# Trial by Combat: Interwar Evolutions of Operational Art from World War I to Desert Storm

A Monograph

by

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The US Army is currently emerging from near two-decades of continuous asymmetric combat with a renewed focus on large-scale combat operations (LSCO). The preponderance of the officer corps are educational products of the counterinsurgency officer development model. The Army is now restructuring from an organizational standpoint, while simultaneously producing new operational doctrine to best deter or defeat potential near-peer adversaries. A revision of officer education and training has historically followed broad military reform, connecting new theory and doctrine to operational implementation. The period between World War I and World War II saw critical updates to doctrine and officer education, eventually leading to Allied success over the Axis powers. Following a much different combat experience, American military reforms after Vietnam were also met with a successful combat trial, climaxing in Desert Storm. As a catalyst that framed each of these institutional reform periods, this monograph discusses the Meuse-Argonne Campaign and the Yom Kippur War. Both campaigns created a new understanding of the future threats the US Army would face in a potential large-scale conflict. Using both as case-studies, the Army redesigned its doctrine and aggressively pursued an educational program for its officer corps. By focusing on creating a professional officer corps at the operational level the Army found success in the following large-scale wars. This monograph investigates the notion that the common thread permeating the focus of both interwar periods is the attention given to understanding the operational level of war, operational art, and designing a professional military education (PME) system to promulgate it. By investigating these ideas, the Army can extract and adapt historically successful concepts to prepare the Army of today.

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# Abstract

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The US Army is currently emerging from near two-decades of continuous asymmetric combat with a renewed focus on large-scale combat operations (LSCO). The preponderance of the officer corps are educational products of the counterinsurgency officer education model. The Army is now restructuring from an organizational standpoint, while simultaneously producing new operational doctrine to best deter or defeat potential near-peer adversaries. A revision of officer education and training has historically followed broad military reform, connecting new theory and doctrine to operational implementation. The period between World War I and World War II saw critical updates to doctrine and officer education, eventually leading to Allied success over the Axis powers. Following a much different combat experience, American military reforms after Vietnam were also met with a successful combat trial, climaxing in Desert Storm. As a catalyst that framed each of these institutional reform periods, this monograph discusses the Meuse-Argonne Campaign and the Yom Kippur War. Both campaigns created a new understanding of the future threats the US Army would face in a potential large-scale conflict. Using both as case-studies, the Army redesigned its doctrine and aggressively pursued an educational program for its officer corps. By focusing on creating a professional officer corps at the operational level the Army found success in the following large-scale wars. This monograph investigates the notion that the common thread permeating the focus of both interwar periods is the attention given to understanding the operational level of war, operational art, and designing a professional military education (PME) system to promulgate it. By investigating these ideas, the Army can extract and adapt historically successful concepts to prepare the Army of today.

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# Acronyms

| | |
|---|---|
| A2AD | Anti-Access Area Denial |
| AEF | American Expeditionary Forces |
| AWOL | Absent Without Leave |
| BCTP | Battle Command Training Program |
| CGSC | Command and General Staff College |
| FM | Field Manual |
| GHQ | General Headquarters |
| LSCO | Large-Scale Combat Operations |
| NATO | North Atlantic Treaty Organization |
| PME | Professional Military Education |
| TRADOC | Training and Doctrine Command |
| VOLAR | Volunteer Army |

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# Introduction

The US Army is currently emerging from near two-decades of continuous asymmetric combat with a renewed focus on large-scale combat operations (LSCO). The preponderance of the officer corps are educational products of the counterinsurgency doctrinal model. This model was modified gradually since 2003 to meet the non-conventional needs of the force. The resulting expertise cultivated in the officer corps does not suitably translate to leading mass formations or planning at the operational level for great-power conflict. The Army is now restructuring from an organizational standpoint, while simultaneously producing new operational doctrine to best deter or defeat potential near-peer adversaries. A revision of officer education and training has historically followed broad military reform, connecting new theory and doctrine to operational implementation. As such, this topic has generated the following research question: How does the US Army Professional Military Education (PME) system contribute to the service's transition to LSCO?[1]

The author postulates that the benefits of allocating larger resources to a comprehensively sustained professional education, outweighs the costs related to the maintenance of scholarly acumen. Successful US Army leaders have benefitted significantly from a program of lifelong scholarship and long-term mentorship. Interwar reform is imperative to successfully reorient the US Army from an Army of counterinsurgency, to an Army capable of dominating the threat on the multi-domain battlefield. This program should be nested within the iterative levels of academic advancement at appropriate PME institutions with earlier joint integration. Further, routine unit-level professional development, counseling, and mentorship should deliberately include goals designed to broaden individual scholarship. These goals should focus on

[1] Michael D. Lundy, "Meeting the Challenge of Large-Scale Combat Operations Today and Tomorrow," *Military Review* (September–October 2018): 111-118.

maintaining a comprehensive understanding of the three levels of war and the application of operational art to bridge strategy with tactical action.

This study examines how the Army has traditionally conducted officer professional development and how it implemented educational reforms to adapt to changing threats and environments. This will be done through synthesized analysis of two historical case-studies. Two periods of interwar-year reform lend themselves directly to an exploration of military education and professional development as they have been identified as historically successful. The period between World War I and World War II saw critical updates to doctrine and officer education, eventually leading to Allied success over the Axis powers. Following a much different combat experience, US military reforms after Vietnam were also met with a successful combat trial, climaxing in Desert Storm. These two experiences represent much different epochs, varied in technology and politics. At first glance it is easy to deduce that the skills which led to victory in Europe in 1945 or the Gulf War in 1991 do not superficially intersect. This monograph investigates the notion that the common thread permeating the focus of both interwar periods is the attention given to understanding the operational level of war, designing PME to promulgate it, and selecting the highest performing officers to act as instructors. Further, the criteria through which this monograph analyzes its case-studies includes four elements of operational art as they are found in current doctrine: Decisive Points, Tempo, Phasing, and Operational Reach (see Table 1).[2]

[2] Michael R. Matheny, *Carrying the War: American Operational Art to 1945* (Norman, OK: University of Oklahoma Press, 2011), 45-91; Peter J. Schifferle, *School for War: Fort Leavenworth, Officer Education, and Victory in World War II* (Lawrence, KS: University Press of Kansas, 2010), 1-61; James F. Dunnigan and Raymond M. Macedonia, *Getting it Right: American Military Reforms after Vietnam to the Persian Gulf and Beyond* (New York: W. Morrow, 1993), 101-189.

Table 1. Elements of Operational Art

**Table 2-2. Elements of operational art**

| | |
|---|---|
| • End state and conditions<br>• Center of gravity*<br>• Decisive points*<br>• Lines of operations and lines of effort*<br>• Tempo | • Phasing and transitions<br>• Culmination*<br>• Operational reach*<br>• Basing*<br>• Risk |
| *Common to elements of operational design | |

*Source*: US Department of the Army, *Army Doctrine Reference Publication (ADRP) 3-0, Operations* (Washington, DC: Government Printing Office, 2017), 2-4.

This monograph is organized into three sections: the introduction, interwar-periods of military reform, and the conclusion. The interwar-periods chapter is divided into two major subsections, detailing two separate interwar reform periods. The first subsection considers the effect of the Meuse-Argonne Campaign on theoretical and doctrinal reform in the Army. Following a synopsis of the Meuse-Argonne, the historical discussion outlines the drivers of reform during the years between World War I and World War II. This includes the political, social, and economic influences on the Army, and the efforts of key leadership in reforming doctrine, training, and officer professional education. The second major subsection of section two discusses the interwar years between Vietnam and the first Gulf War, a more apt parallel to the current environment in which the Army finds itself today. As primary inspiration for the period, the Yom Kippur War serves as a case study for consideration. Continuing to use history, theory, and doctrine as a framework for the narrative, the second subsection describes the catalysts driving doctrinal and educational reforms between Vietnam and Desert Storm. Most important, the second subsection of section two details the origins of operational art in doctrine and professional education during the 1980s.

Section three is divided into three subsections including a synthesis section, a section covering the historical implications for the current transition to a focus on LSCO, and a section of recommendations. Operation Desert Storm is labeled by numerous historians as the crowning

event derived from years of operational art evolution. The first subsection section of section three considers Desert Storm and provides a comprehensive synthesis of the key points formulated throughout section two. Its aim is to describe the evolution of operational art across time according to the events summarized in this monograph. It investigates how the application of operational art has changed between two periods of interwar reform and were then applied in Operation Desert Storm. The second subsection of section three describes the elements of operational art gleaned during hard-earned lessons in the Meuse-Argonne and by the Egyptians in the Sinai and how they affect the Army of today. This section also includes recommendations for doctrine and transitions into the final section of this monograph.

Section three's final subsection provides an answer to the research question as it debates the measure of PME effectiveness in supporting transition from one type of warfare to another. The first section of the conclusion briefly compares current educational and operational doctrine to the prevailing doctrine of each interwar period outlined in section one. It explains the similarities found between the current transitioning Army and the force of the past. It also offers a variety of methods in which PME could be reformed in concept by emphasizing sustained application of operational art. The operational level of war is highlighted as key to effective, enduring PME as a scholarly component outside the context of formalized education alone. The conclusion proposes that comprehensive sustainment of an appreciation of operational art down to the unit level will ultimately enable the successful execution of LSCO. It also suggests that a rejection of counterinsurgency and its purge from the larger conventional force would be a mistake. The operational art doctrine established in the 1980s was immensely successful in Desert Storm. Its removal of contingency operations had lingering effects that would impact the Army of the Iraq and Afghanistan Wars.

# Interwar Periods of Military Reform

## World War I–World War II: The Advancement of Combined Arms

The experiences of the American Expeditionary Forces (AEF) in World War I would come to considerably reshape the way the Army approached large scale combat. Before the United States' incursion in the Great War, the active Army found itself as a largely frontier force. It was tasked with patrolling the interior territories of the expanding United States by occupying a modicum of isolated outposts and contending with the Native American population. Large-scale engagements were conducted through short-term military growth by way of volunteers populating the ranks of a small standing army. This method was successful in the Mexican-American War, the American Civil War, and the Spanish-American War and was favored socially and politically. The years following World War I were no different, and the active force was reduced considerably upon return from Europe. The events of World War I, and in particular the Meuse-Argonne campaign, altered the complexity of warfare to an extent that drove a revolution in military affairs. The airplane, machine gun, rapid fire artillery, and trench warfare led to a modern system of combat characterized by sophisticated combined-arms maneuver. To adapt to the emerging system, the US Army of the interwar years wrote new doctrine, tested new equipment, and designed new PME and training to reorient the force.[3]

### The Meuse-Argonne Campaign

The evolution of doctrine and training in the interwar years from 1919 to 1940 was founded on an understanding of a battlefield framework derived from the experiences of the AEF. Most important was determining how to break-through a stalemate such as created in the trenches of France and Belgium from 1914 to 1918. The failure of the "Schlieffen Plan" and the resulting deadlock following the "Race to the Sea" appeared to have dethroned the infantry as the primary

[3] Stephen Biddle, *Military Power: Explaining Victory and Defeat in Modern Battle* (Princeton, NJ: Princeton University Press, 2004), 32-34.

military arm. Artillery fire produced between 68 to 77 percent of casualties in major campaigns with aircraft supplying a third battlefield dimension. Adding to the complexity, Army formations had become so large that managing the necessary firepower and maneuvering forces to create advantageous effects necessitated professionalized multi-tiered staffs. Acutely shaping for the officer corps at the time was the experience of the Meuse-Argonne Campaign and the stemming astronomic casualty rate. Warfare theory generated from this campaign would support the Army in creating several manuals for large-scale combat up until the mobilization for World War II. Each of them would center on the reestablishment of battlefield mobility by breaking-through the "stabilized front" of the enemy using concentrated combined-arms firepower. The genesis of these theories derived from an Army ill-equipped to execute as such during World War I and from an officer corps dedicated to not repeating large-scale operational mistakes.[4]

The United States entered the conflict in Europe after declaring war on Germany on April 6, 1917, following Germany's resumption of unrestricted submarine warfare after a multi-year hiatus. The Meuse-Argonne Campaign lasted fourty-seven days from September 26 to November 11, 1918, fought in the Alsace-Lorrain of northeastern modern-day France. It was the final major offensive of the Allied powers in World War I, becoming the deadliest battle in American history. With 26,277 Americans killed in the Meuse-Argonne, the cost was nearly double the next most lethal, having lost 19,276 during the Battle of the Bulge in 1945. There are a number of reasons for the catastrophic casualty rate in the American Meuse-Argonne victory. Principle among them was the Unites States' inability to efficiently mobilize the nation for war at the strategic level. At the operational and tactical levels of war, the United States entered a World War for which it was completely unprepared.[5]

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[4] Mark T. Calhoun, *General Lesley J. McNair: Unsung Architect of the US Army* (Lawrence, KS: Kansas University Press, 2015), 55-57; Matheny, *Carrying the War*, 17-29; Schifferle, *School for War,* 10, 15, 45-47.

