A Brief History of Operational Art in US Army Doctrine

A Monograph

by

MAJ Zachary S. Rozar
US Army

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

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Name of Candidate: MAJ Zachary S. Rozar

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Approved by:

_____//signed/17 FEB 21/BES//_____, Monograph Director
Bruce C. Stanley, PhD

_____//signed/12 FEB 21/JP//_____, Seminar Leader
Jurgen Prandtner, COL

___//signed/13 MAY/BAP//_____, Director, School of Advanced Military Studies
Brian A. Payne, COL

Accepted this 20th day of May 2021 by:

_____, Assistant Dean of Academics for Degree Programs
Dale F. Spurlin, PhD   and Research, CGSC

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Abstract

A Brief History of Operational art in US Army Doctrine, by MAJ Zachary S. Rozar, 41 pages.

Many consider Operation Desert Storm to be the pinnacle achievement of the US military. While there are many reasons for the coalition's success, a key component was the application of operational art in the design of the campaign. However, operational art as a concept did not exist in US military doctrine at the end of the Vietnam War. That is what this study seeks to answer: how did the concept of operational art come about in US military doctrine, and how has it evolved from its inception in the 1980s through today? Using five research questions, this study answers a single hypothesis, if the US military faces the threat of large-scale combat operations against a peer adversary, then it needs operational art to develop and execute campaigns that achieve the political objectives using available resources. The empirical evidence and analysis of this study support the thesis that in the current operating environment, with the threat of large-scale combat operations against a peer threat, the concept of operational art will be critical to the successful conduct of future US military operations.

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Abbreviations

ADP	Army Doctrine Publication
COG	Center of Gravity
COIN	Counterinsurgency
FM	Field Manual
GWOT	Global War On Terror
JP	Joint Publication
LSCO	Large-Scale Combat Operations
NATO	North Atlantic Treaty Organization

Introduction

Operation Desert Storm is considered by many to be the pinnacle achievement of the US military. The broad operational concept included an amphibious demonstration by the Marines, a feint by the 1st Cavalry Division, three supporting attacks to include a large air assault, an economy-of-force guard action by the French, and a penetration that would develop into a turning maneuver, forcing Iraqi forces out of their positions. During one hundred hours of combat, the heavy VII Corps attacked one hundred miles north, then fifty miles east, brilliantly achieving the operational goal of a turning movement, destroying more than a dozen Iraqi divisions in the process. Most of the Iraqi units were taken by surprise, helped by the diversions carried out near-simultaneously. How had an army, that just fifteen years previously had unsuccessfully waged a counterinsurgency in South-east Asia, defeat the fourth largest army in just 100 hours? While there are many reasons for the coalition's success, a key component was the application of operational art in the design of the campaign. However, operational art as a concept did not exist in US military doctrine at the end of the Vietnam War. That is what this study seeks to answer: how did the concept of operational art come about in US military doctrine, and how has it evolved from its inception in the 1980s through today?

Although operational art has been an embedded concept in US military doctrine since it was added, today, it is not understood by most beyond its cursory definition. Operational art was developed in the US military in the context of large-scale combat operations in the time, space, and resource-constrained environment of the Cold War. Unsurprisingly, the Global War on Terror (GWOT) had little in common with the paradigm of the US military at that time and is potentially a significant contributing factor to the atrophy of operational art since Operation Desert Storm. The current operating environment, however, has much more in common with the old paradigm, which has sparked renewed interest in operational art. This study asserts that while operational art as a concept is relatively new in US military doctrine, some characteristics of operational art have

been employed by US military commanders at various times since the 19th century, depending on the threat the US was facing. Given the current operating environment and the threat of large-scale combat operations against a peer threat, the concept of operational art will be critical to the successful conduct of future US military operations.

This study is significant for three reasons. First, it presents a focused analysis on the development of operational art, and the operational level of war, in US military doctrine. This provides a historical context to understand the current definition and application of operational art in US military doctrine. Second, it provides some recommendations for updating and expanding the definition and concept of operational art in doctrine. These recommendations intend to make operational art easier for practitioners to understand and apply in current and future operating environments. Finally, the study provides a historical framework to assist in answering the question of how do current and future military planners and commanders use operational art to design campaigns and operations that achieve the desired strategic and political goals?

This study uses the theory of operational art as its primary framework. In its most basic form, operational art is the process of logically arranging individual tactical actions in time, space, and purpose, to create novel solutions to problems while creating multiple problems for the enemy. The result of applied operational art is usually an operation, series of operations, or a campaign, all designed to create positions of relative advantage that can be leveraged to achieve the ultimate political goal. As later analysis will show, the theory of operational art grew out of necessity. Changes in warfare, driven largely by the industrial revolution, drastically expanded the scope and scale of war. By the end of World War I, it was apparent a new theory of warfare was required.

Since this study deals with operational art in the context of large-scale combat operations, establishing working definitions of these terms will be critical to ensuring a common understanding. Although this study will show that US military doctrine is lacking in its definition of operational art, using the current doctrinal definition is appropriate. JP 3-0 defines operational

art as a "…cognitive approach by commanders and staffs—supported by their skill, knowledge, experience, creativity, and judgment—to develop strategies, campaigns, and operations to organize and employ military forces by integrating ends, ways, and means."[1] US Army doctrine uses this same joint definition.[2] Large-scale combat operations are defined in ADP 3-0 as "Extensive joint combat operations in terms of scope and size of forces committed, conducted as a campaign aimed at achieving operational and strategic objectives."[3]

This study seeks to confirm a single hypothesis; if the US military faces the threat of large-scale combat operations against a peer adversary, then it needs operational art to develop and execute campaigns that achieve the political objectives using available resources. By answering questions related to a single hypothesis, the focus is on tracing the origins and development of operational art in US military doctrine through history.

This study is limited in the following ways. First, it only considers unclassified and publicly available source material. Second, secondary sources were used for periods before the mid-twentieth century. These limitations were imposed primarily due to time and travel restrictions and the availability of material at Fort Leavenworth, Kansas.

Since the emphasis of this study is on the evolution of operational art in doctrine, it focuses on the period between the end of the Vietnam War through Operation Desert Storm. As such, the study only briefly examines the origins of operational art in the US military to establish context, beginning with the Civil War. Likewise, limited time is devoted to analyzing changes to the definition and application of operational art from post-Desert Storm to the present. In-person interviews were deliberately not conducted, so the analysis is limited to written and digitally

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[1] US Department of Defense Joint Staff. Joint Publication (JP) 3-0, *Operations* (Washington, DC: Government Publishing Office, 2018), II-3.

[2] US Department of the Army. Army Doctrine Publication (ADP) 3-0, *Operations* (Washington, DC: Government Publishing Office, 2019), 2-1.

[3] Ibid., Glossary-6.

archived document sources. Finally, the study does not attempt to isolate dependent variables fully or to prove ultimate causation.

This study makes two key assumptions. First, operational art will remain not only an applicable concept but a critical element for gaining and maintaining positions of relative advantage across all domains. Second, as the US Army shifts its focus to Large Scale Combat Operations (LSCO) and looks to establish warfighting capability at echelons above the division and Corps level, doctrine must be updated to guide the Field and Theater Army commanders and their staffs in the practical application of operational art.

This study is organized into six sections: introduction, literature review, methodology, case study, findings and analysis, and conclusion. Following this introduction, the literature review explores the origins of operational art and provides the theoretical context for discussing operational art in US military doctrine. The methodology explains the framework used for analyzing the development of operational art and its inclusion into US military doctrine. Next, the case study explores the impetus for and development of operational art in US military doctrine, focused on the US Army. The fifth section presents the findings of the study based on the hypotheses and answers the research questions. The study concludes by making recommendations for expanding the doctrinal definition and understanding of operational in a modern context and proposes areas for further research.

Literature Review

The literature review presents some of the pertinent literature to this study. This section is divided into five parts: introduction, theoretical framework, conceptual definitions, empirical evidence, and the summary. The theoretical framework introduces some of the prominent theorists that shaped the US military understanding of operation art. The third part defines some key concepts that relate to the research questions. Some empirical evidence is presented that supports the hypothesis, and finally, the section is summarized.

The first use of the term operational art in a military context is attributed to Aleksandr A. Svechin, a general officer in Tsarist Russia and one of the primary Russian military theorists from the interwar period. As early as 1922, Svechin described operational art as the linkage between tactics and strategy, proposing an intermediate discipline between strategy and tactics.[4] Svechin's most influential writing was *Strategy*, published in Moscow in 1927. Although sixty years and the Cold War separated Svechin's writing in *Strategy* and the initial inclusion of operational art in US military doctrine, there are clear linkages in Svechin's theory that carried through. In a short section on operational art, Svechin talks about "…a series of operations… which take place in different areas in a theater…", and states, "Operational art also dictates the basic line of conduct of an operation."[5] He asserts that "Tactics…are the material of operational art…the development of an operation depends on the successful solution of individual tactical problems…" and "Combat operations are only one aspect of the greater whole represented by an operation…."[6] Svechin also understood that the "…art of conducting military operations could not be divided by any clear boundaries into completely independent and delineated sections."[7] Although stopping short of a formal definition of operational art, the language Svechin uses is incredibly similar to the contemporary understanding of operational art.

