WHAT IS OPERATIONAL ART?

A MONOGRAPH
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As the Army prepares the new FM 100-5 this monograph analyzes chapter two of the current draft, the theory of operational art. The latest draft FM 100-5 has failed to create a common understanding, and therefore cannot serve as doctrine. There are several reasons for this. First, the draft doctrine does not capture successfully the timeless elements of operational art. Second, by not identifying the timeless elements, the human dimension of applying operational art is not emphasized to the degree necessary. Third, any doctrine explaining operational art must focus on applying the concepts to the present day operations that the Army is being tasked to plan and conduct. Finally, regardless of the impact technology will have on the Army, the methodology for creative conduct of military operations must never be forgotten. Operational art will always drive tactical actions. The focus of doctrine must be on how to apply operational art to practical activities. The concepts must transcend immediate technological conditions lest they be invalidated by rapidly changing capabilities during the life of the manual.

The purpose of this monograph is to rewrite the theory of operational art in a way that can be understood by those who need to apply it in today's Army. This monograph attempts to offer the editors and authors of the new FM 100-5 a simple and clear explanation of operational art. This monograph answers the question what is operational art by analyzing what operational art is in theory and in doctrine. This monograph then distills the essential elements of operational art from the conceptual and practical explanations of operational art. Finally this monograph answers the question how do Army forces execute operational art?

These three questions answer the research question by determining a doctrinal definition for operational art, then distilling the theory of operational art in order to filter out the basic principles and essential elements, and finally, framing these principles and fundamentals into a definitive yet adaptable explanation of application.

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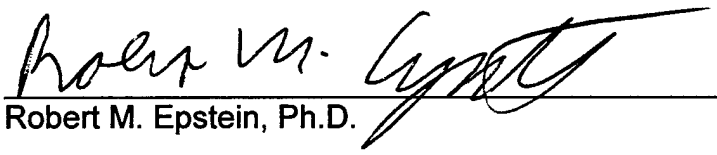

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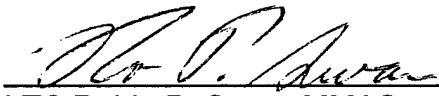

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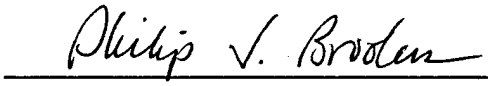

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I. Introduction

As the Army prepares for the twenty-first century it continues to struggle with the development of the new FM 100-5. The current draft of the new FM 100-5 attempts to define the theory of operational art in the second chapter. The chapter is entitled "The Theory of Operational Art" and is almost sixty pages in length. This lengthy explanation of the theory of operational art has caused confusion in the field, leading many senior commanders to reject the draft FM 100-5 and call for clarification from the authors of the manual.

The main problem with the new FM 100-5 is chapter two. It has stirred strong emotional responses by senior leaders in the field. Many in the Army view that the reason for such strong opposition is the abstract character of chapter two, the theory of operational art. The chapter is too long and too confusing to be understood by the target audience. The writers of FM 100-5 did not produce the draft manual for the purpose to create confusion. The Army recognizes the necessity to understand operational art and the draft manual was intended to explain it. Unfortunately it missed the target.

After the 1982 version of FM 100-5, the Army began to think seriously about what operational art is and how it should be applied to the conduct of operations. The 1986 manual reflected a good bit of that thought and produced a generation of Army officers who understood operational art better than the generation that preceded them. The Army continued to evolve and the strategic view of the world changed. By the late 1980's new theories on operational art began to emerge. The latest draft of FM 100-5 is an attempt to

place the new theories on operational art into doctrine. The problem is that the new manual does not read like doctrine. To be successful doctrine must be understood and must be followed. The draft FM100-5 has not created a common understanding, and therefore cannot serve as doctrine. There are several reasons for this. First, the draft doctrine does not capture successfully the timeless elements of operational art. Second, by not identifying the timeless elements, the human dimension of applying operational art, which is perhaps the most important element, is not emphasized to the degree necessary. Third, any doctrine explaining operational art must focus on applying the concepts to the present day operations that the Army is being tasked to plan and conduct. Finally, regardless of the impact technology will have on the Army, the methodology for creative conduct of military operations must never be forgotten. Operational art will always drive tactical actions. The focus of doctrine must be on how to apply operational art to practical activities. The concepts must transcend immediate technological conditions lest they be invalidated by rapidly changing capabilities during the life of the manual.

Military doctrine must gain its backbone from military theory and history but it must be more. Doctrine must produce a shared understanding on how to apply basic principles and fundamentals derived from theory and history. Military doctrine is the practical application of the basic fundamentals derived from theoretical work. Doctrine is not simply a regurgitation of theory. Doctrine must be capable of being applied in the real world by real people, when real lives are at stake.

The mission of this monograph is to rewrite the theory of operational art in a way that can be understood by those who need to apply it in today's Army. This monograph

attempts to offer the editors and authors of the new FM 100-5 a simple and clear explanation of operational art. To do this several questions must be answered. The first question is, what is operational art? In order to answer this question several questions must be answered. They are: a. What is operational art? In theory; what is the conceptual explanation? In practice; what is the practical explanation? b. What are the essential elements of operational art? and c. How do Army forces execute operational art? This monograph answers these questions in three separate sections. The conceptual and practical explanation for operational art is answered first. Second, the essential elements of operational art are identified, and thirdly a framework for the application of operational art is constructed.

These three questions answer the research question by determining a doctrinal definition for operational art, then distilling the theory of operational art in order to filter out the basic principles and essential elements, and finally, framing these principles and fundamentals into a definitive yet adaptable explanation of application.

To be successful this monograph must offer a framework for the application of operational art suitable for doctrine. The following evaluation criteria were used:

a. Simple. Defined as easily understood by field grade officers and above.
b. Definitive. Provides a common understanding of what operational art is.
c. Adaptive. Is not seen as a "cookie cutter" solution nor as a "check list", can be applied to all types of military operations and different situations.
d. Descriptive. Clearly describes the application, not a regurgitation of the theory. Can be applied to the realities of warfare today.
e. Prescriptive. Can stand alone as a start point for campaign planning.

It is all too easy to stand on the sidelines and criticize those playing the game. This monograph is not an attempt to poke holes in the current draft. Instead, this monograph is an attempt to offer a solution, not just to become part of the problem. In the end this monograph may fall victim to the same criticism that plagues the draft FM100-5. The quest for common understanding in a complex world, is at best difficult, but the Army must continue towards this goal if it is going to be successful in the twenty-first century. The first step towards understanding a complex theory is to understand the origin and evolution of it. Understanding the past is the key to truly understanding the lessons that ought to be learned and applied to present and future military operations.

II. Origin and Evolution of Operational Art

There is as much controversy amongst military historians surrounding the origin of operational art as there is surrounding the origin and evolution of humankind. In order to understand what operational art is and how it should be applied to present day military operations it is first necessary to understand how operational art originated and how it evolved. This section answers the question what is operational art, by looking first at it's origins in theory and evolution in modern doctrine.

Operational art is defined today in joint doctrine as: The employment of military forces to attain strategic and/or operational objectives through the design, organization, integration, and conduct of campaigns, major operations, and battles. Operational art translates the joint force commander's strategy into operational design, and, ultimately tactical action, by integrating the key activities at all levels of war. [1]

The Army definition found in the 1993 version of FM 100-5 is: The employment of military forces to attain strategic goals through the design, organization, integration, and execution of battles and engagements into campaigns and major operations. In war, operational art determines when, where, and for what purpose major forces will fight over time.[2]

The joint and army doctrinal definitions are not really that different, their similarities offer some clues to understanding the origin of operational art. Both definitions clearly state that operational art is the link between strategic aim and tactical action. The idea that war should be directly linked to the aims of the nation state is

nothing new. Sun Tzu wrote "Warfare is the greatest affair of the state, the basis of life and death, the way to survival or extinction. It must be thoroughly pondered and analyzed."[3]

What is clearly different now then when Sun Tzu wrote about war is the method in which war is executed. Warfare has become much more complex as it evolved over time. The origin of operational art is a product of the evolution of warfare and can be traced to the birth of modern warfare. This can be seen in the other similarity between the joint and Army definitions of operational art. Both definitions use plurals when describing battles, campaigns, operations, and objectives. Understanding why these words are plural and not singular is the required first step toward understanding operational art. These plurals created the gap between strategy and tactics that is called the operational level of war.