[5] Robert H. Ferrell, *America's Deadliest Battle: Meuse-Argonne, 1918* (Lawrence, KS: Kansas University Press, 2007), 148-153.

From declaration of War on Germany, through the departure of General John J. Pershing and his staff in May of 1917, and up until the launch of the Meuse-Argonne campaign the US would continue to struggle with meeting the logistical requirements of the AEF in France. Shipbuilding, aircraft, artillery, and ammunition production were woefully inadequate to meet the need. Tank production was almost non-existent. Although an effective draft was implemented to quickly fill the ranks of the infantry divisions, soldiers were deployed to France with limited training or equipment on overfilled transport ships. Twelve-hour bunk cycles were implemented to maximize human cargo capacity. Finally, upon arrival to the combat theater ports, railways, and roadways were choked with civilian and military alike. American movement into and across the operational environment was slow and haphazard.[6]

The shortage of transportation assets cannot be over-emphasized. The lack of available maritime assets and cargo space drove significant difficulties for the AEF. Trucks were needed to move troops and materials from ports to the front once on ground in Europe. Limited production rates slowed the procurement of cargo vehicles. Truck transport was ceased completely in January of 2018 to preserve space. Horses and mules were considered to bridge the gap. Yet, due to the lack of shipping assets, they too were not sent forward from the US mainland. Army logisticians attempted to purchase work animals or trucks in France but typically met with prohibitive costs and sustainment troubles. War-time horses were expensive, required fodder, and were vulnerable to enemy machine guns and artillery. Trucks were also expensive and contracted through Britain and France whom, reasonably, prioritized their own needs. The shortage of transportation assets would directly affect the Meuse-Argonne in that a considerable number of

[6] Ferrell, *America's Deadliest Battle,* 148-154; Mark E. Grotelueschen, *The AEF Way of War: The American Army and Combat in World War I* (New York: Cambridge University Press, 2007), 12-14.

soldiers would be required to walk the fifty miles from St. Mihiel, carrying upwards of eighty pounds, prior to beginning the attack.[7]

Primary detractor to the AEF and the main reason for the astounding casualty rate in the Meuse-Argonne was a lack of adequate training and the implementation of doctrine distilled from the American Civil War and the Franco-Prussian War. Training of the rank and file was conducted without necessary equipment. Rifles, artillery, and organizational structures were built simultaneous to the creation of what would become a multimillion-man Army. In many cases, soldiers assigned to machine guns or artillery would receive no specialized weapons training or even see the weapon until arriving in France. Once on ground they would receive supplemental training from the French or British prior moving to the front. Stateside instruction emphasized drill and ceremony, trench building, and bayonet training. Collective and organizational training was non-existent above the platoon level. Company, battalion, or regimental maneuvers were not routinely conducted in the United States before new draftees were deployed. Soldiers were sent into combat with mere weeks of individual training that would be nowhere near adequate to counter the complex combined arms tactics evolving on the western front.[8]

A lack of sufficient training was not a problem exclusive to the draftees. When General Pershing began to select officers to serve on his general staff, fewer than five percent of the available candidates had been trained in large-scale combat at the Leavenworth school or the War College. When the AEF General Headquarters departed for Europe in May of 1917, Fox Conner later said he doubted the Army had, "one single officer who fully appreciated the necessity for coordination of economic and military policy in modern war on a great scale."[9] A select few

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[7] Ferrell, *America's Deadliest Battle,* 4-5, 148-149; Steven Rabalais, *General Fox Conner: Pershing's Chief of Operations and Eisenhower's Mentor* (Havertown, PA: Casemate Publishers, 2016), 123-124.

[8] Biddle, *Military Power*, 34-35; Ferrell, *America's Deadliest Battle,* 149-151; Grotelueschen, *The AEF Way of War,* 16.

[9] Rabalais, *General Fox Conner*, 43.

would be required to train fellow officers and learn the complexities of large-scale modern combat quickly. Among the AEF were future Generals Fox Conner, George Patton, and George Marshall, two of whom were Leavenworth graduates at the time. Colonel (later Brigadier General) Fox Conner and Lieutenant Colonel (later Colonel) George Marshall would become essential in the planning of the Saint-Mihiel and Meuse-Argonne offensives.[10]

Further complicating the staff officer problem, the United States had no standing tactical headquarters above regiment prior to declaring war. The majority of experienced officers on staff had participated in the punitive Mexico expedition with General Pershing in 1916 which involved elements as large as brigades. Other experienced officers had participated in the Spanish-American War of 1898. None had experience projecting large-scale combat power as would be required to defeat the Germans in 1917 and 1918. According to then Colonel Fox Conner, "it was nothing less than astounding to see in what a state of military unpreparedness the United States had undertaken to enter the war."[11] Such inexperience would lead to overwhelming struggle in the conduct of logistics to support three Army Corps in rapid movement during the conduct of emergent combined arms warfare.[12]

The events preceding the Meuse-Argonne campaign detail an Army building combat power in a theater of operations. Through the winter of 1917 and 1918, the AEF was comprised of only four divisions, almost completely untrained or equipped for combat. Although not particularly threatening to the German war-machine, the slow arrival of Americans was not viewed as inconsequential. The German Army was rapidly adapting its tactics to break the "stabilized fronts" characterizing the war from 1914 through 1917. Furthermore, Germany aimed

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[10] Edward L. Cox, *Grey Eminence: Fox Conner and the Art of Mentorship* (Stillwater, OK: New Forums, 2011), 69; Grotelueshcen, *The AEF Way of War,* 10-12; Rabalais, *General Fox Conner,* 39-40, 43, 48.

[11] Rabalais, *General Fox Conner*, 38.

[12] Cox, *Grey Eminence,* 53-59; Ferrell, *America's Deadliest Battle,* 153; Rabalais, *General Fox Conner*, 38-39, 43.

to retrain its forces and attack the Allies quickly to achieve decision prior to the American force reaching full capability on the continent. The German spring offensives of 1918 and in particular Operation Michael, the Second Battle of the Somme, originated modern combined arms and was the German Army's best chance to end the war.[13]

The introduction of "Hutier tactics," although debated in name by modern historians, was an important evolution in doctrine for the German Army and eventually the west in whole. From December 1917 to March of 1918, the German Army established special schools in which to retrain over fifty divisions. The tactics emphasized a system of force employment using combined arms attack on the offense and elastic defense. Earlier problems with the use of indirect fire in close support of infantry had been worked out. Forward observation, progressive advance of artillery positions, and preplanned targeting through aerial observation lifted the fog of the battlefield for planners and commanders. Fire suppression, small unit independent maneuvers, breakthrough, and exploitation were enabled by the artillery. In 1914, the infantry had been replaced by artillery as the branch of decision. By mid-1917, the Germans were replacing artillery primacy with combined arms maneuver.[14]

The new German offensive methods displaced the French idea that "*l'artillerie conquirt, l'infanterie occupert*" (the artillery conquers, the infantry occupies). In March 1918, Germany launched a series of offensives using the new methods that would nearly destroy the remaining Allied force before the Americans could arrive in strength. Operation Michael, as well as the Battles of Lys River and Chemin des Dames saw successive German breakthroughs. The Allies were able to counterattack in the same manner at Second Battle of the Marne. In all, 13,000 miles of territory changed possession in 1918. This was more than any of the previous forty months of

[13] Biddle, *Military Power*, 33-34; Ferrell, *America's Deadliest Battle*, 20-21.

[14] Laszlo M. Alfoldi, "The Hutier Legend," *Parameters* 5, no. 2 (1976): 69-74; Biddle, *Military Power*, 33-34, Ferrell, *Americas Deadliest Battle*, 22.

the war. Yet, these exchanges failed to result in an end to the conflict. Rather it drastically increased the speed of American movement into Europe.[15]

Following the near destruction of the British Expeditionary Force in Operation Michael (the Second Battle of the Somme), the British offered to begin maritime transportation support of American troops. There was much argument between the American, British, and French leadership as to which troops would be given priority for movement in addition to how they would be employed once on ground. Regardless, as Robert Ferrell stated in his work, "the number of troops brought over was astonishing: 85,000 in March, 120,000 in April, and thereafter, 250,000 a month through the summer [of 1918]."[16] The American Expeditionary Force no longer existed in name alone. General Pershing had also won the argument regarding American force employment. The America force would stand alone and not be amalgamated into the French and British forces as "cannon fodder." General Pershing activated First Army on August 10th, 1918 in Chaumont, France.[17]

The attack on Saint-Mihiel in mid-September 1918 was the AEF's first independent operation as a part of the allied force. General Pershing and his staff had been interested in seizing the German salient since their initial assessment of the operational theater in June of 1917. Colonel Fox Conner saw an opportunity to envelop the German position and possibly cut-off the German force from the supporting rail system at Metz to the east. The AEF General Headquarters (GHQ) requested assignment of the Lorrain-Argonne sector from French Commander in Chief, General Philippe Pétain, in the summer of 1919. Yet, the Americans were unable to act for over a year due to logistical frustrations and an uncooperative enemy. When able to execute the attack

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[15] Biddle, *Military Power*, 32; John Keegan, *Face of Battle: A Stud of Agincourt, Waterloo, and the Somme* (New York: Penguin Group, 1978), 215.

[16] Ferrell, *America's Deadliest Battle,* 27.

[17] Edward G. Lengel, *Thunder and Flames: The Americans in the Cruicible of Combat, 1917-1918* (Lawrence, KS: University Press of Kansas, 2015), 21-22; Rabalais, *General Fox Conner*, 79-86; Shipley Thomas, *The History of the A.E.F.* (New York: George H. Doran Company, 1920), 185-186.

on Saint-Mihiel in the fall of 1918, the AEF employed an elaborate deception plan later known as the "Belfort Ruse." Leaked plans, overt preparatory activity, and phony radio transmissions persuaded the German command to reposition three divisions from Saint-Mihiel to Belfort, nearly 250km away. The subsequent attack by the allied force at Saint-Mihiel was rapidly successful, routing the reduced German defenses. From September 12 to 16, 1918 the AEF captured 200 square miles of ground and was poised to advance on Metz. Sadly, a potential exploitation attack was abandoned, and the AEF was reoriented north into the Meuse-Argonne to support the French.[18]

There is much historical debate as to how the AEF came to be the main effort in attacking the stoutly defended "*Kriemhilde Stellung*," (Hindenburg line) in the Meuse-Argonne. The French Marshall Ferdinand Foch and General Pershing disagreed on where a decisive blow would most effectively be placed on the German line. Prior to the AEF's foray in St. Mihiel, the two commanding generals had bickered over the employment of the AEF. Marshall Foch believed the St. Mihiel attack to be wasteful. Foch believed the allied attack should be further north to sever the German-controlled rail lines from Sedan to Mézières. General Pershing refused as he did not want to piecemeal his units under French command as requested by Foch. General Pétain intervened at the request of General Pershing. The AEF would capture St. Mihiel and then, remaining an American unified command, would support the French eastern flank by attacking north between the Argonne forest and the Meuse river. The task of turning multiple corps and hundreds of thousands of soldiers oriented east back to the north after mounting the largest attack in American history would fall on the shoulders of Colonel George Marshall.[19]

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[18] Andrew Carroll, *My Fellow Soldiers: General John Pershing and the Americans Who Helped Win the Great War* (New York: Penguin Press, 2017), 266-267; Cox, *Grey Eminence*, 72-72; Rabalais, *General Fox Conner*, 117-123; Thomas, *History of the A.E.F.*, 226-227.