Building on the work of Svechin, Mikhail N. Tukhachevsky and Georgii Isserson made significant contributions to the development of operational art theory as well. Tukhachevsky, Chief of Staff of the Red Army in the 1920s, began developing a theory of deep operations. Having witnessed the catastrophic deadlock of Napoleonic style warfare waged in the industrial

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[4] Jacob W. Kipp, "The Tsarist and Soviet Operational Art: 1853-1991," in *The Evolution of Operational Art,* ed. by Martin V. Creveld and John A. Olsen (New York: Oxford University Press, 2011), 65.

[5] Aleksandr A. Svechin, *Strategy*, ed. Kent D. Lee. (Minneapolis: East View Publications, 1992), 68-69.

[6] Ibid., 69.

[7] Ibid., 67.

age during World War I, Tukhachevsky believed that a new theoretical understanding of warfare was needed. As Shimon Naveh notes, Tukhachevsky was thinking operationally, highlighting the characteristics of depth, continuity, synergism, and wholeness. He introduced the idea of operational shock, which Naveh describes as a method of system disruption.[8] Isserson expanded on Tukhachevsky's work and, in 1936, published *The Evolution of Operational art*. Isserson described the "grand challenge" for Soviet operational art as finding a way of "…waging destructive offensive operations with the decisive aim of overthrowing of completely overthrowing the enemy."[9] Since the scale of warfare had increased so drastically in terms of the size of armies, the range and lethality of modern weapons, and the width and depth of a defensive front, it was no longer feasible to attack the enemy directly. Isserson's concept of applying Tukhachevsky's theory was the use of multiple echelons, the first to break through the enemy defense, with subsequent echelons used to penetrate deeply into the enemy rear areas, throwing him off balance and creating an operational shock that could be exploited to gain an advantage over the enemy.[10]

Dr. Robert Epstein and Dr. James Schneider, both former professors at the School of Advanced Military Studies, have contributed significantly to the discussion of American operational art. Epstein defined operational art simply as "…the process of actions and thought performed at this middle level [of war]."[11] Arguing that "modern warfare" began during the Napoleonic wars, Epstein states that one characteristic of modern warfare is "…the use of operational campaigns in different theaters. Each theater of operations serves as part of the

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[8] Shimon Naveh, *In Pursuit of Military Excellence: The Evolution of Operational Theory*. (London: Frank Cass, 1997), 10-11.

[9] Georgii S. Isserson, *The Evolution of Military Art*, trans. Bruce Menning, 2nd ed. (Fort Leavenworth, KS: Combat Studies Institute Press, US Army Combined Arms Center, 2013), 38, 43.

[10] Ibid., 65-70.

[11] Robert M. Epstein, *Napoleon's Last Victory and the Emergence of Modern War* (Lawrence: University Press of Kansas, 1994), 6.

mosaic that forms a unified strategic war plan…" He further identifies that operational warfare makes use of "…corps, maneuvered in a distributed fashion so that tactical engagements are sequenced and often simultaneous, command is decentralized, yet commanders have a common understanding…."[12] Epstein is describing what he saw in the wars of Napoleon, as the character of warfare was changing. Single decisive battles would no longer be able to achieve strategic or political objectives. Rather a series of battles, organized into a campaign throughout time and space, would be required to achieve victory "through cumulative effects."[13]

Schneider, in *Vulcan's Anvil,* picks a different start point for operational art, the American Civil War, but draws some similar and complementary points to Epstein. Schneider defines operational art as "a unique style of military art, became the planning, execution, and sustainment of temporally and spatially distributed maneuvers and battles, all viewed as one organic whole."[14] Like Isserson, Schneider highlights a characteristic of operational art being the employment of forces in deep distributed operations. Going further, Schneider identifies eight attributes of operational art that are present in its "fullest expression." These attributes are distributed operations, distributed campaigns, continuous logistics, instantaneous command and control, operationally durable formations, operational vision, distributed enemy, and distributed deployment.[15] While *Vulcan's Anvil* is specific to the American Civil War, Schneider expanded the attributes of operational art when looking outside the American experience. In *The Loose*

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[12] Ibid., 6.

[13] Ibid., 6.

[14] James J. Schneider, *Vulcan's Anvil: The American Civil War and the Foundations of Operational Art, Theoretical Paper No. Four* (Fort Leavenworth, KS: School of Advanced Military Studies, Command and General Staff College, 1992), 28.

[15] Ibid., 35-58.

Marble—and the Origins of Operational art, Schneider includes the conduct of joint operations and the deep strike.[16]

Having briefly examined some of the theorists of operational art, several recurring themes and ideas can be observed. First is the belief that the character of warfare changed sometime between Napoleon and World War I. Industrial Revolution technology helped drive up the scope and scale of war to the point that classical tactics and strategy were no longer effective in achieving the political objective. Second is the conceptual idea of a level between tactics and strategy, where the commander uses combinations of tactical engagement in the form of operations, possibly nested under a larger campaign strategy, to achieve victory over the enemy incrementally. The third is maneuver over attrition to gain a position of advantage over the enemy by utilizing the full width and depth of the battlefield. Fourth is the of distributed operations, with multiple large formations that operate independently in a theater or in separate theaters but whose actions are synchronized by a single commander to achieve the same strategic or political objective. In order to use the framework of operational art to evaluate the development of US military doctrine, it is necessary to define some concepts that will be useful later in answering the research questions.

The current doctrinal definition of operational art was covered in the introduction to this study, and unless otherwise stated, is the definition that is used throughout. As has been noted, however, this definition does fully address all of the characteristics of operational art presented by the theorists discussed. To provide additional context for evaluation later in the study, it is necessary to define some of the elements of operational art from doctrine: center of gravity, decisive points, tempo, and operational reach. A center of gravity "…is the source of power that

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[16] James J. Schneider, *The Loose Marble—and the Origins of Operational Art* (Parameters: US Army War College 19, no. 1, 1989), 90.

provides moral or physical strength, freedom of action, or will to act."[17] Borrowed from

Clausewitz, the concept of a COG is related to systems theory in that targeting critical

vulnerabilities of an enemy COG can lead to the disintegration of the enemy system. A decisive

point "…is a geographic place, specific key event, critical factor, or function that, when acted

upon, allows commanders to gain a marked advantage over an enemy or contribute materially to

achieving success."[18] Tempo is defined as "…the relative speed and rhythm of military

operations over time with respect to the enemy."[19] Tempo is an important consideration for

operational-level warfare. While a company or even a battalion can react in a very short time,

large formations may take hours to days to transition or execute a new order. Commanders

anticipate and control the tempo of operations to maintain the initiative while attempting to deny

the same to the enemy. Operational reach is defined as "… a tether; it is a function of intelligence,

protection, sustainment, endurance, and combat power relative to enemy forces."[20] Commanders

must be cognizant of their operational reach at any given time and try and extend it when

possible. While it is easy to conceptualize a tank running out of fuel, many factors can affect

operational reach, including enemy actions.

Next is the concept of a campaign. Joint doctrine defines a campaign as, "A series of

related operations aimed at achieving strategic and operational objectives within a given time and

space."[21] Isserson described a modern campaign without using the word, calling an "*a series of*

successive operations…a modern operation."[22] The word campaign is often used to describe

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[17] US Department of the Army, Army Doctrine Publication (ADP) 3-0, *Operations* (Washington, DC: Government Publishing Office, 2019), 2-6.

[18] Ibid., 2-7.

[19] Ibid., 2-8.

[20] Ibid., 2-10.

[21] US Department of Defense. Joint Staff. Joint Publication (JP) 5-0, *Joint Planning*. (Washington, DC: Government Publishing Office, 2020), GL-6.

[22] Isserson, *The Evolution of Military Art*, 48.

military operations of varying scale, duration, and purpose, which furthers the difficulty in understanding what defines a campaign. The US military has possibly recognized this definitional issue, publishing a joint white paper entitled *Joint Concept for Integrated Campaigning*. This document defines integrated campaigning as "Joint Force and interorganizational partner efforts to enable the achievement and maintenance of policy aims by integrating military activities and aligning non-military activities of sufficient scope, scale, simultaneity, and duration across multiple domains."[23] Beyond using the verb form of campaign, this document expands the definition beyond the military realm, stating that "both military and non-military activities are vital for the achievement of acceptable political conditions."[24] For the purpose of this study, the Joint doctrinal definition of a campaign will be used, acknowledging its shortfalls.