The when and the how operational art originated is a subject still being debated. Two different schools of thought on the origin of modern warfare provide some basic clues to the origin of operational art. Two separate views of the origin of modern warfare are held by two senior faculty members at the School of Advanced Military Studies at Fort Leavenworth, Kansas. The School of Advanced Military Studies, or SAMS, is the Army's school for teaching Army officers how to plan for and conduct military operations at the operational level of war. The two theories are both extremely interesting, but more importantly shed light on the core elements of operational art. The first theory argues that modern warfare began with Napoleon, the second theory claims the US Civil War as the origin. Both theories present valid arguments and both must be reviewed in order to understand operational art.

Napoleon and the Origin of Modern Warfare

Robert M. Epstein, a professor of history at the School of Advanced Military Studies, presents his theory in his book entitled, *Napoleon's Last Victory: 1809 and the Emergence of Modern War*. Professor Epstein argues that there are more factors to consider, than simply technological factors, when determining the origin of modern war. The factors that Epstein considers are, structural, organizational, intellectual, and operational elements.[4]

Epstein defines modern war when it has the following characteristics: a strategic war plan that effectively integrates the various theaters of operations, the fullest mobilization of the resources of the state, and the use of operational campaigns by opposing sides to achieve strategic objectives in the various theaters of operations. Epstein's characterization of operational campaigns further explains his theory. Epstein describes operational campaigns in the following quote taken from his book.

"Those operational campaigns are characterized by symmetrical conscript armies organized into corps, maneuvered in a distributed fashion so that tactical engagements are sequenced and often simultaneous, command is decentralized, yet the commanders have a common understanding of operational methods. Victory is achieved by the cumulative effects of tactical engagements and operational campaigns."[5]

Epstein argues that by using his criteria then perhaps modern warfare began with Napoleonic France and Hapsburg Austria in 1809.[6] It is difficult to argue that Eptein's elements that make up modern war are not valid. Look at the last sentence in the above quote, where Epstein sates that victory is achieved by the cumulative effects of tactical

engagements and operational campaigns. This concept is still seen in the doctrinal definition of operational art today. It sheds light on why the words battle, engagement, and operation are written as plurals in the present day definitions of operational art. Victory in modern war requires more than one battle, engagement, campaign, or major operation. This need for more than one battle, which evolved as a by product of factors that Epstein discusses, created an area between strategy and tactics that is now called the operational level of war. Epstein defines operational art as the process of action and thought performed at the operational level of war.[7]

At first glance Epstein's theory may seem contradictory to what is most commonly believed about Napoleonic warfare. Most Army officers have studied only the surface of Napoleon and his contribution to the evolution of warfare. There are many misperceptions that surround Napoleon, one of which is that Napoleon commanded his entire army through centralized control. Epstein claims that through the creation of army corps and division and corps staff, that Napoleon executed decentralized control.[8]

Napoleon's structural changes to the army allowed him the means to force the enemy into battle. To do this successfully Napoleon was forced to create a link between campaign maneuver and battles. It was the creation of this link, argues Epstein, that the operational level of war was born.[9]

Napoleon's intellectual approach to war was also revolutionary and contributed greatly to the origin of operational art. Epstein's theory claims that Napoleon learned this approach through the study of Pierre Bourcet. Bourcet predicted that the intellectual approach to campaign planning would have to adapt to accommodate the new structure

and method of the larger armies being formed.[10] Napoleon was the right man to bring this idea to fruition. Napoleon possessed the ability to see the hole picture. Napoleon planned his campaigns based on what would later be called operational vision. Napoleon understood that through distributed maneuver of his army he could fight his enemies divided.[11]

Through the sheer size of Napoleon's army and the use of distributed maneuver it would require more than one battle to destroy his army. Distributed maneuver also forced Napoleon to plan for several engagements in a single campaign. This concept of more than one battle to decide a war is essential to understanding operational art today. Other key elements of operational art to be drawn from Epstein's theory are, intellectual approach or the human element, distributed maneuver, structural and organizational changes, command and control, holistic approach or operational vision, and campaign design that includes branches.

All the lessons of Napoleon may not have been fully embraced by historians and theorists. The wrong lesson may have been learned by the great military leaders that followed. This wrong lesson, or misconception of Napoleon, is that a war could be decided by a single battle. This misconception created a singular vision towards military operations and would influence military instruction in the nineteenth century. This singular vision, or desire to end the war with a single decisive battle, may still linger in the minds of present day officers and hinder understanding of operational art. Epstein proves that this is clearly the wrong lesson to derive from the study of Napoleon. It may have been this wrong lesson though, that planted the desire for many leaders to emulate

Napoleon. After Napoleon military leaders desired to obtain the one quick decisive battle to end the war. It was not to be. It would take another genius a half a century later to figure it out, his name was Ulysses S. Grant.

The US Civil War and the Birth of Modern Warfare

The second theory of the origin of modern war and operational art is presented by another senior faculty member at SAMS. James J. Schneider presents his theory of the origin of operational art in two papers, the first, Theoretical Paper No. 3, and the second, Theoretical Paper No. 4.[12] Schneider's theory states that one of the chief causes of the origin of operational art was the industrial revolution. The theory simply stated goes as follows.

As population increased due to the industrial revolution armies began to grow in size. Larger armies were needed to protect the resources of the state or to acquire more resources outside the state. Technology also increased due to the industrial revolution, this led to increased lethality of the larger armies. The increase in lethality led to dispersion of the armies on the battlefield. This dispersion on the battlefield meant that no one army could engage the entire army of the opponent at the same time. Smaller segments of each army opposed each other across the dispersed battlefield. This meant that engagements were no longer totally decisive within themselves, meaning that a single battle would not lead to the total surrender of the opponent. An army could no longer be destroyed with a single tactical engagement. This meant that a war between two nation states could no longer be decided with a single battle.[13] A closer look at some key points is required to understand this theory a little better.

Schneider defines operational art as the employment of military forces to attain strategic goals through design, organization and execution of campaigns and major operations.[14] Schneider claims that operational art is characterized by the employment of forces in deep distributed operations. According to Schneider operational art is a unique style of military art. Operational art, Schneider claims, became the planning, execution and sustainment of temporally and spatially distributed maneuvers and battles, all being viewed as an organic whole.[15]

Schneider's theory classifies Napoleonic war as classical strategy, he compares seven factors that depict the difference between classical strategy and operational art. They are listed in table 2-1.

Classical Strategy	Operational Art
1. Maneuver to Contact	1. Battles and engagements begin immediately at the national border.
2. Armies collide in decisive battles.	2. Several armies fight indecisive battles.
3. Logistics is a consideration only in phases of the campaign.	3. The only decisive battle is the last initial Battle of the war
4. Vigorous pursuit after battle.	4. Logistics considerations impose pauses upon operations often before pursuit can be decisive.
5. Campaign ends.	5. Wars consist of several campaigns; campaigns consist of several distinct battles and maneuvers.
6. Generally war is also terminated.	6. Operational art is strategy with the added dimension of depth.
7. The commander sees the entire battlefield.	7. The commander sees very little of the many simultaneous battles occurring.