[19] Carroll, *My Fellow Soldiers*, 264-266; Cox, *Grey Eminence*, 61-62; Rabalias, *General Fox Conner*, 117-120.

The start of the Meuse-Argonne campaign was complicated by a sub-standard French road network connecting St. Mihiel to the planned assembly areas and attack positions of the AEF First, Third, and Fifth Corps. Over a half-million troops, 2,000 artillery pieces, and an astounding 900,000 tons of supplies were jammed-up for days on the three measly roads available. To conceal the intentions of the massive movement, the AEF deception plan limited all movements to night hours, increasing the complexity. First Army had also expended millions of rounds of ammunition in the St. Mihiel, leading to a critical shortage. Also identified by the AEF GHQ were shortages in machine guns, ambulances, and field kitchens. The AEF's logistical capacity had been nearly reduced to the breaking point. Although still moving supplies from previous weeks' action fifty miles south, the AEF launched its attack into the Meuse-Argonne on September 26, 1918.[20]

The plan called for successive attacks with three corps abreast across three German lines by phase. The German Army had occupied the territory since 1914 and spent the four years developing a hardened network of trenches, bunkers, wire obstacles, machine gun nests, and forward observation positions. Artillery preparation of the battlefield began on September 25, firing numerous missions east and northwest of the objective area to confuse the German Army. At 2:30 am on September 26, the combined artillery of the French and American forces began firing on the sophisticated German defense network of the Meuse-Argonne. Together, the 3,980 guns fired over 250,000 rounds in three hours of continuous bombardment. The capture of St. Mihiel had engaged the AEF's most experienced divisions resulting in the ordering of greener forces into the Meuse-Argonne first. Nine divisions of the First, Third, and Fifth Corps attacked

[20] Carroll, *My Fellow Soldiers*, 278-279; Cox, *Grey Eminence*, 72-73; Ferrell, *America's Deadliest Battle*, 38-39; Rabalias, *General Fox Conner*, 124.

northwest. Most important among the divisions of the first phase would be 79th Division of Fifth Corps, tasked with seizing the high terrain of Montfaucon as indicated in Figure 1.[21]

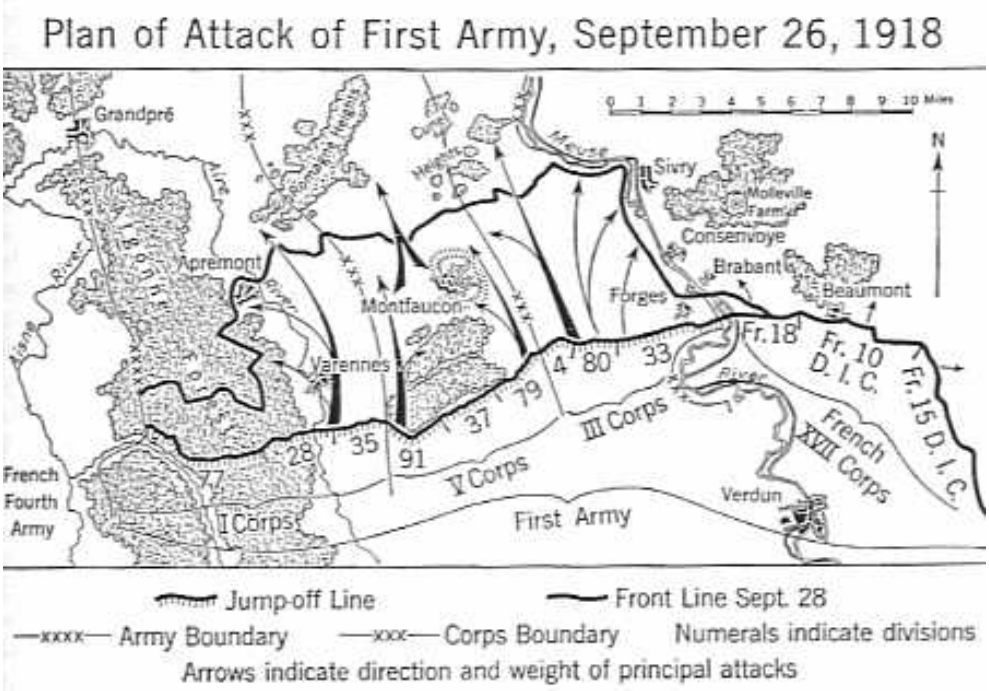


Figure 1. Plan of Attack of First Army. Steven Rabalais, *General Fox Conner: Pershing's Chief of Operations and Eisenhower's Mentor* (Havertown, PA: Casemate Publishers, 2016), 124.

As the three corps of First Army advanced, the infantry progressed forward, aft of a rolling artillery barrage comprised of varied artillery calibers and ranges. Thick fog in the region, lead to the separation of ground forces and difficulty in spotting German positions to direct the artillery. Limited American aircraft available were interdicted by superior German aviators and American observation balloons were quickly shot down. Much of the artillery was firing blindly into well prepared defenses in depth. Yet, American infantryman continued to press north until they outran the range of the supporting 75mm guns. Without the support of artillery, they were mowed-down by machine gun fire as American commanders continued to feed the line forward.

[21] Carroll, *My Fellow Soldiers*, 277; Ferrell, *America's Deadliest Battle*, 41, 49; Rabalais, *General Fox Conner*, 126-127.

In particular, the inexperienced 35th Division of First Corps' east flank was nearly destroyed and had to be withdrawn and replaced by the 1st Division. On the First Corps' west flank, the 77th became so disorganized an entire battalion advanced too quickly and was cut-off, becoming the storied "lost battalion" of the Meuse-Argonne. In the center of the First Army line, the 79th Division of Fifth Corps disrupted the tempo of the AEF attack by overextending its lines and failing to seize Montfaucon. The failure delayed the operation in its entirety. Following a number of command changes, a reorientation of artillery, and 6000 casualties, the 79th at last seized Montfaucon. However, the division was so reduced it had to be replaced by the 3rd Division on September 30, 1918.[22]

Only after allowing AEF fires assets to catch-up with the attacking force, was the 79th able to seize Montfaucon. By outrunning the coverage of fires assets, and without the ability to neutralize German observation aircraft, the division was incapable of conducting combined arms maneuver. The 3rd Division would adapt its tactics for the remainder of the Meuse-Argonne to ensure preservation of tempo and reach through preplanned sequencing of fires. By conducting the fight through a deliberate prosecution of combined arms in phases, against decisive points, the AEF was able to penetrate and exploit the three consecutive German lines. It is not to say that each objective was not won only after intensely destructive and deadly fighting. Further accompanying the changes in tactics were continual changes in leadership, spearheaded by General Pershing himself. Ultimately, the AEF's successes enabled the Americans to advance so far as Sedan, severing the German east-west supply rail by November 18, 1918. All of these lessons would be carried forward in the officers who would rewrite doctrine and redesign training in the interwar years between World War I and World War II.

[22] Ferrell, *America's Deadliest Battle*, 44-45, 48-50; Rabalais, *General Fox Conner*, 127.

## Drivers of Reform

There were several factors driving the regular Army officer corps toward a focus on PME and organizational reform, in addition to the AEF experience. Primary among explanations for military reform during the interwar period was the National Defense Act of 1920. This piece of legislation along with its subsequent fund-cutting appropriation measures established the interwar baseline. It downsized the standing Army and required a review of military doctrine in preparation for future conflict. During the hasty reduction of the US military after the Treaty of Versailles on June 28, 1919 to 1920 the army shed 2,736,218 soldiers. In the years that followed the National Defense Act of 1920 the Army continued to decrease in overall strength finally settling at an "aggregate strength of 134,829."[23]

The National Defense Act of 1920 established a shell-Army from which a large one could be generated in response to global threats. It effectively transformed the active Army into a schoolhouse for the National Guard, Reserves, and any volunteers generated later. Active officers spent most of their service time during the interwar years as instructors or students of some sort. Leading soldiers and commanding units were relatively low-priority tasks and provided many who served with a frustrating experience. Funding shortages limited the availability of troops to fill the rank-and-file and equipment was difficult to replace or repair should it be expended during use. Officer promotions were also slowed considerably resulting in a phenomenon that would become known as the "hump" in officer personnel.[24]

The interwar hump provided the entirety of the officer corps with a cause for consternation. Due to the rapid growth of the Army during World War I, a large group of officers existed of approximately the same ranks, commissioned from 1916 to 1918. Promotions were

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[23]Matheny, *Carrying the War*, 45; Calhoun, *General Lesley J. McNair*, 82.

[24] Richard W. Stewart, *American Military History Volume II: The United States Army in a Global Era, 1917-2008* (Washington, DC: Center of Military History, 2010), 59-60; Schifferle, *School for War*, 18-23.

slowed to the point that officers within the hump group were unable to attain even the nationally dictated promotion service timelines. Hump officers and those directly behind them in commissioning, spent more than ten years to achieve captain and almost twenty years to reach major. Efforts made to create varied methods of promotion to solve the hump setback were undertaken but ultimately failed to eliminate the problem. When the Army mobilized for World War II, over fifty-five percent of the officer corps resided within the hump ranks. Although the hump presented a challenge and it plagued the Army with personnel budgetary considerations, it led to an officer corps whom actively debated their profession and spent many years in education.[25]

Further driving reform were the immense frustrations the AEF confronted in mobilizing and moving the enormous formations required for modern combat in World War I. According to General Marshall, "The problems of the AEF were entirely different from the problems he had encountered [previously]. Issues of ocean tonnage, ports, construction, and the myriad necessary details of running an expeditionary force were issues beyond his experience."[26] During a speech to the Command and General Staff College (CGSC), General Fox Conner expanded on this by informing the students, "Material supply has enormously increased in importance, so much so that the G-3 is more concerned with the possibilities of supply than with anything else or with everything else put together."[27] These problems directly contributed to the understanding of operational reach and the concept of culmination, all of which would result in doctrinal and educational updates throughout the interwar years.[28]

[25] Schifferle, *School for War*, 22-25.

[26] Ibid, 10.

[27] Matheny, *Carrying the War*, 63.

[28] Carroll, *My Fellow Soldiers*, 138-139.

## Educating the Officer Corps

At the time of the Armistice of Compiègne on November 11, 1918, the US Army officer education system contained two primary institutions for the advancement of LSCO. The War College in Carlisle, Pennsylvania and the General Staff School in Fort Leavenworth, Kansas. These served as focal points for officer professional development at the field grade level. The graduates of the Fort Leavenworth school in particular had created a noticeably positive image for the institution during World War I in Europe. General Pershing revered graduates of the General Staff School to such an extent that he issued, "a standing order [requiring] that every Leavenworth graduate disembarking in France would be detached from his unit and sent directly to [his headquarters in] Chaumont."[29] During the interwar years, the CGSC became the lone school aimed at mid-career officers designed to create effective division and corps staff officers. As such, it was the epicenter of instruction and debate regarding the employment of combat power at the operational level.[30]

The AEF had deployed to France using the 1914 version of the doctrine *Field Service Regulations.* The manual had introduced the "mobile Army" construct centered on the Division and Field Army and their employment in the newly named "theater of operations." The doctrine was untested in large-scale combat before World War I. In particular, its methods for overcoming the machine gun involved a frontal assault. It also confused the employment of machine guns by friendly forces, recommending that they only be used in limited employment as they attracted attention and drew the heaviest attacks from the enemy. The interwar period, and in particular the students and instructors at the CGSC in Fort Leavenworth would update the doctrine quickly.[31]

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[29] Schifferle, *School for War*, 11.

[30] Matheny, *Carrying the War*, 49-50.

[31] War Department, *Field Service Regulations, United States Army, 1914*, C5 (Washington, DC: Government Printing Office, 1916), 72; Walter E. Kretchik, *US Army Doctrine from the American Revolution to the War on Terror* (Lawrence, KS: University of Kansas Press, 2011), 117-120.