The last term to define is the political objective. Clausewitz is crystal clear when he asserts that, "The political object is the goal, war is the means of reaching it, and means can ever be considered isolation from their purpose," and that all wars can be considered "…acts of policy."[25] This concept is fundamental since all strategies should attempt to achieve the political goal for which they are developed. Since part of operational art is linking tactical actions to strategic goals, it is important to understand what the ultimate objective is. Harry Yarger says that objectives "…provide purpose, focus, and justification for…actions…."[26] For this study, the political objective is defined as the overarching goal that the state seeks to achieve in support of its interests, for which it is willing to employ the military instrument of power.

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[23] US Department of Defense. Joint Staff. *Joint Concept for Integrated Campaigning*. (Washington, DC: Government Publishing Office, 2018), 6.

[24] Ibid., 11.

[25] Carl von Clausewitz, On War, ed. and trans. Michael Howard and Peter Paret (Princeton: Princeton University Press, 1976), 87.

[26] Harry R. Yarger, *Strategic Theory For The 21st Century: The Little Book On Big Strategy* (Carlisle, PA: Strategic Studies Institute, 2014), 7.

This review of the literature covered some primary operational art theorists, starting with the Soviets in the interwar period. It defined some key concepts related to operational art, some doctrinal elements of operational art, the campaign, and the political objective. Finally, the empirical literature review showed that while many authors are interested in understanding operational art, there are many different views on what it is and how it can and should be applied. The next section presents the instrumentation and research questions.

Methodology

The overall goal of this study was to test a research hypothesis that evaluates the early employment and development of operational art in the US military. This section is divided into six parts: introduction, methodology, case selection, research questions, data collection, and summary.

Since this study evaluates the theoretical and empirical development of operational art in a single entity—the US military—over time, a modified form of process tracing was chosen. Process tracing is a type of case study methodology used in the social sciences and is generally concerned with finding causal relationships within a given case.[27] As mentioned previously, this study does not attempt to prove categorical causation but rather to find historical evidence to support the hypothesis. As Clausewitz warned, attempting to find and prove causation in the historical study of war is often difficult, and facts should not be "forcibly stretched" to fit a narrative.[28] By combining process tracing methods with historical narrative and applying John

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[27] Alexander L. George and Andrew Bennett, Case Studies and Theory Development in the Social Sciences (Cambridge, MA: The MIT Press, 2005), 205-210.

[28] Carl Von Clausewitz, *On War,* edited and translated by Michael Howard and Peter Paret (Princeton, NJ: Princeton University Press, 1976), 156-157.

Lewis Gaddis' concepts of selectivity and shifting of scale,[29] this study attempts to provide a broad overview of the development of operational art while focusing on critical periods.

This study covers operational art development in the US military from its earliest origins to the present day, namely from the Mexican American War to the Global War on Terror. Certain critical periods receive more attention, beginning with the American Civil War. According to Dr. James Schneider, the origins of operational art began with the campaigns of General Ulysses S. Grant in the latter part of the Civil War.[30] Next, the study zooms in on World War II, looking at the use of some characteristics of operational art, although the concept was still not codified at that time. Finally, the study devotes most of its research to the period beginning roughly between the end of the Vietnam War and Operation Desert Storm. This was the period where the American concept of operational art was developed and codified in doctrine. The study concludes by briefly analyzing the US military understanding and need for operational art after Desert Storm until today.

This study used five questions to guide the research and gather evidence to support the hypothesis—restated here as if the US military faces the threat of large-scale combat operations against a peer adversary, then it needs operational art to develop and execute campaigns that achieve the political objectives using available resources.

The first research question is, when were characteristics of operational art first observed in US military operations? This is the first question in terms of chronology and supports the use of process tracing methodology. Given the advancement of technology, the geographic size of the theaters, and the sheer scale of the armies involves, early characteristics of operational art should be observable by the end of the American Civil War, if not earlier.

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[29] John L. Gaddis, *The Landscape of History: How Historians Map the Past* (New York: Oxford University Press, 2002), 22.

[30] Schneider, *Theoretical Paper No. 4: Vulcan's Anvil: The American Civil War and the Foundations of Operational Art*, 27.

The second question is, what characteristics or elements of operational art are found in doctrine before the 1980s? If the US military employed some form of operational art before it was officially included in doctrine by 1986, some elements were likely included in doctrine developed before the 1980s. This is most likely to be found in doctrine developed during and immediately following World War II.

The third question is, what were the primary sources of operational art theory for the doctrine writers in the 1980s? The primary source of operational art theory for the US military in the 1970s and 1980s is most likely the Soviets during the interwar period.

The fourth question is, how has the concept of operational art evolved in US military doctrine since the end of Operation Desert Storm? Following the previous question, answers to this question are expected to show that the US military has cast its concept of operational art to the side during the Global War on Terror. This is likely due to the major difference in the military problem when engaging in unconventional warfare or counter-insurgency.

The fifth and final question is, what military problems did the US military face, at any given time, that caused it to employ characteristics or elements of operational art? Large organizations are resistant to change, so it stands to reason that the US military faced some significant problem that precipitated the adoption of operational art, either in whole or in part. This is more than likely the threat of, or actual conflict with, a peer or overmatched adversary.

This study relies heavily on US military doctrinal publications, primarily from the US Army, from the 20th and 21st centuries. Also, theoretical papers, journal articles, and other sources from senior leaders and doctrine developers from about 1976 until 1996 are utilized to provide context for the professional discussion and dialogue that shaped American operational art. Primary and secondary sources of operational art theory are used to support the research and provide additional context.

This section described the purpose of this study, explained the research methodology used and the rationale for its selection, and bounded the timeframe for the case study. It

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elaborated on the research questions developed and described the primary source material used for the research. The next section is the narrative describing the development of American operational art and provides evidence that answers the research questions and supports the hypothesis.

Case Study

After reviewing the relevant theory and explaining the research methodology, this section will present the evidence found during case study research. The section begins with a brief overview of the case study period and scope and is then broken down into five sub-sections, corresponding to each research question. Elements of research question five, what military problems did the US military face, may be addressed throughout the case study to maintain the process tracing methodology and chronology. The intent of this study is not to provide an exhaustive history of operational art development in the US military but rather to highlight key periods that contributed to American operational art and how it evolved through today.

The case study will begin by looking for evidence of nascent operational art in the Mexican American War, examining Winfield Scott's Mexico City Campaign. Next, the study will trace the development of operational art from the American Civil War through the end of the Vietnam War, focusing on pre and post-World War II doctrine development. The study will then focus on the period from about 1973 until 1991 when American operational art came of age. Operational art was formally included in US Army doctrine in 1982 when the operational level of war was added to FM 100-5 as part of Air Land Battle. While a nascent concept at the time, the definition of the operational level referenced campaigns designed to defeat enemy forces, simultaneous and sequential battles, operations in-depth, and actions to outmaneuver the enemy.[31] Operational art has remained a constant in US military doctrine since 1982, changing

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[31] US Department of the Army. Field Manual (FM) 100-5, *Operations* (Washington, DC: Government Publishing Office, 1982), 2-3.

and morphing over time. The study will conclude by briefly examining the US military's current understanding of operational art, how it compares to the pre-Global War On Terror conflicts, and the utility of our current doctrine for future wars.

The first research question is, when were characteristics of operational art first observed in US military operations? The earliest examples of emergent operational art in US military operations are seen in Winfield Scott's Mexico City Campaign during the Mexican American War. Operational art matured into a distinct form of warfare by the end of the American Civil War.

Before analyzing the Mexico City Campaign, some rudimentary understanding of its context is required. The Mexican American War was a limited war, fought to achieve the political objective of acquiring territory from Mexico as part of manifest destiny. Scott's campaign, beginning almost a year after the declaration of war, was designed with the military aim of capturing or threatening the capital of Mexico City in order to force the Mexican government to sue for peace after Zachary Taylor's campaign from the north in Texas failed to achieve results.[32] After getting approval from US President James K. Polk, for whom the protracted war was politically untenable, Scott embarked on naval ships from New Orleans with a force of about 12,000. He would land at Vera Cruz, about 800 miles from New Orleans, and proceed inland to higher ground as quickly as possible, avoiding yellow fever rampant in the coastal plains. With Zachary Taylor's army still in the north, Scott presented Mexican General Santa Anna with the dilemma of two armies to defend against. Understanding that his own army was outnumbered, vulnerable, and at the end of a very long exterior line, Scott chose to avoid decisive battle. Instead, he made excellent use of reconnaissance and terrain, only fighting under favorable conditions. He simultaneously waged an effective information operation designed to keep the local populace friendly or neutral. Scott also maintained a slow tempo, taking deliberate pauses

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[32] Russell F. Weigley, *The American Way of War* (Bloomington: University of Indiana, 1973), 73.