Table 2-1; Schneider's Comparison of Classical Strategy to Operational Art.[16]

Schneider uses Grant's Virginia Campaign of 1864 to illustrate the difference between classical strategy and operational art. Grant's orchestration of simultaneous operations of more than one army to achieve a grand strategy is the birth of operational art according to Schneider.[17] The theory goes deeper than just the origin of operational art, Schneider illustrates the impact this new concept made on planning and executing military operations. The theory highlights some very important factors that must be considered when planning at the operational level. Operational art must carefully analyze the ends, means, ways, and risks for a military operation. "Operational art is the process by which the methods are selected that determine the application and utilization of combat power—the means—to achieve a desired end."[18] The essential elements of operational art are:

a. Friction.
b. Logistics.
c. Terrain.
d. Center of Gravity.
e. Decisive and Objective points.
f. The Central position and Line of Operations.
g. Theaters of Interest[19]

These key elements taken from Schneider's theory offer some insight to what might still be relevant to the military commander today. Another key element that Schneider uses to describe operational art is the added dimension of depth. Depth is not only meant to be linear or geographical, but also depth in relation to the effects on the enemy. These effects in depth affect not only the physical domain, but the cybernetic and the moral domain as well. Technology of the mid nineteenth century gives the armies the ability to affect all three domains in sequence or at the same time. This part of the theory

can be difficult to understand, the main point though, is that tactical engagements are designed to achieve operational effects. This is done through distributed operations.[20]

Schneider also presents additional essential elements of operational art in his work, *Vulcan's Anvil*. Schneider points out eight key elements in his discussion on the structure of operational art, they are:

1. The Distributed Operation.
2. The Distributed Campaign.
3. Continuous Logistics.
4. Instantaneous Command and Control.
5. The Operational Durable Formation.
6. Operational Vision.
7. The Distributed Enemy
8. Distributed Deployment.

This review is not meant to capture entirely the theories of both Epstein and Schneider, it is merely meant to serve as a review to distill the essential elements of the origin and evolution of operational art. The elements highlighted from these theories will be analyzed later in this monograph.

It is easy to deduce from these theories though that the origin of operational art is tied to the fact that war could no longer be won with a single battle. The logic that follows is that if war could not be won in a single battle then of course, it would take more than one battle. This meant that more than just victory at the tactical level was required to win wars. To win wars, Armies must now achieve strategic aims through the execution of more than one battle, engagement, objective, campaign, and operation. The design or "how" part of this equation is the essence of operational art. This more than one battle concept is a very simplified version of the origin of operational art. Both theories offer some essential key elements that should be considered today when writing doctrine on

how to apply operational art. Another important theory that must be reviewed is the evolution of operational theory presented by Shimon Naveh.

The Evolution Of Operational Theory

Shimon Naveh presents a detailed account of the evolution of operational theory in his book *In Pursuit of Military Excellence*.[21] In chapter one of his book Naveh points out that in order to understand operational theory it is first necessary to understand a little of general systems theory. Naveh points out that all militaries are an open system that constantly interacts with it's environment. The military as a system is complex, it acts as a whole, and the whole is greater than the sum of it's parts.[22] The system has two main characteristics, the first is the nonlinear interaction of the systems component parts. The second, is the absolute dominance of the system's aim.[23]

Naveh defines aim as the cognitive force that generates the system and determines the directions and patterns of it's action.[24] By describing militaries as a system Naveh defines operational art when he states, " However, moving a system from a state of the abstract, cognitive commonality to a practical course of positive progress can only be achieved by translating the overall aim into concrete objectives and missions for the systems' individual components."[25] The difficulty with systems interacting is that the outcome of these interactions is not linear, they are disordered and therefor not predictable. Naveh calls this organized chaos which reflects the contradiction between random events and scientific patterns.[26]

Naveh claims that the operational level is, "the implementation of the universal system in the military sphere. The essence of this level, as the intermediary field between

strategy and tactics, is the preparation, planning, and conduct of military operations, in order to attain operational objectives and strategic aims."[27] Naveh describes the aim as the essential element of operational art, other essential elements must be distilled from looking at his notion of operational shock. By looking at the military as a system, and thereby military operations as interactions of variables with a system, Naveh offers some additional insight to how to apply operational art today. Naveh's notion of operational shock offers some key insights on how to apply operational art. The key elements taken from his theory are:

1. Dominance of the aim not destruction of the force.
2. Deep structure and hierarchic logic of action.
3. Divide and fragment a system's structure.
4. Simultaneous attacks along the structure.
5. Center of Gravity, which consist of three elements, a) the identification of strengths and weaknesses in the opposing system, b) the deliberate creation of vulnerabilities in it, and c) the exploitation of such vulnerabilities through contemplated maneuvering strikes.[28]

Naveh stresses that an operational vulnerability implies the identification of a particular situation, not just a decisive point on the ground, but an opportunity to strike the enemies system and render the enemy unable to perform it's mission.[29] Naveh lays out the evolution of operational art and points to post World War I Russia as to where operational art first became part of military doctrine.[30]

Most military historians and theorist agree that the concept of operational art was first understood by the Soviet military in the years between World War I and World War II. Most also agree that it was the potential of fighting the Soviet Union that forced the

United States to explain the concept of operational level of war into military doctrine. This occurred in the 1982 version of FM 100-5.[31]

The Doctrinal Evolution of Operational Art

The introduction of operational art into the US Army doctrine occurred in 1982 with the introduction of the Air Land Battle concept.[32] The concept of air land battle evolved mainly due to the shortfalls in the 1976 version of FM 100-5. This section will illustrate the essential elements of operational art as they evolved in US Army doctrine since 1982. The goal is to only flush out the essentials so that they may be compared and analyzed to determine what elements need to be retained in future doctrine. The length of this paper will not allow for an in depth review of the strategic environment which led to operational concepts that drove doctrinal changes.

One man who was instrumental in capturing the operational level of war in doctrine was General Donn A. Starry. As chief of the armor school he was instrumental in developing the 1976 version of FM 100-5. Later as the Commander of Training and Doctrine Command, General Starry helped the Army fill the gap left by the 1976 version with the development of the Air Land Battle concept which was published in the 1982 version of FM 100-5.[33]

Air Land Battle described that success on the battlefield was dependent on four tenets, they were, initiative, depth, agility, and synchronization. The 1982 version also described the operational level of war stating that it uses available military resources to attain strategic goals within a theater of war. In addition to the tenets, the essential elements of Air Land Battle at the operational level were, marshalling of forces and

logistical support, providing direction to ground and air maneuver, applying conventional and nuclear fires in depth, and employing unconventional and psychological warfare.[34] In chapter seven the 1982 version describes what Air Land Battle doctrine concentrates on to ensure success. They are:

1. Indirect approaches
2. Speed and violence
3. Flexibility and reliance on the initiative of junior leaders
4. Rapid decision making
5. Clearly defined objectives and operational concepts
6. A clearly designated main effort
7. Deep attack.[35]

The actual term operational art was first used in the 1986 version of FM 100-5. This version written only four years after the 1982 version was an attempt to further explain the concept of applying operational art to military operations. It differed from the 1982 version by stating that no particular echelon of command is solely or uniquely concerned with operational art. The manual also explains that operational art requires broad vision, the ability to anticipate, a careful understanding of the relationship of means to ends, and effective joint and combined cooperation. The manual stated that operational art requires the commander to answer three questions. They are:

1. What military condition must be produced in the theater of war or operations to achieve the strategic goal?
2. What sequence of actions is most likely to produce that condition?
3. How should the resources of the force be applied to accomplish that sequence of actions?[36]

The manual also lists the key concepts of operational design in appendix B. The key concepts as listed in the 1986 manual are, center of gravity, lines of operations, and culminating points.[37] The 1986 captured the required shift in the way of viewing the

conduct of military operations. The Army realized that a new way of approaching campaign planning was required and the 1986 manual captured the conceptual approach that was necessary if the US was going to win against the Soviet Union in Europe. In this way the 1982 and 1986 manuals were revolutionary in that they drastically changed the perception of how the US Army would fight.