Between 1918 and 1941, three more versions of the Army's operations manual would be published in 1923, 1939, and 1941. The 1923 version described combined arms as essential for success in combat. It discussed decisive points and deliberately changed the battlefield framework to include three dimensions; "Concentration of superior forces, both on the ground and in the air, at the decisive place and time, creates the conditions most essential to decisive victory."[32] The manual included "attacking a stabilized front" as the primary application of the offense in "open warfare." It also discussed the maintenance of tempo by dictating time as principal in overwhelming an enemy commander's ability to make decisions. However, the 1923 version of *Field Service Regulations* ran into education problems. Also published in the same timeframe was the *Manual for Commanders of Large Units.* Both manuals found their way into the curriculum at the Staff College in Leavenworth. The latter was largely influenced by the French and promoted firepower and defense over the open warfare maneuver of the former. To fix the problem, the Army updated the doctrine creating its first version to resemble the operational art concepts introduced in the 1980s.[33]

The 1939 version of the Army's pinnacle operations manual included many firsts. It changed the name from *Field Service Regulations* to *Field Manual (FM) 100-5*, *Operations* and was the first to link tactical action to the achievement of political objectives. The manual also was first to discuss the psychological effects of war on momentum and motivation; "By . . . destruction and terrorization . . . the shaken morale of the defeated enemy is converted into panic, and the insipient dissolution of his organization is transformed into a rout."[34] Prior to mobilization in 1941, the manual was updated again, integrating air power and tanks as a

[32] War Department, *Field Service Regulations, United States Army, 1923* (Washington, DC: Government Printing Office, 1924), 77.

[33] Kretchik, *US Army Doctrine*, 134-148; Schifferle, *School for War*, 50-52; War Department, *Field Service Regulations, 1923,* 77-78, 96.

[34] War Department, *Field Manual (FM) 100-5 Tentative Field Service Regulations, Operations* (Washington, DC: Government Printing Office, 1939), 166.

fundamental contribution to combined arms maneuver. The 1941 manual also emphasized the necessity of mobility and operational efforts required to move large forces. It expanded the types of combat divisions from only infantry and cavalry to include armored and motorized divisions. Many sections closely resembled German doctrine of the time, emphasizing close coordination of combined arms to conduct a breakthrough penetration to seize tactical objectives. "The amount of artillery, mechanized units, and supporting combat aviation available largely determines the width of the front of penetration . . . Hostile counterattacks against the flanks of the penetration are met by reserves, by the fire of artillery, and by combat aviation."[35]

Training the officer corps at Fort Leavenworth, the Staff School became the focal point for all doctrinal integration and dissemination. Throughout the interwar years before World War II, the Staff School varied in length between one to two years. In general, the course was two years, the first year focusing on large scale combat operations at the division level and above. High performers during the first year were selected to attend a second year of education at the school to study operations of the Army staff. Throughout the program of instruction, the Staff College focused on the management of very large formations, problem solving, decision making, and the operational level of war. Most important to the school was a deep study of logistics on a massive scale. All of this subject matter and doctrine was paired with and intense instructional methodology known as the "applicatory method." The method included large lectures, small group work, staff rides, committee discussions, and many practical exercises. The method had the effect of reaching all different types of learners from across Army branches.[36]

Finally, to drive home the importance of the General Staff School and the education of mid-career officers, the Army prioritized instruction assignment over troop duty. Only

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[35] War Department, *Field Manual (FM) 100-5, Field Service Regulations, Operations, May 22, 1941* (Washington, DC: Government Printing Office, 1941), 102-103; Kretchik, *US Army Doctrine*, 149-153.

[36] Calhoun, *General Lesley McNair*, 101-102; Matheny, *Carrying the War*, 55; Schifferle, *School for War*, 62-63.

assignment to the Army staff or the War College superseded CGSC instructor duty. Unlike today, where duty in the operational force for field grade officers is highly prized, instructor duty was sought-after. Not only was it sought-after, but selection for instruction was competitive and most instructors were highly successful graduates of both years of the Command and General Staff School and the War College. Throughout much of the interwar years the staff also comprised a preponderance of AEF veterans, all of who were dedicated to ensuring the Army was prepared to mobilize, fight, and win in modern era combat. Victory in World War II came from a comprehensive focus on the operational level of war and the maneuver of large-scale formations in practical applications at the many schoolhouses of the United States Army.[37]

## Vietnam–Desert Storm: The Foundation of Operational Art

The disillusionment of the American public with its military during and immediately following the Vietnam War resulted in the infamously dubbed "hollow Army" of the late 1970s. Recruitment was terrible and the retention of combat experienced Non-Commissioned Officers and Officers became nearly impossible. Drastic reform in doctrine, manning, and equipment was required to reestablish the professional Army and present a credible deterrent to the Soviet Union. A number of events came to pass that invigorated an insipid congress to take action. Many historians point to the fall of the Shah of Iran in 1979, the ensuing hostage crisis, and the failure of "Desert One" as stimulus for the 1980s Army. Adding to geopolitical concerns of the time was the Soviet invasion of Afghanistan. These are fitting contributors to drive for interwar year reforms. Previously, however, the oil embargo and Yom-Kippur War of 1973 had validated leadership estimates at the time regarding the intensity and complexity of modern combined arms warfare. Lessons learned by studying the early Egyptian success and ultimate Israeli victory would directly provide updates to doctrine and training. From Yom-Kippur and the failure of Desert One, the Army would frame an operational approach and refine its theory of combined

[37] Matheny, *Carrying the War*, 57-64; Schifferle, *School for War*, 86-91.

arms through operational art and the eventual advent of "AirLand Battle." Changes made to doctrine and training that led to success in Operations Just Cause and Desert Storm were inspired most prominently by the Yom Kippur War of 1973.

## The Yom Kippur War

Many years after the trenches of the first Great War had produced combined arms warfare, the Egyptians were confronted with a similar "stabilized front" problem in the Sanai. The Israeli Bar-Lev line constructed along the eastern shore of the Suez Canal following its capture during the Six Day War of 1967 was formidable. Egyptian armor was handily defeated by modern Israeli air power and tanks during the previous conflict, resulting in the Israeli occupation of the Sinai. Much as the Hindenburg line of World War I or the Anti-Access Aerial Denial (A2AD) structures of today, multiple lines of defense in depth creatively used terrain, artillery, and aviation to amplify its effect. Internal evaluations determined the Egyptian Air Force to be a minimum of ten years from establishing parity with the Israeli Air Force. During the planning phase, the Egyptians aimed to exploit weaknesses in Israel's three-pillar doctrine that emphasized the role of intelligence, armor, and an overdependence on air power. To accomplish this, Egyptian modernization efforts since 1967 included purchasing countless anti-tank Sagger missiles and 150 SA-6 air defense batteries from the Soviet Union (see Figure 2).[38]

[38] Avraham B. Adan, *On the Banks of the Suez* (New York: Presidio Press, 1980), 57; Abraham Rabinovich, *The Yom Kippur War: The Epic Encounter That Transformed the Middle East* (New York: Random House, 2004), 28-35.

Figure 2. SA-6 in the Foreground in Egypt, 1972. SA-3 left Background. SA-2 right Background. Dr Carlo Kopp, Technical Report APA-TR-2009-0701, "Self Propelled Air Defense System," Air Power Australia, accessed January 30, 2019, http://www.ausairpower.net/APA-2K12-Kvadrat.html.

The Egyptian general command planned a three-phase operation to seize key crossing points on the canal, breach the Bar-Lev line, and establish a defensible beachhead on its eastern shore (see Figure 3). Operation Badr called for a simultaneous attack of two armies with five infantry divisions across the Suez Canal to establish bridgeheads twelve to fifteen kilometers in depth; this included overcoming the Israeli defenses on the Bar-Lev line. The second phase called for a hasty transition to defense to repel expected Israeli counterattacks. Egyptian president Anwar Sadat anticipated competing global super powers would intervene and mediate a cease-fire once the beachhead was secured. The base plan included a third phase to mitigate the risk of an Egyptian Army pinned against the canal to their rear after completing the breach. Known as "Granite 2," the third phase was a continuation of the attack to secure the Gidi and Mitla Passes forty kilometers east. The idea was to defeat an Israeli counterattack and prevent reinforcement through the passes. The drawback to Granite 2 was it required Egyptian armored forces to attack

beyond the planned coverage areas of SA-6 batteries guarding the crossing sites. Due to a low assessed probability of execution as well as officer disagreement, the branch was incomplete.[39]

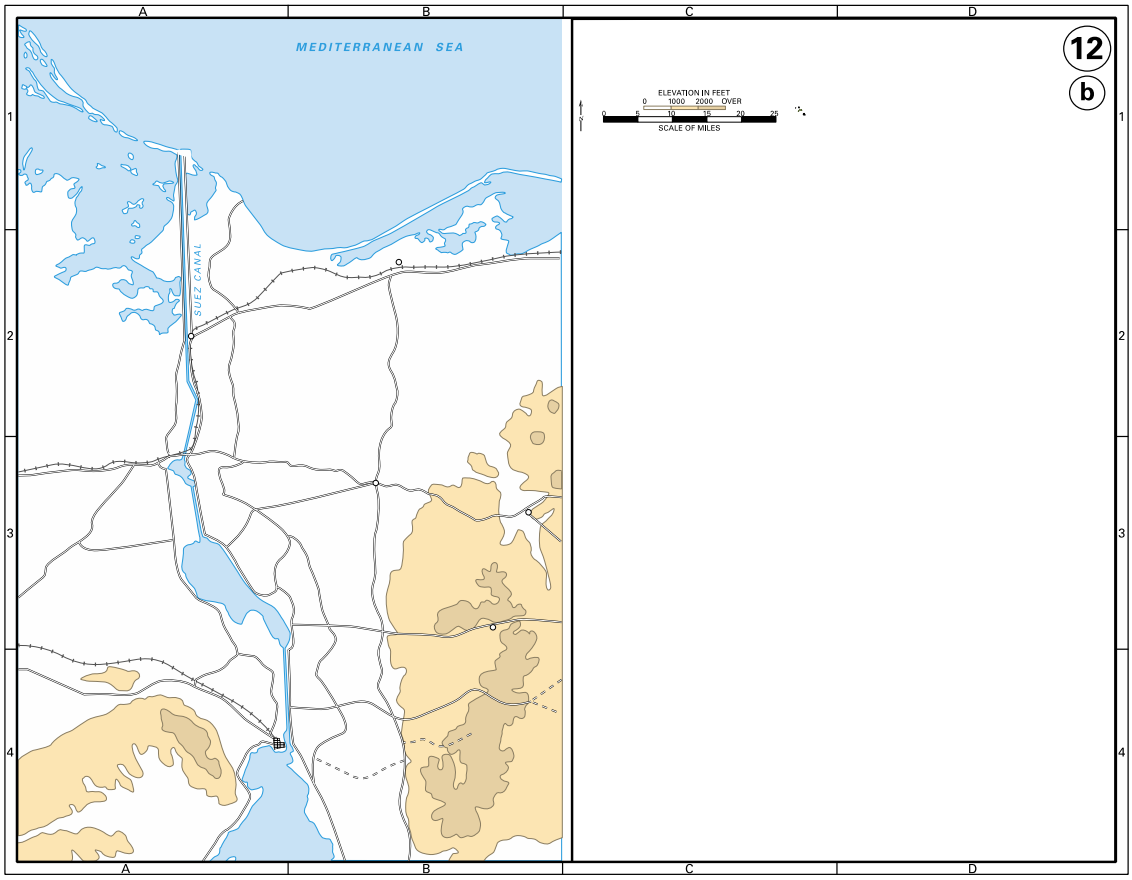


Figure 3. The Execution of Operation Badr Map, October 6-15, 1973. US Military Academy, "Arab Israeli Wars," accessed January 15, 2019, https://www.usma.edu /academics/academic-departments/history/arab-israeli-wars.

On October 6, 1973, the 2nd and 3rd Egyptian armies attacked east into the Sinai Peninsula. The network of sixty-two SA-6 air defense batteries directly supporting maneuver elements on the attack neutralized the Israeli air force attempting to halt the advance. Using a creative solution to the Israeli obstacle belt, the Egyptians used water-cannons to blast holes in the sand berms blocking the way for armor and infantry soldiers. In just twenty-four hours, the Egyptians were able to surge almost 100,000 soldiers and 1000 tanks to the eastern side of the

[39] Adan, *On the Banks of the Suez*, 59-64; Rabinovich, *The Yom Kippur War*, 28-35.