after every battle to give the Mexican government time to think about agreeing to negotiate, all the while slowly moving the 260 miles from Vera Cruz to Mexico City. Although divergent from military thinking of the time, Scott's slow and deliberate approach was based on his understanding of the limited political objective, the need to maintain his combat power, and his belief that Mexico would capitulate without the need to destroy its fielded forces. The campaign began on 9 March 1847 with the landings at Vera Cruz, and Mexico City fell on 15 September 1847. During the campaign, Scott's forces only faced about 10 days of actual fighting.[33] While often overlooked today in the shadow of the Civil War, Scott's Mexico City Campaign was an innovative approach for the Army at the time, employing many firsts for the Army and Navy. While ultimately successful, the campaign had many skeptics and was considered by some to be a reckless venture.[34]

 To assess whether or not this campaign showed evidence of early operational art, it will be useful to compare it to theoretical and doctrinal standards. Schneider's emergent characteristics in *Loose Marble* provides a good theoretical framework; ADP 3-0 gives the doctrinal standard. Of the eleven characteristics in *Loose Marble,*[35] Scott's campaign partially or fully met six. First, although small by Civil War standards, Scott's was an independent field army in a separate theater from Taylor. Second, Scott utilized a crude form of distributed logistics after cutting his line of communication with Vera Cruz and sustaining his army off of the local population. Third was the use of a deep strike, a key component of the campaign, where Scott landed nearly 800 miles from the port of debarkation in New Orleans. Fourth, Scott conducted a joint amphibious landing at Vera Cruz, one of the largest of its time and one that the US would

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[33] Timothy D. Johnson, *A Gallant Little Army: The Mexico City Campaign* (Lawrence: University Press of Kansas, 2007), 9-17.

[34] Robert M. Citino, *Blitzkrieg to Desert Strom: The Evolution of Operational Warfare* (Lawrence: University of Kansas Press, 2004), 227.

[35] Schneider, *The Loose Marble—and the Origins of Operational Art*, 90.

not surpass until World War II. Fifth, Scott utilized distributed maneuver during the campaign, attempting to outmaneuver his enemy rather than fight pitched battles. Six, Scott was a commander with operational vision, developing and executing a campaign that achieved the political objective, using limited resources. Turning to doctrine, Scott's campaign employed at least three of the elements of operational art. First, Scott understood that Mexico City was a center of gravity for the enemy, and simply threatening its capture would be enough to force them to the negotiating table. Second, Scott controlled the tempo of his operations in relation to himself and to the enemy. Third, Scott employed novel solutions to extend his operational reach. He did this by conducting a joint operation with the Navy and by cutting his line of communication and purchasing his sustainment. Therefore, using the frameworks of Schneider's characteristics of operational art and current US Army doctrine, the evidence suggests that Scott's Mexico City Campaign showed the use of emergent operational art.

While the Mexico City Campaign may have only hinted at American operational art to come, it is important to establish this point in time for two reasons. First, the Mexican American War was the first "expeditionary" war for the US, fought mainly on foreign soil. This is particularly true for Scott's campaign, which utilized joint operations in depth, a form of distributed logistics, and demonstrated that a numerically weaker force could win. Second, and perhaps most important, at least 135 officers that served in the Mexican American war would go on to become generals during the Civil War on both sides.[36] Notably, both Ulysses S. Grant and Robert E. Lee served in the campaign with Scott, as did many other prominent Civil War commanders. This war would be the last major conflict that the US military would engage in before the Civil War, and it shaped how the next war would play out.

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[36] Johnson, *A Gallant Little Army: The Mexico City Campaign,* 290-291.

It has been mentioned already that Schneider pins the beginning of US operational art to the Civil War, and specifically to Grant's Overland Campaign of 1864.[37] Michael Matheny concurs with Schneider that the Civil War is the genesis of American operational art.[38] The main reasons why operational art was not fully manifested until the Civil War are related to the scope and scale of the war, the use of railroads, and with them, the telegraph. The armies in the field during the Civil War were orders of magnitude larger than any the US Army had fielded before. This numerical size, coupled with the sustainment and movement capability of the railroad and the near-instantaneous communication afforded by the telegraph, created the conditions that both required and allowed commanders such as Grant to employ what would come to be called operational art. But before Grant designed the operational approaches and campaigns that ultimately won the war and saved the country, the seeds of his operational vision were planted in Mexico in 1847. Grant witnessed firsthand what joint Army-Navy operations, sustained campaigning, and alternative logistics could do in war, and he carried these lessons into the Civil War.[39]

The second question is, what characteristics or elements of operational art are found in doctrine before the 1980s? Despite the significant amount of intellectual effort studying operational warfighting that occurred in professional military education between the World Wars, very few characteristics of modern operational art can be found in official doctrine from that period. The evidence suggests that the American understanding of operational art was resident knowledge of the officers trained and educated during the interwar period. These officers became the senior commanders during World War II, where they applied operational art to that war's

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[37] Schneider, *Theoretical Paper No. 4: Vulcan's Anvil: The American Civil War and the Foundations of Operational Art*, 35.

[38] Michael R. Matheny, *Carrying the War to the Enemy: American Operational Art to 1945* (Norman: University of Oklahoma Press, 2011), 15.

[39] Johnson, *A Gallant Little Army: The Mexico City Campaign*, 51.

conduct without having the concepts codified in doctrine. Following World War II, the rapidly changing strategic environment made the refined operational art of that war obsolete, and once again, the concepts were not codified and faded out of institutional knowledge.

Before looking for operational art in the doctrine of the 20th century, the question of the legacy of emergent operational art from the 19th century must be addressed. As discussed previously, characteristics and elements of operational art were employed during the Civil War. If the US military discovered operational art concepts through the experiences of that war, were those concepts retained by the institution in any way? Unfortunately, the answer is no. There are at least two reasons for this lack of continuity. First, the Army's missions following the Civil War did not require operational art. The Army was focused on controlling the Native Americans of the western states, conducting constabulary duties in support of reconstruction in the former Confederate states, and various other non-warfighting duties. The large standing armies and the generals that led them were no longer needed, and the Army transitioned to multiple smaller units.[40] Second, the Army did not have an overarching institution to act as a repository for lessons learned and develop doctrine. Since the general staff was not created until after the Spanish American War, operational art concepts were lost following the Civil War.[41] It took the shock of World War I for the US military to rediscover the concept of operational art.

After the Great War, the US Army realized that its understanding of war and warfighting was insufficient for the modern age. While there was a revision to the capstone Army doctrinal manual, *Field Service Regulations* in 1923, most of the writing on the operational level of war and operational art was contained in the curriculum and student papers of the staff school.[42] The greatest work to come out of this period was *Principles of Strategy for an Independent Corps or*

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[40] Edward M. Sekerak, *The Postwar Army and the Loss of Operational Art: Could it Happen Again?* (Monograph, School of Advanced Military Studies: Fort Leavenworth, 1993), 20.

[41] Ibid., 28-29.

[42] Matheny, *Carrying the War to the Enemy: American Operational Art to 1945*, 49-53.

Army in a Theater of Operations, published by the Command and General Staff School in 1936.

Written by Colonel William Naylor, a veteran of the AEF, this document represents the greatest

expression of American operational art to come out of the interwar period. Borrowing heavily

from both Jomini and Clausewitz, this document introduced the concepts of phasing, culmination,

and, indirectly, the center of gravity.[43] While *Principles of Strategy* represents the most advanced

thinking on operational art before World War II, most of its concepts were not included in official

Army doctrine.[44]

Looking at Army doctrine during this period shows just how little of the theoretical work

from the staff school made it into these manuals. The capstone manual, FM 100-5 *Operations*,

was published twice during World War II, 1941 and 1944. Both editions focused solely on tactics,

describing the different arms of the Army and their tactical employment.[45] To provide

instructions for larger formations of operationally significant size, the Army published FM 100-

15, *Larger Units* in 1942. While still very tactically focused, this manual hints at some

characteristics of operational art. It describes a theater of operations as "…land, sea, and air areas

of the theater of war necessary for military operations," acknowledging the inherent jointness of

large operations.[46] In a chapter on campaign planning, reference is made to "…successive

operations…" and the need for the commander to "visualize the whole campaign" while warning

him not to be "…unduly influenced by local reverses or failures. His conception must be that of

the operation as a whole. His primary attention must be focused on the objective of the

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[43] The Command and General Staff School, *The Principles of Strategy for an Independent Corps or Army in a Theater of Operations* (Fort Leavenworth, KS: The Command and General Staff School Press, 1936), 16, 26, 39.

[44] Matheny, *Carrying the War to the Enemy: American Operational Art to 1945*, 54.

[45] US Department of the Army, Field Manual (FM) 100-5, *Operations* (Washington, DC: Government Publishing Office, 1941), III-V. US Department of the Army, Field Manual (FM) 100-5, *Operations* (Washington, DC: Government Publishing Office, 1944), IV-IX.