The end of the Cold War, Operation Just Cause, and Operation Desert Storm and Shield forced the Army once again to re-look it's doctrine. The 1993 manual was an attempt to capture the doctrine required for a force projection army in an unstable world. The manual held on to the tenets of Air Land Battle, but renamed them the tenets of Army Operations and added versatility to the already existing agility, initiative, depth, and synchronization.[38] The manual also held on to the definition of operational art from the 1986 manual and to the three questions that a commander should answer, only re-wording them slightly. The following is how they appear in the 1993 FM 100-5:

1. What military conditions will achieve the strategic objectives in the theater of war or theater of operations?
2. What sequence of actions is most likely to produce these conditions?
3. How should the commander apply military resources within established limitations to accomplish that sequence of actions.[39]

The 1993 manual also listed planning considerations for operational planning and added to the concepts of operational design found in the 1986 manual. The planning considerations call for simultaneous operations, total mission awareness, teamwork, and fundamentals, which describe the essential elements of mission type orders. The concepts

of theater and operational design include, center of gravity, lines of operations, decisive points, and culmination.[40]

In addition to the 1993 FM 100-5 the Army published FM 100-7, *Decisive Force: The Army in Theater Operations* in 1995.[41] In the preface of this manual is written the following quote. "This is the Army's manual on *operational art* focused at the operational level of war: the link among theater strategy, campaign plans, and tactics and the bridge between theaterwide campaigns and localized battles and engagements."[42] By making this claim the Army was admitting that FM 100-5 did not fully explain operational art. This manual helped fuel the need for a new FM 100-5 that could realign Army doctrine under one cornerstone or capstone manual. That manual needed to be FM 100-5.

Regardless of where it fits in the hierarchy of Army manuals, FM 100-7 builds on the concepts of operational design found in the 1993 FM 100-5. The manual lists the following:

1. Center of gravity.
2. Decisive points.
3. Lines of operations.
4. Culminating point.
5. Indirect approach.
6. Positional advantage and strategic concentration of forces.
7. Deception.

The manual further lists key elements of theater and operational design stating that they reinforce the concepts of operational art and design. The elements are:

1. Objective.
2. Sequence of operations and use of resources.
3. Phases.
4. Branches and sequels.
5. Sequential and simultaneous warfare.
6. Logistics.[43]

The essential elements of operational art as put forth in the 1995 version of FM 100-7 offer valuable tools for the military planner planning a campaign or major operation and must be further reviewed for input into the new FM 100-5. The need for FM 100-7 is clear but the core elements of operational design should first be put forward in FM 100-5. FM 100-7 is a subordinate manual to FM 100-5, where FM 100-5 will outline the doctrinal concepts of Army operations overall, FM 100-7 should be more prescriptive, or more of a "how to" manual.

The last manual that should be reviewed in the evolution of operational art in doctrine is Joint Pub 3-0. This joint doctrine offers a detailed chapter on planning joint operations in chapter three. The manual lists fourteen essential elements of operational art. They are as follows:

1. Synergy.
2. Simultaneity and Depth.
3. Anticipation.
4. Balance.
5. Leverage.
6. Timing and Tempo.
7. Operational Reach and Approach.
8. Forces and Functions.
9. Arranging Operations.
10. Centers of Gravity.
11. Direct Versus Indirect.
12. Decisive Points.
13. Culmination.
14. Termination.[44]

Army doctrine is subordinate to Joint doctrine, therefore one solution for writing FM 100-5 would be to adopt the concepts found in Joint Pub 3-0. This should not be the Army's approach for several reasons. First, Joint Pub 3-0 is currently being re-written and

will most likely be changed by the time it is put into final print. Second, the Army may need to look at operational art slightly differently than a Joint force. The Army must understand operational art at the Army forces level before Army commanders and planners will be able to apply it at the Joint level. Finally, Joint doctrine has traditionally used Army doctrine as a start point when forming Joint doctrine.

Regardless of who's doctrine it is, the best two manuals that exist today regarding operational art are FM 100-7 and Joint Pub 3-0. Neither of which are FM 100-5, the Army's keystone manual for Army Operations. The need to address operational art in FM 100-5 is clear, the how it should be done is the problem. The answer to this problem may be found by further distilling the timeless elements of operational art found in theory and the core essential elements found in doctrine. The next section will compare and analyze the core and essential elements of theory and doctrine discussed in this section.

III. The Essential Elements of Operational Art

To determine the essential elements of operational art it is necessary to first understand history, theory, and recent application of operational art in military operations. The review of the evolution of operational art found in the previous section is by no means complete but it serves as a good start point to distill the essentials out of theory. Distilling theory should provide some common basis to what is important towards the understanding of operational art. This section will first analyze those elements found in theory. Secondly, this section will analyze those elements found in doctrine. Lastly, this section will offer a comparative analysis of the two, theory and doctrine, to determine what the essential elements are. The essential elements found in this section which will serve as a start point for framing the application of operational art in the next section of this monograph.

The key points in the three theories of operational art which were reviewed in the previous section are seen in table 3-1. When the essential elements of each theory are compared their similarities become apparent. The theories appear to be more evolutionary than revolutionary which provides a thread of similarity between them. Each theory built upon the other, rather than each theory being original in origin. When seen together they provide a clear insight to the key and essential elements of operational art. Which elements are timeless and which are evolutionary is a matter of interpretation, which when done, will strike deep into the debates on the individual theories themselves. It is not the purpose of this monograph to determine the correct theory on operational art, but to use

the essential elements of the theories to determine the best method of application for future Army doctrine. See table 3-1.

Dr. Epstein[45]	Dr. Schneider[46]	Shimon Naveh[47]
Intellectual Approach *Human Element*	Impact of technology on military operations required new approaches.	Military is Open System; interaction of component parts is nonlinear and is dominated by aim.
Distributed Maneuver	Analysis of ends, means, ways, and risk	Dominated by Aim not destruction of forces
Structural changes	Methods to determine application of combat power	Deep structure of hierarchic logic of action
Command and Control	Continuous Logistics	Divide and fragment a system's structure
Holistic Approach *Operational Vision*	Friction	Simultaneous attacks along the structure
Campaign Design; branches and sequels	Center of Gravity	Center of Gravity a) Identify strengths and weaknesses in opponents system b) create vulnerabilities c) exploit vulnerabilities through contemplated maneuver strikes.
	Terrain	
	Decisive and Objective Points	
	The Central Position and lines of operation	
	Theaters of interest	
	Distributed Operation/Campaign	
	Instantaneous Command and Control	
	Operational Durable formation	
	Operational Vision	
	Distributed Enemy	
	Distributed Deployment	

Table 3-1: Comparison of essential theoretical elements.

At first glance a few similarities between the three theories are easy to notice, a closer look reveals more similarities than differences. When compared all the theories describe distributed maneuver as essential to operational art. This is a timeless element

which originated with the emergence of the understanding, that to win a war in a modern era, more than one battle would be required.

All the theories compared are also similar in that they site the method for approaching operational art. Epstein describes his start point as the intellectual, or human approach. Schneider describes it as the analysis of ends, ways, means, and risks to determine application based on technological capabilities. Naveh's theory begins with a systems approach. This comparison illustrates two extremes of the three theories. Epstein's human approach combined with the commander's operational vision speaks directly to the art of military operations. The human element that Epstein speaks of may be the true timeless element of not only operational art, but of the art of war throughout history. Naveh, on the other hand, speaks more of the science of operational art when he describes the military as an open system in which the interaction of the component parts is nonlinear. Both offer essential elements that must be combined in order to determine a method for application. Schneider's theory offers some insight to the compromise.