Suez canal while inflicting tremendous casualties on the Israeli armored division securing the Bar-Lev line. The Israelis mobilized their reserves and scrambled sorties but were ineffective, losing at least forty aircraft to air defense fire. The Egyptians took advantage of the weak Israeli front. From October 8 to 14, they were able to consolidate gains and defeat enemy counterattacks under the coverage of SA-6 surface to air fire.[40]

On October 14, however, despite opposition from his senior officers, Sadat ordered the execution of Granite 2. Israel was imposing intense pressure on Egypt's Syrian ally in the Golan heights. Sadat hoped to distract the Israeli Army long enough to allow Syria to regain the initiative. Egypt attacked east without SA-6 coverage. Attempts to move some of the batteries to support the attack were frustrated due to a lack of mobility training and planning. As a result, Egyptian organic Man-Portable Air Defense Systems and anti-aircraft machine guns supported the armored attack alone. Israeli fighters immediately began to destroy the exposed tank formations as Israeli armor counterattacked the disintegrating organization. Following the defeat of the Egyptian Granite 2 advance, Israeli armor exploited the gap created in the line along the Suez Canal. Israeli tanks destroyed SA-6 batteries emplaced near the crossing sites, opening the skies to the air force. Fully enabled in all domains, the Israeli Defense Force enveloped the Egyptian Third Army claiming victory.[41]

## Drivers of Reform

"Come as you are." The term became popular in the 1980s Army reformation as a witty way of emphasizing the necessity of on-hand equipment and personnel preparedness. The short duration of the Yom Kippur War established precedence for the Army in framing an understanding of how the next war's opening battles would be fought. In particular, it provided American Generals with a case study of American equipment used in conventional combat

[40] Adan, *On the Banks of the Suez*, 16-25; Rabinovich, *The Yom Kippur War*, 115-119.

[41] Adan, *On the Banks of the Suez*, 63-68; Rabinovich, *The Yom Kippur War*, 260-280.

against a Soviet equipped foe. Additionally, it shaped the idea that the United States would be required to win quickly, before major industrial activation could deliver material solutions in-mass. When combined with the implemented "all volunteer force" the Army also did not expect a large influx of personnel to meet new challenges. Thus, "come as you are," took hold in AirLand Battle jargon. For the ensuing decade, the Army would be inspired to develop and implement doctrine inspired holistically by the phrase, determined as it was following the Meuse-Argonne to avoid mistakes of the past and win the opening battle of the next war.[42]

The interwar period of the late 1970s and 1980s overhauled an Army PME system that had been in place since World War I. Since that time, moderate disruptions to the education system forced suspensions of various academic institutions, but in large part the graduated sequence remained the same. For instance, the Army War College discontinued operations from 1940 to 1950 due to the demand for immediate forward posting of officers during World War II. It then remained closed up until the Korean conflict due to downsizing of the officer corps. Prior to the Yom Kippur War, the interwar period Army primarily existed as a mobilization force, not one of immediate availability. The active duty officer corps served to provide the framework upon which the Army would scale with fresh recruits to meet the needs of the conflict. Officers were trained according to this model and expected to assume positions of greater responsibility during war time. Substantial end-strength growth had created a larger peacetime Army from which to generate a large-scale combat force after success in World War II. However, conceptually the Army retained a "binge and purge" outlook similar to that of the Army of 1917. This was about to change.[43]

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[42] Dunnigan and Macedonia, *Getting it Right*, 14-15.

[43] Suzanne C. Nielson, *An Army Transformed: The US Army's Post-Vietnam Recovery and the Dynamics of Change in Military Organizations* (Carlisle, PA: US Army War College, 2010), 42-43; Dunnigan and Macedonia, *Getting it Right*, 130-135.

On July 1, 1973 conscription service was ended and transitioned to what became known as the all-volunteer Army. The execution of the program was initially fraught with failure. Conscription had allowed the military to induct thousands of well-educated, high-quality soldiers who would likely have not joined the Army otherwise. The Air Force and Navy were not immediately negatively impacted, and the Marine Corps was able to meet its needs due to its small size. However, the Army was required to make radical changes to bolster recruitment numbers. Lowered standards and a problematic Vietnam era non-commissioned officer corps resulted in an exceptionally complicated service culture. The Army became riddled with drug problems and racial conflict throughout the enlisted force. On the officer side, a lack of purpose, difficult troops, and confused structural guidance was difficult to endure. Many officers left the service. At West Point, more than thirty officers resigned in an eighteen-month period. It would take nearly a decade to undo the resulting "hollow Army" and create the "Army of Excellence" of the 1980s.[44]

The problems of transitioning from a service structure founded on conscription were not unforeseen by leadership at the time. Their concerns were expressed to the Nixon Administration in terms of projected recruit demographics and by invoking societal moral responsibility. Military officers asserted that the United States' populace should equally contribute to its defense regardless of region, race, or social status. It was their understanding that an all-volunteer force would be comprised of only the lower echelons of American society. Nevertheless, the change had been promised by Nixon during his campaign in 1968 and would go forward regardless of military objection. In October 1970, General William Westmoreland created the Special Assistant to the Modern Volunteer Army to lead the conversion and recruitment program effort. Recently promoted to Lieutenant General, George Forsyth was assigned the position having successfully

[44] Dunnigan and Macedonia, *Getting it Right*, 143-155; James Kitfield, *Prodigal Soldiers: How the Generation of Officers Born of Vietnam Revolutionized the American Style of War* (New York: Simon and Schuster, 1995), 142-143.

commanded the 1st Air Cavalry Division in Vietnam. He assembled a team of officers and senior enlisted members that devised a program known as "Project VOLAR" (Project Volunteer Army).[45]

Members of the Modern Volunteer Army team were ambitious and accomplished soldiers, dedicated to the successful implementation of the volunteer Army concept. The goal of the Volunteer Army Project was to implement and evaluate a series of changes at numerous installations across the Army to make the Army a more desirable career field. Notable changes are still recognized in today's Army. These included the creation of a five-day work week, the removal of sign-in and sign-out requirements for soldiers on regular pass, elimination of weekend bed checks, the removal of a daily reveille requirement, the contracting of civilians for kitchen duties, allowing beer in the barracks, and creating two-man barracks rooms. Also included, and very unpopular with the more senior officer corps, was the recruitment slogan the "Army wants to join *you.*"[46] Across the force, the changes resulted in lowered AWOL rates, increased reenlistments, and positive feedback from junior enlisted. Yet, when these changes were briefed to the numerous garrison commands across the Army, the Modern Volunteer Army team was met with staunch resistance. A number of other changes were culturally rejected by leadership such as the creation of "harmony councils" aimed at airing grievances with higher command. In the end, the project was a failure due to its rejection by senior military staff as modern liberalism, resulting in Lieutenant General Forsythe's resignation after thirty-two years of service. Lieutenant General Forsyth said as he left the Army, "Like so many other persons, we seniors of the US Army sometimes have trouble accepting and dealing with youthful idealism. It does not salute by reflex, does not obey blindly."[47]

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[45] Stewart, *American Military History Volume II*, 369-371; Kitfield, *Prodigal Soldiers*, 135.

[46] Kitfield, *Prodigal Soldiers*, 137.

[47] Kitfield, *Prodigal Soldiers*, 137-139; Stewart, *American Military History Volume II*, 372-375; Willard Latham, *The Modern Volunteer Army: The Benning Experiment, 1970-1972* (Washington, DC: Department of the Army, 1974), 27-30.

The remaining years of the 1970s further motivated the Army to continue reformation, inspired by both external and internal events. The Soviet Union invaded Afghanistan in 1979 and the Iranian revolution saw the capture of the US Embassy in Tehran by political militants. The subsequent failure of the hostage rescue Operation Eagle Claw in 1980, often referred to as Desert One, exposed significant gaps in joint planning, execution, and operational theory. The rescue required planning and cooperation be conducted between the four major branches of service with disparate joint doctrine and a tenuous chain of command. Further confounding the operation was the geographic separation between participants and limited time for rehearsals and wargaming. In the end, Operation Eagle Claw failed due to a combination of unit unfamiliarity, an incomplete understanding of the battle space, and miserably bad luck.

Operation Eagle Claw required the covert infiltration of Army soldiers into Iran via aircraft launched from both mainland airfields and aircraft carriers afloat. Due to the distances and multiple staging areas involved in the operation, the C-130s were loaded down with fuel to refuel the helicopters at a remote desert site in Iran code named Desert One. During the infiltration heavy sand storms rendered a number of helicopters inoperable which had to be abandoned without the means of destroying sensitive material. The landing zone at Desert One was compromised by a civilian bus driving through the objective area. Additionally, a civilian fuel truck was destroyed by a Ranger element for refusing to halt, lighting up the night sky. The mission commander chose to abort the mission from Desert One, a branch plan which had not been considered. During exfiltration an RH-53D Helicopter was again blinded by the sand. His ground guide failed to maintain position and the RH-53D collided with an EC-130E on the ground, loaded with fuel and ammunition (see Figure 4). The accident killed eight service men from the Air Force and Marines. The Carter Administration accepted full responsibility for the accident. Operation Eagle Claw, a surging USSR, and the demonstrated effectiveness of Russian

weaponry and tactics by the Egyptians in the Yom Kippur War drove much of the change between 1973 and the successful execution of Desert Storm in 1991.[48]

Figure 4. Desert One crash site during Operation Eagle Claw, April 24, 1980. Steve Balestreri, "Operation Eagle Claw, Disaster at Desert One Brings Changes to Special Operations," Special Operations, April 24, 2017, accessed March 13, 2019, https://specialoperations.com/30764 /operation-eagle-claw-disaster-desert-one-brings-changes-special-operations/.

Another driver of reform for the Army after Vietnam and shaped by the advent of the Yom Kippur War was the identification of languished modernization, equipment fielding, and doctrinal innovation. Due to the high rotational tempo of combat forces into Southeast Asia in support of the Vietnam conflict, research and development had lapsed for the Army. For nearly a decade, the Army had been fighting a counterinsurgency war using predominantly air mobile and light infantry tactics. Most concerning was that the stalled efforts by the Army occurred simultaneous to a massive build-up by the Soviet Union in Eastern Europe and a strengthening of the Warsaw Pact. Much as the wars in Iraq and Afghanistan have today, Vietnam became a resource vacuum, consuming all mental and material energy for the Army. Taking advantage of

[48] James H. Kyle and John R. Eidison, *The Guts to Try: The Untold Story of the Iranian Hostage Rescue Mission by the On-Scene Desert Commander* (New York: Ballantine Books, 1995), 53-62, 278-287, 328; Kitfield, *Prodigal Soldiers*, 223-231.

this opportunity, the USSR deployed thousands more armor units to Eastern Europe and developed and published its own doctrine founded on (in English) the Combined Arms Concept. In contrast, the American primary doctrinal publication for operations, *FM 100-5*, had not received major changes since World War II. All of this hastened the Army's reforms.[49]

Finally, the Goldwater-Nichols Department of Defense Reorganization Act of 1986 completely reshaped the way each branch of service would work, train, and modernize together. The new law formalized the Joint Chiefs of Staff as an official organization in the military. The Chairman of the Joint Chiefs was made the primary military advisor to the president with the geographic "Combatant Commanders" becoming the operational headquarters directly responsible to the president. Most importantly the act was designed to influence joint cooperation in the defense force. After Goldwater-Nichols, the Army and the Air Force would have to train together and develop doctrine and material solutions that would support each other. The act also created functional commands such as the United States Special Operations Command to prevent another disaster as Operation Eagle Claw in Iran or a frustrated action like Operation Urgent Fury in Grenada. The act paired with revolutionized doctrine would drive successes in Operation Just Cause and Desert Storm.[50]

## Educating the Officer Corps

To begin reeducation of the officer corps, the Army needed to completely rethink the way it was going, to organize and train to fight the opening battles of the next war. It is important to understand the context of doctrine as it had developed in the years after World War II. The Army *Operations* manual, *FM 100-5* had been through a number of revisions since its final

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[49] Donn A. Starry, "A Tactical Evolution: FM 100-5," *Military Review* (August 1978): 2; Wayne A. Downing, "Maneuver: US Army Operations Doctrine: A Challenge for the 1980s and Beyond," *Military Review* (January 1981): 67-68; Doughty, *The Evolution of Tactical Doctrine, 1946-1976* (Fort Leavenworth, KS: Combat Studies Institute, 1979), 41.