[46] US Department of the Army, Field Manual (FM) 100-15, *Larger Units* (Washington, DC: Government Publishing Office, 1942), 4-5.

campaign."[47] While not directly related to the elements of operational art, these concerns

demonstrate an understanding that larger unit commanders—above division level—should have a

different perspective than tactical unit commanders.

If the post-Civil War Army was unable to record and remember the lessons learned due

to factors beyond its control, the post-World War II Army certainly should have been able to. But

once again, the lessons learned were not formally recorded in doctrine. In 1946, the Joint Chiefs

convened a panel of officers representing all services with the task to record the operational

lessons from the war and to make recommendations for joint doctrine. While this report contained

a synthesis of operational art at that time, its contents never made it into doctrine. Just like the

interwar period, this report was only used in the curriculum for the staff colleges.[48] The military

saw a rapid downsizing, and the combination of the Cold War threat and the dawn of the nuclear

age made operational art unnecessary for the US military. The atomic bomb helped bring about

an era of limited war and a renewed sense of the strategic importance of airpower. In this context,

the Army struggled to maintain its relevance in a world that increasingly saw large-scale

conventional conflict as something to be avoided and therefore failed to capture the institutional

knowledge regarding operational art.[49]

When the US military went to war in Korea in 1950, it had the same doctrine that it

finished World War II with. While most of the senior commanders had operational experience in

World War II, the doctrine that was developed during and after the Korean conflict was based on

small, limited objective wars that would be fought against an enemy employing Mao-style

revolutionary tactics, and therefore focused heavily on small unit guerilla tactics.[50] Very little

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[47] Ibid., 10-11.

[48] Matheny, *Carrying the War to the Enemy: American Operational Art to 1945*, 264-265.

[49] Ibid., 266-267.

[50] Antulio J. Echevarria II, "American Operational Art, 1917-2008," *Evolution of Operational Art,* edited by John Andreas Olsen and Martin Van Creveld (New York: Oxford University Press, 2011), 150-152.

thought was given to the large-scale combat that had been the norm in the first half of the 20th century. In the 1968 edition of FM 100-15, *Larger Units: Theater Army-Corps*, the only expansion to elements of operational art was the concept of phasing operations.[51]

The third question is, what were the primary sources of operational art theory for the doctrine writers in the 1980s? The Airland Battle doctrine written in the 1980s has a broad range of military theory behind its concepts, from the ancient to the contemporary.

The actual doctrinal manuals themselves provide evidence of their theoretical underpinnings. The 1982 edition of FM 100-5 lists in its bibliography five well-known military theorists: du Picq, de Saxe, Sun Tzu, Clausewitz, and Fuller.[52] Ardant du Picq wrote the basis for *Battle Studies: Ancient and Modern* based on his experience in the 1870 Franco-Prussian war. Du Picq's contribution to Army doctrine relates to the human element in combat, which he believed was ultimately more important than theories. FM 100-5 used du Picq to reinforce the importance of taking the courage and endurance of Soldiers into account.[53] Marshall de Saxe was quoted in a section on the importance of leadership in war.[54] The Ancient military theorist Sun Tzu was quoted in the doctrine, relating to the dangers of "besieging walled cities." The writers warned that while it was likely that future combat could not avoid urbanized areas, commanders should avoid committing forces to urban fighting without a specific advantage to do so.[55] Carl von Clausewitz was also a significant source of theory for the new doctrine, most obviously in the primacy of the offense and in the acknowledgment of the difficulties that arise from the friction of

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[51] US Department of the Army, Field Manual (FM) 100-15, *Larger Units: Theater Army-Corps* (Washington, DC: Government Publishing Office, 1968), 7-4, 8-3.

[52] US Department of the Army, Field Manual (FM) 100-5, *Operations* (Washington, DC: Government Publishing Office, 1982), A-3.

[53] Ibid., 2-9.

[54] Ibid., 2-10.

[55] Ibid., 3-8.

war.[56] J.F.C. Fuller, a British theorist from the early 20th century, provided one of the most direct contributions to the new doctrine, and the writers relied heavily on his work when they adopted the nine principles of war.[57] These were not a direct copy of Fuller's principles, but FM 100-5 gives direct credit to him.

The 1986 revision of FM 100-5 did not include a bibliography of theorists, but numerous theorists were quoted throughout. In addition to those included in the 1982 edition, this update cited Napoleon's *Memoirs* when describing the conduct of the defensive operations as including preparation to rapidly shift to the offensive.[58] The influence of Clausewitz is more direct in the 1986 update, as the operational design concepts of center of gravity and a culminating point were pulled directly from *On War*.[59] The third operational design concept, lines of operation, can be directly traced to Jomini.[60]

Although many classical theorists were quoted or referenced in the 1982 and 1986 editions of FM 100-5, these were not the only military thinkers that influenced the doctrine writers. Colonel Arthur Lykke, a professor at the Army War College, developed the "ends, ways, means" framework that would appear in the 1986 edition. Edward Luttwak can be credited with introducing the concept of the operational level of war into doctrine, describing the need for an English word to define the space between tactics and strategy. This level of war would appear in the 1982 version of 100-5. While neither version of 100-5 cites Russian or Soviet theorists, Jim Schneider played a critical role, as one of the earliest instructors at the School of Advanced

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[56] Ibid., 4-1, 8-4.

[57] Ibid., B-1.

[58] US Department of the Army, Field Manual (FM) 100-5, *Operations* (Washington, DC: Government Publishing Office, 1986), 131-133.

[59] Ibid., 179, 181.

[60] Ibid., 180.

Military Studies, in introducing the US Army to the writings of the early Russian and Soviet operational art.[61]

The fourth question is, how has the concept of operational art evolved in US military doctrine since the end of Operation Desert Storm? Over five major doctrinal updates from 1986 to 2017, the concept of operation art has evolved and expanded, adding concepts, supporting definitions, and broadening the elements of operational design. Beginning with the 2001 edition of FM 3-0 *Operations*, the definition of operational art merged with the joint definition, while the elements of operational art remain tailored to Army doctrine.

The Army's doctrinal concept of operational art at the time of Operation Desert Storm is contained in the 1986 edition of FM 100-5, *Operations*. This was the first time in the history of the US military that operational art was defined clearly in doctrine. Operational art was defined as "…the employment of military forces to attain strategic goals in a theater of war or theater of operations through the design, organization, and conduct of campaigns and major operations."[62] The manual went further and stated that operational art was concerned with decisions on when and where to fight, and posed three questions that commanders employing operational art must answer: what military condition must be produced in the theater of war—or operations to achieve the strategic goal; what sequence of actions is most likely to produce that condition; and how should the resources of the force be applied to accomplish that sequence of actions?[63] In Appendix B, the manual described three key concepts of operational design, that is, the design and conduct of campaigns and major operations. They were the center of gravity, lines of

[61] Richard M. Swain, "Filling the Void: The Operational Art and the US Army," in Operational Art: Developments in the Theories of War, ed. B.J.C. McKercher and Michael Hennessy (Westport, CT: Praeger Publishing, 1996), 160-163.

[62] US Department of the Army, Field Manual (FM) 100-5, *Operations* (Washington, DC: Government Publishing Office, 1986), 10.

[63] Ibid.

operations, and culminating points.[64] These concepts remain in doctrine today as elements of operational art.

The next update to FM 100-5 was published in 1993. As noted by John Romjue, former Chief Historian for TRADOC, the biggest change in the 1993 edition of FM 100-5 was a shift in focus to the strategic level of war, directly linking military actions to US strategic policy documents.[65] This manual defined operational art as "…the skillful employment of military forces to attain strategic and/or operational objectives within a theater through the design, organization, integration, and conduct of theater strategies, campaigns, major operations, and battles."[66] It maintained the same three questions for commanders from the 1986 edition, with slightly altered wording.[67] In addition to maintaining the three operational design concepts of center of gravity, lines of operations, and culminating points, this manual added decisive points to the list.[68] It also defined sequencing of operations as a key concept, introducing the idea of phasing and transitions, and clearly stated the importance of branches and sequels to maintaining flexibility in planning.[69] Finally, while not directly related to operational art, the 1993 edition clearly defined the commander's intent in relation to the concept of operations.[70]

FM 3-0, *Operations* was the next update in 2001, with the naming convention changing to match joint doctrine. FM 3-0 defined operational art as "…the use of military forces to achieve

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[64] Ibid., 179-182.

[65] John L. Romjue, *American Army Doctrine for the Post-Cold War.* (Fort Monroe, VA: TRADOC Historical Monograph Series, 1996), 121.

[66] US Department of the Army, Field Manual (FM) 100-5, *Operations* (Washington, DC: Government Publishing Office, 1993), 6-2.

[67] Ibid.

[68] Ibid., 6-7.

[69] US Department of the Army, Field Manual (FM) 100-5, *Operations* (Washington, DC: Government Publishing Office, 1993), 6-9.

