

Education of Operational Art

**A Monograph
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Abstract

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With the introduction of new capstone doctrine, the U.S. Army should invest more time in the formal education of future leaders. This study demonstrates the importance of operational art, the theory used to develop campaigns and major operations in the pursuit of strategic objectives. As a theory guiding the planning and execution of campaigns and major operations, the education of officers in operational art needs more emphasis within the generating force.

Theory provides a framework for discussion. Theoretical principles guiding the execution of operational art captured within doctrine for application to relevant problems provide a common language and understanding amongst practitioners. Evidence of the theory's importance and its application finds meaning through analysis of combat operations.

Case study analysis from the Combatant Command to the Brigade Combat Team highlights the importance of understanding operational art's effects at a variety of levels within the military. As such, time spent within formal education institutions of the generating force should focus on educating and evaluating leader competency in the application of operational art. Army education centers responsible for developing competent staff officers should incorporate more time in the study and application of operational art, maintaining coherency with doctrine guiding the force.

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Introduction

Fort Leavenworth is one of the premier education locations for the United States Army. Annually, over a thousand junior field-grade officers from a variety of services and branches attend the Command and General Staff College (CGSC) at Fort Leavenworth, Kansas. Attending officers receive an education in the use and application of Joint and Army doctrine to provide a basis line of knowledge for application as staff officers on division-level staffs and future mid-grade officers. Furthermore, the instruction at CGSC also provides students a chance to refresh their understanding of the Military Decision Making Process (MDMP), Army tactics, and relevant study of military history and leadership for use upon returning to the force.

During their tenure at CGSC, a percentage of students will apply to attend the School of Advanced Military Studies (SAMS). SAMS provides an additional year of intellectual growth, professional development, and the opportunity to apply these skills as a general staff planning officer. Within some of the SAMS classrooms, a mission statement and vision provide guidance on what SAMS officers provide the Army. Students of the U.S. Armed Forces, Allied Officers, and interagency members receive a graduate-level education in the development of solutions to operational and strategic problems.¹ The school's curriculum develops operational planners by focusing on the links between theory, history, and doctrine, and their relation to the execution of operational art.²

Between 2011 and 2012, the U.S. Army introduced a series of new doctrinal publications for operations and the operations process. Army Doctrine Publication 3-0 Unified Land Operations (ADP 3-0) established the Army operating concept called Unified Land Operations (ULO). This publication further provided the role of the Army in future conflict, the role of ULO,

¹ School of Advanced Military Studies Program, Flint Hall mission statement placed in main hallway.

² School of Advanced Military Studies, *Program Guide* (Fort Leavenworth, KS: U.S. Army Command and General Staff College, 2011), 7.

the tenets of ULO, a reintroduction of operational art, operations structure, and frameworks, and a foundation for subsequent Army doctrine.³

The second new publication, Army Doctrine Publication 5-0 (ADP 5-0), *The Operations Process*, defined and outlined the principles behind the Army's operational process. For many students attending CGSC and SAMS during the 2011-2012 academic years, these publications became a source of confusion. Terms used for common reference by some senior leaders were new to many field-grade officers. Determining the evolution and applicability of U.S. Army doctrine may have been another source of confusion. During the decade of conflict encapsulated by the Global War on Terror, Army doctrine underwent several changes and revisions. The new doctrine's applicability and role within the force were unclear to some and provided another source of confusion. One must wonder how the rest of the force received the new doctrine.

One source of confusion was the reintroduction of operational art. As some students transitioned from CGSC to SAMS, the teaching of operational art became the subject of fiery discourse, dialogue, and flat-out arguments within classrooms. The faculty at SAMS provided the students the opportunity for direct interaction with some of the ADP 3-0 authors, and thus allowed the students to develop a deeper understanding of the concepts relating to operational art and the operations process. For example, the education of operational art helped inform students how it contributes to the application of force within an operating concept.⁴ Historical examples of

³The operations structure is the Army's common construct for operations. It allows Army leaders to organize effort rapidly and effectively in a manner commonly understood across the Army. Army leaders are responsible for clearly articulating their concept of operations in time, space, purpose, and resources. An established framework and associated vocabulary assist greatly in this task. Frameworks may include deep-close-security, decisive-shaping-sustaining, or main and supporting efforts. Headquarters, Department of the Army, Army Doctrinal Publication 3-0, *Unified Land Operations* (Washington, DC: Government Printing Office, 2011), 9.

⁴ Ibid. Current Army and joint doctrine do not provide a definition of operational concept. However, the idea of an operating concept finds its genesis in previous doctrine. For this argument, an operating concept consists of the Army's approach for generating and applying combat power. Headquarters, Department of the Army, Field Manual 100-5, *Operations* (Washington, DC: Government Printing Office, 1986), 14.

operational art provided students the insight to articulate and apply components of operational art in subsequent practical exercises and planning sessions. SAMS is one of the few schools, if not the only, in the U.S. military providing a deeper and more formal education in operational art, the theory guiding the U.S. Army's operating concept. Some may see a quandary developing. Within any given academic year, only a small percentage of available majors receive a formal education in operational art and its effects in the development of campaigns and major operations. Limited education notwithstanding, it is questionable whether the U.S. Army evaluates this education for positive utility once an officer returns to a unit. With the introduction of this new doctrine, the Army should invest more time in the education and evaluation of operational art within the generating force.

ADP 3-0 defined operational art as the pursuit of strategic objectives, in whole or in part, through the arrangement of tactical actions in time, space, and purpose.⁵ The new doctrine further prescribes that planners and commanders can conduct operational art at any level of war or echelon within the force.⁶ Operational Art is how the Army develops campaigns or operations within an operating concept. Operational concepts bounded by time, space and purpose are articulated in an operational framework to assist subordinate commanders in the execution and accomplishment of assigned missions. Operational art provides cognitive cohesion toward accomplishment of strategic aims within an overarching operational construct like Unified Land Operations. Leaders and staffs developing campaigns and plans pursuing strategic aims or objectives need more education, training, and evaluation in the application of operational art. When a soldier enters basic training, he/she is educated, trained, and evaluated on basic soldier skills and small unit tactics. A new unit will reinforce and expand on these lessons ingrained during a soldier's initial entry training. Within the Army, training provides time for the education,

⁵ ADP 3-0 *Unified Land Operations*, 9.

⁶ Ibid.

practical exercise, and evaluation of individual, collective, and multi-unit training. The same standard should apply for the education of leaders responsible for the development of campaigns and major operational plans as they leave an Army education center and return to the operating force. A practitioner's ability to arrange tactical actions in time, space, and purpose in the pursuit of strategic objectives needs evaluation prior to introduction into the operating force and possible employment in times of conflict.

Methodology

Research for this topic separates into several categories. The first consists of the study of operational art as a theory. The discussion of theory provides shared understanding into the claim that operational art is a form of theory to link strategic objectives and tactical actions through the development of campaigns and major operations. Operational art within an American context derives from a variety of principles. A study of theorists contributing to principles used in an American form of operational art provides a basis for understanding current principles found in doctrine. For this study Dr James J. Schneider's, *Vulcan's Anvil*, and Shimon Naveh's *In Pursuit of Military Excellence: The Evolution of Operational Theory*, provided the principles influencing current U.S. Army doctrine. Variables influencing the employment of operational art consist of strategic context, physical characteristics influencing the conflict, and characteristics of the friendly and potential enemy force. The theory of operational art applied within the aforementioned variables assists in the development of an operating concept. From understanding operational art and its link to an operational concept, the Army developed doctrine to educate professionals in the conduct of operations. Doctrine, informed by theory and study of operational art, provides a guide for the application of military force.⁷

“Operational art is a subject of the vast body of work called military theory. That body of work distills and synthesizes a complex mixture of ideas, historical examples, and practical experiences, the study of which improves the capacity of the military professional to practice operational art. However,

.A simple model to assist a planner with identifying and evaluating the relevancy of operational art should examine four aspects of the environment. First, analysis of enemy and friendly strategic contexts leads to understanding the development of competing strategic objectives. Next, analysis of enemy and friendly force composition, disposition, and strength provides a better understanding of the opposing forces' capabilities and development of objectives supporting the pursuit of strategic objectives. All of these contribute to understanding an operating environment.⁸ A plan begins to develop, influenced by the judgment and experience of a commander and the application of theoretical principles captured within doctrine to bridge strategic objectives with tactical actions in time, space, and purpose. A gap between enemy and friendly objectives helps identify an operational problem.⁹ Identifying an operational problem leads to the development of an operational approach.¹⁰ An operational approach leads to the development of a concept for operations, captured within a campaign plan or major operation.

This model becomes useful in evaluating modern case studies of military actions in pursuit of strategic objectives. Case study analysis provides quantitative data to derive qualitative information in the application of operational art within a campaign or major operation supporting strategic aims or objectives. For this study, two cases will be studied to compare the application of operational art within major combat and counterinsurgency operations. Operation Desert Storm

doctrine is not about study; it is a guide to application.” Thomas Bruscino, “The Theory of Operational Art and Unified Land Operations,” (Theoretical Paper, School of Advanced Military Studies Theoretical Paper, 2011), 2.

⁸ The operational environment is a composite of the conditions, circumstances, and influences that affect the employment of capabilities and bear on the decisions of the commander. ADP 3-0, *Unified Land Operations*, 2.

⁹ In the context of operations, an operational problem is the issue or set of issues that impede commanders from achieving their desired end state. Headquarters, Department of the Army, Army Doctrinal Reference Publication 5-0, *The Operations Process*, (Washington, DC: Government Printing Office, 2012), 2-2.

¹⁰ Joint Publication 5-0 (JP 5-0) defines operational approach A description of the broad actions the force must take to transform current conditions into those desired at end state. Headquarters, Joint Staff, Joint Publication 5-0: *Joint Operation Planning*. (Washington, DC: Government Printing Office, 2011), GL-13.

provides the first case for analysis. Described as the “Maturation of Operational Art,” Desert Storm provides analysis of an operational level command’s campaign executed during major combat operations. In common parlance, Operation Desert Storm provides a combined arms maneuver (CAM) case for analysis.¹¹ Analysis will also evaluate the execution of operational art within the 2007 Operation Iraqi Freedom Surge campaign under Multi-National Corps Iraq’s (MNC-I) Operation Phantom Thunder, with specific focus on 3/2 Stryker Brigade during Operation Arrowhead Ripper. Operation Arrowhead Ripper provides an example of operational art executed during wide area security operations (WAS), by a brigade combat team pursuing the accomplishment of operational and strategic objectives.¹² Case assessment consists of establishing the operational environment, defining strategic and operational objectives, identifying an operational problem, recognizing an operational approach, and evaluating use of principles influencing the execution of operational art found in current doctrine and qualitative judgment on the campaign or operation’s ability to pursue or achieve strategic objectives. Both campaigns deal with the application of force during a time of war. Iraq provides a consistent physical environment shared by the aforementioned campaigns. For both cases, war provides comparable strategic environments guiding the application of military force.

Finally, this study will focus on current and past officer education and evaluation of operational art to provide recommendations to enhance the quality of operational art within the generating and operating force. Recommendations are drawn from historical analysis of how operational art was taught and evaluated in the past and may assist in broader application in the

¹¹ Combined arms maneuver is the application of the elements of combat power in unified action to defeat enemy ground forces; to seize, occupy, and defend land areas; and to achieve physical, temporal, and psychological advantages over the enemy to seize and exploit the initiative. It exposes enemies to friendly combat power from unexpected directions and prevents an effective enemy response. ADP 3-0, *Unified Land Operations*, 6.

¹² Wide area security is the application of the elements of combat power in unified action to protect populations, forces, infrastructure, and activities; to deny the enemy positions of advantage; and to consolidate gains in order to retain the initiative. ADP 3-0, *Unified Land Operations*, 6.

future. Recommendations will provide a means of improving the education and evaluation of operational art amongst commanders and staffs within the generating and operating force. Historical examples dealing with the education and evaluation of operational art in the generating force focused on the education of field grade officers attending CGSC and SAMS, while recommendations for the operating force focus on the Army's Mission Command Training Program (MCTP).

Theory of Operational Art

Operational art is a theory used in planning campaigns and major operations pursuing strategic objectives.¹³ Operational art combines theoretical principles in the application of force, prudent judgment, and knowledge derived from historical cases to assist in developing a principled approach in the application of force. Thomas Kuhn's *Structures of Scientific Revolutions* provides an understanding of what theory is and how it is developed. Kuhn argues that scientific traditions (or fields of study) begin in era of limited understanding. As problems arise, theories develop to frame and solve problems within a tradition.¹⁴ A successful theory leads to experimentation and enhances comprehension and knowledge. Theory enhances knowledge and understanding of practitioners, and provides a means for future study. Operational art is a theory linking strategic aims with the arrangement of tactical actions by using theoretical principles to assist in the conduct of warfare and the application of force.

Operational art has evolved as leaders and commanders have grappled with the task of defeating an enemy over extended and more complex battlefields. Some may offer leaders, such as Frederick the Great, who relied on concentrating his forces at a single point against an enemy to achieve a decisive battle. Dr. James J. Schneider in, *Vulcan's Anvil*, claims this became

¹³ ADP 3-0 defines operational art as the pursuit of strategic objectives, in whole or in part, by the arrangement of tactical actions in time space and purpose. However joint doctrine defines operational art as 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 (JP 3-0). From both of these definitions, operational art is understood as a cognitive process and approach in applying military force to link tactical actions to the pursuit of strategic aims. Headquarters, Department of the Army Army Doctrinal Reference Publication 3-0. *Unified Land Operations*, (Washington, DC: Government Printing Office, 2012), 4-1.

¹⁴ However, change does not equal an objective progression towards developing a holistic truth. New theories are relative to time, environmental factors, and available resources during experimentation. Normal sciences closely relate to paradigms. Paradigms are subsets within a normal science, which are open-ended and attract new researchers to solve persistent problems. As emergent problems arise within a theory, their solvency outside of the existing theory causes a paradigm shift or scientific revolution. As a new theory progresses in its field of study, older fields of study challenge its validity. Thomas S. Kuhn, *The Structure of Scientific Revolutions*. (Chicago, IL: University of Chicago Press, 1996), 10.

irrelevant as larger, sustainable organizations created a force harder to defeat in a single battle.¹⁵ The sheer size and composition of Napoleon's "Le Battalion Carre" highlights the introduction of a Corps size force with subordinate divisions, each having the ability to conduct independent action on the field of battle. The division and corps organization provided command and control for the distribution of forces in a theater of war during a campaign.¹⁶ As Michael R. Matheny states in *Carrying the War to the Enemy*, "Napoleon strategically deployed and tactically arranged his forces on the battlefield in such a way that a route of the Prussian army was the result, leading to the occupation of Berlin."¹⁷ Napoleon's decisive victory at the battle of Jena-Auerstadt provides an example of a leader arranging several subordinate actions in time, space, and purpose in pursuit of a strategic objective. Napoleon used a direct approach to mass mutually supporting corps along lines of operation to achieve decisive battle to destroy the Prussian military.¹⁸ The Emperor saw the Prussian army as a center of gravity and directed his forces toward Berlin, while utilizing terrain as a natural obstacle to engage Prussian forces.¹⁹ The Battalion Carre formation organically offered a fighting element able to develop situational understanding, maintain flank security, engage in combat action, and exploit success with a mobile cavalry reserve. Napoleon's operational approach and the use of the diamond shape La Battalion Carre system allowed him to understand, visualize, describe, and direct tactical actions during a campaign. The screening element of the La Battalion Carre provided intelligence of enemy composition, disposition, and strength. A broad front during movement allowed Napoleon

¹⁵ Dr. James J. Schneider, *Vulcan's Anvil: The American Civil War and the Foundation of Operational Art*. Theoretical Paper Number Four (Fort Leavenworth, KS: United States Army Command and General Staff College, 2004), 3.