[50] Dunnigan and Macedonia, *Getting It Right*, 133; Kitfield, *Prodigal Soldiers*, 263-267, 293-295; Stewart, *American Military History Volume II*, 402, 404-405.

World War II version, published in 1946. Following World War II, the arrival of the nuclear age initially left the Army confused as to its role in large scale combat operations. Warfare theorists argued the nuclear age would render the Army obsolete. Nuclear weapons were promoted as an effective strategic deterrent to violent action. The National Security Act of 1947 created an independent US Air Force that controlled the entirety of nuclear delivery platforms, immediately thrusting it to the forefront of strategic and budgetary priority. However, much of the deliberating was quickly proven without merit. In June of 1950, North Korea invaded South Korea and the United States was again pulled into war. General Douglas MacArthur requested the employment of nuclear weapons. However, President Harry Truman refused due to the potential for escalation by the Soviet Union and limited the fight to conventional means. The Army was again fighting a war of firepower and maneuver, and one which they had not anticipated political constraints.[51]

Following his election, President Dwight D. Eisenhower instituted the "massive retaliation" policy. Even though Korea had proven the political feasibility of employing nuclear bombs to be very unlikely, the attraction of cheaply and immediately ending or deterring a conflict without projecting large land forces was too great. Despite being the former ranking Army officer in the European theater, President Eisenhower had approved doubling the Air Force budget over the Army's by 1955. In response, Army leadership aligned themselves with the timely theories of J. Robert Oppenheimer who postulated that large nuclear war was not fitting for the modern battlefield. Rather he asserted that small nuclear weaponry at the tactical level should be employed by artillery or missiles. The Army briefly reorganized into what has become known as the "Pentomic Army" due to its five-unit "battle group" disposition comprising each pentomic division. Accompanying this change was the 1954 edition of *FM 100-5*, wherein the Army asserted itself as the "decisive component of the military structure by virtue of [its] unique ability to close with and destroy the organized and irregular forces of an enemy power or

[51] Kretchik, *US Army Doctrine*, 164-165; Doughty, *The Evolution of Tactical Doctrine*, 2, 7-11.

coalition of powers."[52] Of note, the 1954 version of *FM 100-5* is the first version to include the ideas of warfare theorist Carl von Clausewitz, input by writers at the CGSC in Fort Leavenworth. Further, this version was the first to discuss wars of limited aim, dubbed "situations short of war." The doctrine envisioned destroying an enemy to restore the territorial integrity of a friendly nation.[53]

Under President John F. Kennedy, Eisenhower's policy of massive retaliation was replaced with flexible response. Along with the shift in policy, President Kennedy directed the Army to restructure to provide a scalable force to counter enemy aggression. The Army rejected the pentomic concept and returned to its previous divisional structure comprised of four primary divisional structures: armor, mechanized, infantry, and airborne (including air mobile). Accompanying the change, the Army published the 1962 version of *FM 100-5*. Included in the new manual was a section on irregular warfare. Ahead of the first combat troops arriving in Vietnam, the manual offered the following:

> In military operations against irregular forces the civilian support rendered to either our own or allied forces and the irregular forces is often of such importance as to mean the difference between success or failure. Success is dependent upon definite program of civil affairs and psychological warfare activities to create proper attitudes and relationships with the people in the area.[54]

The escalation of the Vietnam conflict produced a follow-up to the 1962 version with an updated manual in 1968. Key concepts included the creation of the now common-place military activity, "stability operations," and the first establishment of the Fire Support Coordination Line.[55]

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[52] US Department of the Army, *Field Manual (FM) 100-5 Operations* (Washington, DC: Government Printing Office, 1954), 4.

[53] Kretchik, *US Army Doctrine*, 167-169, 176; Dunnigan and Macedonia, *Getting It Right*, 57-60; Doughty, *The Evolution of Tactical Doctrine,* 17.

[54] US Department of the Army, *Field Manual (FM) 100-5 Operations* (Washington, DC: Government Printing Office, 1962), 152.

[55] Kretchik, *US Army Doctrine,* 180; US Department of the Army, *Field Manual (FM) 100-5 Operations* (Washington, DC: Government Printing Office, 1968), 5-6, 13-1.

Following the withdrawal from Vietnam in 1973, the Army was in the process of rejecting counterinsurgency and returning to conventional warfare. The lapse in equipment modernization was evident and change was already underway when the Yom Kippur War kicked off. As stated in Robert Doughty's book on doctrinal evolution, "The startling violence and consuming nature of that war served to accelerate the transition from the previous focus on counterinsurgency to the new focus on conventional warfare."[56] To facilitate a more holistic transformation of the Army, the United States Training and Doctrine Command (TRADOC) was created, and General William DePuy was made the first commander. His first order of business was to modernize *FM 100-5* for the conventional force, reoriented on large scale combat against a Russian adversary in defense of Europe. The culmination of that effort was the publication of the first iteration of Air-Land Battle and "active defense" doctrine in Army history in 1976.[57]

The 1976 version of Air-Land battle in *FM 100-5* (not yet "AirLand Battle") was received with much opposition. Critics derided the manual as overly focused on the defense due to its promotion of the "active defense" as a means to defeat an enemy. In reality, the design made sense, the authors of the 1976 manual were reorienting the force toward defeating the USSR in Eastern Europe. According to the North Atlantic Treaty Organization (NATO) policy at the time, it was unlikely that the NATO Alliance would strike first. Essentially, the units forward positioned would be required to conduct a robust and deliberate "active defense" to trade space for time as units in the continental United States were mobilized and NATO nations were able to muster their own forces. Active defense required an advanced guard force that would stand and fight, not just act as a screen, and a main battle area wherein friendly forces would exploit terrain, deception, and firepower to attrite the enemy while bounding backwards. Another aspect of the

[56] Doughty, *The Evolution of Tactical Doctrine*, 40.

[57] Michael W. Cannon, "The Development of FM 100-5 From 1945-1976" (Master's Thesis, University of Iowa, 1984), 65; Kretchik, *US Army Doctrine*, 197-199; Dunnigan and Macedonia, *Getting it Right*, 162-163; Stewart, *American Military History Volume II*, 382.

manual that received massive criticism was the overreliance on modern technology to generate overwhelming firepower. In doing so, the manual reduced the necessity of maneuver and removed the importance of the soldier as the primary fighting instrument of the Army. The manual became known as the DePuy doctrine.[58]

General Donald Starry assumed command of TRADOC in 1977. Previously, Starry participated as one of the primary authors of FM 100-5 during the 1973 to 1976 update. He understood the problem conceptually and had defended the manual from critique on multiple fronts. A complete shake-off of counterinsurgency and focus on Europe was addressed as such:

> We saw the possibility of two wars: mechanized war-such as we might have to fight in NATO Europe - perhaps even in the Middle east; the other war-a Korea, a Vietnam, a Lebanon crisis, a Dominican Republic . . . .Estimating likelihood of occurrence, war in NATO Europe, while probably least likely, was certainly the most important from the standpoint of our national survival and the well-being of Western civilization.[59]

In 1982, TRADOC, under the direction of General Starry and through the doctrinal writing staff at Fort Leavenworth, published the first of the final two editions of *FM 100-5* prior to Desert Storm. The 1982 version was the first to introduce the operational level of war and the concept of operational art officially in doctrine. The operational level of war was described as the level at which large unit campaigns were designed to achieve strategic objectives by translating them to tactical actions. The designing of campaigns at the operational level was accomplished through operational art. The manual reestablished the offense as the primary mechanism through which the Army achieved decision by emphasizing maneuver over firepower. Deep attack of enemy follow on forces was required to ensure maneuver was concentrated against the decisive point while enemy reinforcements were reduced. It also used historical case studies to explain the concept and introduced theoretical aspects of planning, including the "indirect approach" of

[58] US Department of the Army, *Field Manual (FM) 100-5, Operations* (Washington, DC: Government Printing Office, 1976), 1-1 – 4-12.

[59] Starry, *A Tactical Evolution,* 4.

Liddell Hart. Finally, the manual changed the term Air-Land Battle to AirLand Battle. The 1986 version expanded on the concepts of operational art and is held as the major contributor to success in Desert Storm.[60]

To educate and train the officer corps, the US Army made a number of updates that, in most cases, continue to exist today. Doctrinal updates had created a theory of action in AirLand Battle that would provide the force a way to fight and win outnumbered wherever called upon to do so. The force had also been adapted to be ready to fight immediately, without a full national mobilization. The 1973 war in the Middle East had demonstrated the need to influence capitulation quickly by translating strategy to tactical action through operational art. To train these concepts for the force, the National Training Center, Joint-Readiness Training Center, and the Battle Command Training Program were established. The training centers provided realistic large-scale maneuver training beyond the ability of map-based practical exercises of the branch school houses or the staff college. Battle Command Training Program focused on division and corps operational training, providing commanders and staffs the ability to train at the operational level with simulations. Previously, detailed learning of the operational level of war was only available once the fight had started. At home-station, Army units would train to achieve proficiency in all essential tasks by adhering to newly created Army Training and Evaluation Program standards. Units were tested in individual through collective combat tasks and received certifications. Units that failed to achieve the standards were retrained at specific levels and continued to do so until a passing score was granted, then the unit moved onto the next task.[61]

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[60] Dunnigan and Macedonia, *Getting it Right*, 167-169; Kretchik, *US Army Doctrine*, 204-212; US Department of the Army, *Field Manual (FM) 100-5, Operations* (Washington, DC: Government Printing Office, 1982), 2-1 – 2-4; US Department of the Army, *Field Manual (FM) 100-5, Operations* (Washington, DC: Government Printing Office, 1986), 9-40; Stewart, *American Military History Volume II*, 383.

[61] Robert M. Citino, *Blitzkrieg to Desert Storm: The Evolution of Operational Warfare* (Lawrence, KS: University Press of Kansas, 2004), 271; Kitfield, *Prodigal Soldiers*, 306-317; Kretchik, *US Army Doctrine*, 213-214; Dunnigan and Macedonia, *Getting it Right*, 131-132.

To complete the transition from counterinsurgency to LSCO under the construct of AirLand Battle in the 1982 and 1986 manuals, comprehensive updates were made to the CGSC, as well as the Army War College. Map-based practical exercises were returned to prominence within the curriculum aimed at winning the first battle. The study of operational art was expanded to ensure a firm grasp of the mental transition from tactical to operational. The operational level required officers to think differently with regard to time and space analysis. Also introduced was an iterative planning process based on the Prussian model promoted by General Emory Upton in the late 19th century. An "estimate of the situation" was created as a doctrinal requirement for planning as well as the formalization of numerous versions of the Military Decision-Making Process. Having been discontinued completely in the 1960s, wargaming was reintroduced and rigorously trained at the CGSC and War College as it had been during the interwar years from World War I to World War II. Finally, a second year of training for mid-career officers was also reintroduced at the CGSC by creating the School of Advanced Military Studies in 1983. As with the previous two-year model of the World War interwar years, high performing officers were selected to remain at Fort Leavenworth for a second year of education in operational art and large-scale combat operations.[62]

# Conclusion

## Synthesis: From Combined Arms to Operational Art

During the conduct of Operation Desert Storm in 1991, the United States Army had at last achieved a long sought-after ambition. It had won the first battle of a major war, resulting from the years of preparation and reformation between 1973 and the fall of the Berlin Wall. However, the warfare theories inspiring the actions adapted from the modern combat seen in the Yom Kippur War were based on a theory of action originating in World War I. The first

[62] Paparone, *US Army Decision Making*, 46-47; Stewart, *American Military History Volume II*, 394; Dunnigan and Macedonia, *Getting it Right,* 134-139.

implementation of what became known as combined arms warfare was executed by the Germans at the Second Battle of the Somme and then perfected during trial-by-combat at the Meuse-Argonne by the AEF. Because the men who witnessed the catastrophic casualty rates of the Meuse-Argonne were dedicated to scholarly advancement of the armed services, the Army of World War II was able to overcome the "Blitzkrieg" doctrine of Nazi Germany. What made the difference between the "American Way of War" and the Germans in World War II was not notable at the tactical level. What the Americans had stumbled upon, without labeling it until publication of the 1982 versions of *FM 100-5 Operations*, was "Operational Art" and the operational level of war.[63]

While the Germans had devised the perfect tactical system for overwhelming an enemy and capitalizing on rapid concentration of forces at a decisive point, they did so without tying tactical actions to strategic objectives. Simply put, destroying as much of the enemy as possible and taking as much territory as possible was not going to achieve decision in modern warfare. The dividing factor was that the Americans understood the difference between tactics and operational art. The American Army of the 1990s understood, after years of training, planning, and rehearsals, how to achieve strategic objective by translating those objectives to tactical action. The AEF, and subsequently the Army of Desert Storm, applied combat power using a sophisticated understanding of Phasing, Tempo, Decisive Points, and Operational Reach to force enemy capitulation.