[70] Ibid., 6-6.

strategic goals through the design, organization, integration, and conduct of theater strategies, campaigns, major operations, and battles." A fourth question for commanders was added—What are the likely costs or risks in performing that sequence of actions—and the four questions were now tied to the ways, means, ends, and risk framework.[71] Unlike its antecedents, FM 3-0 classified key concepts of operational design as elements, defining them as "…tools to aid designing major operations. They help commanders visualize the operation and shape their intent." Nine elements were defined: end state and military conditions; center of gravity; decisive points and objectives; lines of operation; culminating point; operational reach, approach, and pauses; simultaneous and sequential operations; linear and nonlinear operations; and tempo.[72]

FM 3-0 Operations was updated in 2008 to use the joint definition of operational art, which was "…the application of creative imagination by commanders and staffs—supported by their skill, knowledge, and experience—to design strategies, campaigns, and major operations and organize and employ military forces. Operational art integrates ends, ways, and means across the levels of war."[73] Although the same had been implied in previous doctrine, the 2008 edition explicitly stated that operational art was "applied only at the operational level" of war.[74] The questions for commanders remained tied to the ways, ends, mean, and risk framework but were expanded to six: what is the force trying to accomplish (ends); what conditions, when established, constitute the desired end state (ends); how will the force achieve the end state (ways); what sequence of actions is most likely to attain these conditions (ways); what resources are required, and how can they be applied to accomplish that sequence of actions (means); and what risks are

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[71] US Department of the Army, Field Manual (FM) 3-0, *Operations* (Washington, DC: Government Publishing Office, 2001), 2-3 – 2-5.

[72] Ibid., 5-6.

[73] US Department of the Army, Field Manual (FM) 3-0, *Operations* (Washington, DC: Government Publishing Office, 2008), 6-1.

[74] Ibid.

associated with that sequence of actions, and how can they be mitigated (risk).[75] The elements of

operational design were adapted and expanded to twelve; end state; conditions; centers of gravity;

operational approach; decisive points; lines of operation/effort; operational reach; tempo;

simultaneity and depth; phasing and transitions; culmination; and risk.[76] Finally, this edition of

FM 3-0 introduced the defeat mechanisms of destroy, dislocate, disintegrate, and isolate, defining

them as the "method through which friendly forces accomplish their mission against enemy

opposition."[77]

The most recent edition of FM 3-0, *Operations* was published in 2017. It maintains the

use of the joint definition of operational art, updated to "…the cognitive approach by

commanders and staffs—supported by their skill, knowledge, experience, creativity, and

judgment—to develop strategies, campaigns, and operations to organize and employ military

forces by integrating ends, ways, and means."[78] The questions for commanders have been

reduced to five: what conditions, when established, constitute the desired end state (ends); how

will the force achieve these desired conditions (ways); what sequence of actions helps attain these

conditions (ways); what resources are required to accomplish that sequence of actions (means);

and what risks are associated with that sequence of actions, and how can they be mitigated (risk).

The elements have been reduced to ten and renamed elements of operation art rather than

operational design. They are end state and conditions; the center of gravity; decisive points and

spaces; lines of operations and lines of effort; operational reach; culmination; basing; tempo;

phasing and transitions; and risk.[79] The 2017 edition maintains the defeat mechanisms but adds

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[75] Ibid., 6-4 – 6-5.

[76] Ibid., 6-7.

[77] Ibid., 6-9.

[78] US Department of the Army, Field Manual (FM) 3-0, *Operations* (Washington, DC: Government Publishing Office, 2017), 1-20.

[79] Ibid.

the stability mechanisms of compel, control, influence, and support. The stability mechanisms are defined as "the primary method through which friendly forces affect civilians in order to attain conditions that support establishing a lasting, stable peace."[80]

The final research question is: what military problems did the US military face, at any given time, that caused it to employ characteristics or elements of operational art? Although specific military problems vary widely depending on the context, the problems of resources, scope and scale of warfare, and an inability to achieve victory through a decisive battle are common to all periods studied. To answer this question, this study looked at five separate time periods to determine the nature of the primary military challenges as they relate to operational art.

The first period is the Mexican-American War and, in particular, the Mexico City Campaign. The impetus for the campaign was the failure of the previous military operations to achieve the war's objective, forcing Mexico to cede territory. The strategy during the first year of the war of conducting offensive operations across the US-Mexico border had not succeeded in defeating the Mexican Army in a decisive battle. Scott's campaign was envisaged to overcome this problem by threatening the Mexican capital, but it also faced its own problems. The US military had limited capacity to project power away from the US border, which limited Scott's available resources. The Mexican Army was significantly larger than Scott's force, forcing him to avoid decisive battles and utilize maneuver. Finally, the geographic distances involved represented a scale of war greater than any the US military had faced up to that time.[81]

The second period is the American Civil War. While each side faced unique problems, some were common to both. By the 1860s, the industrial revolution had created the technology and production capacity to drastically increase the potential scope and scale of war. Further, the Civil War was an unlimited war, meaning much of the population would be directly impacted in

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[80] Ibid., 1-22.
[81] Russell F. Weigley, *The American Way of War* (Bloomington: University of Indiana, 1973), 71-76.

some way, particularly in the South. The North had to increase an 1860 constabulary force of around sixteen thousand to a peak of nearly six hundred thousand in just a few years. Additionally, the leadership of both sides had to learn how to employ and synchronize multiple independent armies simultaneously, on a scale no one on either side had experience with. Lastly, both sides faced issues with resources. While the South had to contend with limited production capacity and a blockade of imports from overseas, the North had to figure out how to project and sustain the massive armies fighting hundreds of miles away from their strategic base. These factors contributed to the inability of either side to achieve victory with a single campaign, much less a single decisive battle.[82]

The third period is the interwar period through the end of the Second World War. Following the armistice of 1918, the US Army returned home and immediately began demobilization and drawdown. While the professional Army expanded the education of its officer corps and made extensive studies of new technology and tactics learned in the war, the US Army as a whole was not trained or equipped at the outbreak of the Second World War. The first problem was that of mobilizing the human and material resources needed to support the allies and rebuild the Army to fight in two theaters simultaneously. As had been the case in the previous World War, the idea of a decisive battle was gone; victory would only be achieved through a series of coordinated campaigns designed to attrit the enemy forces and eliminate their will to fight. While the European theater was the priority, the great distances and lack of basing in the Pacific posed the greatest challenges. And while the First World War had set a precedent for the scale of warfare in the 20th century, for the US Army, the Second World War would be the largest war it had fought before or since in terms of the size of the fielded forces and geographic scale of the operational environment.[83]

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[82] Williamson Murray and Wayne Hsieh, *A Savage War: A Military History of the Civil War* (Princeton, NJ: Princeton University Press, 2018), 38–39, 49-53.

[83] Michael R. Matheny, *Carrying the War to the Enemy: American Operational Art to 1945*

The fourth period is the post-Vietnam era, from 1973 until about 1986. This period was one of the most difficult times in history for the US Army. Facing a significant public trust issue from mishandling in Vietnam, the Army also had to contend with an undisciplined and unprofessional force, reduced budgets, outdated equipment, and the transition to an all-volunteer force. In addition to the internal problems, the US Army was ill-prepared to take the lead in the NATO defense of Western Europe in the event of an attack by the Soviet Union. While the US was focused on South East Asia, the Soviets had been modernizing and expanding their military. The problems facing the US Army at this time were similar to those during the interwar period. The US Army did not have the resources to defeat the numerically superior Soviets, even when integrating with NATO partners on the continent. There was also the problem of the time required to deploy all allocated forces to Europe in time to commit them to the defense of NATO. The operational environment in Europe did not allow a battlefield with enough depth to absorb the first echelons on a Soviet conventional attack. And short of using nuclear weapons, there was no possibility of a quick, decisive victory against the Soviets. As this study has explained, the realization that the US Army was not ready to prevail against the Soviet Army was the impetus for the development of new doctrine in the 1980s, resulting in Airland Battle.[84]

The last period is post-Desert Storm through the GWOT. For the US Army, Operation Desert Storm was the pinnacle of Airland Battle doctrine and of operational art, used to prosecute a LSCO conflict. Although the United States engaged in multiple small conflicts and military actions following Desert Storm, the military maintained the doctrine that had been proven. While the war in Afghanistan saw greater use of special forces augmenting host nation units, the opening campaign of Operation Iraqi Freedom used the same combined arms doctrine that had achieved victory in 1991. But the US military found itself facing an entirely different problem set

(Norman: University of Oklahoma Press, 2011), 88-91.
[84] Paul H. Herbert, *Deciding What Has to Be Done: General William E. DePuy and the 1976 Edition of FM 100-5, Operations* (Fort Leavenworth, KS: Combat Studies Institute Press, 1988), 5-6.

in Iraq following the invasion in 2003. The large combined arms formations that swept across the Iraqi desert were not trained or equipped to confront the insurgency that spread through Iraq following the collapse of the Iraqi government. While operational art featured prominently in both the 1991 and 2003 invasions, the US Army realized it needed a different approach and different doctrine. The key doctrine of the COIN era, FM 3-*24 Insurgencies and Countering Insurgencies*, makes no mention of operational art.[85] While operational art remained part of US Army doctrine throughout the GWOT, the relatively small-scale battles and engagements that occurred in Iraq and Afghanistan, coupled with an overwhelming array of resources available to small tactical units, made its use unnecessary.[86]

This section introduced the case study, described the chronological periods that would be examined and why, and presented evidence for each of the five research questions. The next section, findings and analysis, will compare the evidence from the case study section to the research questions to verify the research hypothesis' validity.

