Armor*, July-August, 2004, 15; Michael Tucker, “Combined-Arms Gunnery: Restoring the Fundamentals,” *Armor*, October-December 2015, 2; FORSCOM's annual Inspector General memorandums for record also describe the shortfalls in the Armor Branch's ability to conduct gunnery over three consecutive years starting in 2015.

⁹⁰ This includes deficiencies in conventional tasks like massing fires, conducting a deliberate defense, employing mortars effectively, conducting gap crossing operations, and integrating infantry with armor. Although collected over the course of months, this provides an insight into the status of the Armor Branch.

training focused on the fundamental tasks of reconnaissance and security, but this still requires more effort.⁹¹

Another aspect of training that illustrates the transition away from the armor tradition is the reduction of the role of the Master Gunner.⁹² Once esteemed as the core of the Armor Branch, recent trends of focusing less on gunnery and more on dismounted operations have reduced significantly the importance of tank crew expertise. A refocus on the role of the Master Gunner would help standardize this knowledge and provide a consistent vernacular for the force.

Although the Abrams tank is entering its fourth decade of service, the tank remains a key member of the combined arms team. There is still a strategic requirement for deterrence and the Abrams provides the strategic and tactical advantage needed to accomplish this task.⁹³ Although some US Army leaders believe that the agility afforded by lighter weight offsets reduced protection, but others disagree, arguing that improved agility provides little advantage in survivability.⁹⁴

The US Army has not fixed the problem identified in 1980 even after three decades and three major conflicts.⁹⁵ As identified in 2017, US Army commanders tend not to remain in

⁹¹ Andre Mackey, "How to Eat Steak with a Knife and Fork! A Return to the Core Competencies that Make Our Maneuver Force Indomitable," *Armor*, January-March 2013, 7.

⁹² There has been a regression in the use of Master Gunners, specifically there is not a clear definition of the role of the Master Gunner. Since 2003, units provided a significant number of waivers for Master Gunner candidates based on the unit's deployment schedule and availability. In that time, waivers appear to have become the norm, not the exception. Master Gunner training and consolidation needs to improve with updated standards and greater fidelity. John Vandewater, "Abrams Training Assessment Course: Improving the Abrams Master-Gunner Candidate," *Armor*, October-December, 2014, 22.

⁹³ Matthew Moss, "The Army's Modernization Program Could be the Branch's Biggest Shakeup Since Vietnam," *Task and Purpose*, October 13, 2017, accessed January 25, 2018, <https://taskandpurpose.com/army-modernization-program-vietnam-ausa/>.

⁹⁴ Starry, *Press On!: Selected Works of General Donn A. Starry*, 104.

⁹⁵ In 1980, Starry wrote in a letter to First Sergeant George Chamberlain expressing his views on armored development: "Finally, I agree with your comments on crew size but the manpower situation, now and in the future, does not look favorably on a five-man crew. We have tested this concept in combat in two wars and most recently in peacetime. It is difficult to keep the crews filled because of personnel shortages. We will not cease our efforts to solve the problem, but the obstacles are difficult to overcome." *Ibid.*, 84.

command positions long enough to begin, carry into execution, and see to the end long-term projects. The inconsistency in certification and training revolves around the longevity of leadership in an organization.⁹⁶ Unit effectiveness is the victim of the individual replacement system, as General Starry argued in the 1970s.⁹⁷ Leadership up to the squadron or battalion level should account for the normal personnel turbulence associated with the US Army's permanent-change-of-station (PCS) assignment cycles. This is the great challenge of sustainable readiness. The personnel turbulence that cripples the US Army places the career progress of the individual above the unit's need for stability.⁹⁸ Ensuring the maximum longevity of gunners and vehicle commanders is critical. Stabilizing a crew for eighteen months or longer is ideal so the crew can stay together throughout gunnery, maneuver training and a deployment. However, this is often not possible. First sergeants, squadron/battalion command sergeants major and the unit S-1 must regularly review crew rosters to project personnel losses and gains.⁹⁹ Those who lack an acceptable period of longevity should be replaced with an individual who will be remaining longer with the unit. This approach helps posture the unit for the maximum level of readiness over a longer period. While the normal cycle of PCS and end term-of-service will continue, it is important that the team does everything it can to mitigate turbulence.