When compared, the essential elements of Schneider's theory are very similar to those described by Epstein. Schneider however provides more detail when describing distributed maneuver and campaign design. It is this detail that illustrates key components that should be considered when constructing a framework for application.

This comparison illustrates several essential elements of operational art that will assist in constructing a method for application. The results of the comparison are seen in table 3-2.

Core Element	sub element
Human element	analysis to determine method (ends, ways and means)
Aim	End state, political aim, strategic objectives, operational/intermediate objectives, and tactical objectives. All must support the aim either directly or indirectly.
Operational Vision	Holistic approach. What conditions will achieve the end state. Commander's ability to see the end state. The military cost to achieve the political aim.
Center of Gravity	Analysis of enemy strength and weakness. Analysis of friendly strength and weakness. Determine vulnerabilities. Exploit vulnerabilities by attacking enemy weaknesses with friendly strength.
Campaign Design	Lines of operation and lines of communication. Theaters of Operation and Interests.
Distributed Maneuver	Simultaneous attacks in depth along an opponents system to achieve desired effects. Structural design of friendly and enemy military to accomplish attacks in depth either simultaneously or sequentially.
Friction	Identify and account for the impact of friction on a campaign. Enemy and friendly systems are open and the interaction of the component parts is nonlinear, which indicates that the outcome, can at best, only be predicted and not guaranteed. What can go wrong will go wrong.
Logistics	Determine operational reach based on logistics capability.

Table 3-2: Core elements of operational art distilled from a comparison of Epstein, Schneider, and Naveh.

To further distill the essential elements of operational art it is necessary to compare and analyze the evolution of operational art in doctrine. This comparison is seen in table 3-3.

1982 FM 100-5[48]	1986 FM 100-5[49]	1993 FM 100-5[50]	1995 FM 100-7[51]	Joint Pub 3-0[52]
Indirect Approaches	What conditions must be produced to achieve the strategic goal?	What conditions will achieve the strategic objectives?	Concepts of theater and operational design.	Synergy
Speed and Violence	What military actions will produce that condition?	What actions will produce these conditions?	Objective, sequencing and resources, phases, branches and sequels, sequential and simultaneous warfare, and logistics.	Simultaneity and depth
Flexibility and reliance on initiative of junior leaders	What application of resources will accomplish that condition?	How should military resources be applied to accomplish the actions?		Anticipation
Rapid decision making	Center of Gravity	Center of Gravity	Center of Gravity	Balance
Clearly defined objectives and operational concepts.	Lines of operations	Lines of operations	Lines of operations	Leverage
A clearly designated main effort	Culminating point	Culmination	Culminating point	Timing and Tempo
Deep attack		Decisive points	Decisive points	Operational reach and approach
		Simultaneous operations	Indirect approach	Forces and functions
			Positional advantage and strategic concentration of forces	Arranging operations
			Deception	Centers of gravity
				Direct versus indirect
				Decisive points
				Culmination
				Termination

Table 3-3: Comparison of the evolution of operational art in doctrine.

Many similarities are seen by comparing the evolution of operational art in doctrine. Since the introduction of operational art into doctrine the importance of a clearly defined objective or end state has been articulated. What has become more complex is the methodology of determining the end state and the method of application of military resources to achieve the end state. The constant throughout is the operational vision of the end state. This vision allows the commander to determine the objectives that must be accomplished in order to produce the desired end state. Combining the similarities of all the doctrine will determine the components necessary to establish a framework of application. This combination is seen in table 3-4.

Doctrinal component	**sub component**
Operational Vision	Human element; ability to see and understand the hole. Holistic approach. What is the aim? What conditions will achieve this aim? What actions produce these conditions? What is the purpose of the operation? What resources will be required?
Aim	Clearly defined objectives that will achieve the desired effect in order to meet the political aim. The strategic objective determines operational / intermediate objectives which determine tactical objectives. Tactical objectives must be constantly reviewed in order to determine that are achieving the desired effect in relation to the operational objectives to meet the strategic aim.
Flexibility	How should forces and resources be applied? Forces and functions to achieve the desired effects executing decentralized operations independent of one another but working toward the same aim.
Distributed Maneuver	Attacks across the entire enemy system, simultaneous and sequential warfare in depth. Seek effects throughout the enemy's system.
Theater Design	Lines of communication, lines of operation, areas of operations and interest.
Logistics	Determine the culminating point of the enemy as well as friendly forces. Determine friendly and enemy operational reach and the cost on resources required. Logistics and theater design are the science of the art.
Center of Gravity	Analyze enemy and friendly strength and weakness. Determine vulnerabilities and strong points. Determine decisive points.
Deception	What is the plan and what is the cost of resources compared to the benefit?
Termination	What will the end state look like? How will the commander know it is achieved and the next phase begin.

Table 3-4: Combination of doctrinal components.

This section has distilled the essential elements of operational art from theory and from doctrine. The relevance of these essential elements are found in history; they have past the test of time. The importance of these essential elements to the application of operational art is widely accepted; at least that no one theory or modern doctrine would exclude all of these elements. Which is more important and how they should be applied to modern military operations is debatable. Is there a methodology to guide the military commander and planner in the application and execution of operational art? Perhaps there is not a simple solution that will answer every future complex military problem, but to ignore the essential elements of the past would be foolish. The problem restated is, how should military commanders and planners best utilize the lessons from history, theory, and past doctrine towards future application. Given the essential elements distilled in this section, the next section of this monograph provides a framework for the application of operational art for modern military operations.

IV. Framework for Application

> "Most successful military commanders throughout history did not allow their vision to become clouded by theory. Theory must be kept off the battlefield, it gets people killed. The practical realities of the situation must drive operations. Woe to the commander who doesn't understand this!"
>
> Robert Epstein[53]

In the above quote taken from a class discussion on operational art and campaign planning at the School of Advanced Military Studies, Epstein captured the problem with the latest draft of FM 100-5. The real problem with the manual is not that it reads like theory and therefore confuses the target audience. The real problem is that it places theory into doctrine which could end up blinding commanders to the practical realities of the present situation. History will never repeat itself, each military operation will be unique and must be approached with the understanding that the present situation is not a reincarnation of a past glorious battle. This is not to say that theory does not provide the base for doctrine, only that theory alone should not be the operational construct of doctrine. Doctrine must be an unbiased guide towards application of military operations which must enhance the commander's operational vision not cloud it with preconceived notions. Any framework for application must not be restrictive it must enhance the holistic view which operational art requires. Doctrine must also be flexible to allow for new approaches to problem solving and not be fixated with past solutions to old problems. The separation of history, theory, doctrine, and application must be understood before a framework for application can be suggested in the form of doctrine. How then should the Army construct doctrine to allow for the lessons of history and theory to be learned but

also to allow for fresh approaches to complex situations? This section attempts to answer this question.

Any attempt to construct a framework for application of operational art must first start by defining operational art. The problem in the military is that there is perhaps too much mystic that surrounds the phrase operational art. This mystic makes it difficult for any one definition to be accepted.[54] The Army must accept a definition before any application of operational can be understood. The definitions found in Joint Pub 3.0 and in FM 100-5 are both good start points. The problem with these two definitions is that they both are too lengthy and may be too specific for use in future doctrine. They both hit the mark up front by stating that operational art is the employment of military forces to attain strategic goals through the design of campaigns and execution of engagements and battles.[55] The manuals split in the how this is done. Both definitions state that operational art determines tactical action to attain strategic aim, but in so doing they miss how this is done and leave a gap that must be explained. This gap is where the definition of operational art belongs. A review of Epstein and Schneider is required to understand what might be missing.