Findings and Analysis

The findings and analysis section provides concise answers to the research questions as a product of the case study research and is broken down into two sub-sections. The findings section will compare the data gathered in response to the research's five research questions. The analysis section will use the results of the findings to test the hypothesis and determine its validity.

The first research question asked when were characteristics of operational art first observed in US military operations. The earliest American example of operational art occurred during the Mexican American War, with Winfield Scott's Mexico City campaign. Scott employed concepts such as joint operations and a center of gravity, which was novel at the time, but clearly

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[85] US Department of the Army, Field Manual (FM) 3-24, *Insurgencies and Countering Insurgencies* (Washington, DC: Government Publishing Office, 2014).

[86] Bruce R. Pirnie, and Edward O'Connell, *Counterinsurgency in Iraq (2003-2006)* (Santa Monica, CA: RAND, 2008), 35-38.

show emergent operational art thinking. While the characteristics exhibited by Scott in this campaign did not constitute a full expression of operational art, it was important because many junior officers present under Scott's command would later serve as generals during the Civil War. As Schneider clearly articulates, it was during the Civil War where modern American operational art was first fully employed.

The second research question asked what characteristics or elements of operational art could be found in doctrine before the 1980s. For several reasons, the hard-won lessons of operational warfighting learned during the Civil War were lost to the Army that fought in World War I. Even after the great war, US Army doctrine paid very limited attention to elements of operational art, limited to the logistics and sequencing of large operations, joint integration, and the need for commanders to visualize the whole theater of war. However, there is ample evidence the US military studied and educated its officers in the concepts of large scale operational warfare during the interwar period, enabling the generals and admirals of World War II to achieve success. However, as was the case following the Civil War, the operational art of World War II was not enshrined in doctrine due in large part to the dawn of the nuclear age and the strategic shift to smaller, proxy wars. Doctrine would not get a permanent injection of operational art until the 1980s.

The third research question is what were the primary sources of operational art theory for the doctrine writers in the 1980s. The writers of Airland Battle pulled from a broad range of military theorists, from the ancient with Sun Tzu to the contemporary with Edward Luttwak. Some of the more prominent theorists were Carl von Clausewitz, Antoine-Henri Jomini, J.F.C. Fuller, Ardant du Picq, Napoleon, and Marshal de Saxe. While these theorists were well known at the time, there was an indirect yet essential source of military theory for Airland Battle: the Russians and the Soviets. As Airland Battle was developed to counter the Soviet threat to NATO in Europe, there was a push in the 1970s and 1980s to translate historical and contemporary Russian and Soviet military writing into English. The central tenet of Airland Battle, deep

operations, and the term operational art are both attributable to Russian and later Soviet military theorists.[87]

The fourth research question looked at how the concept of operational art has evolved in US military doctrine since the end of Operation Desert Storm. The operational level of war was first introduced in doctrine in 1982, followed by a definition of operational art in 1986. While the original concept of operational art was tied specifically to Airland Battle doctrine when it was first introduced, it has since gravitated towards a universal concept rooted in the cognitive processes of operational planning and campaign design. This shift has included expanding the elements of operational art, explaining its integration with the operations process, and adding tools such as defeat and stability mechanisms. Beginning as an Army concept, operational art was included in US Joint doctrine in the 1990s, and, since 2001, Army and Joint doctrine have shared the same definition of the term.

The final research question asked what military problems did the US military face, at any given time, that caused it to employ characteristics or elements of operational art. Looking at five periods in American history, the research shows three common elements of the military problems faced by the US military when it has demonstrated the use of operational art to achieve its given objectives. First, limited resources in comparison to the enemy, at least in the near term. This can be an absolute disparity, the result of local conditions, or caused by resource allocation to higher priorities. Second, the scope and scale of warfare are so large that purely tactical actions are not sufficient to achieve objectives. This was a significant problem during the Civil War and has remained so during every large-scale conventional war the US military has fought since. Last, the inability to achieve victory through a single decisive battle. This problem has many causalities, one of which is the scope and scale of warfare. But even when the US military brings

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[87] David M. Glantz, "The Intellectual Dimension of Soviet (Russian) Operational Art" in Operational Art: Developments in the Theories of War, ed. B.J.C. McKercher and Michael Hennessy (Westport, CT: Praeger Publishing, 1996), 125-146. In his essay, David Glantz succinctly covers the theoretical development and evolution of Russian, and later Soviet, operational art.

overwhelming resources to bear, the conditions may not exist to win with a single battle or operation. This was true during the wars in Iraq and Afghanistan, where the US Army arguably eschewed operational art in favor of rediscovered COIN doctrine and tactics.

This section reviewed the research questions and described the findings and analysis of the research questions and the hypothesis. The analysis of the empirical evidence and hypotheses suggests the validity of the thesis that given the current operating environment and the threat of large-scale combat operations against a peer threat, the concept of operational art will be critical to the successful conduct of future US military operations. The next section will conclude the study, summarize the implications for current practitioners, and suggest potential avenues for future research based on the analysis presented in this section.

Conclusion

This study used a single hypothesis to guide research, asserting if the US military faces the threat of large-scale combat operations against a peer adversary, then it needs operational art to develop and execute campaigns that achieve the political objectives using available resources. The empirical evidence from the case study supports this hypothesis. Winfield Scott applied elements of operational art through an indirect approach and achieved the political objective of the Mexican American War. However, he only did this after the earlier campaign of Zachary Taylor had failed, meaning the need for Scott's novel approach was not acknowledged at the outset of the war; a military problem had to be identified to be a driving force for Scott to try something quite novel at the time. During the Civil War, both sides attempted attrition warfare to best their opponent. Nevertheless, the time, space, and resources available made a significant, decisive victory impossible. Although it could be argued the United States would have won eventually based on overwhelming resources, Grant was able to visualize the whole of the war, and design campaigns that overwhelmed the South, which likely saved years and thousands of lives. A similar situation existed during World War II, but on an even larger scale. Despite the

overwhelming capacity of the US industrial base, it was the knowledge and cognitive ability of the senior commanders that enabled allied successes. This is particularly true in the Pacific Theater, which was subordinate to Europe in terms of resources allocated. Thus, when operational art was formally included in doctrine as part of Airland Battle, it was not a novel concept to the US military. Rather, it was the codification of a way of thinking about and understanding an enemy, finding or creating opportunities to disrupt him, and designing campaigns and operations to exploit those opportunities. If the US military faces an inferior threat, then operational art is not needed to achieve the objective; simple blunt force will suffice. As this study has shown, however, the ability to employ operational art gives commanders a distinct advantage, even when the enemy has parity in every other respect.

This study sought to answer how the concept of operational art came about in US military doctrine and how has it evolved from its inception in the 1980s to the present. This section concludes the study with a summary of the case study, an assessment of the thesis, a discussion of the findings, implications for practice, and further research recommendations.

This study used a form of process tracing to determine how operational art developed in the US Army, focusing on the doctrinal development of Airland Battle in the 1980s. The hypothesis was if the US military faces the threat of large-scale combat operations against a peer adversary, then it needs operational art to develop and execute campaigns that achieve the political objectives using available resources. Five research questions were used to evaluate the hypothesis, beginning with the Mexican-American War and moving forward to the present day. Focusing on key periods in US Army history—the Civil War, World War II, the post-Vietnam through Desert Storm period, and ending with the early GWOT period—the findings from the research questions support the hypothesis.

The thesis of this study was given the current operating environment, and the threat of large-scale combat operations against a peer threat, the concept of operational art will be critical to the successful conduct of future US military operations. The hypothesis this study evaluated

supports the thesis. The current doctrinal definition of operational art focuses on the cognitive aspect of operations and campaign design. The US Army's future concept for Multi-Domain Operations (MDO) includes LSCO executed by operational level units. Operational art will be required to sequence and layer capabilities and effects to achieve the desired military objectives and enable the conditions to achieve the political objective.