Although Desert Storm is held as the gold standard harmonization of "firepower, maneuver, and movement; combined arms warfare; and cooperation actions with sister services and allies," the Army did so by purging its expertise in counterinsurgency warfare.[64] During the transition from counterinsurgency to the large-scale conventional operations between the 1968,

[63] Biddle, *Military Power*, 78-88, 132-149.

[64] US Army, *FM 100-5* (1982), I.

1976, and 1980s versions of *FM 100-5*, the writers made a deliberate choice similar to today. The threat of a large-scale war, although much less likely than a limited contingency operation, was the only threat capable of destroying the United States' democracy. Counter to much historical debate concerning the strategy of the Vietnam-era Army, the 1968 *FM 100-5* contained substantial data focused on "activities to create proper attitudes and relationships with the people in the area" to win the information fight.[65] This was all stripped in subsequent versions focused on defeating the USSR in the Fulda gap or wherever the fight may have manifested. The 1976 version of *FM 100-5* included a section titled "Military Operations in Special Environments" and acknowledged the possibility of fighting "irregular units in a remote part of the less developed world," but it failed to address the problem holistically.[66] The 1982 version of *FM 100-5* contained fewer than four pages on what were labeled "contingency operations," or operations other than large-scale combat. While this approach directly contributed to the success of the Desert Storm Army, it allowed an entire generation of hard-earned expertise to dissolve into obscurity.[67]

A complete purging of counterinsurgency expertise cannot occur today if the Army is to remain ready to defeat any enemy of the United States. While the threat of large-scale combat against a near-peer adversary continues to be the most devastatingly lethal possibility, it is not the most likely of possible scenarios. The professional military officer of the Army in the 21st century and beyond must be a scholar of military operational art in both large-scale combat and limited contingency operations. This task, while exceedingly difficult, is the task we are faced with today. Between each large-scale war there have been far more contingency operations, requiring expertise in their execution, lest the Army suffer another Desert One or disjointed Grenada.

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[65] US Army, *FM 100-5* (1968), 152.

[66] US Army, *FM 100-5* (1976), 1-2.

[67] US Army, *FM 100-5* (1976), 14-1; Kretchik, *US Army Doctrine*, 208.

## Implications for the Transition to Large-Scale Combat Operations

As Kretchik stated in his summary of the AirLand Battle theory of action, "The ideal attack was an expanding torrent characterized by the main attack following reconnaissance units through gaps in the enemy defenses, shifting forces rapidly to widen the penetration by reinforcing success, then carrying the battle deep into the enemy rear area."[68] This idea, although seemingly a very modern adaptation of warfare based on the 1973 Yom Kippur War at the time, was not. It was a manifestation of combined arms destruction of a "stabilized front" just as the AEF had done at the Meuse-Argonne in World War I, then adjusted for the expansive multi-domain fight of World War II.

How do the historical lessons of the Meuse-Argonne Campaign, the Yom Kippur War, and the interwar-periods of reform effect the military professional today? The answer is as simple in concept as it is difficult in detail. The nature of war is unchanging although the character of war varies according to the construct of technology and geopolitical circumstance. Ultimately, the elements of operational art ring true throughout the ages. An understanding of what constitutes the operational level of war is imperative. As Clausewitz stated so many years ago, "war is…a continuation of political intercourse, carried on with other means."[69] The translation of strategic aims to tactical action through the planning of campaigns as first established in the 1982 version of *FM 100-5, Operations*, is absolutely crucial to achieving decision in war. Yet the application of tactics becomes exceptionally complicated when faced with the introduction of new and misunderstood domains such as cyber and space. The conduct of war without applying an understanding of operational art and the operational level of war is to conduct a war of unnecessary attrition. Full integration of new and emergent technologies must occur before contact with the enemy allows for corrections in implementation. A modern-era "trial by combat"

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[68] Kretchik, *US Army Doctrine*, 207.

[69] Michael Howard and Peter Paret, *Carl Von Clausewitz: On War* (Princeton, NJ: Princeton University Press, 1984), 87.

is unlikely to be politically palatable due to the historical casualty rates associated with in-stride operational adaptation. Thus, the desire to return to the golden-era Army of the late 1980s is not incorrect. It must be paired with extensive education and training in the application of theory and doctrine, sustained across an officer's career.

There are a number of elements of operational art that transcend military epochs. While all elements of the current doctrine are equally important, the elements of phasing, tempo, operational reach, and decisive points remain among the most important to the modern military professional. In the context of era appropriate terminology; these elements were expressed using varied terminology since the publication of *Field Service Regulations* in 1939 through *FM 100-5* in 1986. At the tactical level these elements are transposed as stabilized fronts, penetrations, concentration, exploitation, and deep attack. The "Kriemhilde Stellung," (Hindenburg Line), the Bar-Lev Line, the defensive posture of the Republican Guard in Desert Storm, and the modern Russian A2AD structure vicinity Kaliningrad all presented or present the same problem to the Army. A rapid concentration of combat power, regardless of domain, penetration of the "stabilized front," followed by exploitation by a maneuver force remains crucial to the execution of tactical success. In order to enable this exploitation, a deep attack of secondary echelons delays or disrupts enemy ability to counter-concentrate forces against the friendly penetration. This exploitation must be supported across all domains by every available element to project power and extend operational reach by mitigating the potential for culmination. In the modern era this includes the comprehensive integration of space, information, and cyber effects. Only by a complete and unrestricted incorporation of all combat forces in all domains will the land force effectively counter, and ultimately destroy, enemy opposition to advance friendly political objectives. This will require a reintroduction of military police and air defense assets more extensively with maneuver and in maneuver training.

Lastly, the enemies of the United States are likely to employ guerilla and partisan tactics as elements of their deep attacks to disrupt friendly operations in the consolidation area. This will

require a substantial reintroduction of protection forces to secure the consolidation area, freeing maneuver elements for operations in the close fight. Many of the protection elements and resources were eliminated during the expansion of the counterinsurgency fight from 2003 to the present. Additionally, a complete removal of any focus on the requisite knowledge required for the conduct of counterinsurgency operations is likely to result in failure of the joint force during stability operations. According the current joint phasing model, following the domination phase, the friendly force will remain on the ground to conduct stability operations before transitioning control to host nation civil authorities. This is likely to be the longest phase of the combat mission. Just as it had in 1973, the Army currently possesses a healthy institutional understanding of the conduct of stability operations. This was largely learned in-stride, on the ground in Iraq and Afghanistan following conventional victories. Unlike 1973, we must not completely avoid the study and training of stability tasks only to relearn them again, in combat, in the future.

## Recommendations for Professional Military Education and Training

The modern US Army officer development program is designed to progressively educate the officer corps in iterative periods of PME. Initially, these periods of education are conducted at distributed centers of excellence, aligned with the varied military branches. Collective education of the officer corps does not occur as an institutional effort until the field grade level at the CGSC. Scholarly work is not required, nor is it typically included in unit-level leader development programs throughout the operational force. This creates the potential for significant atrophy in operational-level comprehension as officers are returned to their basic branches with little exposure to operational art or joint integration until achieving more senior ranks. While this model was satisfactory in producing officers skilled in managing the small-unit conflicts associated with counterinsurgency, it is unlikely to support the complexity of LSCO. Earlier joint integration of education between the services is recommended, starting at company grade level. In the Army, this can be added as some type of exchange during the Captain's Career Course.

Directly tied to the formal officer education process are unit-level professional development and mentorship programs, meant to sustain and amplify the efforts of US Army formalized education. Yet these programs are also shaped by an officer corps holistically trained in counterinsurgency as a baseline, with few, deeply studied in operational art. It is conceivable then that a change in course of action may be needed within the Army's PME system to retrain the force. The importance of this study is found in a thoughtful observation of successful educational methods of the past to form conceptual PME designs oriented on LSCO. Leader Professional Development programs are the mechanism through which operational force commanders collectively develop leaders in preparation for their advancement to the next level of responsibility. Leader Professional Development programs are not synchronized with institutional education programs, nor are they required to be. Leader Professional Development programs vary widely in substance and effectiveness at all levels of the Army. At times Leader Professional Development programs are oriented on tactical task improvement or perhaps on improving planning, but rarely scholarship. For the most part, Leader Professional Development programs are not achieving the appropriate graduated improvement of the officer corps.

Leader Professional Development programs should be thoughtfully designed to nest with the lessons taught at formal schoolhouses and designed to promote scholarly writing and sustain understanding of operational art in the wider force. An enduring appreciation of communication skills and critical thinking will facilitate creative solutions to complex problems in large-scale combat. This can only be achieved through persistent application of operational art at an analytical and synthesis levels. Practical exercises, map-exercises, and joint operations at the operational level should be trained earlier in Army officer careers. Although company grade officers may struggle initially with the concepts associated with operational art and large-scale maneuver, they will quickly build efficiency and expertise.

Finally, the selection process for both students and instructors must be reevaluated and reformed. Instructors at the CGSC should be former Command Select List Battalion Commanders or terminal degree holders in their field of instruction. These assignments should be prioritized by the Human Resources Command in accordance with Army guidance as the most important billets for fill. Additionally, it is recommended that a centralized board for schoolhouse instructors is established for the Captain's Career Course and above. The prestige of teaching must be reestablished as it was during the interwar years from World War I to World War II. Only by investing heavily in the education and training of the United States Army Officer Corps is the Army to be prepared, as it was in the early 1990s to win the first battle, without a trial by combat.

# Bibliography


Adan, Avraham B. *On the Banks of the Suez.* New York: Presidio Press, 1980.

Alfoldi, Laszlo M. "The Hutier Legend." *Parameters* 5, no. 2 (1976): 69-74.

Armstrong, Michael. *Armstrong's Handbook of Human Resource Management Practice*. 12th ed. London: Kogan Page, 2012.

Bagnal, Charles W., Earle C. Pence, and Thomas N. Meriwether. "Leaders as Mentors." *Military Review* (July 1985): 4-20.

Balestreri, Steve. "Operation Eagle Claw, Disaster at Desert One Brings Changes to Special Operations." Special Operations. April 24, 2017. Accessed March 13, 2019. https://specialoperations.com/30764/operation-eagle-claw-disaster-desert-one-brings-changes-special-operations/.

Biddle, Stephen. *Military Power: Explaining Victory and Defeat in Modern Battle.* Princeton, NJ: Princeton University Press, 2004.

Bodner, Diana L. *The Relationship between Fox Conner and Dwight Eisenhower.* Strategy Research Project, US Army War College, Carlisle Barracks, PA, 2002.

Bonura, Michael A. *Under the Shadow of Napoleon French Influence on the American Way of Warfare from the War of 1812 to the Outbreak of WWII*. New York: New York University Press, 2012.

Brereton, Todd R. *Educating the U.S. Army Arthur L. Wagner and Reform*, *1875-1905*. Lincoln, NE: University of Nebraska Press, 2000.

Cabrey, Richard M., Mark E. McKnight, and David S. Cannon. "The Marshall Approach: The Battle Command Training Program and the 21st-Century Leader Development." *Military Review* (March-April 2010): 98-101.

Calhoun, Mark T. *General Lesley J. McNair: Unsung Architect of the US Army*. Lawrence, KS: University of Kansas Press, 2015.

Camacho, Lawrence F. "The Leadership Development of Dwight D. Eisenhower and George S Patton Jr." Monograph, School of Advanced Military Studies, Fort Leavenworth, KS, 2009.