Lieutenant Colonel John Bahnsen argued as early as 1976 that to gain an edge over potential adversaries, armor units must maintain crew stability for longer periods. A survey

⁹⁶ David Lunebach and Sean Leytham, "Tough Vehicles Require Tougher Crews Why We Must Re-establish a 'Gunnery Culture' ... and How to Do It," *Armor*, Winter 2017, 4.

⁹⁷ Chapman, 3.

⁹⁸ Army tactical combat units are poorly trained in many of their wartime tasks primarily due to personnel turbulence caused by the Army personnel system because that system places a higher priority on the individual soldier's personal professional development than the mission or training needs of the tactical unit. Tim Reese, "The Blind Men and the Elephant," *Armor*, May-June 2002, 7.

⁹⁹ Turbulence in tank crews degrades training, readiness, and morale, yet half of all tank crew turbulence is caused by moves within the unit as the commander shifts his resources to keep his crews balanced and full. See TFMG, 2-8. As of July 17, the 19D military-occupation specialty is short by 115, and the 19K MOS is short 299 sergeants. Alan Hummel, "Gunner's Seat: Shortages in the Branch," *Armor*, August 2017, 4.

conducted in 1975 at Fort Hood showed that only seventeen percent of the tank crews had been together for more than six months.¹⁰⁰ “Personnel turbulence” has been a longstanding issue of the Armor Branch for decades, even identified in the Tank Forces Management Group study in 1976.¹⁰¹ There is a need for tank crews to develop as a team. Although there will always be new crew members entering the system and experienced members leaving, there is a need to focus on maintaining crew stability. If not fixed, it may detrimentally impact the branch’s ability to conduct combined arms maneuver in a peer or near-peer hybrid warfare environment. These trends still exist in the US Army today.¹⁰²

Cross Case Analysis

The military’s lack of employment of tanks in the Vietnam War led to a transition away from tank-on-tank training, decreased readiness across the US Army, and marginalized Armor Branch’s relative materiel capability. It was not until 1973 that the US witnessed an event that served as a wake-up call. In the Yom Kippur War, the IDF neglected to shake off their hubris, fighting in tank-pure formations against Egyptian infantry armed with modern ATGMs, suffering heavy losses. This loss, and Israel’s shift to a combined arms approach served as a catalyst that not only enabled Israel to wrest victory from the jaws of defeat, but also sparked a fundamental shift in the US Army. In response to these events, the US Army developed the AirLand Battle concept, renewed its training and readiness focus, and developed a materiel solution to face a peer or near-peer adversary. Nearly twenty years later, the Gulf War in 1991 validated the refocus on the Soviet threat. This example serves to illustrate the successful transition of doctrine and armor mindset following an extended unconventional conflict.

¹⁰⁰ John Bahnsen, “Gaining the Edge,” *Armor*, January-February 1976, 51.

¹⁰¹ Tank Forces Management Group, 2-7.

¹⁰² Thomas Byrd, “U.S. Army Forces Command Inspector General Home Station Gunnery and Live Fire Exercises Inspection Report” Memorandum, US Army, April 4, 2016; Scott Kelly, “U.S. Army Forces Command Inspector General Home Station Gunnery and Live Fire Exercises Inspection Report” Memorandum, US Army, November 6, 2017.

The United States is now approaching nearly two decades of conflict in which tanks have not served in their primary role yet again. Some of the military's senior leadership recognize the risk associated with not adapting to meet the likely future threat. Rather than a conflict with a near-peer, like what occurred in 1973, this shortfall should serve as the catalyst to bring about a change in the Armor Branch.¹⁰³

Conclusion

As we recover from nearly two decades of war in Iraq and Afghanistan, the US Army faces unique challenges in maintaining an adequate force size and structure, as well as tough, realistic training with the proper focus. Reflecting on similar periods in US Army history can help today's leaders identify and navigate the challenges of the coming decade. The challenges the US Army is facing as it draws down from conflicts in Iraq and Afghanistan could have outcomes like those encountered following Vietnam unless the US Army develops a strategic vision that provides mission focus to improve military expertise and combat readiness.