¹⁶ Schneider, *Vulcan's Anvil*, 26.

¹⁷ Michael R. Matheny, *Carrying the War to the Enemy: American Operational Art to 1945* (Norman: University of Oklahoma Press, 2011), 6.

¹⁸ A direct approach attacks the enemy's COG or principal strength by applying combat power directly against it. JP 5-0: *Joint Operation Planning*, III-32.

¹⁹ A COG is a source of power that provides moral or physical strength, freedom of action, or will to act. JP 5-0: *Joint Operation Planning*, III-22.

to gather and process intelligence, and visualize how to arrange tactical actions within a specific time and terrain to achieve a decisive battle. From intelligence, Napoleon developed an understanding of enemy operations in relation to terrain. The size of a Corps allowed Napoleon to direct commanders to converge on Prussian forces from separate directions near Jena, Auerstadt, and Apolda.²⁰ Although Napoleon's intentions may have been to defeat the Prussian main body within a subsequent battle, what is important to take away is his ability to develop a plan linking battles over time and space with the purpose of achieving strategic objectives.

As a military historian and previous instructor at SAMS, Dr. James M. Schneider's *Vulcan's Anvil* believes American operational art found its origin and context during the American Civil War. Technological advancements and a commander's subordination to political objectives highlight an evolution in the conduct of war during the late nineteenth century. Technological advancements, increased weapons lethality, and changes to the organization and employment of force called for the dispersion of forces. The increased length, breadth, and depth of the battlefield led to longer conflicts with higher attrition rates. The theory of operational art within American Civil War clearly highlights a change in thinking in the conduct of war. Dr. Schneider's text postulates General Ulysses S. Grant as a wise commander in his appraisal of the extended or dispersed battlefield and the need for synchronized action, concentration at a decisive point, as well as gaining positions of relative advantage against an enemy. Grant's Vicksburg and Overland campaigns called for the prudent employment of forces over an extended period in a cost effective manner by sequencing battles leading to the pursuit of a strategic objective. From *Vulcan's Anvil*, Grant's actions provide a model of principles relevant to the discussion of operational art within an American context. Dr. Schneider provides eight abstract principles as a framework for operational art.²¹ These principles consist of distributed operations, or operations

²⁰ David G. Chandler, *The Campaigns of Napoleon* (New York: Macmillan, 1966), 468-471.

²¹ Schneider, *Vulcan's Anvil*, 59-60

consisting of maneuver by multiple units working under the guidance of a common aim. A distributed campaign arranges and articulates actions within a plan for execution.²² As a campaign progresses, forces must be able to rely on continuous logistics for sustenance. Instantaneous command and control through signals communication provides commanders an ability to direct and synchronize formations' efforts in time, space, and purpose. Formations are durable and can sustain extended operations over time. Operational vision is the commander's ability to visualize achievement of a desired end state. An operationally minded formation takes aim at an operationally minded enemy. Finally, a nation supports resource requirements of an operational force through distributed deployment. The relevance of understanding abstract principles providing the structure of operational art finds meaning by drawing correlation with relevant principles outlined in doctrine today within Joint Publication 3-0's *Principles of Joint Operations*, Joint Publication 5-0's *Elements of Operational Design*, and Army Doctrine Reference Publication 3-0's *Elements of Operational Art*.

Distributed Operation

Understanding the relationship between abstract theoretical principles and relevant principles within doctrine provides practitioners of operational art a more comprehensive approach while developing campaign and major operational plans. Historical study illuminates applicability to similar problems. Operational art consists of distributed operations. Distributed operations consist of maneuver and attack in depth by multiple units working under the guidance of a common aim. Strategic leadership provides aim as a goal for subordinate commanders and staffs to achieve desired goals. Goals provide guidepost for formations conducting operations. Using guidepost, commanders will determine the conditions associated with the attainment of

²² A series of related major operations aimed at achieving strategic and operational objectives within a given time and space. JP 5-0: *Joint Operation Planning*, III-22.

strategic goals. Within current doctrine, this translates into development of an end state.²³ To reach a desired end state, commanders assess what conditions will conclude an operation, or bring it to termination.²⁴ Outlining the termination of an operation leads to the development of objectives leading to an end state. Defining objectives assists in determining actions for the employment of forces. Forces use offensive operations to secure outlined objectives establishing the conditions supporting attainment of an end state. To accomplish this, forces use maneuver as a means of applying combat power in such a manner as to place an enemy in a position of relative disadvantage for future operations.²⁵

The Civil War highlights some of the first operational maneuver of forces within a theater of operations under the guidance of a campaign. Schneider defines classical maneuver as the “movement of forces in such a manner as to achieve positional advantage over an enemy.”²⁶ However, maneuver within the context of operational art consists of “relational movement in depth that maximizes freedom of action for the destruction of the enemy's capacity to wage war.”²⁷ The concept of operational maneuver focuses on the employment of forces in an advantageous manner against an enemy vulnerability or position of weakness. Maneuver provides force protection.²⁸ Adequate maneuver increases a force's probability of success by fighting an

²³ Within Army doctrine, end state relates to is a set of desired future conditions the commander wants to exist when an operation ends ADRP 3-0. *Unified Land Operations*, 4-3. Military end state within joint doctrine relates to the set of required conditions that defines achievement of all military objectives. JP 5-0: *Joint Operation Planning*, III-19. The two terms outline the desired goals or conditions to conclude military operations. For this argument, end state is interchangeable for both terms.

²⁴ JP 5-0: *Joint Operation Planning*, III-19.

²⁵ ADRP 3-0: *Unified Land Operations*, 4-2.

²⁶ Schneider, *Vulcan's Anvil*, 30.

²⁷ *Ibid.*, 33.

²⁸ As Russell Weigley's, *The American Way of War* states, “In the Vicksburg Campaign he (Grant) pursued mainly a geographical objective, which by skillful maneuver he was able to attain without much bloodshed, while gathering in large numbers of enemy soldiers as an incident of attaining the territorial objective.” Grant's Vicksburg campaign consists of maneuvering forces to secure a line of communication to support future operations in Jackson and Vicksburg, MS. Grant pursued physical objectives through maneuver to set conditions for success against Confederate forces. Russell F. Weigley,

enemy in an area where he has less combat power, while maintaining the depth needed to conduct successive operations. Commanders looked to defeat adversaries in successive sustainable battles while maintaining freedom of action for future offensive operations. The cognitive change from a decisive to dispersed battles lessened casualties, and prolonged an Army's ability to fight.

Operational maneuver increased a commander's freedom of action. The idea of freedom of action relates to "enemy destruction can be achieved better indirectly, that is, through envelopment and encirclement than through direct battle and attrition."²⁹ Freedom of action has a positive correlation to initiative. A commander who is able to maintain freedom of action in operations has a higher probability of possessing the initiative.³⁰ Having the initiative favors offensive action against an enemy. Commanders wish to maintain initiative while operating from a continual position of advantage in relation to an opponent. However, a force needs more than maneuverability, operational depth, or initiative to conduct operational art. Arguably, there are several components of operational art a force needs to campaign.

Distributed Campaign

A distributed campaign articulates and arranges actions for execution. Campaigns integrate several operations toward accomplishing a goal. The aim within a distributed operation directly relates to objectives. Objectives are goals drawn at the outset of an operation to guide the operation towards an end state.³¹ During the development of a campaign, commanders determine the best arrangement of operations based on tasks given to subordinate commanders leading to the accomplishment of a directed mission. Themes assisting in arranging operations include

The American Way of War: A History of United States Military Strategy and Policy, (New York: Macmillan, 1977), 141.

²⁹ Schneider, *Vulcan's Anvil*, 31.

³⁰ For this argument initiative is, "setting or changing the terms of battle by action." FM 100-5, *Operations*, 15.

³¹ An objective is a clearly defined, decisive, and attainable goal toward which every military operation should be directed. JP 5-0: *Joint Operation Planning*, III-20.

simultaneity, depth, tempo, as well as phasing. While developing a distributed campaign, commanders and staffs seek to apply military and non-military power against enemy capabilities and sources of strength within concurrent operations at the tactical, operational, and strategic levels.³²

A campaign seeks simultaneity and depth in operations. Depth relates to the arrangement of operations in time space and purpose to defeat or disrupt enemy operations.³³ As an example, strategic bombing or air interdiction of enemy forces assist in the deployment of forces for future ground operations. At the tactical level, assigning an echelon of rocket, artillery, and mortar fires to suppress an enemy position allows ground forces to maneuver and conduct offensive operations.

As simultaneity and depth facilitate the development of a distributed campaign, the timing and actions taken against, and enemy are also considered. Tempo is “the relative speed and rhythm of military operations over time with respect to the enemy.”³⁴ A campaign articulates the relative speed and rhythm of action in relation to an enemy while pursuing outlined goals. Reduced or advance tempo within an operation supports a commander’s ability to buy time for follow on operations or to overwhelm an enemy.³⁵ A distributed campaign sequences simultaneity, depth, and tempo by using phases. Phases provide a planning tool to arrange operations within a campaign by time or condition. The application of phasing allows commanders to shift efforts based on a change in mission, task-organization, or transition in the

³² JP 5-0: *Joint Operation Planning*, III-35.

³³ JP 5-0 establishes depth as a concept seeking to overwhelm the enemy throughout an operational area, creating competing and simultaneous demands on enemy commanders and resources and contributing to the enemy’s speedy defeat. However, ADP 3-0 defines depth as the extension of operations in space, time, or purpose. For this discussion, depth is understood as a principle in arranging operations in relations to time space and purpose against an enemy in such a manner to hasten a desired result. ADP 3-0, *Unified Land Operations*, 8.

³⁴ ADRP 3-0: *Unified Land Operations*, 4-7

³⁵ JP 5-0: *Joint Operation Planning*, III-36.

nature of an operation.³⁶ The arrangement of operations toward desired objectives assists in understanding components supporting a distributed campaign. Now, focus is given to principles assisting in sustaining operations over time.

Continuous Logistics

Campaigns need logistics for sustenance. Forces must be able to rely on a logistical system's ability to sustain combat operations, reach forces in a timely manner, and prevent extraneous burden on forces conducting operations. As Dr. Schneider states, "Without the condition of successive or nearly continuous logistics, operational formations do not possess sufficient endurance to conduct distributed operations."³⁷ The use of rail or waterway during the civil war supported continuous logistics for Grant's Vicksburg and Overland campaigns. Currently, technological advancements provide logistical support using ground, water, and air assets. The idea of continuous logistics relates to common doctrinal terms such as operational reach, culmination, operational pause, and basing.

The application of military forces across time and space has limits. Operational reach refers to distance and duration a force can extend its military capabilities.³⁸ A variety of factors such as geography, enemy action, or a formation's existing logistical capacity affects operational reach. The distance between supporting objectives plus the rate of fuel consumption, intelligence, or force protection measures may limit initial planning factors for executing successive operations within a campaign. Identifying operational reach during planning leads to the development of

³⁶ ADRP 3-0: *Unified Land Operations*, 4-7.

³⁷ Schneider, *Vulcan's Anvil*, 59-60.

³⁸ Operational reach is distance and duration across which a joint force can successfully employ military capabilities. Culmination is that point in time and/or space at which the operation can no longer maintain momentum. JP 5-0: *Joint Operation Planning*, III-33-34.

basing options to extend operational reach and prevent culmination.³⁹ As bases are preplanned static locations, commanders and staffs consider operational pauses within a campaign or operation to prevent culmination and to replenish resources for successive operations.⁴⁰ To maintain continuous logistics, planners executing operational art must consider the operational reach of a force. Simultaneously, planners consider methods to extend operational reach through a combination of operational pauses and basing options.

Instantaneous Command and Control

Instantaneous command and control consists of using systems to maintain situational awareness and understanding through signals technology. Signals technology assists a commander's ability to command and maintain control of subordinate units during a distributed operation. With situational awareness and understanding, a commander anticipates what actions may bring events to pass. Anticipation combined with shared common understanding provides a commander with an ability to prevent surprise, and maintain initiative in operations.⁴¹ Signals communications assist command and control of formations and helps synchronize efforts in time and space. Signals communication increases situational awareness and understanding, as well as a commander and staff's ability to command and control formations. Command and control systems used in the execution of operational art paint a picture in the mind of the operational artist of ongoing actions present within a given environment. Practitioners are then able to anticipate risk

³⁹ A base is a locality from which operations are projected or supported. Within the Army, bases generally fall into two categories of permanent (bases and installations), and non-permanent (base camps, intermediate staging base, lodgment, or forward operating base). ADRP 3-0: *Unified Land Operations*, 4-6-4-7.

⁴⁰ Operational pause is a planning tool used to prevent a force from reaching culmination during combat operations. Operational pauses are also useful tools for obtaining the proper synchronization of sustainment and operations. Moreover, properly planned and sequenced operational pauses will ensure that the JFC has sufficient forces and assets to accomplish strategic or operational objectives. JP 5-0: *Joint Operation Planning*, III-37.

⁴¹ JP 5-0: *Joint Operation Planning*, III-33.

and opportunities associated with the accomplishment of a mission and future exploitation operations.

Operationally Durable Formations

Formations are durable and can sustain operations over extended periods independently. An operationally durable formation most closely relates to the principle of mass.⁴² These formations are able to conduct combat operations independently while operating with on-hand logistical resources. Adequate leadership and resources reside within an organization prior to employment. Planning consideration insures that a formation has the appropriate mass for employment to conduct an assigned mission.

Operational Vision

Another key component to operational art is the ability of a commander to visualize achievement of a desired end state. Commanders and staffs use experience, knowledge, and understanding of a given situation to articulate and direct forces.⁴³ An iterative process assists in adjusting an operational approach based on changes in the operational environment or enemy action. Commanders and staffs receive relevant information to gain a better understanding of variables affecting a plan. Understanding provides the flexibility needed to continue with an existing plan, or chart a new course. Vision directs campaigns toward a desired objective. Vision

⁴² Mass consists of the concentration of effects of combat power at the most advantageous place and time to produce desired results. Headquarters, Joint Staff, Joint Publication 3-0: *Joint Operations* (Washington, DC: Government Printing Office, 2011), A-2.

⁴³ The art of command is the creative and skillful exercise of authority through timely decision-making and leadership (ADP 6-0). As an art, command requires the use of judgment. Commanders constantly use their judgment for such things as delegating authority, making decisions, determining the appropriate degree of control, and allocating resources. A commander's experience and training also influence their decision-making. Proficiency in the art of command stems from years of schooling, self-development, and operational and training experiences. Headquarters, Department of the Army, Army Doctrinal Reference Publication 6-0, *Mission Command* (Washington, DC: Government Printing Office, 2012), 2-5.

helps guide plans toward achieving a desired goal.⁴⁴ As vision assists in developing an operational approach, a decision orients the application of force in a direct or indirect manner to defeat an enemy.⁴⁵ An operational approach's orientation finds description using lines of operations (LOOs) or lines of efforts (LOEs).⁴⁶ Within LOOs or LOEs, commanders assign subordinate commanders tasks assisting in the accomplishment of an overarching mission. A commander's vision seeks to provide unity of command by focusing the accomplishment of complementary efforts by subordinate commanders, aligned with an overall purpose of an operation. Lines of operation and effort capture a commander's vision and approach linking subordinate tasks and objectives toward the pursuit of a desired end.