While operational art is a relatively recent doctrinal development, the key concepts and attributes of operational art thinking existed well before they were codified in doctrine. This demonstrates that operational art is, at least in part, a cognitive process of designing operations and campaigns to achieve military objectives. Although American operational art was developed in conjunction with a specific doctrine, the elements are useful for designing campaigns and operations regardless of their individual context. By providing some historical examples of operational art being employed, along with the theoretical framework of its development, this study provides the context needed for commanders and staff officers to apply current operational art doctrine in practice in the current operating environment.

Much research and writing have been done on the history and theory of operational art. Future research should be done to determine how operational art can be used in future conflicts and to ensure that the US Army's understanding is appropriate and sufficient to support operations. Since future operating concepts include greater use of Corps and Field Armies, further research should specifically focus on expanding doctrine on operational art to be explanatory. This will provide foundational knowledge for inexperienced commanders and staffs at these higher echelons, considering the US Army lacks recent experience in warfighting in a conflict that includes LSCO. Finally, future research should take into account the current doctrine and operating concepts of near-peer threats, mainly Russia and China.

This study has shown that operational art has been a mainstay in the US Army for most of its existence. The concept was brought to life at a time when the US Army faced the existential threat of a large-scale war on the European continent when it did not have enough resources to

win with brute force. The concept waned during GWOT, but with the strategic shift to LSCO against increasing near-peer threats, operational art is seeing renewed interest. That said, operational art is not a panacea and should not become dogma. It is a set of tools and a way of thinking about warfighting that, coupled with experience and good judgment, can help commanders and staff officers design successful operations.

Bibliography

Clausewitz, Carl von. *On War*. Edited and translated by Michael Howard and Peter Paret. Princeton: Princeton University Press, 1976.

Citino, Robert M. *Blitzkrieg to Desert Strom: The Evolution of Operational Warfare*. Lawrence: University of Kansas Press, 2004.

Cope, James A. *Winfield Scott's Mexico City Operation: The Genesis of American Operational Art?* Monograph, School of Advanced Military Studies Fort Leavenworth, 1989.

Dolman, Everett C. *Pure Strategy. Power and Principle in the Space and Information Age*. New York: Frank Cass, 2005.

Echevarria, Antulio J. "American Operational Art, 1917-2008." In *The Evolution of Operational Art: From Napoleon to the Present*, edited by John Andreas Olsen and Martin van Creveld. New York: Oxford University Press, 2011.

Epstein, Robert M. *Napoleon's Last Victory and the Emergence of Modern War*. Modern War Studies. Lawrence: University Press of Kansas, 1994.

Gaddis, John L. *The Landscape of History: How Historians Map the Past*. New York: Oxford University Press, 2002.

George, Alexander L., and Andrew Bennett. *Case Studies and Theory Development in the Social Sciences.* Cambridge, MA: The MIT Press, 2005.

Glantz, David M. "The Intellectual Dimension of Soviet (Russian) Operational Art." In *Operational Art: Developments in the Theories of War*, edited by B.J.C. McKercher and Michael Hennessy, 147-172. Westport, CT: Praeger Publishing, 1996.

Hagerman, Edward. *The American Civil War and the Origins of Modern Warfare: Ideas, Organization, and Field Command*. Bloomington: Indiana University Press, 1988.

Herbert, Paul H., and U S Army Command and General Staff College Combat Studies Institute. *Deciding what has to be done: General William E. DePuy and the 1976 Edition of FM 100-5, Operations.* Fort Leavenworth, KS: Combat Studies Institute Press, 1988.

Isserson, G. S. *The Evolution of Military Art*. Translated by Bruce Menning. 2nd ed. Fort Leavenworth, KS: Combat Studies Institute Press, US Army Combined Arms Center, 2013.

Johnson, Timothy D. *A Gallant Little Army: The Mexico City Campaign*. Lawrence: University Press of Kansas, 2007.

Kipp, Jacob W. "The Tsarist and Soviet Operational Art: 1853-1991." In *The Evolution of Operational Art: From Napoleon to the Present*, edited by John Andreas Olsen and Martin van Creveld. New York: Oxford University Press, 2011.

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

———. "Development of the Theory and Doctrine of Operational Art in the US Army, 1920-1940." Masters Monograph, School of Advanced Military Studies, US Army Command and General Staff College, Ft. Leavenworth, KS, 1988.

McCormick, Michael. *The New FM 100-5: A Return to Operational Art*. Monograph, School of Advanced Military Studies Fort Leavenworth, 1997.

Millet, Allan R., and Peter Maslowski. *For the Common Defense: A Military History of the United States of America*. New York, NY: The Free Press, 1994.

Naveh, Shimon. *In Pursuit of Military Excellence: The Evolution of Operational Theory*. New York: Frank Cass Publishers, 1997.

Pirnie, Bruce R, and Edward O'Connell. *Counterinsurgency in Iraq (2003-2006)*. Santa Monica, CA: RAND, 2008.

Romjue, John L. *American Army Doctrine for the Post-Cold War*. Fort Monroe, VA: TRADOC Historical Monograph Series, 1996.

———. *From Active Defense to Airland Battle: The Development of Army Doctrine, 1973-1982*. Fort Monroe, VA: TRADOC Historical Monograph Series, 1984.

Schneider, James J. "Theoretical Paper No. 3: The Theory of Operational Art." Fort Leavenworth, KS: School of Advanced Military Studies, 1988.

———. "Theoretical Paper No. 4: Vulcan's Anvil: The American Civil War and the Foundations of Operational Art." Fort Leavenworth, KS: School of Advanced Military Studies, 1992.

———. "The Loose Marble—and the Origins of Operational Art." Parameters: US Army War College 19, no. 1 (1989): 85–99.

Sekerak, Edward M. *The Postwar Army and the Loss of Operational Art: Could it Happen Again?* Monograph, School of Advanced Military Studies Fort Leavenworth, 1993.

Simpkin, Richard. *Deep Battle. The Brainchild of Marshal Tukhachevskii*. McLean: Pergamon-Brassey's International Defense Publishers, 1987.

Svechin, Aleksandr A. *Strategy*. Edited by Kent D. Lee. Minneapolis, MN: East View Publications, 1992. Original printing 1927.

Swain, Richard M. Dr. "Filling the Void: The Operational Art and the US Army." In *Operational Art: Developments in the Theories of War*, edited by B.J.C. McKercher and Michael Hennessy, 147-172. Wesport, CT: Praeger Publishing, 1996.

The Command and General Staff School. *The Principles of Strategy for an Independent Corps or Army in a Theater of Operations*. Fort Leavenworth, KS: The Command and General Staff School Press, 1936.

Turabian, Kate. *A Manual for Writers of Research Papers, Theses, and Dissertations, 9th ed.* Chicago: University of Chicago Press, 2018.

US Department of the Army. Army Doctrine Publication 3-0, *Operations*. Washington, DC: Government Publishing Office, 2019.

———. Army Doctrine Publication 3-0, *Operations*. Washington, DC: Government Publishing Office, 2011.

———. Field Manual 3-0, *Operations*. Washington, DC: Government Publishing Office, 2017.

———. Field Manual 3-24 *Insurgencies and Countering Insurgencies*. Washington, DC: Government Publishing Office, 2014.

———. Field Manual 3-0, *Operations*. Washington, DC: Government Publishing Office, 2008.

———. Field Manual 3-0, *Operations*. Washington, DC: Government Publishing Office, 2001.

———. Field Manual 100-5, *Operations*. Washington, DC: Government Publishing Office, 1993.

———. Field Manual 100-5, *Operations*. Washington, DC: Government Publishing Office, 1986.

———. Field Manual 100-5, *Operations*. Washington, DC: Government Publishing Office, 1982.

———. Field Manual 100-5, *Operations*. Washington, DC: Government Publishing Office, 1976.

———. Field Manual 100-5, *Operations*. Washington, DC: Government Publishing Office, 1944.

———. Field Manual 100-5, *Operations*. Washington, DC: Government Publishing Office, 1941.

———. Field Manual 100-15, *Larger Units: Theater Army-Corps*. Washington, DC: Government Publishing Office, 1968.

———. Field Manual 100-15, *Larger Units*. Washington, DC: Government Publishing Office, 1950.

———. Field Manual 100-15, *Larger Units*. Washington, DC: Government Publishing Office, 1942.

US Department of Defense. Joint Staff. Joint Publication 3-0, *Joint Operations.* Washington, DC: Government Publishing Office, 2018.

———. Joint Staff. Joint Publication 5-0, *Joint Planning.* Washington, DC: Government Publishing Office, 2020.

———. Joint Staff. *Joint Concept for Integrated Campaigning*. Washington, DC: Government Publishing Office, 2018.

Weigley, Russell F. *The American Way of War*. Bloomington: University of Indiana, 1973.

Yarger, Harry R. *Strategic Theory For The 21st Century: The Little Book On Big Strategy*. Carlisle, PA: Strategic Studies Institute, 2014.