Epstein states that operational art is the process of action and thought performed at the operational level of war.[56] Schneider defines operational art as the process by which the methods are selected that determine the application and utilization of combat power—the means—to achieve a desired end.[57] Both Epstein and Schneider speak to the process or the method that connects strategic ends to tactical means. Current doctrine sites the employment of military forces to achieve strategic goals. The process in the

middle, between strategic goals and tactical engagement is operational art. It is this process that must be defined and a methodology that allows for this process to flourish that will answer the need for a framework for application of operational art.

The following is a suggested definition for operational art. Operational art is the methodology used to determine how best to apply military resources to accomplish strategic aims. The how to apply military resources must not be focused only on tactical actions. This is misleading and may force planners and commanders to look for only offensive tactical solutions to complex strategic aims. The latest draft of FM 100-5 offers some insight to how this approach should be constructed.

In the latest draft of FM 100-5 the Army takes a slightly different view towards military action than in the past. This view defines how the Army will accomplish assigned missions by conducting four types of military actions. Those actions are, offense, defense, stability, and support, which can be conducted sequentially or simultaneously. This explanation breaks away from the past definitions which separated combat operations and operations other than war. The Army realized that a separate focus on offensive combat operations and operations other than war is the wrong approach. Offensive operations is only one piece to meeting the demands of the strategic environment. The problem with the current approach is that the Army traditionally is most comfortable with the offensive approach and has traditionally desired to be an offensive Army which exists to fight only offensive wars. The operational concept of offense, defense, stability, and support is a break from the past tradition and requires a balanced approach to military operations.[58] Any methodology designed to apply operational art in future doctrine must meet this

balanced approach towards military operations or it will simply not address the whole problem and therefor be destined to fail from the start.

When defining operational art as the methodology used to determine how best to apply military resources to accomplish strategic aims it is important to note that the methodology used is not restricted to any doctrine or to any theory. The methodology is whatever process a given military or military commander uses to determine how to apply military resources to accomplish strategic aims. This definition will hopefully remove some of the mystic which surrounds operational art. This mystic has confused many military officers to believe falsely that operational art exists only in those campaigns in history which have been successful. Operational art can and has been flawed in the past just as equally as tactical operations and strategic planning. Operational art will not and has never guaranteed victory. It simply is the method used to determine how best to apply military resources in the modern era of war. The modern era meaning the age in which more than one battle is required to win the war. The more than one battle concept is key to understanding any framework for application of operational art.

The problem with current doctrine is not only that it does not provide the balanced approach necessary to meet the needs of the strategic environment but that it is also not framed properly to allow for a holistic view towards solving strategic problems. To understand this better it is necessary to review the methodology the Army uses to solve tactical problems and that is the military decision making process. The military decision making process is found in FM 101-5 and is a proven analytical process. The process is a tool which allows the commander to know when and what to decide.[59] The result of this

process is a detailed plan to accomplish operational and or tactical objectives through battles and engagements. A similar analytical tool is required at the operational level.

It is not enough to simply list all the essential elements of operational art with a new definition and leave it to the commander to figure out which is important and which is not. A methodology that allows for detailed analysis is required to enhance the operational vision of the commander. Therefore any new doctrine attempting to outline the application of operational art should be framed similar to the military decision making process. Similar only in that the process should allow for analysis of the problem first, then on the design of the how military resources should be applied to accomplish the strategic aims. The following is a recommended framework for application of operational art. It utilizes the essential elements of operational art distilled from theory and doctrine in the previous sections of this monograph as well as other elements required to meet the balanced operational approach of future doctrine.

Operational Art

Operational art is the methodology used to determine how best to apply military resources to accomplish strategic aims. Operational art is mostly comprised of the human element, the commanders inner eye, the ability to see the desired aim and steer the military system in a direction that will achieve this aim. The application of operational art is not completely art, it is also science and the proper combination of the two must be combined in order to meet the desired end state.

The recommended methodology consists of three parts: I. Operational Analysis, II. Operational Design, and III. Operational Planning.

I. Operational Analysis. Operational analysis must look beyond any one single mission. This must be a holistic approach. It must answer the following questions: What military conditions will achieve the strategic aim or aims? What effects will achieve those conditions and how should military force be applied to accomplish those effects? These questions can be answered by analyzing the following:

a. Strategic Aim. What is the strategic aim or aims? The military at the operational level may or may not get clear objectives from the National Command Authority, (NCA) or from the CINC. Determining the strategic aim is a difficult task. The NCA may give vague guidance that is often subject to rapid change based on other influences. The military must refine the strategic aim into something measurable before determining what conditions will accomplish the aim. This analysis must be done up front. In stability operations the military may not and will most likely not be the main effort, therefore military capabilities of influencing the situation must never determine the aim. What the military is capable of doing should also never determine the aim for the NCA.

The aim is the first step in operational analysis. After the aim is determined it must be accepted and understood by the CINC and by the NCA. This is a critical step that if overlooked will begin moving the military system in a direction that was never intended. Once the aim is determined the next step is to determine what conditions will achieve that aim. The conditions should not be focused solely on military conditions. Conditions which can not be achieved by the military need to be identified as well. This is absolutely critical in stability operations. The conditions to achieve the aim provide the first glimpse at what the end state may be and what forces will be required to accomplish it.

b. Nature of Environment. Many factors will influence operations and they all must be analyzed in order to fully understand what will be required to meet the conditions that will achieve the strategic aim. They are: cultural factors, ideology, social factors, political factors, economic factors, geography, nature of the threat, history, technology, demographics, personality, leadership, and the interests of all parties involved. This is more than a country study, this must be a detailed analysis of how these factors may influence the outcome of desired conditions. These factors will impact greatly on military operations. Understanding these factors fully will assist in determining what effects are required to create the desired conditions.

c. System Analysis (Analysis of Centers of Gravity). From the detailed analysis of the physical environment further analysis is required of all parties involved. This is not as simple as friendly and enemy but must be extended to all parties capable of influencing the outcome of the aim. This must be a systems approach. Perhaps no current doctrinal term is more confusing than center of gravity (COG). The definition in current doctrine is very specific but the concept of COG is often misunderstood when subject to analysis. COG is defined in Joint Pub 3.0 as, "the foundation of capability... They are those characteristics, capabilities, or locations from which a military force derives its freedom of action, physical strength, or will to fight."[60] This definition provides a suitable start point but will not meet the balanced requirement of the future FM 100-5. Current definitions of COG in doctrine only refer to military sources of power and therefor will not suffice for stability and support operations.

Analysis of COG must be a systems approach as defined by Shimon Naveh. Naveh defined the aim as the cognitive force that drives the system and therefore the dominance of the aim must be the goal and not the destruction of the force.[61] The first step then is to determine the aim of all potential threats, allies, and neutrals capable of influencing the outcome of an operation. After the aim or aims are determined the strength and weaknesses of each party should be analyzed. This is where the term COG often becomes misunderstood. Military planners often look at the tactical level for the source of enemy strength and weakness and thus often end up with a decisive point rather than an operational center of gravity. To avoid falling into this trap all strengths and weaknesses must be analyzed. In the end there may not be, and often will not be a single source of strength. There will most likely be several strengths listed for each source of power a nation possesses, the military is only one of those sources.