Distributed Enemy

The military applies force against an enemy threatening the achievement of a strategic aim. Dr. Schneider claims operational art needs symmetry between opposing forces prior to application.⁴⁷ Dr. Schneider's further states a unit conducting operational art seeks to defeat an enemy that is able to conduct distributed operations, executed within a distributed campaign, composed of other accoutrement necessary to provide symmetry and "self-reflection" between competing forces.⁴⁸ Some may argue the exactitudes of symmetry between opposing forces

⁴⁴ Headquarters, Department of the Army Army Doctrinal Reference Publication 5-0, *The Operations Process* (Washington, DC: Government Printing Office, 2012), 1-3 to 1-4.

⁴⁵ The approach is the manner in which a commander contends with a center of gravity (COG). A direct approach attacks the enemy's COG or principal strength by applying combat power directly against it. An indirect approach attacks the enemy's COG by applying combat power against a series of decisive points that lead to the defeat of the COG while avoiding enemy strength. JP 5-0: *Joint Operation Planning*, III-31-32.

⁴⁶ A line of operation (LOO) defines the interior or exterior orientation of the force in relation to the enemy or that connects actions on nodes and/or decisive points related in time and space to an objective(s). LOOs describe and connect a series of decisive actions that lead to control of a geographic or force-oriented objective. A line of effort links multiple tasks and missions using the logic of purpose, cause, and effect, to focus efforts toward establishing operational and strategic conditions. JP 5-0: *Joint Operation Planning*, III-28.

⁴⁷ Schneider, *Vulcan's Anvil*, 60.

⁴⁸ Ibid.

conducting operational art. However, what is important is the recognition of competition between parties pursuing strategic aims by arranging tactical actions in time, space, and purpose. An enemy may seek an asymmetric advantage based on the characteristics of the force and means available to support it. Competition with an enemy over an extended period of time and space leads an operational artist to identify potential strengths and weaknesses for attack. Within current doctrine, this closely relates to recognition of an enemy center of gravity.⁴⁹ Center of gravity (COG) analysis leads to identification of actions or functions providing a COG its source of power (critical capabilities), identification of resources needed to sustain action (critical requirements), and potential vulnerabilities associated with sustaining requirements (critical vulnerabilities). From COG analysis, decisive points are developed for action. Decisive points are generally oriented toward a geographic point, or an enemy force or function.⁵⁰ Discrepancies withstanding of Dr. Schneider's argument, it is understood that an operationally minded force competes against adversaries who employ their forces in time, space, and purpose toward achieving competing strategic aim. This essay will later discuss how a brigade-level counterinsurgency campaign used operational art against insurgent groups during Operation Iraqi Freedom.

Distributed Deployment

Dr. Schneider's final component of operational art consists of a force's ability to defend and seize bases of support, and a nation's capacity to wage war through distributed deployment.

⁴⁹ A COG is a source of power that provides moral or physical strength, freedom of action, or will to act. A COG closely relates to a decisive point, or a geographic place, specific key event, critical factor, or function that, when acted upon, allows a commander to gain a marked advantage over an adversary or contributes materially to achieving success. JP 5-0: *Joint Operation Planning*, III-20, 26.

⁵⁰ Force relates to an enemy organization with inherent capabilities provided by manpower, weapons, and resources. Function relates to combat support or service support assets required to sustain combat operations, such as protection, command and control, or logistics. Destroying or disrupting an adversarial force or function destabilizes an enemy's ability to coherently apply force. JP 5-0: *Joint Operation Planning*, III-38.

Location of support facilities can call for operating from several bases with supporting lines of communication used as a tether to the operational force. Distributed deployment also includes national reserves, political leadership, and the will of the people to support a force. Strategic mobilization sustains operations. Distributed deployment encompasses a nation's ability to raise and sustain force requirements necessary during distributed operations while maintaining national support and legitimacy to achieve strategic aims. Within current doctrine, this closely relates to restraint, perseverance, and legitimacy.⁵¹ All of these elements combine into a series of interrelated variables working as components within a system.

Systems Perspective

Shimon Naveh's *In Pursuit of Military Excellence: The Evolution of Operational Theory* provides a second theoretical account of abstract principles within operational art using components of systems theory. Systems theory relates to the holistic study of complex problems by observation of interdependent variables across multiple disciplines of study.⁵² The military is an open system used to manage resources and apply force toward the achievement of strategic aims.⁵³ Force (or the threat thereof) in combat operations compels an enemy into submission. As a system, the military develops its capacity and capability to apply force against an enemy system in order to achieve strategic aims.⁵⁴ Principles within the theory of operational art work

⁵¹ Restraint refers to limiting unnecessary damage and the prudent application of force. Perseverance entails the commitment necessary to attain strategic end state. Legitimacy encompasses maintenance of legal and moral authority in the conduct of operations. JP 3-0: *Joint Operations*, 3-4.

⁵² Shimon Naveh, *In Pursuit of Military Excellence: The Evolution of Operational Theory*, (London: Frank Cass, 1997), 4.

⁵³ Systems are open (living system within an environment) or closed (system separated from its environment). Systems analysis consists of the amount of variables within a system, the type of variables, and the relations the variables share within a system. Naveh, *In Pursuit of Military Excellence*, 4-5.

⁵⁴ Capability is the military means required to be effective in robust environments over distance and under threat. Capacity is having the sufficient number of forces to be effective in such environments over time and in the face of any threat. Julian Lindley French, "The Capability-Capacity Crunch: NATO's New Capacities for Intervention," *European Security* 15, No. 3, (September 2006): 259-280.

interdependently as variables within a system. Variables influencing a military system include cognitive and physical variables, the competition of rival aims or objectives, and interactions between belligerent actors.⁵⁵ Cognitive and physical variables juxtaposed against an enemy affect the development of an operational force. An operationally minded force executing operational art defeats an enemy's cognitive and physical variables required to pursue strategic objectives.

Naveh provides ten principal characteristics of operational art. First, aim provides direction to operationally minded forces. A cognitive tension exists between the achievement of an aim and forces tactical and capacity and capability. There are varieties of interdependent cognitive and physical variables affecting the employment of an operational force. Actions taken by an operational force attempt synergistic affects toward the achievement of an objective. An operational force seeks to disrupt an enemy system through the introduction of operational shock. Within operational art, a systems approach accounts for chance and chaos when opposing systems interact. Plans utilizing operational art are non-linear, but express depth. Actions of an operational force focus on attrition through maneuver to achieve strategic aims. Strategic, organizational, and environmental constraints withstanding, an operational force is self-sufficient and can operate independently.⁵⁶ Finally, operationally minded forces apply a general theory of operational art prior to execution of assigned mission.

With a systems approach to understanding operational art, the military system combines relevant cognitive and physical variables to develop a capable force with the capacity to achieve strategic objectives. Force is the constructive or destructive means available to achieve an objective. Understanding force, capability, and capacity provides a frame of reference for the application of cognitive and physical variables influencing the theory of operational art.

⁵⁵ This will lead to the development of a model useful in campaign analysis of operational art.

⁵⁶ Naveh, *In Pursuit of Military Excellence*, 13-14.

Cognitive variables find derivation from a variety of sources. Political will and direction of a people direct the development of strategic goals. Achievement of strategic objectives requires popular support. Cultural ideology affects popular support. Education, a shared history, and experience help influence and shape culture. Combined with the existing social, diplomatic and philosophical climate of the time, these variables provide cognitive components influencing the development of an operational theory to bridge the gap between strategy and tactics. Cognitive and physical variables combine and contrast in shaping an operational construct. Physical variables consist of material, training, personal, organization, facilities, and resources available to a force. Available resources and personnel solidify an organizational structure. Training provides validation in the organization's capability and capacity. Training focuses the development of individual, team, unit, and collective accomplishment of assigned missions. Economic and technological variables provide relevant limits in the development of physical variables.

Within Naveh's theory, operational art is a system seeking to probe, erode, disrupt, or defeat a competing system. War through maneuver causes attrition to an opponent over time. Naveh's principles using components of systems theory find application within current doctrine. As a system, the military uses cognitive and physical variables within an interactive open system to develop campaigns or major operations against an adversary, while pursuing strategic objectives. There is overlap between Naveh and Schneider's principles and their relation to doctrine. A reader draws correlations between aim and end state, depth in campaigns and a distributed campaign, and other principles. To avoid redundancy however, Naveh's principles help practitioners of operational art understand consideration to economy of force, security, surprise, and effects. Economy of force relates to the prudent application of force on secondary efforts to maximize potential combat power on primary efforts.⁵⁷ Naveh advocates that a system will seek to use minimal efforts to test and assess potential points of vulnerability in a system.

⁵⁷ JP 3-0: *Joint Operations*, A-3.

Planners attempt to affect a system's behavior through maneuver.⁵⁸ Action through maneuver provides effect on a system, and potentially develops weaknesses for future exploitation. Finding a weakness allows a system to disrupt a competing system by the introduction of operational shock. Operational shock correlates to surprise within current doctrine.⁵⁹ Exploitation of a vulnerability focuses on rendering a potential adversary's system ineffective. Simultaneously, maneuver provides security to a system. Disruptive attacks prevent an enemy from maintaining coherency in operations.⁶⁰

Application and understanding concepts within systems theory assists in the understanding and application of current doctrine. Principles within doctrine are not a checklist, rather they are conceptual tools to apply force with consideration to time, space, and existing constraints within a system. Operational art provides a theory for the application of force within a system of interdependent variables coalesced by purpose, against an adversary, to pursue or protect strategic goals or objectives. Shimon Naveh states operational art as, "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 system's individual components."⁶¹ Operational art uses a cognitive approach to link tactics to strategy with given physical variables in an existing environment. Interdependent variables apply within an interactive environment while in competition with a competing system. To evaluate operational art, a model is developed composed of enemy and friendly strategic context,

⁵⁸ An effect is a physical and/or behavioral state of a system that results from an action, a set of actions, or another effect. In addition, a desired effect is a condition that can support achieving an associated objective, while an undesired effect is a condition that can inhibit progress toward an objective. JP 5-0: *Joint Operation Planning*, III-20.

⁵⁹ Naveh explains operational shock (удар or strike) as the disposition towards disrupting a systems' rationale. This is likened to a severing the brain from the body. Naveh, *In Pursuit of Military Excellence*, 16.

⁶⁰ Surprise is to strike at a time or place or in a manner for which the enemy is unprepared. Security prevents the enemy from acquiring unexpected advantage. JP 3-0: *Joint Operations*, A-3

⁶¹ Naveh, *In Pursuit of Military Excellence*, 6.

objectives, problem of the friendly force, operational approach, and analysis using a combination of principles found within current doctrine.

Evaluating Operational Art

Strategic context influences the execution of operational art to secure national interest. ADP 3-0 states, “Army forces are employed within a strategic context defined by the specific operational environment, the character of the friendly force, and the character of the threat.”⁶² An operational environment consists of the interactions between cognitive and physical variables, influencing the application of force.⁶³ Within the United States, our population has been relatively hostile to large standing armies during peacetime.⁶⁴ The United States’ geographic isolation has historically enabled the maintenance of a small standing Army for defense. However, when faced with a conflict, the United States rarely shies away from hostilities. Therefore, American military theory and leaders have dealt with the constraints of a small standing force that can be quickly committed to a large or limited war at the beckoning of its political leaders. With this in mind, the enormity and scale of a major conflict means that the creation of a larger force in a time of war will take time. Within the United States, the mobilization and employment of forces is relatively slower than other nations without the geographic isolation of oceans on its eastern and western flanks. It is hard considering the invasion of the United States by a large adversarial force, and it is equally harder to consider the United States surprising an adversary with several divisions of combat power within a given theater of war.⁶⁵

⁶² ADP 3-0, *Unified Land Operations*, 10.

⁶³ Operational variables consist of political, military, economic, social, information, infrastructure, physical environment, time (known as PMESII-PT). The mission variables consist of mission, enemy, terrain and weather, troops and support available, time available, civil considerations (known as METT-TC). How these variables interact in a specific situation, domain (land, maritime, air, space, or cyberspace), area of operations, or area of interest describes a commander’s operational environment but does not limit it. *Ibid.*, 10.

⁶⁴ Robert K. Griffith, *The US Army’s Transition to the All-Volunteer Force 1968-1974* (Washington, DC: Center of Military History Press, 1997), 3.

⁶⁵ Thomas Bruscino, “Conclusion: – An American Way of Campaigning? The Theory and Practice of American Operational Art” (School of Advanced Military Studies Draft Paper, Fall 2011), 4.

Leaders look at how to employ the military with attention to where it may fight. Historically, American commanders have looked to secure and maintain available lines of communication to sustain operations. These lines of communication consist of available rivers and waterways, with cities used for bases of supply. Military planners and leaders develop plans considering ports of debarkation, avenues of approach capable of sustaining the size of a formation employed, and basing to command and control, plan, and continue operations. As many of the United States potential conflicts are fought overseas, planners contend with problems related to force projection.⁶⁶ Force projection requires a base for supply, lines of communication to sustain a force, and nodes or locations to command, control and sustains operations. Gaining the aforementioned assets on foreign soil may require adept diplomacy or forcible entry operations.⁶⁷ Commanders and staffs identify suitable locations supporting the reception of forces, and expansion of military capabilities in a theater of operations.⁶⁸ Deliberate planning is necessary to secure a port of debarkation within conflict. This process allows for the buildup of a small standing army into a larger one.

Understanding cognitive and physical variables within an environment helps a commander grapple with factors that can influence the outcome of operations. Next, commanders and staffs focus attention on belligerents within an operating environment. First, planners look to identify competing strategic interests within a conflict. Identification of opposing goals provides a better understanding of how and why an enemy has used force within a conflict. Next, analysis focuses on an enemy force's capabilities.⁶⁹ Composition, disposition, and strength characterize

⁶⁶ Bruscino, "Conclusion," 5.

⁶⁷ Forcible entry consists of seizing and holding of a military lodgment in the face of armed opposition. Headquarters, Joint Staff, Joint Publication 1-02: *Department of Defense Dictionary of Military and Associated Terms* (Washington, DC: Government Printing Office, 2012), 122.

⁶⁸ Bruscino, "Conclusion," 5.

⁶⁹ An enemy capability consists of those courses of action of which the enemy is physically capable and that, if adopted, will affect accomplishment of the friendly mission. The term "capabilities"

the components of a force. Composition consists of organizations and assets used to conduct assigned operations. Disposition gives consideration to force deployment and locations for implementation. Strength refers to available personnel and assets for a battle. An enemy force outlines objectives it must accomplish to pursue a desired end state.