After a decade and a half of counterinsurgency operations in Iraq, Afghanistan and beyond—longer than even in Vietnam—decades of assumptions about warfare are once again being re-evaluated. Lieutenant General H.R. McMaster and other top generals, including the US Army Chief of Staff General Mark Milley, have concluded that while the United States was bogged down in the Middle East, potential enemies like Tehran, Moscow, Beijing, and Pyongyang focused their energies on rebuilding their own forces to potentially counter America's tactics.¹⁰⁴

¹⁰³ Patrick Tucker, "How the Pentagon is Preparing for a Tank War with Russia," last updated May 19, 2016, accessed November 9, 2017, http://www.defenseone.com/technology/2016/05/how-pentagon-preparing-tank-war-russia/128460/?oref=search_abrams.

¹⁰⁴ Murray, 5; Corey Dickstein, "Army Rolls Out Field Manual Focused on Fighting Near-Peer Adversaries," October 10, 2017, accessed January 25, 2018, <https://www.military.com/daily-news/2017/10/11/army-rolls-field-manual-focused-fighting-near-peer-adversaries.html>.

The US Army's approach to evolving after the 1973 Yom Kippur War has parallels with the modern-day situation. The US Army has not conducted large-scale equipment modernization since the 1980s. Over the past four decades, potential adversaries have improved their equipment, tactics, and doctrine. The longer the United States delays addressing the issue, the greater the possibility future adversaries may constrain our options. As the US Army develops a modernization strategy, the Armor Branch must follow suit. The recent focus on fighting wars of insurgency and terrorism allowed our adversaries to make improvements on their modernization efforts and erode the advantages enjoyed by the US Army since World War II. Senior leaders have assessed the performance and standing of the US Army's current armored platforms and have found that they are losing their ability to overmatch peer capabilities in close combat. If the US Army does not modernize its force to build greater capacity and capabilities to maintain and expand overmatch, the potential exists of a future in which our adversary outmatches the Armor Branch in LSCO.¹⁰⁵

Over the past three decades, many nations have studied the way US forces deployed and conducted operations. Several have adapted, modernized, and developed capabilities to counter US advantages in the air, land, maritime, space, and cyberspace domains.¹⁰⁶ Military advances by Russia, China, North Korea, and Iran most clearly portray this changing threat.¹⁰⁷ While the US Army must be manned, equipped, and trained to operate across the range of military operations, large-scale ground combat against a peer threat represents its most significant readiness

¹⁰⁵ Murray, 5.

¹⁰⁶ Phil Stewart, Andrea Shalal-Esa, and David Alexander; "Russia, China aim to close military technology gap with U.S.: Hagel," *Reuters*, September 03, 2014, accessed January 25, 2018, <https://www.reuters.com/article/us-usa-military-spending/russia-china-aim-to-close-military-technology-gap-with-u-s-hagel-idUSKBN0GY2CC20140903>.

¹⁰⁷ FM 3-0, ix.

requirement; and at the moment it appears that the US Army is not meeting this imperative.

Despite having outlined a strategy, the US Army remains behind the power curve.¹⁰⁸

Acting Secretary of the Army Ryan McCarthy, General Milley, and Secretary of Defense James Mattis used the Association of the United States Army (AUSA) conference from October 9 to 11, 2017 in Washington, DC to announce a major new push to put the US Army on a strong footing to face future adversaries whose technology could soon eclipse America's historical prowess.¹⁰⁹ To change the US Army's emphasis to a focus on LSCO means units will adjust their training at home and at regional CTCs. Milley assessed that "Unless we do this we'll be losing ground to potential adversaries."¹¹⁰

As the US Army transitions its focus from counterinsurgencies in Afghanistan and Iraq to nation-states such as Russia, China, North Korea, and Iran, General Milley foresees a battlefield that "is going to be intensely lethal, the likes of which the United States Army, the United States military, has not experienced...since World War II."¹¹¹ His vision includes a fluid battlefield that will require leaders at the operational level and below to act quickly and prevent confusion. This will include proper training and a high level of readiness. The US Army must take steps now to ensure that it enters the twenty-first century with an effective fighting capability.¹¹²

¹⁰⁸ US Congress, Senate, Statement by Secretary of the Army at the Committee on Armed Services, *On the Current State of the DoD Acquisition Enterprise and Associated Reforms*, 115th Cong., 5th sess., December 7, 2017.