When completed this analysis should look like a three dimensional nodal diagram showing the interconnection of each system capable of influencing the outcome. Understanding the aim, strength and weakness of each system will lay out the blueprint for the realm of the possible for deciding the when, how, and where military force should be applied. This analytical step is critical to applying operational art for offense, defense, stability, and support operations. Current doctrine focuses solely on identifying the enemy COG and destroying the enemy COG. This is may still be true for offensive and defense operations but does not apply to stability and support operations. The enemy forces may not always be where the COG is found and in stability and support operations the COG must be reinforced not destroyed.[62] The key to this step is to approach all players as a

system, determine the aim of each system and then the strengths and weaknesses of each system. Planners must not look at the tactical level, sources of strength are not vulnerabilities. There does not exist a critical node that when touched will cause the destruction of the system. The enemy of the future will not be a house of cards and should stop being approached as one. The assumption must be that all opponents will be an open system capable of adaptation, dominance of the aim, not destruction, must be the goal.

d. Capabilities (Operational Reach). Analysis of friendly centers of gravity will set the stage for determining friendly capabilities. This step is often incorrectly overlooked until course of action development in order to determine if a given plan is feasible or not. Logistics is a key and essential element of campaign planning and must be analyzed in the beginning. Operational reach is defined as the distance over which military power can be concentrated and employed decisively.[63] Operational reach is sustaining combat power as well as deploying combat power, it is the science of operational art. The operational math will determine capabilities and will allow the commander to narrow his operational vision to the practical realities of the present situation. The capability of sustaining military operations, regardless of the type, is the science that separates tactics from operational art. From this analysis capabilities will be identified as well as lines of communication required and culmination, all are critical in determining how military force should be applied. This analysis must be done for all parties capable of influencing the desired conditions.

e. Commander's Vision. The end state of operational analysis should be an estimate of the commander's vision. From this analysis the commander should be able to determine the aim of the operation as well as the realm of the possible given the analysis of the influence of the physical factors, system analysis, and operational reach. The commander's vision should now be focused on the realities of the present situation; what effects must be achieved in order to create the necessary conditions to meet the strategic aim. This vision will serve as the commander's guidance as to what the end state will look like and will allow the staff to develop the operational design and planning.

II. Operational Design. Allows the commander to analyze the key elements of operational art when arranging operations. The order and importance of each element may vary depending on the situation. The following must be analyzed in order to determine the best operational approach to the situation.

a. Theater Design. Lines of communications and lines of operations. The analysis of operational reach should determine what lines of communication are possible. Determining what bases of operations can be supported will assist greatly in deciding the best method to allocate military resources. This is not just a logistics problem, this element should provide the estimated timeline for force build up in a theater as well as the requirements to sustain extended operations. All military capabilities are tied to lines of operations and lines of communications, this element is critical to applying operational art.

b. Decisive Points and Vulnerabilities. Decisive points provide a commander with an advantage. Where these are and how many there are should be determined by analyzing the strengths and weaknesses of all parties involved. Decisive points and vulnerabilities

must be either attacked or supported depending on the type of operation. For friendly systems decisive points and vulnerabilities must be protected. Knowing what they are and where they are is essential to operational art.

c. Culmination. Understanding what will cause every system involved, friendly and enemy, to culminate is absolutely critical when applying operational art. This is where the cost of the operation is determined. The commander who does not understand when and where he will culminate will not recognize culmination until it is too late and may have predestined his unit to do so before the operation even begins. Military operations cannot be conducted today until this concept is understood. What will cause the friendly system to culminate and what will cause the enemy system to culminate, are questions that must be estimated prior to planning. Estimation of culmination should be based on the operational analysis conducted and must constantly be reevaluated during the planning and execution of the operation. This estimation may cause the commander to redefine the centers of gravity of both friendly and enemy systems. Many factors impact on culmination, it is more than being over extended. Culmination point is when a system no longer possesses the power to continue the operation. This applies to all operations, offense, defense, stability, and support.

d. Objectives. Analysis of decisive points and vulnerabilities will assist in determining what the operational objectives will be. The objectives should be those decisive points, vulnerabilities, or enemy functions that will achieve the effects that will create the conditions which will bring about the strategic aim. The desired effects to be achieved to meet the end state is what drives the selection of the objectives. Tactical objectives will be

determined from the selection of operational objectives. It is not the other way around. The aim is what drives the system and the desired effects must drive the selection of objectives.

e. Distributed Operations. Simultaneous operations in depth. The goal is to effect the entire system of the enemy in order to disrupt and to dominate his aim. Where this should be directed flows from the development of objectives. Distributed operations is not an attempt to end the war with one battle through distributed maneuver spread out over the entire enemy system, but a method of achieving multiple effects against the functions of the enemy system. Distributed operations is the best way to achieve the desired effects and dominate the aim of the enemy system. Distributed operations is directed at key functions of the enemy system in order to achieve multiple effects simultaneously or sequentially which will create the desired conditions. Timing and tempo play an important role in distributed operations and must be orchestrated in a way to ensure all efforts are combined in the method designed to bring about the desired end state.

f. Friction. Friction plays a part in every military operation. This may be the one true timeless element of military operations. Analysis of the nature of the environment as well as other critical elements should assist in determining where and when friction will have the greatest impact on military operations. Friction will never be eliminated, the best commanders can do is minimize the effects of friction on the friendly system through redundancy, decentralized execution, and other planning methods. The impact of friction is a critical factor in the estimate of friendly and enemy culmination.

g. Deception. Proven to be an essential element of operational art. Deception needs to be analyzed prior to planning a campaign. What effects are desired from the enemy system through distributed maneuver can shed light on how best deception can be used in concert with the plan. Deception requires time and resources and therefor may be thought of as too risky or too costly. The effects deception may be able to achieve will often warrant the cost. Desired effects should be the start point in determining, where and how or even if deception should be used.

h. Command and Control. This element must answer the question of how this campaign will be orchestrated to achieve the desired end state. No one commander can control an entire campaign. A system to ensure proper orchestration must be utilized. This is more than just communication technology it is the method for allocating forces to achieve desired effects.

i. Termination. Termination must stem from the commander's vision, attaining the desired end state, and accomplishing the strategic aim. Termination is not solely conflict termination, though this is one aspect, but termination of the use of military resources. Termination should occur when the strategic aim is achieved or when a new campaign is required to meet changing strategic aims. Either way termination must be analyzed. What will it look like and how will the commander know when termination is required are questions that must be answered. Planning for termination properly may ensure that the conditions which were fought so hard for at a high cost in human resources and material are able to last and to flourish long past the time the military has departed.

III. Operational Planning. Current Joint and Army doctrine offer a sound approach to campaign planning.[64] The focus for planning is to design a campaign plan that through distributed operations will accomplish the desired end state. Elements from the analysis will greatly contribute to framing the campaign plan. If the analysis is done in sufficient detail the campaign plan is now ready to be designed. Some key factors must be included in the campaign design.

a. Commander's strategy. From the NCA down to the commander's vision who is designing the campaign plan. This includes the strategic aim, the conditions to meet that aim, the effects that will create those conditions, and the end state.

b. Intelligence. How the command intends to distribute information required. How all collection assets will be orchestrated to knowledge sharing. This is not a intelligence staff function but a required operational function that will allow the tactical commanders to obtain the required information at the right time. This is a difficult resource management and distribution challenge and must be planned for.

c. Concept of the Campaign. This is the how distributed operations will accomplish the objectives that will achieve the desired end state.

d. Command and Control. Unity of effort through orchestration. The campaign must be designed to incorporate multinational operations, as well as interagency cooperation.

e. Constant evaluation of tactical actions. Every campaign must plan to evaluate tactical actions to ensure they are creating the desired effects.

f. Exploitation. Campaign plans must be prepared to anticipate and exploit success.

g. Branches and Sequels. Campaign plans must identify where branches and sequels will most likely occur and prepare contingency plans when necessary.

h. Concept of Sustainment. How the command intended to resource distributed operations and sustain them throughout the campaign is crucial to accomplishing the desired end state.

i. Information Operations. An information operations plan as well as a psychological operations plan must be integrated into the concept of the campaign. These functions must be included into distributed operations and not be an annex to the plan but part of the concept.