Strategic context and capabilities of an enemy draw attention to defining friendly force actions and organizations necessary to achieve strategic objectives. Subordinate units are assigned missions and objectives supporting the accomplishment of a strategic aim. Unit capabilities consider assigned missions. With a defined mission and resources allocated, analysis leads to the identification of obstacles preventing the accomplishment of assigned missions. From the identification of obstacles, a problem statement helps frame the major obstacles or gaps separating a unit in its current environment from reaching conditions outlined in a desired end state.⁷⁰ Recognition of a problem leads to developing a general concept, or operational approach, useful in developing campaigns and major operations. Development of an operational approach guides the development of a concept of operations during detailed planning.⁷¹

The strategic context (inclusive of cognitive and physical variables influencing the operational environment), enemy capabilities, and friendly capabilities, identification of a

includes not only the general courses of action open to the enemy, such as attack, defense, reinforcement, or withdrawal, but also all the particular courses of action possible under each general course of action. "Enemy capabilities" are considered in the light of all known factors affecting military operations, including time, space, weather, terrain, and the strength and disposition of enemy forces. JP 1-02: *Department of Defense Dictionary of Military and Associated Terms*, 109.

⁷⁰ A problem is an issue or obstacle that makes it difficult to achieve a desired goal or objective. In a broad sense, a problem exists when an individual becomes aware of a significant difference between what actually is and what is desired. In the context of operations, an operational problem is the issue or set of issues that impede commanders from achieving their desired end state. ADRP 5-0: *The Operations Process*, 2-2.

⁷¹ ADRP 5-0 states planning team uses the elements of operational art to help think through the operational environment, visualize, and describe the operational approach. Thus, the operational approach enables commanders to begin visualizing and describing possible combinations of actions to reach the desired end state, given the tensions identified in the operational environment and problem frames. The staff uses operational approaches to develop courses of action during detailed planning. Ibid. For this argument is understood the elements of operation art, design, or principles of joint operations all consist of principles used during operational art to develop an operational approach.

friendly problem and operational approach provide the basis of a model useful in evaluating operational art. Campaign analysis will illuminate doctrinal principles used to develop a campaign or major operation. Analysis facilitates a reader's ability draw a qualitative appreciation for the application of theoretical principles during planning and the execution of operational art. The following sections use this model for campaign analysis of operational art during Operation Desert Storm and 3/2 Stryker brigade's Operation Arrowhead Ripper.

Operation Desert Storm

Historical cases help develop a doctrine assisting in a principled approach in planning operations. Military historian Brigadier General (RET) John S. Brown believes Operation Desert Storm provides an example of the "Maturation of Operational Art." Success in Desert storm highlights a combination of many factors. One of these factors is the fusing of the theory of operational art into a doctrine for practical application. Dr. Brown points out five other factors as, "...the proliferation of officers trained in the new doctrine onto the staffs of wherein operational decisions are effectively made; the general adaptation of a vocabulary that reflected the new doctrine; the Battle Command Training Program (BCTP) and similar simulations-driven exercises; the development of technical capabilities commensurate with the doctrine; and the evolution of the Capable Corps."⁷² FM 100-5 *AirLand Battle* doctrine introduced operational art as a theory linking strategy and tactics within a campaign or major operation.⁷³ Abstract theoretical concepts combined with analysis of historical campaigns helped develop doctrine enhancing shared understanding. FM 100-5 provided a shared vocabulary under a unified concept for leaders to develop campaigns and operations pursuing strategic objectives.

Desert Storm provides one of the few examples of an operational-level campaign plan executed "according to plan." This case also provides analysis of General Norman Schwarzkopf, the U.S. Army Central Command Commander (CENTCOM), and his subordinate staff's interaction in developing a campaign plan at the operational level of war in pursuit of strategic objectives. Analysis will depict Iraqi and American Strategic context and objectives. Operational

⁷² Dr. Brown holds a PhD in history from Indiana University and held the title of Chief of Military History at The United States Center for Military History. John Sloan Brown, "The Maturation of Operational Art: Desert Shield and Desert Storm" in *Historical Perspectives of the Operational Art*, ed. Michael D. Krause and R. Cody Phillips (Washington, DC: Center of Military History, 2005), 440.

⁷³ The 1986 FM 100-5 defines operational art 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. Operational art and Design helped identify an enemy center of gravity for destruction, while protecting one's own center of gravity. FM 100-5, *Operations*, 17 and 180.

factors such as the operating environment, characteristics of the enemy friendly force will assist in understanding the capabilities of each force and what operational objectives were developed to achieve strategic goals. Next, a U.S. operational problem is developed, followed by an operational approach contributing to a concept of the operation. A brief summary of tactical actions directed by the campaign assists in analysis of the plan using components of the *Elements of Operational Design*, and *Elements of Operational Art*. The conclusion consists of a qualitative analysis on the application of operational art during Operation Desert Storm.

Saddam Hussein's ascension to the Presidency of Iraq may have been a forlorn conclusion within the Arab leader's narrative of his eventual destiny. As a member of the Institute of Defense Analyses, LTC (Ret) Kevin Woods' "*the Mother of All Battles*" paints a picture of Saddam viewing himself as an eventual historical leader with a lasting imprint on the growth and future development of Iraq and a larger Pan-Arab movement. Saddam's strategic goals consisted of leading a Pan-Arab movement within the Middle East, the destruction of Israel, and the removal of the United States and other western nations from Arab lands. As a potential leader of this movement, Saddam wished to establish Iraq as an Arab superpower within the region. During the late 1970s, Saddam felt Iraq possessed the economic, scientific, and military strength, and leadership to carry the burden as leader of a Pan Arab movement. In Kevin Woods, the "*Mother of all Battles*" Saddam states, "The one who is going to raise the Arab nation should be the one who is richer in scientific knowledge than the others...There is no escape from the responsibility of leadership. It is not our choice to accept it or not. It is, rather, imposed on us."⁷⁴ Saddam felt his strategic goals of destroying Israel, limiting Western influence, and leading a Pan-Arab movement were only achievable in a protracted war, inflicting an intolerable amount of casualties against Israel and the West. To accomplish this, Saddam pursued strategic objectives through the

⁷⁴ Kevin M. Woods, *The Mother of all Battles: Saddam Hussein's Strategic Plan for the Gulf War* (Annapolis, MD: Naval Institute Press, 2008), 33.

unilateral application of force. His initial target consisted of Iran, a burgeoning potential rival to the Pan-Arab movement.

The Iranian revolution posed a potential threat to Saddam's goal of leading a Pan-Arab movement. Iran represented a Shiite religious oligarchy with opposing views on Middle East foreign policy affairs. The rise in Shiite dominated Iranian influence could lead to instability in other Arab nations with disparate religious populations. The Iran-Iraq War provided Saddam Hussein a means to unify Arab popular support toward Pan Arabism, while undermining the support of non-supportive Arab leaders. However, the initial success gained in the war led to a protracted eight-year war of attrition resulting in a stalemate. The stalemate left Iraq with unintended consequences; Iraq's command economy acquired more than \$80 billion in debt, \$230 billion in reconstruction needs, and a large military it could not quickly demobilize due to the implications it would have on unemployment as well as the eventual possibility of further security and economic instability.⁷⁵ In the wake of the Iraq-Iran war, Saddam looked externally to recoup war losses while continuing his pursuit of strategic objectives. Saddam felt his strategic goals threatened by the U.S.'s expanding influence in the Middle East, and western influence on the price of oil. Saddam felt the U.S. conducted a campaign of psychological warfare against Iraq, centered on human rights violations (against Kurds and sectarian violence), an economic war used to manipulate oil prices (further exacerbating Iraq's debt), and diplomatic warfare to diminish Iraq's influence within the region.⁷⁶

Saddam viewed Iraq's international standing as, "like an army standing before a landmine, when they stop, the artillery will finish them. [T]o overcome the landmines, they must pass it as quickly as possible and not stand before it. It is the same thing in the international

⁷⁵ Ibid., 41.

⁷⁶ Ibid., 42.

[community], if we stop, we could be exposed to the death of our regime."⁷⁷ Saddam's near-Arab threats consisted of Saudi Arabia and Kuwait. The Iraqi leader felt both nations (influenced by western objectives) assisted in depressing the price of oil, subsequently increasing Iraq's inability to generate revenue. To compensate for this loss, Iraq demanded from Kuwait "\$2.4 billion in compensation for the disputed Ramalia oil field; \$12 billion for Kuwait's role in depressing oil prices in general; forgiveness of Iraq's \$10 billion war debt; and a long term lease on Bubiyan island."⁷⁸ Iraq considered Kuwait's failure to meet these demands, or lack of effort in offering a diplomatic resolution, as an act of aggression.

Kuwait and Iraq share a 120-mile long border extending from the Persian Gulf to Saudi Arabia. From Saudi Arabia, two north-south running routes converge into Kuwait city and diverge north towards Iraq. Highways 80 and 8 provide lines of communication and avenues of approach travelling from Kuwait City to Basra, and Basra to Baghdad. Highway 80 served as the main line of logistical resupply of Iraqi forces in Kuwait. Iraq's attack into Kuwait began between August 2 and 4th, 1990. The initial Iraqi invasion into Kuwait consisted of three Republican Guard heavy divisions, later reinforced by four Republican Guard motorized divisions. Within two months, the ground strength of Iraqi forces consisted of 360,000 men, 2,800 tanks, 800 combat aircraft, and Special Forces elements within Kuwait.⁷⁹ Concerned over future western retaliation and over-extending his military's operational reach, Saddam limited his attacks to within the border of Kuwait and transitioned to a defense in depth.⁸⁰ As Dr. Brown points out, "Saddam himself opined that the American people would not stand for 10,000 casualties and

⁷⁷ Ibid., 48.

⁷⁸ Ibid., 52

⁷⁹ Brown, "The Maturation of Operational Art: Desert Shield and Desert Storm " in *Historical Perspectives of the Operational Art*, 445.

⁸⁰ Joint Publication 3-0 (JP 3-0) defines operational reach as the distance and duration across which a joint force can successfully employ military capabilities. Headquarters, Joint Staff, Joint Publication 3-0, *Joint Operations* (Washington, DC: Government Printing Office, 2011), GL-15.

seemed determined to exact at least that number if forced to defend the country he had seized."⁸¹

Within Kuwait, "Iraqis had matured a layered defense, with line infantry entrenched behind protective barriers along the border backed up by local mobile reserves of regular army tank and mechanized divisions.... These local reserves were themselves backed up by the operational reserves of the heavily mechanized Republican Guard."⁸² Iraqi forces were a battle-tested, competent, conventional force capable of conducting combined arms maneuver. The Iraqi attack in Kuwait threatened the security of U.S. allies in the Middle East and global distribution of oil.

U.S. interests captured in the National Security Strategy for over the past forty years, consist of security, prosperity, values, and international order.⁸³ The Post-Cold War strategic culture of the United States held a multilateral liberal tradition towards foreign policy.⁸⁴ The United States remained committed to binding liberal institutions assisting in the promotion of security, prosperity, values, and international order within the context of existing strategic continuities.⁸⁵ The Iraq invasion of Kuwait in August of 1990 appeared as a "bolt from the blue" to regional Arab nations and their western allies.⁸⁶ The operation threatened U.S. and multinational interest in the area. After United Nations Resolution 678 provided an international mandate for the use of force against Iraq, President George H. Bush looked for military

⁸¹ Brown, "The Maturation of Operational Art," 448.

⁸² Ibid., 453.

⁸³ President George H. Bush, *National Security Strategy of the United States* (Washington, DC: The White House, 1990): http://bushlibrary.tamu.edu/research/pdfs/national_security_strategy_90.pdf (accessed on September 19, 2012).

⁸⁴ Liberalism promotes the spread of democracy, with the goal of establishing global economic ties and institutions to maintain and spread peace among nations. Jack Snyder, "One World, Rival Theories," *Foreign Policy* (November/December 2004), 53.

⁸⁵ Continuities consist of American values, geography, demographics, economic resources competition based on a growing world population, we will always have an enemy, and we will always have a trained officer corps and a strong military culture. Chairmen of the Joint Chiefs, General Martin Dempsey, Address at Duke University, January 2012, <http://www.jcs.mil/speech.aspx?id=1673> (accessed on September 19, 2010).

⁸⁶ Woods, *The Mother of all Battles*, 9.

operations to liberate Kuwait and protect multinational economic and security interest in the area.⁸⁷ The President tasked the Department of Defense to generate military options to liberate Kuwait, protect U.S. and multinational interest within the region, while limiting casualties incurred from a protracted conflict. Simultaneously, the U.S. faced the problem of developing a multinational coalition initiative able to defeat Saddam's forces, while sensitive to the concerns of its allies. Arab military partner capabilities were not on par with U.S. and other western allies. Arab nations also wanted to limit the attack to drive Iraqi forces out of Kuwait, while limiting allied offensive operations within Iraq.

The initial plan to defeat Iraqi forces in Kuwait consisted of using elements from the XVIII Airborne Corps, First Marine Division, and multi-national partners to conduct an attack "to secure the northern border and cut off the Iraqis in Kuwait."⁸⁸ Results from Battle Command Training Program (BCTP) simulations Internal Look 90 highlighted problems with the initial concept and combat power allocation. The concept and combat power allocated for the plan led senior officials to believe the pending war would have a high casualty rate, and risk the overall success of the operation. As Kevin Woods highlights, "The President and his senior civilian advisors-influenced by estimates of Iraqi military capabilities, as were the military- saw the plan as unimaginative and carrying with it the prospect of considerable casualties. Schwarzkopf's new plan called for adding a whole corps from Germany."⁸⁹ Subsequently, an alternate plan was developed adding VII Corps (augmented with additional mechanized force), and the Second Marine Division. The multinational attack plan looked to overwhelm Iraqi forces conducting a

⁸⁷ Resolution 678 (1990) authorizes member States co-operating with the Government of Kuwait to use all necessary means to uphold and implement resolution 660 (1990) and all subsequent relevant resolutions and to restore international peace and security in the area. United Nations Security Council, Resolution 678 "Iraq-Kuwait" (New York: United Nations Headquarters, 1990), <http://www.un.org/Docs/scres/1990/scres90.htm> (accessed July 2012).

⁸⁸ Richard M. Swain, *"Lucky War:" Third Army in Desert Storm* (Fort Leavenworth, KS: U.S. Army Command and General Staff College Press, (1994), 80.

⁸⁹ Woods, *The Mother of all Battles*, 3.

defense in depth and secure or sever Iraqi lines of communication, while limiting coalition casualties utilizing two U.S. Army Corps (XVIII and VII Corps) and three joint and multi-national corps equivalents (Joint Forces Command North, Marine Central Command, and Joint Forces Command East). Under General Schwarzkopf's direction and lessons gathered from Internal Look 90, CENTCOM planners overcame the problem of how to position forces within in Saudi Arabia while deterring Saddam from further offensive action, and deploying men, weapons, and equipment from Europe and the United States for a two corps offensive attack.⁹⁰ CENTCOM planners decided to, "... frontload heavy ground combat units into scarce shipping build up heliborne and other anti-armor capabilities quickly."⁹¹ The structure of U.S. Army Corps provided the CENTCOM commander and staff with an operational unit capable of conducting independent, self-sustaining operations. As Kevin Brown highlights, "Desert Storm was fought on the ground with divisions as operational building blocks and corps as practitioners of operational art."⁹² The U.S. deployed more than 350,000 personnel, 1,800 aircraft, 12,400 tracked vehicles, 114,000-wheeled vehicles, 9,000 aircraft, and 1,800,000 tons of cargo in support of Operation Desert Shield and Desert Storm.⁹³ Between August 1990 and February 1991, CENTCOM planners and staffs deployed the XVIII Airborne and VII Corps to the Kuwait Theater of Operations (KTO), while unifying multinational efforts under Marine Central Command and Joint Forces Command North and East to deter further Iraqi aggression.