Cannon, Michael W. "The Development of FM 100-5 From 1945-1976." Master's Thesis, University of Iowa, 1984.

Carroll, Andrew. *My Fellow Soldiers: General John Pershing and the Americans Who Helped Win the Great War.* New York: Penguin Press, 2017.

Citino, Robert Michael. *Blitzkrieg to Desert Storm: The Evolution of Operational Warfare*. Lawrence, KS: University Press of Kansas, 2004.

Clausewitz, Carl von. *On War*. Edited and translated by Michael Howard, Peter Paret, Contributor Bernard Brodie. Princeton, NJ: Princeton University Press, 1989.

Cox, Edward L. *Grey Eminence: Fox Conner and the Art of Mentorship*. Stillwater, OK: New Forums, 2011.

DeNisi, Angelo, and Caitlin E. Smith. "Performance Appraisal, Performance Management, and Firm-Level Performance: A Review, a Proposed Model, and New Directions for Future Research." *The Academy of Management Annals* 8, no. 1 (January 2014): 127-179.

Dooley, Joseph C. "George C Marshall: A Study in Mentorship." Individual Study Project, US Army War College, Carlisle Barracks, PA, 1990.

Doughty, Robert A. *The Evolution of Army Tactical Doctrine, 1946-1976.* Fort Leavenworth, KS: Combat Studies Institute, 1979.

Downing, Wayne A. "Maneuver: US Army Operations Doctrine: A Challenge for the 1980s and Beyond." *Military Review* (January 1981): 64-73.

Dunnigan, James F., and Raymond M. Macedonia. *Getting It Right: American Military Reforms after Vietnam to the Persian Gulf and Beyond*. New York: W. Morrow, 1993.

Ferrell, Robert H. *America's Deadliest Battle: Meuse-Argonne, 1918.* Lawrence, KS: Kansas University Press, 2007.

Grotelueschen, Mark Ethan. *The AEF Way of War: The American Army and Combat in World War I.* New York: Cambridge University Press, 2007.

Grow, Gerald O. "Teaching Learners to be Self-Directed." *Adult Education Quarterly* 3, no. 41 (Spring 1991): 125-149. Accessed February 12, 2017. http://longleaf.net/ wp/wp-content/uploads/2015/02/SSDL.pdf.

Hale, Mathew T. "Mentoring Junior Leaders: Leadership Tools for our 21st Century Army." Strategy Research Project, Carlisle Barracks, PA: US Army War College, 2001.

Hirai, James T., and Kim L Summers. "Leader Development and Education: Growing Leaders Now for the Future." *Military Review* (May-June 2005): 86-95.

Holborn, Hajo. "The Prusso-German School: Moltke and the Rise of the General Staff." In *Makers of Modern Strategy: from Machiavelli to the Nuclear Age*, edited by Peter Paret, 281-295. Princeton, NJ: Princeton University Press, 1986.

Horner, Donald H. "Leader Development and Why It Remains Important." *Military Review* (July-August 1995): 76-87.

Howard, Michael, and Peter Paret. *Carl Von Clausewitz: On War*. Princeton, NJ: Princeton University Press, 1984.

Ingraham, Larry H. "Caring is Not Enough: An Uninvited Talk to Army Leaders." *Military Review* (December 1987): 45-48.

Johnson-Freese, Joan. *Educating Americas Military*. London: Routledge, 2013.

Keegan, John. *Face of Battle: A Stud of Agincourt, Waterloo, and the Somme.* New York: Penguin Group, 1978.

Kitfield, James. *Prodigal Soldiers: How the Generation of Officers Born of Vietnam Revolutionized the American Style of War*. New York: Simon and Schuster, 1995.

Kingseed, Cole C. "Mentoring General Ike." *Military Review* (October 1990): 26-30.

Kline, John A. "Education and Training: Some Differences." *Air University Review* (January-February 1985). Accessed January 6, 2016. http://www.airpower.maxwell.af.mil /airchronicles/aureview/1985/jan-feb/kline.html.

Kopp, Dr Carlo. Technical Report APA-TR-2009-0701, "Self Propelled Air Defense System." Air Power Australia. Accessed January 30, 2019. http://www.ausairpower.net/APA-2K12-Kvadrat.html.

Kopser, G. Joseph. "Mentoring in the Military: Not Everybody Gets It." *Military Review* (November-December 2002): 40.

Krause, Michael D., and R. Cody Phillips. *Historical Perspectives of Operational Art.* Washington, DC: Center of Military History US Army, 2005.

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

Kyle, James H., and John R. Eidison. *The Guts to Try: The Untold Story of the Iranian Hostage Rescue Mission by the On-Scene Desert Commander*. New York: Ballantine Books, 1995.

Latham, Willard. *The Modern Volunteer Army Program: The Benning Experiment, 1970-1972*. Washington, DC: Department of the Army, 1974.

Lengel, Edward G. *Thunder and Flames: Americans in the Crucible of Combat, 1917-1918.* Lawrence, KS: Kansas University Press, 2015.

Livingston, Russell M. "Reality vs. Myth: Mentoring Reexamined." Monograph, School of Advanced Military Studies, Fort Leavenworth, KS, 2010.

Lundy, Michael D. "Meeting the Challenge of Large-Scale Combat Operations Today and Tomorrow." *Military Review* (September-October 2018): 111-118.

Maggart, Lon E., and Jeanette S James. "Mentoring-A Critical Element in Leader Development." *Military Review* (May-June 1999): 86-87.

Martin, Theodore D. "Developing Strategic Leaders for the War After Next." Strategy Research Project, US Army War College, Carlisle Barracks, PA, 2007.

Margotta, Mathew T. "Creating the "Pentathelete:" Are We Willing to Pay the Price?" Civilian Research Project, US Army War College, Carlisle Barracks, PA, 2007.

Matheny, Michael R. *Carrying the War to the Enemy: American Operational Art to 1945*. Norman, OK: University of Oklahoma Press, 2011.

Merriam, Sharan B. “Andragogy and Self-Directed Learning: Pillars of Adult Learning Theory.” *New Directions for Adult and Continuing Education*, no. 89 (Spring 2001): 3-96. Accessed January 8, 2017. http://umsl.edu/~wilmarthp/modla-links-2011/Merriam_pillars%20of%20anrdagogy.pdf.

Nielson, Suzanne C. *An Army Transformed: The US Army’s Post-Vietnam Recovery and the Dynamics of Change in Military Organizations.* Carlisle, PA: US Army War College, 2010.

Paparone, Christopher R. “US Army Decision Making: Past, Present, and Future.” *Military Review* (July-August 2001): 45-53.

Poque, Forrest C. *George C. Marshall: Education of a General 1880-1939.* New York: The Viking Press, 1963.

Rabalais, Steven. *General Fox Conner: Pershings Chief of Operations and Eisenhower’s Mentor*. Havertown, PA: Casemate Publishers, 2016.

Rabinovich, Abraham. *The Yom Kippur War: The Epic Encounter That Transformed the Middle East*. New York: Schocken Books, 2017.

Ricks, Thomas E. *The Generals: American Military Command from World War II to Today*. New York: Penguin Books, 2013.

Ruvolo, Catherine M., Scott A. Peterson, and Joseph N. G. LeBoeuf. “Leaders Are Made, Not Born: The Critical Role of a Developmental Framework to Facilitate an Organizational Culture of Development.” *Consulting Psychology Journal: Practice and Research* (Winter 2004): 10-19.

Schifferle, Peter J. *Americas School for War: Fort Leavenworth, Officer Education, and Victory in World War II*. Lawrence, KS: University Press of Kansas, 2010.

Schoy, Michael. “Bundeswehr in the 21st Century: Between Prussia’s Glory and Design.” Monograph, School of Advanced Military Studies, Fort Leavenworth, KS, 2012.

———. “General Gerhard Von Scharnhorst: Mentor of Clausewitz and Father of the Prussian-German General Staff.” Canadian Forces College, Toronto, Canada, 2003. Accessed September 4, 2018. https://www.cfc.forces.gc.ca/259/181/82_schoy.pdf.

Starry, Donn A. “A Tactical Evolution: FM 100-5.” *Military Review* (August 1978): 2-11.

Steinberg, Alma G., and Susann M. Nourizadeh. *Superior, Peer, and Subordinate Mentoring in the U.S. Army.* Alexandria, VA: US Army Research Institute, 2001.

Stewart, Richard W. *American Military History Volume II: The United States Army in a Global Era, 1917-2008.* Washington, DC: Center of Military History, 2010.

Thomas, Shipley. *The History of the A.E.F.* New York: George H. Doran Company, 1920.

Turner, Langston J. “The Art of Balancing Training, Education.” *Army* 66, no. 7 (July 2006): 57-59.

US Military Academy. “Arab Israeli Wars.” Accessed January 15, 2019. https://www.usma.edu/academics/academic-departments/history/arab-israeli-wars.

US Department of the Army. *Army Doctrine Publication (ADP) 6-22, Army Leadership*. Washington, DC: Government Printing Office, 2012.

———. *Army Doctrine Publication (ADP) 7-0, Training Units and Developing Leaders*. Washington, DC: Government Printing Office, 2012.

———. *Army Doctrine Reference Publication (ADRP) 3-0, Operations*. Washington, DC: Government Printing Office, 2017.

———. *Army Doctrine Reference Publication (ADRP) 6-0, Mission Command*. Washington, DC: Government Printing Office, 2012.

———. *Army Regulation (AR) 350-1, Army Training and Leader Development*. Washington, DC: Government Printing Office, 2017.

———. *Army Regulation (AR) 600-100, Army Profession and Leadership Policy*. Washington, DC: Government Printing Office, 2017.

———. *Army Techniques Publication (ATP) 6-22.1, The Counseling Process*. Washington, DC: Government Printing Office, 2014.

———. *Department of the Army Pamphlet (DA PAM) 350-58, Army Leader Development Program*. Washington, DC: Government Printing Office, 2013.

———. *Department of the Army Pamphlet (DA PAM) 600-3, Officer Professional Development and Career Management*. Washington, DC: Government Printing Office, 2017.

———. *Field Manual (FM) 100-5, Operations*. Washington, DC: Government Printing Office, 1954.

———. *Field Manual (FM) 100-5, Operations*. Washington, DC: Government Printing Office, 1962.

———. *Field Manual (FM) 100-5, Operations*. Washington, DC: Government Printing Office, 1968.

———. *Field Manual (FM) 100-5, Operations*. Washington, DC: Government Printing Office, 1976.

———. *Field Manual (FM) 100-5, Operations*. Washington, DC: Government Printing Office, 1982.

———. *Field Manual (FM) 100-5, Operations*. Washington, DC: Government Printing Office, 1986.

———. *Field Manual (FM) 3-0, Operations*. Washington, DC: Government Printing Office, 2017.

———. *Field Manual (FM) 6-22, Leader Development*. Washington, DC: Government Printing Office, 2015.

Walker, Carey, and Matthew Bonnot. "A Better Approach to Developing Leaders." *Army Press Online Journal* 16-16 (April 2016): 1-12. Accessed January 23, 2017. http://armypress.dodlive.mil/files/2016/04/16-16-Bonnot-15Apr16.pdf.

War Department. *Field Service Regulations, United States Army, 1914*, C5. Washington, DC: Government Printing Office, 1916.

———. *Field Service Regulations, United States Army, 1923*. Washington, DC: Government Printing Office, 1924.

———. *Field Manual (FM) 100-5, Tentative Field Service Regulations, Operations, 1939.* Washington, DC: Government Printing Office, 1939.

———. *Field Manual (FM) 100-5, Field Service Regulations, Operations, May 22, 1941.* Washington, DC: Government Printing Office, 1941.

Washington, Bette R. "Mentorship: An Army Dilemma." Strategy Research Project, US Army War College, Carlisle Barracks, PA, 2002.

Zacharakis, Jeffrey, and Cheryl J. Polson, eds. *Beyond Training: The Rise of Adult Education in the Military.* San Francisco, CA: Jossey-Bass, 2012.

Zinn, Lorraine M. *Philosophy of Adult Education Inventory*. Rev. Boulder, CO: Lifelong Learning Options, August 1999.