Through proper analysis of the essential elements of operational art the commander is able to see clearly the practical realities of the present situation. This analysis allows for an unobstructed vision of the end state that will assist in solving the problem at hand. It is now possible to design a campaign plan that will accomplish that end state.

V. Conclusion

The purpose of this monograph as stated in the introduction was to rewrite the theory of operational art in a way that can be understood by those who need to apply it. To accomplish this mission this monograph answered the question of what is operational art by answering two questions. What is operational art in theory, the conceptual explanation and what is it in practice, the doctrinal explanation? By answering these two questions in section II this monograph was able to distill the essential elements of operational art in section III. Finally a framework was constructed using the essential elements of operational art in section IV which answers the question of how operational art should be applied.

Whether or not this monograph is successful remains to be seen. The framework recommended in section IV meets the evaluation criteria established in the introduction; it is simple, definitive, adaptive, descriptive, and at the same time prescriptive. Of course this is the authors subjective analysis, the real test will come when this work is reviewed by others who study the military profession. Any complex subject is difficult to capture with a simplistic explanation, but this monograph has shed some very clear light on a subject that is misunderstood in the military today.

Operational art must be embraced and studied further if the Army is ever going to rid itself of the misconception that one decisive battle will win the war. This fixation lingers in the Army today and hinders greatly the approach taken towards achieving strategic aims. The Army must avoid looking to achieve strategic aims solely based on

tactical capabilities that advanced technology provide. This method of solving strategic problems with technologically advanced tactical solutions may deny future commander's a view of the whole problem.

The one true timeless element of operational art is the human element. Human intelligence is required to approach the problem as a whole. Technology may enhance military capabilities but it is not a replacement for decision making. Technology must never be allowed to be substituted for commander's vision. This process of achieving strategic aims through the use of military force is operational art. The methodology used to allow this process to be productive must never be based on what can be achieved but on what is desired to be achieved.

Operational art must also never be blinded by theories but must remain unbiased to each new situation. The human element of operational art is the one factor that is capable of doing this. It is absolutely critical that future commander's do not become slaves to doctrine as well as blinded with theories. Every situation will require a fresh approach. Future doctrine must assist commander's in the difficult task of applying operational art not hinder them from the start.

NOTES

[1] Department of Defense, Joint Pup 3-0 *Doctrine for Joint Operations* (Washington D.C.: Office of the Chairman of the Joint Chiefs of Staff, May 1997) , GL-10.

[2] Department of the Army, FM 100-5 *Operations* (Washington, D.C.: Headquarters Department of the Army, June 1993), G-6.

[3] Sun Tzu Art of War, translated by Ralph D. Sawyer, (Boulder, CO: Westview Press, 1994), 167.

[4] Robert M. Epstein, *Napoleon's Last Victory: 1809 and the Emergence of Modern War* (Fort Leavenworth, Kansas: US Army Command and General Staff College, 1992), Epstein outlines his theory in chapter I, pages 1-14.

[5] Ibid., 11.

[6] Ibid., 11.

[7] Ibid., 8.

[8] Ibid., 32-34.

[9] Ibid., 31.

[10] Ibid., 20.

[11] Ibid., 45.

[12] James J. Schneider, *The Theory of Operational Art* and *Vulcan's Anvil* (Fort Leavenworth, Kansas: US Army Command and General Staff College, 1988 and 1991), Theoretical Paper Number Three and Four are required reading for students in the School of Advanced Military Studies.

[13] Schneider, *Vulcan's Anvil*, 1-13.

[14] Schneider, *The Theory of Operational Art*, 2.

[15] Schneider, *Vulcan's Anvil*, 30.

[16] Schneider, *The Theory of Operational Art*, 14.

[17] Ibid., 15-16.

[18] Ibid., 18.

[19] Ibid., 17-33.

[20] Ibid., 4-7. See also Schneider, *Vulcan Anvil,* 30-31.

[21] Shimon Naveh *In Pursuit of Military Excellence, The Evolution of Operational Theory* (Portland, OR: Frank Cass, May 1998), Shimon Naveh writes perhaps the most in depth work on the theory of operational art. His work is very detailed. A detailed understanding of systems theory, military history, military theory, as well as a strong vocabulary are required to digest his work fully. It is beyond the talents of this writer to capture the essence of his theory in a single monograph.

[22] Ibid., 1-23.
[23] Ibid., 5-6.
[24] Ibid., 5-6.
[25] Ibid., 6.
[26] Ibid., 8.
[27] Ibid., 9-10.
[28] Ibid., 16-23.
[29] Ibid., 19.
[30] Ibid., Chapter Six 209-249.
[31] Ibid., 11.

[32] United States Army FM 100-5 *Operations* (Washington, D.C.: Headquarters Department of the Army, Aug 1982), 2-1-2-3.

[33] Taken from a letter written by General Donn A. Starry to Richard M. Swain, School of Advance Military Studies, Fort Leavenworth, Kansas. The letter was dated 7 June 1995.

[34] FM 100-5, 1982, 2-1-2-3.

[35] Ibid., 7-2.

[36] United States Army FM 100-5 *Operations* (Washington, D.C.: Headquarters Department of the Army, Aug 1986), 10.

[37] Ibid., 179-182.

[38] United States Army FM 100-5 *Operations* (Washington, D.C.: Headquarters Department of the Army, Aug 1993), 2-6-2-8.

[39] Ibid., 6-2-6-3.

[40] Ibid., 6-3-6-9.

[41] United States Army FM 100-7 *Decisive Force: The Army in Theater Operations* (Washington, D.C.: Headquarters Department of the Army, May 1995), This is the Army's first operational level of war manual that addresses the roles and functions of the Army service component and how it relates to the conduct of theater operations.

[42] Ibid., iii.

[43] Ibid., 3-0-3-5.

[44] Joint Pub 3-0, III-9 - III-24.

[45] Epstein, 20, 32,33,45.

[46] Schneider, *The Theory of Operational Art,* 4-7. See also Schneider *Vulcan Anvil,* 30-31.

[47] Naveh, 16-23.

[48] FM 100-5, 1982, 7-2.

[49] FM 100-5, 1986, 10, 179-182.

[50] FM 100-5, 1993, 6-2-6-9.

[51] FM 100-7, 3-0-3-5.

[52] Joint Pub 3-0, III-9 - III-24.

[53] Robert M. Epstein This quote was taken from my class notes during a SAMS seminar on 24 Feb 1999 at the School of Advanced Military Studies, Fort Leavenworth, Kansas. The topic of the seminar was operational art and theory in relation to the Burma Campaign of World War II and the Pacific Campaign of World War II. Robert Epstein was the substitute seminar leader for the lesson.

[54] This point is taken from my personal observation while attending the Command and General Staff College and as a student in the School of Advanced Military Studies. Throughout the SAMS courses in military theory and history it was always difficult for any group of officers to agree on what is and what is not operational art.

[55] Joint Pup 3.0, GL-10. And FM 100-5, 1993, G-6.

[56] Epstein, 8.

[57] Schneider, *The Theory of Operational Art*, 18.

[58] This passage was taken from my notes taken during a briefing given by LTC (P) Robin Swan to the students of the School of Advanced Military Studies on 17 Feb 1999. The briefing was an update on the status of the development of FM 100-5.

[59] Department of the Army, FM 101-5, *Staff Organization and Operations* (Washington D.C.: Headquarters Department of the Army, May 1997), Chapter 5.

[60] Joint Pup 3.0, III-20.

[61] Naveh, 5-6.

[62] Passage is a summation taken from my notes on 10 Sep 1998 when then LTG Montgomery C. Meigs visited our seminar and provided his thoughts on centers of gravity as they apply in Bosnia and to other stability operations.

[63] Joint Pup 3.0, III-16.

[64] Joint Pup 3.0, Chapter III, and FM 100-7, Chapter 4.

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