⁹⁰ Internal Look 90 consisted of a computer based simulations exercise focusing CENTCOM force on contingency operations. Previously this exercise focused on contingency operations against the Soviet Union. However, based on the collapse of the Soviet Union and Iraq's attack against Kuwait, General Schwarzkopf changed the focus of the exercise to defeating Iraqi forces in Kuwait. Ibid., 3.

⁹¹ Brown, "The Maturation of Operational Art," 445.

⁹² Ibid., 444.

⁹³ Ibid., 446.

Operation Desert Storm consisted of an indirect approach to defeat the Iraqi Republican Guard and to liberate Kuwait.⁹⁴ Operational planners faced the problem of developing a synchronized joint offensive operation integrating multinational partners to defeat a well-trained, equipped, and combat-tested Iraqi Republican Guard conducting a defense in depth within an open desert, supported by chemical weapons, mines and a multi-division strategic reserve, to liberate Kuwait, limit coalition casualties, and maintain multinational sensitivities in the conduct of the attack. Choosing the indirect approach afforded a means of attacking Iraqi forces from a position of relative advantage, overwhelming the enemy with firepower, while reducing friendly casualties incurred from directly attacking a defense in depth.⁹⁵ General Schwarzkopf recognized the Iraqi Republican Guard as the Iraqi strategic center of gravity within the Kuwait Theater of Operations (KTO), and set its physical destruction as an operational objective.⁹⁶ The operational approach consisted of a phased operation using air power to attrite Iraq forces, and a combined arms land campaign to secure key terrain, envelop, and defeat Iraq forces within Kuwait, and posture to defend from northern Kuwait or conduct future offensive operations within Iraq.⁹⁷

General Schwarzkopf's concept of the operation for ground forces consisted of a synchronized attack within five separate corps areas of operation. The air campaign began at 0300 January 17, 1991 with the aim of gaining air supremacy, defeating Iraqi air defense and reducing Iraq's combined arms capabilities.⁹⁸ While the air campaign did not have a major effect

⁹⁴ An indirect approach attacks the enemy's COG by applying combat power against a series of decisive points that lead to the defeat of the COG while avoiding enemy strength. JP 5-0: *Joint Operation Planning*, III-32.

⁹⁵ Swain, *Lucky War*, 77. Joint Publication 5-0 (JP 5-0) defines operational approach A description of the broad actions the force must take to transform current conditions into those desired at end state. JP 5-0: *Joint Operation Planning*, GL-13.

⁹⁶ Swain, *Lucky War*, 83.

⁹⁷ Ibid., 73.

⁹⁸ Woods, *The Mother of all Battles*, 3.

on Iraq combined arms formations, the air campaign assisted the ground campaign by disrupting Iraqi communications, and limiting its ability to conduct effective command and control.

The ground phase of the operation began on 0300 February 24, 1991 consisted of a demonstration conducted by the Fourth Marine Expeditionary Brigade (MEB) in the Persian Gulf. Apart of an overarching deception operation, the Fourth MEB demonstration helped force Iraqi forces to commit to defending against an amphibious assault near Kuwait City.⁹⁹ Marine Central Command conducted a tactical feint to assist in the deception operation by fixing Iraqi Republican Guard forces near Kuwait City.¹⁰⁰ Joint Forces Command East (consisting of multinational Arab allies) supported this effort by augmenting Marine efforts to the east. Joint Forces Command North attacked between Marine Central Command and VII Corps flanks, eventually securing Kuwait City. The XVIII Airborne Corps attacked to isolate the north and western portion of the KTO by securing objectives between Iraq and Kuwait near As Salaman and Tallil Air base.¹⁰¹ The decisive operation consisted of VII Corp's attack to "penetrate the Iraqi defenses, exploit to seize an objective cutting the north south line of communication (the Basra-Kuwait City highway) sixty kilometers north of Kuwait City, and, on order, continue the attack to seize the Rawdatayan oil fields and secure the northern Iraqi-Kuwait border."¹⁰²

Within one hundred hours, execution of Central Commands (CENTCOM) campaign plan led to Coalition liberation of Kuwait. Although elements of the Iraqi Republican Guard were able

⁹⁹ Deception consists of measures designed to mislead the enemy by manipulation, distortion, or falsification of evidence to induce the enemy to react in a manner prejudicial to the enemy's interests. A demonstration is as an attack or show of force on a front where a decision is not sought, made with the aim of deceiving the enemy. Headquarters, Department of the Army, Field Manual 1-02: *Operational Terms and Graphics* (Washington, DC: Government Printing Office, 2004), 1-52 and 1-57.

¹⁰⁰ A feint is an offensive action involving contact with the adversary conducted for the purpose of deceiving the adversary as to the location and/or time of the actual main offensive action. Fix is a tactical mission task where a commander prevents the enemy from moving any part of his force from a specific location for a specific period of time. FM 1-02: *Operational Terms and Graphics*, 1-76 and 1-81.

¹⁰¹ Brown, "The Maturation of Operational Art," 454.

¹⁰² Swain, *Lucky War*, 79.

to refit within Iraq, Saddam Hussein no longer posed a near term security threat to surrounding Arab nations. Analyzing the development of the campaign plan reveals the use of the theory of operational art in the principled application of force. Within the *Elements of Operational Design*, identifying a center of gravity helps to develop an operational approach as the guiding theme for the campaign. Within Desert Storm, the indirect approach assisted in formulating a campaign attacking the enemy from a position of relative advantage. *Elements of Operational Art* consists of the phasing and tempo designed within the campaign plan.

COG

Military theorist Carl von Clausewitz created the idea of a center of center of gravity (COG) to provide a metaphor for direction in the conduct of warfare. Clausewitz assessed that “the first task in military planning for a war is to identify the enemy’s centers of gravity, and if possible, trace them back to a single one.”¹⁰³ General Schwarzkopf identified the Iraqi Republican guard as the Iraqi strategic center of gravity (COG) and the CENTCOM operational objective. Within the *Elements of Operational Design*, a COG is “the source of power that provides moral or physical strength, freedom of action, or will to act.”¹⁰⁴ Australian Defense College Fellow Dr. Michael Evans feels analysis of a COG “remains vital in any attempt to create an integrated operational approach using design, operational art and planning.”¹⁰⁵ Dr. Evans claims “Clausewitz believed that the idea of a cohesion which, if dislocated or destroyed, unhinged a military force was an enduring feature of the history of war.”¹⁰⁶ In essence, a COG provides a military unit with its cohesive ability to conduct campaigns or operations. A COG can

¹⁰³ Carl von Clausewitz, *On War*, trans. and ed. Michael Howard and Peter Paret (Princeton, NJ: Princeton University Press, 1976), 619.

¹⁰⁴ JP 5-0: *Joint Operation Planning*, GL-6.

¹⁰⁵ Michael Evans, “Centre of Gravity Analysis in Joint Military Planning and Design: Implications and Recommendations for the Australian Defense Force,” *Security Challenges* 8, no. 2 (Winter 2012): 104.

¹⁰⁶ *Ibid.*, 83.

represent a physical or moral component deemed necessary to conduct operations. A force is no longer able to conduct cohesive or unified operations if its COG is attacked and rendered ineffective. Marine Corp scholar Joseph Strange's "Strange model" provides a means of identifying a COG and its components necessary for existence. Adopted by joint doctrine, the strange model identifies a COG consisting of three component parts. These components are critical capabilities, critical requirements, and critical vulnerabilities.¹⁰⁷ As previously stated, General Schwarzkopf identified the Iraqi Republican Guard as the Iraqi Strategic COG. The IRC's critical capability consisted of a mobile mechanized force able to conduct combined arms maneuver and offensive or defensive operations. Its critical requirements consisted of logistical supplies using extended lines of communication from Iraq to Kuwait. These lines of communication provided fuel and other supplies necessary for operational readiness. Analyzing critical requirements helps identify the Iraqi Republican Guards critical vulnerabilities as the lines of communication between Iraq and Kuwait. Identification of critical vulnerability helped CENTCOM planners develop an operational approach focusing on the Iraqi Republican Guards critical vulnerability. To achieve success, the CENTCOM operational approach focused on defeating the Iraqi COG in an indirect manner by attacking its critical vulnerability. The air campaign's ability to disrupt Iraq lines of communication and command and control, as well as the isolation of the KTO contributed to allied ground forces' ability to attack the Iraqi Republican Guard in an indirect manner.

¹⁰⁷ Critical capabilities are a COG's primary abilities or military instruments whose presence and function assist in identifying a center of gravity. Critical requirements are essential conditions, resources, and means that sustain effective critical capabilities, and critical vulnerabilities. Critical vulnerabilities consist of the recognition of an enemy's requirements, and converting it into vulnerabilities for attack or exploitation. Joseph Strange, *Centers of Gravity and Critical Vulnerabilities: Building on the Clausewitzian Foundation So We Can All Speak the Same Language*, 2nd ed. (Quantico, VA: United States Marine Corps Association, 1996), 27-42.

Indirect Approach

JP 5-0 states "an indirect approach attacks the enemy's COG by applying combat power against a series of decisive points that lead to the defeat of the COG while avoiding enemy strength."¹⁰⁸ To attack the Iraqi center of gravity indirectly, the ground campaign relied on one shaping operation to fix the Iraqi Republican Guard through deception. The Fourth MEB's demonstration and the combined efforts of Marine Central Command and Joint Forces North and East attacks fixed Iraqi forces into believing a decisive operation would be focused on Kuwait City. The XVIII Airborne Corps' shaping operation to isolate the KTO appeared as a preparatory attack into Iraq. As Iraqi forces remained focused on actions to its southern and western flanks, the CENTCOM decisive operation of VII Corps achieved a penetration and envelopment of Iraqi defense, resulting in the eventual degradation of the Iraqi COG. Indirectly attacking the Iraq COG by penetration and envelopment of an assailable flank forced the Iraqi Republican Guard to capitulate or face eventual destruction.

Phasing

Operation Desert Storm shows a series of phases, sub phases, and transitions within the campaign.¹⁰⁹ The deployment of U.S. forces from August 1990 until employment in February of 1991 showed depth harnessed through previous training exercises against the Soviet Union under *AirLand Battle* doctrine. The deployment was a phased operation of ground forces. Anti-armor and logistical support units were front-loaded to secure a lodgment and build a footprint for follow on armor forces. The deployment of the 82nd Airborne into Saudi Arabia acted as deterrence against further Iraqi offensive operations. If Iraq attacked Saudi Arabia and engaged U.S. ground forces it would face war with the U.S. as a repercussion for its attacks. The Iraqi

¹⁰⁸ JP 5-0: *Joint Operation Planning*, III-32.

¹⁰⁹ A phase is a planning and execution tool used to divide an operation in duration or activity. ADRP 3-0, *Unified Land Operations*, 4-7.

pause caused by the deployment of the 82nd Airborne also allowed the U.S. and other partners to deploy, redirect force, and build additional combat power within Saudi Arabia.¹¹⁰

The air campaign during operations Desert Shield and Desert Storm provides an example of a preparatory phase to enhancing success in a subsequent ground phase of the operation. The air campaign assisted in degrading Iraqi air defense, command and control, and logistical lines of communication prior to the start of the ground campaign. The air campaign facilitated the buildup of land component combat power. Finally, the air campaign supported isolation of Iraqi forces during the ground offensive. As Dr. Brown states, "air supremacy, paralyzed Iraqi command and control, degraded Iraqi logistics, and severely mauled Iraqi armor and artillery formations...Iraqi command and control does in fact seem to have been paralyzed by the time the ground war began."¹¹¹ Ground forces conducted a demonstration to fix Iraqi forces, a penetration to extend interior lines of support, and an envelopment to defeat Iraqi forces. The phasing of deployment, shaping, and decisive operations provided a key tool separating operations in duration and activity. Planned phasing allowed mutual support toward a desired end state.

Tempo

The tempo of offensive operations during Operation Desert Storm, although exceeding the expectations of military planners, was a major component in the development of the overall campaign.¹¹² As previously mentioned, the addition of VII Corps with augmented mechanized force was necessary to facilitate overwhelming offensive combat power against the Iraqi Republican Guard. As General Schwarzkopf stated "I want VII Corps to slam into the Republican

¹¹⁰ Brown, "The Maturation of Operational Art," 447.

¹¹¹ Ibid., 457.

¹¹² Tempo is the relative speed and rhythm of military operations over time with respect to the enemy. ADRP 3-0, *Unified Land Operations*, 4-7.

Guard.”¹¹³ Offensive operations were continuous and designed to keep the enemy off balance and in a less than favorable position to provide a coherent response. VII Corps’ composition of, “five heavy divisions, four separate artillery brigades, an armored cavalry regiment, and a separate aviation brigade” provided the necessary combat power to maintain sustained operations against Iraqi forces.¹¹⁴ As Dr. Swain highlights, General Fredrick M. Franks, VII Corps Commander, states three keys to successful offensive operations consisted of “relentless attack (no pauses once the operations was under way), maintenance of concentration- hitting with a closed fist rather than open fingers- and the absolute need for three heavy divisions at the point of impact with the RGFC.”¹¹⁵ All of which underscore the importance of maintaining a positive relative speed and rhythm of military operation over time with respect to the enemy.

Operation Desert Storm provides the rare occasion to observe a plan executed nearly according to plan in war. More importantly, it provides an example of the incorporation of operational art into doctrine, the application of operational art by officers using doctrine influenced by the principles of operational art to develop campaigns and major operations, and the evaluation of campaigns based on components of operational art. Campaign plans evaluated in simulations at the BCTP provided cost effective analysis to adjust planning consideration in the construction and execution of campaigns.¹¹⁶ Desert Storm also provides analysis into how strategic context and objectives are incorporated in developing an operational problem and approach, leading to an overall concept built on desired principals of operations art. This analysis used COG analysis, indirect approach, phasing, and tempo to articulate the use of principles of operational art deemed necessary in campaign planning. While Desert Storm is considered a

¹¹³ Swain, *Lucky War*, 123.

¹¹⁴ Brown, "The Maturation of Operational Art," 454.

¹¹⁵ Swain, *Lucky War*, 117.

¹¹⁶ Brown, "The Maturation of Operational Art," 473.

major combat operation, the same campaign analysis model is applied to Operation Arrowhead Ripper, a brigade campaign in support of the 2007-2008 Operation Iraqi Freedom Surge campaign. This analysis assist in highlighting the importance of teaching, training and evaluating operational art in missions other than major combat operations.

