

Discarding the Saber
An Assessment of the Utility of the Phasing
Construct in Operational Campaign Design

A Monograph
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ABSTRACT

Discarding the Saber An Assessment of the Utility of the Phasing Construct in Operational Campaign Design by MAJ Mark J Hovatter, US Army, 58 pages.

This monograph asserts that phasing as a tenet of operational art has outlived its usefulness. Phasing as a component of campaign design worked effectively in the industrial age of symmetrical opponents, but has lost its usefulness in the contemporary and future operational environment characteristic of the information age. The monograph uses three primary lenses; Toffler's Third Wave, systems theory, and complexity to analyze the phasing construct and determine its continued utility.

Chapter One introduces the problems associated with modern phasing briefly, specifically citing the reality of the "three block war," and when phases overlap markedly in space and time. It then establishes the research questions and methodology for the rest of the monograph.

Chapter Two traces the history of phasing and how it enters into the military operational vernacular. Beginning with Napoleon and Clausewitz and continuing through World War I, interwar World War II, into Vietnam and Air Land Battle, the monograph follows the uses of phasing and how the term has matured. More importantly, chapter two lays out the conditions in which phasing is effective, an industrial age, threat based environment.

Chapter Three introduces critical concepts to be used as lenses to analyze phasing in a new light, that of a contemporary operational environment. First, Alvin Toffler's themes of the Second and Third Wave are compared to phasing and the conclusion established that phasing is largely an outgrowth of Industrial age thinking. Second, systems theory is introduced and compared to the linear construct of phasing and conclusion established that phasing lacks a systems approach to problem solution. Finally, complexity theory is introduced and compared to the phasing construct and concludes that the myopic fixation on center of gravity fails to appreciate the new realities of dynamic complex enemies.

Chapter Four introduces the case studies of operational design of Operation DESERT SHIELD and DESERT STORM 1990-1991 and Operation ENDURING FREEDOM, 2001-2002. The chapter summarizes the campaigns of these events by establishing the historical context, an overview of the campaign, and review of the strategic, and operational objectives, and the phasing construct used for the campaign.

Chapter Five analyzes the case studies using the concepts established in chapter three. The analysis of the campaigns of DS/DS and OEF brings new insights to the campaign planner on the changing nature of warfare, and concludes that phasing has reached the threshold of irrelevance in campaign design.

Chapter Six the monograph draws conclusions from the study. First, that operational net assessment must consider both the friendly and enemy as a system, and true integration of systems understanding is not portrayed well using phasing. Second, the United States is engaged with complex, dynamic enemies in the contemporary environment and must use systems that adapt faster than enemies. Third, phased combatant commander plans result in repair service behavior, as enemies adapt to the niches in the seams between combatant commanders. The monograph then makes recommendations to address these conclusions.

Chapter Seven briefly introduces three new concepts as alternatives to phasing; causal loops, Shaw's Spheres, and Electrical Circuit analogy.

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INTRODUCTION

Operational Phasing, as a concept, has been a basic tenet of military campaign design since the time of Napoleon and the Modern Era of Warfare. Clausewitz makes reference to “two great halves of defensive action-especially of large-scale one such as a campaign or war” in his discussion of the defense in Chapter Eight, Book 6, which was translated by Howard and Paret in 1976 as “phases.”¹ Mao Tse-Tung described war in terms of three *phases*, offense, transition and defense.² Phasing as a concept is so prevalent in the volumes of history that it is nearly impossible to discern when it was introduced into military lexicon. Casual review of historical studies will discuss phases in military literature almost nonchalantly, as if there is a universal understanding of its meaning.³ Over time, the meaning of phasing has evolved, and gained additional depth and maturity when comparing early uses of the term to its definition in joint doctrine today. As a tool, phasing assists the commander and staff to visualize and think through the entire campaign and to define requirements in terms of forces, resources, time, space and purpose. Phases are a logical way of chronologically organizing the diverse, extended, and dispersed activities involved in the campaign.⁴ Additionally, phases may be sequential or concurrent, or even overlap. The point where one phase stops and another begins is often difficult to define in absolute terms.⁵

¹ Carl Von Clausewitz, *On War*, trans. COL J.J Graham, (London, UK: N. Trubner, 1873) available at http://www.clausewitz.com/CWZHOME/On_War/BK6ch08.html. Last accessed on 26 Nov 2004.

² Michael Handel, *Masters of War, Classical Strategic Thought* 3d ed. (Portland: Frank Cass Publishers, 2003), 112.

³ This is based on a random survey of books from the period of World War I forward. Two books specifically checked were *Infantry in Battle*, and *Lectures on Land Warfare A Tactical Manual For The Use Of Infantry Officers*. See bibliography page 53.

⁴ Joint Publication 5-00.1 *Joint Doctrine for Campaign Planning*. (Washington DC: Department of Defense, 2002), II-16.