¹⁰⁹ Matthew Moss, "The Army's Modernization Program Could be the Branch's Biggest Shakeup Since Vietnam," *Task and Purpose*, October 13, 2017, accessed January 25, 2018, <https://taskandpurpose.com/army-modernization-program-vietnam-ausa/>.

¹¹⁰ US Congress, Senate, Committee on Armed Services, *Hearing to Receive Testimony on Long Term Budgetary Challenges Facing the Military Services and Innovative Solutions for Maintaining Our Military Superiority*, 114th Cong., 2d sess., 2016, 12.

¹¹¹ Sydney Freedberg, "Army \$40B Short On Modernization Vs. Russia, China: CSA Milley," *Breaking Defense*, last modified October 3, 2016, accessed November 9, 2017, <http://breakingdefense.com/2016/10/army-40b-short-on-modernization-vs-russia-china-csa-milley/>.

¹¹² Huba Wass De Czega, "How to Change an Army" *Military Review* 64, no. 11 (November, 1984), 48.

The US Army's Capability Integration Center and Maneuver Center of Excellence are working through potential solutions to deal with emerging threats. The intent of this effort is to ignite a wholesale rethinking—and possibly even a redesign—of the US Army in the event it must confront an enemy like the Russians in Eastern Europe.¹¹³ The new US Army undertaking, led by the commandant of the US Army Infantry School at Fort Benning, Georgia, Brigadier General Peter L. Jones, will attempt to answer why the US Army has once again diverted its attention away from core capabilities for such a window that it has been caught by surprise by a major development like Russia's enhanced capabilities. The first instance occurred when the US military focused too long on Vietnam, while Russia's military grew bolder and more sophisticated, posing a new threat to NATO.¹¹⁴

The US Army and Armor Branch have already initiated a transition toward readiness focused on these newly-identified strategic threats. This includes a revision of core doctrine, a revision in Armor Branch-specific doctrine to follow suit, and a transition of training focus at the CTCs. The US Army's manning and equipping forces according to Title Ten requirements have also transitioned from the Army Forces Generation (ARFORGEN) model to the Sustainable Readiness Model (SRM).

As a part of this change, the Armor Branch must provide a clear modernization strategy with specific guidance to the force on priorities and standards. It must also reduce crew turbulence across the armored force while increasing support for the Master Gunner program. These measures would facilitate the transition while sustaining the institutional knowledge after years of counterinsurgency and stability operations.

¹¹³ Murray, 4.

¹¹⁴ Bryan Bender, Edward Dove, and Rich Lowry, "The Secret U.S. Army Study That Targets Moscow," *Politico*, April 14, 2016, accessed November 9, 2017, <https://www.politico.com/magazine/story/2016/04/moscow-pentagon-us-secret-study-213811?o=1>.

Today's situation bears some striking similarities to those facing the US Army and Armor Branch following the Vietnam War. Although there does not appear to be a need for a drastic change in the Army's structure, such as what Operation Steadfast provided in the 1980s, there is a need for change. The experiences of the US Army in Afghanistan and Iraq in the early twenty-first century may not be representative of the most dangerous conflicts the US Army could face in the future. As the US Army recovers from operations in Iraq and Afghanistan, it must renew the competencies required by LSCO against a peer and near-peer adversary. The US Army needs to learn the right lessons from the Global War on Terror, and as the US Army strives to develop the ability to match peer and near-peer threats, the US Army's Armor Branch must evolve as well to remain a capable element of the combined arms team.

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