Operation Arrowhead Ripper:

After the initial invasion, Operation Iraqi Freedom (OIF) consisted of a combination of offensive, defensive, and stability operations focused on applying combat power and effects to improve civil conditions and maintain the initiative, currently known as wide area security operations within current doctrine.¹¹⁷ As the U.S. Army transitioned from a conventional battle to counter insurgency operations, strategic and operational goals looked to secure policy decisions leading to a cessation of hostilities.¹¹⁸ Within OIF, components of the Surge campaign stand out as examples of operational art conducted by supporting Brigade Combat Teams (BCT). In support of Multi National Corps-Iraq (MNC-I), 3/2 Stryker Brigade Combat Team's (SBCT), Operation Arrowhead Ripper in Baqubah, Iraq provides a case of operational art conducted by a BCT for analysis. For this study, James A. Baker, III, and Lee H. Hamilton's, "The Iraq Study Group Report," and Dr. Fredrick W. Kagan's, "Choosing Victory: A Plan for Success in Iraq," provide strategic context discussing adversarial capabilities and the characteristics of the physical environment during the advent of Surge operations. As a specialist in international security, Dr. Catherine Dales', "Congressional Research Service Report for Congress, Operation Iraqi Freedom: Strategies, Approaches, Results, and Issues for Congress" provides information on the physical environment as well as friendly capabilities and objectives at the strategic and operational level. Strategic and operational level objectives link to subordinate objectives within

¹¹⁷ Within an operational environment, an Army leader may conduct major combat, military engagement and humanitarian assistance simultaneously. Army doctrine has always stated that Army forces must be prepared to transition rapidly from one type of operation to another. Wide area security is about retaining the initiative by improving civil conditions and applying combat power to prevent the situation from deteriorating. It is also about preventing the enemy from regaining the initiative—retaining the initiative in the face of enemy attempts to regain it for themselves. Commanders identify nonmilitary but critical objectives to achieving the end state. Such objectives may include efforts to ensure effective governance, reconstruction projects that promote social well-being, and consistent actions to improve public safety. All these objectives contribute to retaining the initiative in wide area security. ADRP 3-0, *Unified Land Operations*, 2-2.

¹¹⁸ Catherine Dale, "CRS Report for Congress, Operation Iraqi Freedom: Strategies, Approaches, Results, and Issues for Congress, RL34387" (March 2008) under "Federation of American Scientist" <http://www.fas.org/sgp/crs/mideast/RL34387.pdf> (accessed June 2012), 6.

Operation Arrowhead Ripper. As this essay focuses on 3/2 SBCT's campaign in Baqubah, detailed campaign analysis focuses on Operation Arrowhead Ripper, and its support to MNC-I's Operation Phantom Thunder. COL Fred Johnson's, "Arrowhead Ripper: Adaptive Leadership in Full Spectrum Operations" and Colonel Bruce Antonia's, "Was the Surge Strategy Right," provide a majority of the data used for analyzing Operation Arrowhead Ripper.¹¹⁹

After the September 11 attacks and apparent dismantling of the Al Qaeda and the Taliban in Afghanistan, the United States looked to preemptively defeat Iraq's ability to project or develop weapons of mass destruction. In March of 2003, the Operation Iraqi Freedom invasion led to the dismantling of the Saddam Hussein regime. As U.S. forces transitioned from major combat to stability operations, US officials focused on a timely transition of civil control and governance to a new Iraqi government.¹²⁰ In the midst of this transition, the enemy within Iraq consisted of a variety of groups and organizations with competing interests, preventing the establishment of civil order for war termination. As the Iraq Study Group report highlights, "There are multiple sources of violence in Iraq: the Sunni Arab insurgency, al Qaeda and affiliated jihadist groups, Shiite militias and death squads, and organized criminality. Sectarian violence—particularly in and around Baghdad—has become the principal challenge to stability."¹²¹ The Sunni insurgency consisted of networks of Saddam loyalists, disaffected Sunni Arabs, and criminals seeking Sunni Arab national rule or local power and control within spheres

¹¹⁹ For full disclosure, the author of this monograph served as an Infantry Company Commander in Baqubah, Iraq prior to and for the duration of Operation Arrowhead Ripper within 3/2 SBCT. Prior to this study, the author was unaware of the impacts of operational art on a campaign, and its importance in linking tactical actions supporting the pursuit of strategic objectives.

¹²⁰ Catherine Dale, "CRS Report for Congress, Operation Iraqi Freedom: Strategies, Approaches, Results, and Issues for Congress, RL34387," 112.

¹²¹ James A. Baker, III, and Lee H. Hamilton, "The Iraq Study Group Report," (Dec 2006) under "United States Institute for Peace" http://www.usip.org/isg/iraq_study_group_report/report/1206/index.html (accessed August 2012), 3.

of influence.¹²² The Shia insurgency consisted of Moqtada Al-Sadr's Mahdi Army and the Supreme Islamic Council for the Islamic Revolution in Iraq's (SCIRI) Badr Brigade, both believed to be receiving support from Iran, while seeking national and local level political rule.¹²³ Al Qaeda in Iraq (AQI) operated with an estimated 1,300 dedicated foreign fighters who drew support from Sunni insurgents, focusing on spectacular attacks via car and suicide bombs. These attacks aimed to increase Sunni and Shia ethnic tension, drive the United States out of Iraq, and destabilize the Iraqi political process.¹²⁴ During this period of instability, increased criminal activity also contributed to violence against Iraqi citizens and coalition forces. As a disparate force, the insurgency challenged the ability of the U.S. and the Iraq government to reach an agreement ending combat operations and transitioning to sustainable Iraqi civil control. Insurgent strategic objectives consisted of controlling the Iraqi populace.¹²⁵ With the Iraqi populace as the center of gravity, insurgent forces influenced the U.S. and Iraq governments' ability to reach a lasting agreement to end operations in Iraq.¹²⁶ The geographical focus of the insurgency relied on controlling areas with high population concentrations.

¹²² Fredrick W. Kagan, "Choosing Victory: A Plan for Success in Iraq," (Jan 2007) under "American Enterprise Institute" <http://www.aei.org/papers/foreign-and-defense-policy/regional/middle-east-and-north-africa/choosing-victory-a-plan-for-success-in-iraq-paper/> (accessed August 2012), 10.

¹²³ Baker and Hamilton, "The Iraq Study Group Report," 5.

¹²⁴ Kagan, "Choosing Victory," 10.

¹²⁵ As defined in JP 1-02, control consists of physical or psychological pressures exerted with the intent to assure that an agent or group will respond as directed. JP 1-02: *Department of Defense Dictionary of Military and Associated Terms*, 69.

¹²⁶ "Baghdad is the center of gravity of the conflict in Iraq at this moment. Insurgents on all sides have declared that they intend to win or die there. It is the capital and center of Iraqi government. It is the base of American power and influence in the country. It is the largest and most populous city in Iraq." Fredrick W. Kagan, "Choosing Victory," 8. In his January 10, 2007, address to the nation, President Bush announced that to help implement the New Way Forward, the United States would deploy additional military units to Iraq, primarily to Baghdad. Their mission, a paraphrase of the "clear, hold, build" language, would be: "to help Iraqis clear and secure neighborhoods, to help them protect the local population, and to help ensure that the Iraqi forces left behind are capable of providing the security that Baghdad needs. Catherine Dale, "CRS Report for Congress," 58. The New Way Forward strategy focused on a combination of direct and indirect approaches to gain support of the population. Under the New Way Forward, the Surge campaign secured the population of Baghdad with a combination of offensive defensive

Iraq's population centers concentrated in Baghdad and its surrounding provinces. Within Iraq, four restive provinces contained a majority of Iraqi's population: Baghdad Province, with the capital city of Baghdad, Anbar Province, with the capital city of Ramadi and the important cities of Fallujah and Haditha, Salah ad Din Province, with the cities of Tikrit and Samarra, and Diyala Province, with the capital of Baqubah accounted for more than 10.5 million Iraqis.¹²⁷ Known as Baghdad and the Belt areas, military planners focused a majority of operations and assets in securing these areas.¹²⁸ Looking at it on a map, Baghdad was a hub with connecting spokes to the aforementioned provinces for insurgents to conduct basing operations and attacks. To the west, Anbar Highways 11 and 12 provided Sunni insurgents and AQI entry into western Baghdad. To the north, Highway 1 supported insurgent traffic from Salah ad Din to Baghdad while Highways 7 and 8 supported the flow of accelerants from the south. Insurgent basing and resources from the northeast and east used Baqubah as a weigh point along Highways 2, 3, 5 and a network of improved roads paralleling the north south flow of the Tigris and Diyala Rivers.¹²⁹ Within the Baghdad Belt area, military planners looked for feasible means to secure the population, provide time, and space for the Iraqi government to gain civil control.

and stability operations. Security through combined operations provided legitimacy to the government. Government legitimacy garnered the support of the population.

¹²⁷ Baker and Hamilton, "The Iraq Study Group Report," 6.

¹²⁸ "Baghdad" was defined to include the surrounding areas, or "belts," which had been providing bases of operation and transit points, with access into the capital, for both Sunni and Shia extremists. LTG Odierno's guidance to his subordinate commanders was to stop the flow of "accelerants of the violence" through those areas into Baghdad. Catherine Dale, "CRS Report for Congress," 61.

¹²⁹ "Even the insurgents who regularly operate in Baghdad have bases outside of the city, especially in the villages near Taji to the north and Iskandariyah to the south. These two settlement belts provide a great deal of support to the enemy operating in the capital. Diyala province, which lies to the north and east of Baghdad, is another important insurgent base. The Diyala River flows through its province's capital city of Baquba and, finally, into the Tigris River just south of Baghdad. Sunni rejectionists and al Qaeda operatives follow the Diyala River toward Baghdad and then, leaving its course, launch strikes into the heart of Sadr City. Baghdad is therefore a nexus of violence drawn from a number of regions outside the city." Fredrick W. Kagan, "Choosing Victory", 10

In January of 2007, the National Security Council (NSC) highlighted strategic objectives guiding U.S. military forces in Iraq. As stated in a NSC brief, “Our strategic goal in Iraq remains the same: a unified democratic federal Iraq that can govern itself, defend itself and sustain itself, and is an ally in the war on terror.”¹³⁰ However, as stated in the Iraq Report, “President Bush changed the mission of U.S. forces in Iraq to securing the population of Baghdad from sectarian violence.... The population and the Government of Iraq are the center of gravity.”¹³¹ In a January 2007 address to the nation, President George W. Bush stated, “The most urgent priority for success in Iraq is security.”¹³² With a change in focus annotated in the New Way Forward strategy, U.S. efforts focused on achieving political, economic and security progress by first emphasizing a marked improvement in national and regional security.¹³³ To support improvements in security, President Bush announced an increase of five additional brigade combat teams. As COL Bruce Antonia states, “On January 10, 2007, President George W. Bush announced that he would deploy five additional combat brigades as part of a new strategy to win in Iraq. This equated to the deployment of about 50,000 US Soldiers, Marines, Airmen, Sailors, and contractors, a significant increase in the operational tempo of the US Army, and an estimated 13 billion dollars of taxpayer money.”¹³⁴

¹³⁰ National Security Council, “Highlights of the Iraq Strategy Review” (January 2007) under “national Defense University Military Education Research Library Network” <http://merln.ndu.edu/archivepdf/iraq/WH/iraq-strategy011007.pdf> (accessed August 2012), 8.

¹³¹ Baker and Hamilton, “The Iraq Study Group Report,” 2.

¹³² Dale, “CRS Report for Congress,” 57.

¹³³ National Security Council, “Highlights of the Iraq Strategy Review,” 9.

¹³⁴ Colonel Antonia also stated, “The increase in United States combat forces was only part of the new strategy commonly referred to as “the new way forward.” Because of the deployment of thousands of American troops, the press coined the strategy as “the surge strategy.” Bruce Antonia, “Was the Surge Strategy Right,” (United States Army War College Strategy Research Project, United States Army War College, 2009)<http://www.hsdl.org/?view&did=17406> (accessed March 2012), 1.

At peak levels, the Surge provided nearly 168,000 U.S. service members in support of Operation Iraqi Freedom by the fall of 2007.¹³⁵ As the commander of MNC-I, General Raymond Odierno focused on securing the population in and around Baghdad. General Odierno stated, "The population and the government are the center of gravity."¹³⁶ As stated in the Iraq report, "On June 15, 2007, General Odierno launched multiple, simultaneous, offensive operations around Baghdad in order to disrupt enemies surrounding the city. The Corps' offensive is called Operation Phantom Thunder."¹³⁷ Operation Phantom Thunder was the first of several Corps-level operations directing the emplacement of Surge forces to secure the population around Baghdad. The Belts held enemy sanctuaries influencing political, security, and economic development. Attacking the belts focused on disrupting enemy lines of communication. Operation Phantom Thunder was an indirect operational approach focused on securing the population within Baghdad by first disrupting enemy lines of communication and supply in the surrounding areas to set the condition for future security improvements. Increased disruption of enemy activity in the Baghdad Belts combined with establishing bases within neighborhoods, increased training of Iraqi security forces, and barrier development limiting access to areas considered key population nodes within Baghdad provided U.S. forces with an ability to develop intelligence and secure terrain influencing the population. As operation Phantom Thunder focused on stopping the flow of accelerants of violence into Baghdad, this essay will focus on a MNC-I subordinate brigade combat team's ability to conduct operational art within the restive Diyala province and its capital Baqubah.¹³⁸

¹³⁵ Dale, "CRS Report for Congress," 35.

¹³⁶ Dale, "CRS Report for Congress," 61.

¹³⁷ Kimberly Kagan, "Iraq Report: The Real Surge: Preparing for Operation Phantom Thunder" (June 2007) under "Institute for the Study of War" <http://www.understandingwar.org/report/real-Surge-preparing-operation-phantom-thunder> (accessed June 2012), 3.

¹³⁸ Dale, "CRS Report for Congress," 61.

As the population of Baghdad became the operational center of gravity of U.S. forces, insurgent groups displaced to the belt areas to wait out Surge forces. One of these locations was Diyala Province and, specifically Baqubah, its capital.¹³⁹ During early 2007, AQI and Sunni Insurgents claimed Baqubah as the capital of the Islamic State of Iraq.¹⁴⁰ In the on-line publication “The Long War Journal,” columnist Bill Roggio reported, “Over 2000 plus Al Qaeda are thought to have fled to the province since the inception of the Baghdad Security Plan in mid-February, and the security situation has markedly decreased since then.”¹⁴¹ AQI used the province as a training ground and safe haven to launch attacks into Baghdad. AQI, in coordination with Sunni insurgents, used car and suicide bombs to attack coalition forces and citizens of Baghdad. Within Baqubah, AQI terrorized local government forces using small arms, mortars, rocket-propelled grenades, car bombs, and suicide attacks. Based on force levels and the premature transition of authority from U.S. to Iraqi Security Forces prior to the Surge, insurgents seized civil control of Baqubah and developed a defense-in-depth to safeguard geographic gains influencing the population within the city.¹⁴² It appeared that AQI and Sunni insurgents in Baqubah established multiple networks to control the neighborhoods within Baqubah. Each network established multiple deep-buried and house-borne improvised explosive devices (IED) in depth along high-speed avenues of approach to prevent coalition forces from entering insurgent bases of

¹³⁹ Antonia, “Was the Surge Strategy Right,” 9.

¹⁴⁰ Dale, “CRS Report for Congress,” 61.

¹⁴¹ Bill Roggio, “Diyala Campaign” (April 2007) under “The Long War Journal,” http://www.longwarjournal.org/archives/2007/04/the_diyala_campaign.php (accessed August 2012).