⁵ *The Joint Doctrine Encyclopedia*, (Washington DC: Department of Defense, July 1997), 579.

In contemporary use, the phasing concept often contributes more to obfuscation of understanding than to clarification. Invariably, phases will be developed at the combatant command level that must in turn be carried forward through component commanders to joint war-fighters at the corps through squad level. Planners have often resorted to the practice of assigning phases within phases or “events” at each level of command, to the point that the average company commander, might tell you that he was in Phase II,A,1(b), sounding more like a lawyer than a manager of violence.

How does phasing facilitate execution for the operational warfighter? One of the fundamental charters of phasing is that it assists the commander to visualize the battlefield, and achieving objectives that cannot all be attained at once. It also provides a framework for the combatant commander to change or adjust the sequence for accomplishing principle tasks to exploit vulnerabilities, adjust tempo, or adapt to outcomes.⁶

The nature of full spectrum operations and the reality of the “three block war” have confounded phasing through geography and time.⁷ Consider the situation where phases are concurrent, which has been established as acceptable by joint doctrine.⁸ If phases can occur concurrently, can all phases be conducted concurrently (or in parallel)? If a commander in one position on the battlefield can physically see the focus of three distinct phases occurring simultaneously, the value of phases to aiding understanding in execution is suspect. This was the situation in Operation Iraqi Freedom in March of 2003, and is likely to continue.⁹ When phases begin to overlap markedly, we see the breakdown in the logic of phasing in facilitating execution. On the surface, it may assist planners to decompose operations in order to plan them in

⁶ Joint Publication 5-00.1, II-16.

⁷ GEN Charles C. Krulak, “The Strategic Corporal: Leadership in the Three Block War” *Marines Magazine*, January 1999, 4.

⁸ The Joint Doctrine Encyclopedia, 579.

⁹ This particular case describes the predicament of the 7th UK Armoured Brigade during the Battle of Basra, as described in Williamson Murray and MG Robert H. Scales JR. *The Iraq War*, (Cambridge MA. Belknap Press, 2003) 144-153.

manageable slices, but when all these slices are conducted simultaneously, then the value of sequential phasing in facilitating visualization in execution may be compromised.

For example, logistics priorities are usually established by phase, based on the commander's perceived priorities for that phase (based on a plan). If operations supporting all four phases are conducted simultaneously, then how are the logistics priorities translated to support operations appropriately? In this situation, it would appear that everything is a priority, so nothing gets done. Phasing is a mechanism to prevent culmination of an attacking force by recognizing the limitations of logistics to support it, and correlating this tether to operational objectives.¹⁰ When phases overlap, this operational tether becomes ethereal, and may result in fatally flawed battle command visualization.

Many planners believe that phasing, as a concept, does not work for campaign planning in the contemporary operational environment.¹¹ Since the end of the Cold War, military thinkers have contemplated the impact of the Information Age on military institutions rooted in Industrial Age thinking.¹² New approaches to understanding through complexity and systems thinking have created plausible skepticism over the linear, reductionist approach of phasing.¹³

The purpose of this monograph is to evaluate the continuing utility of the phasing construct as a component of campaign design in planning, and how it facilitates execution of battle command at the combatant command and joint task force level. The biggest challenge in addressing the phasing concept for campaign design is developing potential replacements, framed in terminology and theory that is rooted in linear, causal thought.¹⁴ If presented with two tools to

¹⁰ Joint Publication 5-00.1, II-18.

¹¹ LTC Robert C. Shaw, interview by author, Fort Leavenworth, KS. 23 September 2004.

¹² Alvin Toffler, *The Third Wave, The Classic Study of Tomorrow*, (New York, NY: Bantam Books, 1981), 125.

¹³ David S. Alberts, and Richard E. Hayes, *Power to the Edge Command Control in the Information Age*, (Washington DC: Department of Defense Command and Control Research Program Publications, 2003), 49.

¹⁴ Peter M. Senge. *The Fifth Discipline The Art and Practice of the Learning Organization* (New York NY: Currency and Doubleday Books, 1990), 74.

perform a task, one will often choose the familiar tool that doesn't work perfectly over a new tool that is not understood. To advance beyond phasing may require shifts in culture and thinking that will push understanding to new, necessary levels in non-linear thought processes.

The methodology followed in this monograph will address the primary research question of the relevance of phasing for operational campaign planning through two sub-questions. First, what is phasing, and in what environment was it most effective? Second, at what threshold does it lose its value as a tool in operational design? Once these two questions are answered, then the monograph will address the secondary research question of the alternatives to phasing. The method to answering these questions will be through an analysis of the history of phasing, introduction of new concepts which will serve as lenses to identify the threshold in which phasing breaks down, then brief case studies in operational design of DESERT SHIELD/DESERT STORM 1990-1991 and Operation ENDURING FREEDOM 2001-2002. Following this will be analysis of those case studies using the concepts, conclusions, and recommendations for a road ahead. Following recommendations, alternative concepts to phasing are presented.