¹⁴² As part of a perimeter defense within Army doctrine, defense in depth consists of establishing alternate and supplementary positions, combat outposts, and mutually supporting strong points forward of the perimeter to extend the depth of a defense. The commander plans fires throughout the defensive area up to the maximum range of available weapons. Forces defending in depth absorb the momentum of the enemy’s attack by forcing him to attack repeatedly through mutually supporting positions in depth. Depth gives the commander’s fire support assets time to generate devastating effects and affords him multiple opportunities to concentrate the effects of overwhelming combat power against the attacking enemy. Headquarters, Department of the Army, Field manual 3-90: *Tactics*, (Washington, DC: Government Printing Office, 1986), 14.

operation. Within a secure area, insurgents established civil control over the population through terror and conducted training and planning for future operations within the Baghdad Belt areas.¹⁴³ As security forces attempted entry into these neighborhoods, the initiation of a deep-buried IED triggered an insurgent response of a squad to a platoon-size element supporting the deep-buried IED attack.¹⁴⁴ If coalition forces attempted forward movement, they faced additional unknown deep-buried or house-borne IEDs at intersections and choke points for vehicular movement, or supporting dismounted traffic. As security forces withdrew for casualty evacuation and recovery, they were attacked by small arms, RPGs, and mortar fires. With limited force and means to access and secure insurgent strongholds, forces in Baqubah prior to the arrival of Surge forces primarily conducted operations from Forward Operating Base (FOB) Warhorse and supporting combat outposts primarily focused on maintaining access to the main lines of communication connecting forces within Baqubah to military transition teams further east in Diyala.

An estimated 300,000 Iraqi citizens lived in Baqubah from 2006-2007. As security dwindled prior to Surge operations, the city became a hotbed for ethnic violence. During ethnic conflict, a majority of displaced Shia Muslims' homes provided bases for Sunni insurgent groups. Situated thirty miles northeast of Baghdad, Baqubah is a waypoint to avenues of approach leading to Iran in the east, and Balad and Samarra to the northwest. The Diyala River drains through the city of Baqubah, providing an irrigated landscape facilitating the growth of dates, oranges, and olives. At times called the breadbasket of the Diyala River Valley, Baqubah's main industry is agriculture. Prior to 2007, Baqubah was home to several grain factories and a rice mill providing

¹⁴³ As Kimberly Kagan points out, "Insurgents occupied residents' homes by force in order to establish strong military positions from which to attack U.S. and Iraqi troops. Insurgents also hoarded food and fuel in the city, which the Government of Iraq intended for distribution to residents. The religious extremists terrorized Baqubah's residents by operating their own justice system to enforce their interpretation of Islamic law." Kimberly Kagan, "Iraq Report: Securing Diyala" (Dec 2007) under "Institute for the Study of War" <http://www.understandingwar.org/report/securing-diyala> (accessed June 2012), 6.

¹⁴⁴ "Insurgents attempted to use deep-buried bombs under the road and small-arms fire to force the soldiers to take refuge in the houses adjoining the route. They rigged houses for detonation to destroy any troops taking refuge inside." Kimberly Kagan, "Iraq Report: Securing Diyala," 7.

resources for the entire Diyala province. However, AQI control of industry and essential services within Baqubah eliminated the production and distribution of grain in the area.¹⁴⁵ This meant the population depended on the distribution of foodstuffs and resources through AQI control; therefore, the population relied on AQI for civil control and survival. The temperate climate and lush, dense vegetation provided insurgents with camouflaged and concealed terrain to establish training camps and areas to store supplies along the Diyala River. Insurgents controlled lines of communication exiting south of Baqubah to Khalis and Baghdad, and were able attack Shia strong holds in Eastern Baghdad's Sadr City, further inciting ethnic tension and stability within Baghdad.¹⁴⁶ In the late summer of 2007, the 3/2 SBCT was tasked with defeating AQI and securing the population of Baqubah to facilitate security operations in Baghdad.

Deploying in July 2006, the 3/2 SBCT, or Arrowhead Brigade, transitioned from a battle space owner in Mosul to the MNC-I operational reserve and the Multi-National Division Baghdad "Strike Force" in December of 2006. As such, the brigade conducted eleven brigade-size offensive operations within five months.¹⁴⁷ In March of 2007, 5-20 Infantry Battalion (a subordinate unit of 3/2 SBCT), was assigned to support Third Brigade, First Cavalry Division, and First Squadron, Twelfth Cavalry Regiment (a combined arms battalion) with securing Baqubah. As a shaping operation, elements of 5-20 IN and 3-1 Cavalry were able to secure two of five neighborhoods in Baqubah. Subsequently, in May of 2007, MNC-I ordered 3/2 SBCT to clear AQI from Baqubah.¹⁴⁸ Having been in country for twelve of fifteen months, 3/2 SBCT assumed operations as one of the first designated Surge brigades supporting Operation Phantom Thunder. Supporting operational and strategic objectives, 3/2 SBCT developed a campaign to

¹⁴⁵ Fred Johnson, *Arrowhead Ripper: Adaptive Leadership in Full Spectrum Operations* (Carlisle, PA: Strategic Studies Institute Press, 2009), <http://www.strategicstudiesinstitute.army.mil/pubs/display.cfm?PubID=922> (accessed March 2012), 10-11.

¹⁴⁶ Kagan, "Choosing Victory", 13.

¹⁴⁷ Johnson, *Arrowhead Ripper*, 2.

¹⁴⁸ Ibid., 3.

clear AQI from Baqubah by the simultaneous execution of brigade offensive operations while working on lines of effort supporting the establishment of security, governance, transition, as well as economic and essential service development.¹⁴⁹

The operational problem facing the 3/2 SBCT consisted of gaining access to and securing restive neighborhoods in Baqubah by clearing AQI, followed by a timely and sustainable transition to security operations protecting the populace and engendering legitimacy to Iraqi Security Forces and governance. Operation Arrowhead Ripper was constrained with a sixty-day timeline for execution (from June to August 2007) prior to transfer of authority to a follow on BCT and redeployment to the United States.¹⁵⁰ 3/2 SBCT needed to quickly defeat an estimated 500-700 insurgents in west Baqubah, armed with small arms and mortars, conducting a defense-in-depth supported by deep-buried and house-borne IEDs. Defeat of AQI aimed to create space between insurgents and the population in order to garner lasting public support in favor of the Iraqi government. Operating under the control of the 3/2 SBCT command were more than several thousand U.S. and Iraq Security force service members operating from several different FOBs within a 50-mile radius.

Operation Arrowhead Ripper provides an example of a brigade combat team (BCT) conducting operational art by arranging tactical actions in time space and purpose to achieve a strategic aim. Using a combination of both direct and indirect approaches, COL Steve Townsend (the 3/2 SBCT commander) and subordinate staff developed a campaign focused on four lines of effort consisting of security, transition, governance, economics and essential services

¹⁴⁹ As Catherine Dale states, “the fundamental premise of the Iraqi and coalition Surge operations was population security. This marked an important shift from previous years, when the top imperative was transitioning responsibility to Iraqis.” Dale, “CRS Report for Congress,” 58. Kimberly Kagan’s states “Operation Phantom Thunder aimed to expel al Qaeda from sanctuaries outside of Baghdad. Denying al Qaeda the ability to fabricate car bombs and transport fighters through the rural terrain around Baghdad is a necessary prerequisite for securing the capital city, the overarching military goal for Iraq in 2007.” Kimberly Kagan, “Iraq Report,” 1.

¹⁵⁰ Johnson, *Arrowhead Ripper*, 3.

development.¹⁵¹ As the operation's commander, COL Townsend's organic units consisted of 1-23 IN battalion (located in western Baghdad), 5-20 IN battalion (located in Baqubah), and Charlie 5-2 Anti-tank company (located in Tikrit). Additional units assigned under the brigade's task organization consisted of 1-12 Cavalry battalion from 3-1 Cavalry brigade (also in Baqubah), and 2-1 Cavalry battalion from 4-2 SBCT (located in Taji). Additional efforts supporting the operation consisted of a dedicated squadron of attack aviation, field artillery support, and route clearance engineering assets. The operation combined with the Fifth Iraqi Army, Baqubah Iraqi police, and concerned local citizens (later named members of the Sons of Iraq movement during the Sunni awakening).¹⁵²

The Arrowhead commander directed an attack on the march during the early morning hours of June 17, 2007. During the pre-attack phase, 1-12 Cavalry retained strong points and combat outpost in eastern Baqubah. Engineering assets under the control of 5-20 IN conducted route clearance of possible deep-buried IEDs along the main north-south running route paralleling perpendicular routes accessing western Baqubah. During the attack phase, artillery attacked pre-planned enemy targets. Second Squadron, First Cavalry Regiment conducted air assault operations isolating Baqubah to the north near Khalis and Khan Bani Saad to the south. 1-23 Infantry Battalion and C-52 Anti-Tank Company started their movement from Baghdad to complete a synchronized attack on the move, coordinated with 5-20 Infantry Battalion, located at FOB Warhorse. C-52 and elements of 3-1 Cavalry reinforced isolation of northern Baqubah, as 5-

¹⁵¹ Ibid.

¹⁵² From the author's experience, the concerned local citizens became the Baqubah Guardians. The Guardians were primarily members of a Sunni insurgent group known as the 1920s Revolutionary Brigade. Between March and May of 2007, the 1920s Revolutionary Brigade suffered a significant defeat to AQI in Baqubah after failing to obey AQI established laws (combat between the two groups were viewed from the 5-20 IN command post). Seeking to rid Baqubah of AQI, the 1920s Revolutionary Brigade approached U.S. forces to lend intelligence information and support of combat operation against AQI (as recalled from negotiations between 1920 and 5-20 IN leadership). Eventually, the Guardians assisted in securing portions of neighborhoods after the completion of combat operations, and some gained employment in the Iraqi Security force.

20 IN and 1-23 travelled to supporting assault positions to begin clearing operations within assigned battalion boundaries. From assault positions, members of 1-23 IN and 5-20 IN conducted a detailed clearance of every house in west Baqubah. Within two weeks, Operation Arrowhead Ripper, in conjunction with supporting assets defeated AQI in Baqubah. The Operation resulted in over a one hundred enemy killed in action and 400 suspected insurgents detained, while 129 weapons caches were cleared, 250 IEDs to include thirty-eight house-borne and twelve vehicle-borne IEDs found were reduced.¹⁵³ The termination of offensive operations led to the establishment of several combined U.S. and ISF combat outpost connecting supported by lines of communication maintaining freedom of maneuver and logistical support with main coalition, and ISF headquarters near FOB Warhorse. The success of Operation Arrowhead led to additional operations facilitating the overall security of Baqubah. With western Baqubah cleared, assigned forces with ISF and concerned local citizen support retained security gains as other elements from the brigade cleared the remaining unsecured neighborhoods and areas of interest in Baqubah.

The establishment of additional combat outposts facilitated transition support to ISF control in Baqubah. Combat outposts staffing consisted of a combination of U.S. and ISF forces. The combined force operations achieved physical and psychological security of the population. Initially, U.S. forces planned and executed local security operations with ISF support. Within outposts and during combat patrols, U.S. forces assisted increasing ISF planning and tactical proficiency. ISF interactions with the populace led to an increased positive connection with the populace. As ISF began planning and leading operations, confidence and proficiency increased. This facilitated eventual transfer of authority to ISF forces leading security operations within neighborhoods prior to the brigade's departure. To augment security, armed concerned local

¹⁵³ "Operation Arrowhead Ripper," (2007) under "Institute for the Study of War," <http://www.understandingwar.org/operation/operation-arrowhead-ripper> (accessed August 2012).

citizens assisted in providing intelligence on potential AQI emergence as well as exploitation of additional AQI cache sites. As physical security expanded in Baqubah, operations focused on securing the population and popular support through governance, transition, and essential service and economics lines of efforts.

From the outset of offensive operations, COL Townsend designated his deputy commanding officer, LTC Fred Johnson (now COL), to head support of governance, transition, economic, and essential service improvement.¹⁵⁴ During isolation and clearing operations in western Baqubah, COL Johnson moved to the Diyala Government center to establish contact with provincial leadership as well as the Mayor of Baqubah. As identified in COL Johnson's monograph, "During our mission analysis, we noted that Baqubah had gone without its Public Distribution System (PDS) food rations for over 10 months (due to AQI influence). The populace justly complained that the government could not provide food to its citizens.... The commanders and staff determined that reestablishment of the PDS would be a means to quickly show an immediate improvement to the population at the start of the operation."¹⁵⁵ PDS support facilitated work across multiple lines of operation, providing psychological security of the population and support for civil control. To gain access to PDS supplies, COL Johnson, civil affairs and intelligence staff members brought together local, provincial, and Iraqi ministerial point of contacts facilitating distribution of PDS resources. As U.S. elements of 3/2 and the Fifth Iraqi Army division (assigned to Baqubah) provided convoy security, PDS rations of food, kerosene and other items were delivered within weeks of the conclusion of the brigade's offensive operations. As pointed out by Kimberly Kagan, "By July 29, Diyala residents had received 284,000 kg rice and 285,000 kg flour, distributed with the assistance of the Iraqi Army and U.S.

¹⁵⁴ Johnson, *Arrowhead Ripper*, 6.

¹⁵⁵ Ibid., 5-6.

forces.”¹⁵⁶ U.S. forces primarily provided external security to a distribution site, while ISF provided internal security as well as distribution of items to the populace. The execution of these operations placed ISF and governance in the lead for securing and delivering the needs of the populace. Information operations focused on the successful integration of ISF, local, provincial, and national government providing for the population.

Feeding off the momentum of support drawn from PDS distribution, ISF civil military operations, and Iraqi governance developed means enhancing the Baqubah economy as well as projects providing essential services for the population. As PDS distribution provided a quick fix, the brigade looked to enhance economic capacity within Baqubah. As Colonel Johnson states, “While reestablishment of PDS deliveries was underway, our higher purpose was to help build Iraqi capacity and self-reliance. As a result, we next focused on helping the Iraqis restore the production of flour and rice.”¹⁵⁷ After identifying one functioning rice as well as wheat mill with adequate storage and production capacity, the 3/2 SBCT coordinated with higher division, corps, multinational headquarters, U.S. State Department officials, and Iraqi Ministry of Trade to deliver grain for processing and production on a permanent basis in Baqubah, producing enough flour for the entire Diyala province. As Colonel Johnson states, “Within days of the first shipment’s arrival, the mill started processing flour.”¹⁵⁸

Physical security of Baqubah led to the repair of essential services. AQI had disrupted the flow of water and sewage in Baqubah with the emplacement of large deep-buried IEDs within roads and sewers. The detonation of these IEDs damaged water pipes distributing water to the population. Water shortages in Baqubah were initially resolved through humanitarian assistance provided by security forces. However, the completion of clearance operations and the emergence

¹⁵⁶ Kimberly Kagan, “Iraq Report: Securing Diyala,” 8.

¹⁵⁷ Johnson, *Arrowhead Ripper*, 10.

¹⁵⁸ Ibid.

of a functioning local government led to the identification of local engineers critical in repairing the sewage and water system. The city was also able to hire public servants facilitating trash and sewage removal, a service neglected during AQI's tenure due to the fear of striking IEDs.¹⁵⁹

Gaining popular support for a working ISF and governance interested in the welfare of the populace complemented physical and psychological security of the population. As the momentum of popular support increased in favor of ISF and governance, more information and intelligence flowed between the populace, security forces, and governance. Information generated led to the continual refinement and development of projects increasing quality of life for citizens. Intelligence helped drive offensive operations against remaining belligerents. Both assisted in maintaining security of the population, as well as support of security force and governance efforts. As Colonel Johnson states, "Colonel Steve Townsend, commander of the 3-2 SBCT, made our success possible because he organized the Brigade to conduct simultaneous kinetic and non-kinetic operations. He also developed a campaign plan which provided a clear intent to his subordinate commanders, allowing us to achieve our ultimate purpose of enabling the local government to assume ownership of their jurisdictions and resume normal affairs."¹⁶⁰ Multiple reports attribute to the success of Arrowhead Ripper and other brigade level operations' contributions to MNC-I's Operation Phantom Thunder and subsequent operations. However, to gain an appreciation of the operations execution of operational art, analysis focuses on tempo, basing, and lines of effort.

Tempo

3/2 SBCT developed a campaign plan providing security of the population of Baqubah to achieve operational objectives. Colonel Townsend and the 3/2 staff grappled with the

¹⁵⁹ Kagan, "Iraq Report: Securing Diyala," 8.

¹⁶⁰ Johnson, *Arrowhead Ripper*, 1.

arrangement of operations to neutralize quickly the physical and psychological effects AQI placed on the population of Baqubah within sixty days. MNC-I ordered 3/2 SBCT to clear AQI from Baqubah and secure the population in May of 2007. Subsequently, through analysis, the brigade's offensive operation planned to defeat AQI in Baqubah within thirty days. The arrangement of tactical actions and the tempo of the operation led to the defeat of AQI in Baqubah within two weeks. The isolation of Baqubah, and simultaneous attacks on exterior lines of operations overwhelmed AQI's ability to sustain a defensive posture, or mount effective counter offensive operations. As stated by Colonel Townsend, "Rather than let the problem export to some other place and then have to fight them again, my goal is to isolate this thing and cordon it off."¹⁶¹

Isolation, pre-attack fires, obstacle reduction, and synchronized ground maneuver supported by attack aviation placed AQI in Baqubah in a reactive mode in regards to security force's clearance operations.¹⁶² The relative speed and rhythm of operations in relation to the enemy increased as isolation position destroyed AQI members attempting to flee Baqubah and as assault forces gained initial footholds and began the systematic reduction of AQI obstacles and belligerents presenting resistance. Clearing operations began at sunrise and concluded at sunset for nearly two weeks. This portion of the operation seized the initiative, setting the condition for several subsequent brigade and battalion operations supporting the security of Baqubah. The creation of space between the populace of Baqubah and a decimated insurgency allowed the establishment of bases enhancing security, as well as pursuit of supporting objectives along transition, governance, essential service, and security lines of effort.

¹⁶¹ Kagan, "Iraq Report: Securing Diyala," 7.

¹⁶² As Colonel Johnson states, "Similar to operations during the invasion of Iraq, ground forces maneuvered in concert with close air support, artillery, and attack aviation, to close with and destroy an enemy estimated in strength at over 500 fighters." Johnson, *Arrowhead Ripper*, 7.

Basing

Basing extends operational reach.¹⁶³ Bases provide security forces with resources extending operations. Completion of clearing operations led to the identification of combat outposts and eventual joint command post location. As Colonel Johnson states, "Colonel Townsend exploited the security provided by the elimination of AQI by implementing a campaign plan focused on establishing an even more secure environment through active partnering and synchronization of operations with the Iraqis."¹⁶⁴ Subordinate commanders developed obstacle and barrier emplacement plans facilitating controlled access into cleared neighborhoods. As Kimberly Kagan highlights, "As clearing operations continued, soldiers erected concrete barriers around Baqubah's western neighborhoods to prevent insurgents from attacking or re-infiltrating their former safe havens."¹⁶⁵ Simultaneously, the creation of combined U.S. and ISF bases within neighborhoods, tied into entry control-point barriers extended friendly force lines of communication and operational reach. Exercising control of established neighborhood entry points disrupted enemy freedom of maneuver in these secured neighborhoods. They also supported coalition operations within a secured area.

Combined forces living amongst the populace in fortified bases conducted dismounted combat patrols from within neighborhoods on a daily basis. Control of access into and out of secured neighborhoods supported combat patrol operations. Mortar, heavy machine gun, and logistics assets within bases enhanced force protection and sustainment of operations. The combined staffing of bases facilitated transition operations between U.S. and ISF forces. U.S. and ISF forces conducted planning, training, and execution of operations from bases. Increased

¹⁶³ ADRP 3-0 defines a base as a locality from which operations are projected or supported. Bases typically fall into two categories: permanent (bases or installations) or non-permanent bases (base camps). For this essay, combat outpost and joint command outpost (JCOP) are considered non-permanent bases. ADRP 3-0: *Unified Land Operations*, 4-6.

¹⁶⁴ Johnson, *Arrowhead Ripper*, 5.

¹⁶⁵ Kagan, "Iraq Report: Securing Diyala," 7-8.

interaction between forces led to increased proficiency of ISF forces in tactics, command and control, and logistics. As confidence and proficiency increased, the ISF assumed a leading role in operations with coalition support. The establishment of bases extended physical security of the populace, thus supporting commencement of psychological security along mutually supporting lines of effort.

Line of Effort

Lines of effort link supporting objects through the logic of purpose toward the attainment of end state conditions.¹⁶⁶ As Colonel Johnson states, "Our commanders knew going into Operation ARROWHEAD RIPPER that we had to not only kill, capture, or force the withdrawal of AQI from Baqubah, but also to make an immediate, positive, and lasting impact on public perception."¹⁶⁷ The brigade's offensive operations transitioned to working along lines of effort in support of counter insurgency operations. An operational objective of the brigade was to provide lasting stability in Baqubah prior to its sixty-day relief in place and transition of authority with a follow on unit. To accomplish this, the brigade worked on security, transition, governance, as well as economic and essential service lines of effort.

Primarily, the attainment of physical security of the population dominated the brigade's four lines of effort. Within the SBCT's security line of operation, supporting operations consisted of Operation Arrowhead Ripper, Operation Safe Neighborhoods1-2, and Operation Clear Mechanics 3. These operations supported several objectives towards defeating AQI, improving and securing key infrastructure, and gaining popular support for ISF and local governance. Obstacle and basing construction enhanced gains made from clearance operations, and

¹⁶⁶ A line of effort is a line that links multiple tasks using the logic of purpose rather than geographical reference to focus efforts toward establishing operational and strategic conditions. Lines of effort are essential to long-term planning when positional references to an enemy or adversary have little relevance. In operations involving many nonmilitary factors, lines of effort may be the only way to link tasks to the end state. ADRP 3-0: *Unified Land Operations*, 4-5.

¹⁶⁷ Johnson, *Arrowhead Ripper*, 5.

established population controls in and out of neighborhoods. Barriers and patrols also created safer markets for economic development, and reinforced key infrastructure necessary in maintaining the support of the local population. Establishing neighborhood security plans utilizing armed concerned local citizens (known as Baqubah Guardians) also enhanced population security and support to ISF and governance. Baqubah Guardians members were originally from assigned neighborhoods, and shared a more developed relationship with the community. Their presence and assistance in security operations enhanced security force operations by providing intelligence and information.¹⁶⁸

The goal of the transition line of effort consisted of developing a capable ISF in the lead of operations. Supporting operations along the transition line of effort consisted of the establishment of a joint Iraqi army, police, and U.S. force JCOP, Operation Hightower, and Operation Police Academy. Objectives of the operations consisted of establishing an Iraqi army footprint, increasing the size of the Baqubah police force and development of a joint combat outpost to command and control future combined operations. Operation Hightower consisted of combined Iraqi army and police patrols under command and control of the JCOP, while Operation Police Academy consisted of U.S. led training of newly hired Iraqi police to assist in future security and transition operations.¹⁶⁹

Lines of effort of governance, economic and essential service improvement supported attaining popular support recognizing the legitimacy of ISF and local governance. Support and execution of essential service projects, infrastructure improvement, and commerce improvement reinforced the local government's ability to gain popular support. Operations Food Run, Clean Streets, and Nozzle II mutually supported governance, essential service, and economic development. Operation Food Run supported routine PDS delivery of food and fuel, as well as

¹⁶⁸ Ibid.

¹⁶⁹ Ibid.

repair of silos and wheat and rice processing factories. Operation Clean Streets returned public servants back to work to remove trash and sewage. Operation Nozzle II supported repair of water and electrical infrastructure. All led to reinforcing psychological security and support of the population for ISF and local governance.

Operation Arrowhead Ripper provides an example of a BCT executing operational art. The operation supported the accomplishment of strategic and operational objectives by providing physical and psychological security to the populace through the defeat of AQI forces, while aligning the popular support with ISF and Iraqi governance. Operation Arrowhead Ripper is not unique. Several other BCT-level operations used operational art to pursue Multi-National Corps and Multi-National Forces Iraq operational and strategic goals.¹⁷⁰ However, it is important to highlight the Arrowhead brigade's application of theoretical principles influencing the execution of operational art, found in doctrine, assisting in the arrangement of tactical actions within a major operation. As given in testimony to Congress, General David Petraeus stated, "As a bottom line up front, the military objectives of the Surge are, in large measure, being met."¹⁷¹ One reason for success of the Surge consisted of the accomplishment of mutually supporting objectives identified in subordinate corps and brigade campaigns and operations plans. These plans applied doctrine, knowledge, and experience to design campaigns and operations to overcome obstacles in the attainment of objectives through the arrangement of tactical actions in time, space, and purpose. As Operation Desert Storm and Operation Arrowhead Ripper highlight the importance of the education of operational art, this essay will conclude discussing recommendations to enhance the education of operational art within the force, given the publication of new doctrine.

¹⁷⁰ For other BCT operations executing operational art within Operation Phantom Thunder, see Operation Marne Torch in Multi National Division Central, and Operation Alljah in Multi-National Division West. The success of Operation Phantom Thunder led to MNC-I's development of Operations Phantom Strike and Operation Phantom Phoenix, drawing a conclusion to Surge operations and eventual termination of combat operations of U.S. forces in Iraq.

¹⁷¹ Dale, "CRS Report for Congress," 111.

Conclusion

Operational art is the development of campaigns and operations pursuing strategic objectives. This monograph has tried to establish operational art as a theory, influenced by the study of history, leading to the development of abstract principles captured in doctrine for enhancing the application of force toward military problems. This monograph has focused on the execution of operational art during combined arms maneuver and wide areas security operations. Future study may lead to the study of operational art within humanitarian aid, disaster relief, or other operations. However, as a tool, operational art requires formal education, understanding, training, and evaluation for useful application. Significant to the author, operational art was a novel concept during tenure at the Command and General Staff College. Its application mentioned sparingly during the development of a joint campaign plan practical exercise. However, the education, training, and evaluation of operational art within the School of Advanced Military Studies expanded the author's appreciation of operational art, and its application toward military problems within the operating force. Unfortunately, only a small percent of officers will attend SAMS. Other officers may find themselves developing an appreciation of operational art while in the operational force, if ever at all. As the Army has introduced new doctrine reinforcing the role of operational art, it seems wise to invest in methods educating and evaluating a practitioners understanding of operational art during formal education opportunities within the generating force.

History provides examples of education leading to the development of military officers in the past. American military professionals have produced articles guiding the education of future Army leaders since the turn of the twentieth century. Drs. Schneider and Naveh provide contemporary operational theories influencing this essay. Military historians such as Dr. Peter J. Schifferle and Robert R. Matheny provide text illuminating prior education of officers within army institutions. Dr. Schifferle's *America's School for War: Fort Leavenworth, Officer*

Education, and Victory in World War II and Matheny's *Carrying the War to the Enemy: American Operational Art to 1945* provides study of the education military professionals influencing the success of operations in World War II. As Dr. Schifferle pointed out, "The Leavenworth school attempted to accomplish three basic missions: impart to the students the knowledge of large formation operations; provide problem solving skills; and imbue professional confidence- all through a system of education called the "applicatory method.""¹⁷² Dr. Schifferle further states, "The applicatory method required the application of certain principles to practical problems."¹⁷³ Doctrine captures theoretical principles. The Field Service Regulation (FSR) of 1920 introduced to Leavenworth to study the "exact lines of military of military action proposed for a particular force during a phase or campaign."¹⁷⁴ Doctrine also highlighted forms of maneuver and use of the *Principles of War*, later adopted by the War Departments. As Dr. Schifferle points out, "Doctrine, as stated, applied to both the field units and the education system."¹⁷⁵ Principles found in the FSR facilitated education and evaluation during the applicatory method. Evaluation of the applicatory method centered on map exercises evaluated against schoolhouse solutions for accuracy. During the Interwar period, practical exercises consisted of individual problem-solving using seventy-eight map and terrain problems to evaluate students.¹⁷⁶

An educational approach to solving military problems through operations or campaigns emphasized a student's understanding of theoretical principles used in problem solving. Practical map and terrain exercises provided a means to evaluate a student's understanding and

¹⁷² Peter J. Schifferle, *America's School for War: Fort Leavenworth, Officer Education, and Victory in World War II* (Lawrence: University Press of Kansas, 2010), 100.

¹⁷³ Ibid., 110.

¹⁷⁴ Matheny, *Carrying the War to the Enemy*, 40.

¹⁷⁵ Schifferle, *America's School for War*, 46.

¹⁷⁶ Matheny, *Carrying the War to the Enemy*, 50.

competency during formal education. A developed schoolhouse solution provided a tool for analyzing students' answers to practical exercises. Although contentious at times and roundly criticized, the solution provided a basis of understanding or an organization of accepted principles used in developing an operational plan. A standard solution also provides the basis to develop a rubric helping students understand an evaluation process, reinforcing previous lessons of instruction. Development of schoolhouse solutions to practical exercises as take-away products provides graduates with a template to use or future reference. Interwar Leavenworth successfully educated, trained, and evaluated practitioners of operational art. This education influenced operational planning of senior leaders during World War II.

This monograph provides a model to evaluate operational art for future practitioners. This monograph has displayed the importance of understanding theoretical principles influencing the execution of campaigns and major operations. Theoretical principles captured in doctrine develop common understanding between service members. However, understanding develops through education and study. Prior to application, a professional must understand the meaning and impact of principles influencing the development of a plan. Professionals must understand the context of their operating environment. Strategic objectives, physical environment, and characteristics of enemy and friendly force provide boundaries to an operation. Competing objectives between adversaries formulate the identification of obstacles and an overarching problem separating the accomplishment of strategic goals. An operational approach generates a broad concept to overcome a problem, and assists in the development of detailed courses of action to achieve operational objectives. Currently, this model finds utility within historical campaign analysis during the Evolutions of Operational Art block of instruction within SAMS. It could possibly provide a skeleton for the development of schoolhouse solutions evaluating student practical exercises. The generating force should also develop schoolhouse solutions for planning exercises using the Army planning process. Having a schoolhouse solution for review enhances a practitioner's ability to study and share knowledge through leadership development programs

when returning to the operating force. Operational art's significance in developing the Army's operating concept as well as future campaign and operational plans necessitates increased education and evaluation of operational art within the generating force.

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