HISTORY

What is the concept of phasing and where did it come from? In order to fully understand these definitions of the concept of phasing in context, it is useful to trace the concept of phasing over time, through the writings of military theorists, service school instructional manuals and doctrine, and the corresponding application in joint campaigns. The purpose of this analysis is to gain an insight of the organizational understanding and need for the phasing concept over time. Through this term etymology, the concept is traced through time, its origins identified, and considered in context to critical events that have caused its meaning to be expanded or modified. Having completed this historical analysis, a more precise understanding of the term can be achieved, consistent with the logic of events that resulted in phasing being a key component of operational art today.

The age of Napoleon is where we find the headwaters of the phasing concept, where the industrial age and the rise of modern massive armies shape the flow of military thought. Jomini and Clausewitz were the most prevalent of the theorists of this time and of them, only Clausewitz discusses phasing.¹⁵ Clausewitz's concept of phases is a good start point for analysis of the term, due to *On War*'s relative acceptance among military theorists and historians alike. The general trend in Clausewitz and Michael Handel's analysis is that phasing was a description of type of operation conducted, with respect to relative combat power and a certain logistical capability, or reach.¹⁶ From this initial point we can begin to discern some of the foundations of current joint definition of phasing. (See Appendix 1, Definitions).

The combination of the *levee en masse*, introduced by Napoleon, with the increased capability of the industrial age to equip modern armies led to a new trend in warfare. This trend that began with Napoleon, and was best illustrated in the trenches of World War I, was tactically durable armies, or armies that could not be destroyed in one tactical operation.¹⁷ This tactical durability combined with expanded battlefield size drove a need for a new level of warfare between tactics and strategy, an "operational art."¹⁸ The stalemates of trench warfare in World War I lead theorists to try to solve the dilemma of how to achieve victory without defaulting to attrition warfare, which had proved to be too costly in human lives and resources, and frequently indecisive.

The Soviet Union endured humiliating loss in World War I and tremendous upheaval during the Russian Civil War, and this crucible drove them to develop new concepts to solve the dilemma of tactical durability. Tukhachevsky, one of the founders of Soviet operational art,

¹⁵ Carl Von Clausewitz, *On War*, trans. and ed. Michael Howard and Peter Paret (New Jersey: Princeton University Press, 1976), 453.

¹⁶ Handel, 177-193.

¹⁷ Richard W. Harrison. *The Russian Way of War*. (Lawrence KA: University of Kansas Press, 2001), 152.

introduced the concept of successive and deep operations as a means to achieve operational shock.¹⁹ If one tactical engagement would not achieve decision, then multiple operations would have to be planned.²⁰ Successive operations and deep operations lent itself well to the concept of phasing, as it enabled the campaign planner to break apart a large operation into discrete snapshots, and phasing was a methodological tool that helped arrange operations to achieve overwhelming combat power at one point on the battlefield, and exploit success in depth. The development of successive operations was a key event that codified the need for operational level warfare, and phasing was a mechanism of communicating it.

The American contribution to World War I saw the fielding of two Field Armies and the beginnings of the first American Army Group.²¹ From an American perspective, the realization of a need for echelon above corps headquarters had two effects. First, doctrine had to address the methods for conducting warfare at the operational level, though Americans did not call it this until much later. Second, American army officers had to be trained to plan and conduct operations at these higher levels of war. These needs were addressed in Army service schools at Fort Leavenworth and the Army War College after World War I.²² It is within the instructional texts of The School of the Line and General Staff School that phasing became part of the historical milieu of American campaign planners.

The combination of the General Staff School and the School of the Line at Fort Leavenworth in 1922 adjusted curriculum and shifted field army instruction to the War College, though the doctrine was still written, and most importantly, influenced instruction at Fort Leavenworth. Through the instruction and exercises conducted at the Army War College during

¹⁸ COL Michael R. Matheny. "The Roots of Modern American Operational Art." available online at http://www.au.af.mil/au/awc/awcgate/army-usawc/modern_operations.pdf. Last accessed on 26 October 2004. 1.

¹⁹ Ibid., 2.

²⁰ Ibid., 5.

²¹ Ibid., 2.

²² Ibid., 6.

the 1920s, two key events occurred. First, it was decided that the five paragraph field order would be the format for all plans, from battalion through campaign.²³ The second key event was requirement for phasing these plans. Matheny quotes the director of the War Plans Division, Colonel C.M. Bundel's orientation to students in 1925.

"It is becoming apparent that the whole of the war effort is not a rigid, indivisible affair that must be handled as such. In fact, an analysis shows quite clearly that it is divided into several distinct steps or phases which, while inherently distinct, nevertheless are interdependent and in some cases overlapping. It is believed that the differentiation of these phases is essential to clear understanding and correct solution of the many problems involved...."²⁴

Two key guiding concepts for phasing can be gleaned from this important quote, first that war effort is "divisible," not unlike any other production process, and second, understanding these phases aids in "visualization" of the solution to an operational problem. By 1936, the concepts of phasing and successive operations at the strategic and operational levels of war (as we understand them today) were becoming commonplace.²⁵

Numerous appearances of phasing start to become prevalent in United States (US) Army doctrine and in early Joint doctrine during the period of World War II. The products of the interwar service colleges of Leavenworth and the Army War College graduates were the disciples of the new operational concept and began to expand the uses of phasing beyond the operational level of campaign planning. Specifically, phasing is found in the discussion of amphibious operations, and in this, a concept used at the echelon above corps level starts to trickle down into lower echelons. Combining force flow over time, and the specifics of terrain were essential to identifying terrain features to be taken by assaulting amphibious forces in establishing a beachhead. As force flow continued, objectives could be extended using phase lines, correlating an aspect of logistical reach and capability, bringing the Clausewitzian concept of phases back to

²³ Army War College File 336-11. Army War College Course 1926-1927, Report of Committee #11 War Plans Division. 18 September 1926.

²⁴ COL C.M. Bundel, Army War College Course 1925-26 "Orientation and Outline of War Plan Course," 2 September 1925, AWC file WPD DOCs Nos 1-129, Vol X.

²⁵ Matheny, 14.

the forefront again, albeit possibly unwittingly for the Allies. Eisenhower discussed phasing as “guideposts that provide flexibility in both space and time to meet the constantly changing factors of the battle problem in such a way as to achieve the final goal of the commander.”²⁶ A graduate of Command and General Staff College of 1926, Eisenhower was a prime example of the prescience of the interwar belief that there was an important need for American officers with an understanding of operational level warfare.

Doctrine did not continue to mature at the same dramatic rate immediately following World War II as it had in the period before. It has been observed that campaign planning was a skill that we possessed during WWII, and somehow lost due to atrophy or lack of need for the skill. One of the key dampeners on the development of operational doctrine was the dependence on nuclear firepower. Viewed as an economical hedge to deploying massive, expensive armies, the nuclear option dominated defense thinking through the Eisenhower administration, and drove the Army toward reorganization under the “battlegroup” concept. The development of the *Field Service Regulations for Larger Units* during the period of 1950-1960 reflects this atrophy of operational warfare.²⁷ With the election of Kennedy in 1960, and the development of “Flexible Response,” operational doctrine became more relevant again. Renewed interest in conventional (non-nuclear) forces sparked new developments, and operational doctrine began to mature again, in contrast to the previous period of relative stagnation. The appearance of the term phasing in Joint and Army doctrine for the period correlates to this trend, as little change or efforts to modify the term occur from 1945-1960, then, the term starts to appear and be defined in Army doctrine starting in 1963. Most notably, phases were thought to apply exclusively to large units (Field Army and above), and does not appear in the Army’s *Operations* manual until 1968. However, in practice, the Army was using phasing throughout its experience in Vietnam, describing operations

²⁶ Dwight D. Eisenhower, *Crusade in Europe*. (Garden City, NY: Doubleday and Company Inc. 1948), 256.

²⁷ See Appendix 2, Evolution of Phasing from 1950-1968.

from the battalion through corps level. Specific examples of this can be found in major operations such as CEDAR FALLS and JUNCTION CITY in 1966-67.²⁸ The defining of phasing in the 1968 Army *Operations* manual, is a watershed event, and reflects the growth of the term, its relative importance in understanding operational level war, and it's fit to the environment of war at the time. (See Appendix 2 *Evolution of Phasing 1950-1968*).

After Vietnam, considerable attention was redirected to large-scale operations focused on the Soviet Threat in Europe.²⁹ The massive revision of Army Doctrine in 1976 under the Air Land Battle concept inspired by GEN William E. Dupuy, commander of Training and Doctrine Command (TRADOC), acknowledged the growing importance of joint and coalition operations, specifically the Army, Air Force and our German allies. Gleaning lessons from the October War of 1973, the coordinated application of joint firepower became an organizing effort for the development of Army Doctrine. Focus on a “symmetrical” opponent, with a limited forward presence, forced planners to organize operations to apply resources through a constraint.³⁰ Areas on the battlefield would need to be organized based on a relative priority, and the limited forces would be applied to these requirements, with risk reduction mechanisms placed in less critical requirements. Within this context, the importance of phasing in describing the transition from one form of operations to another, as well as the ability to organize events in time ensured the continuing relevance of phasing in doctrine.

“AirLand Battle doctrine assumed the synergistic employment of Air Force ground-attack systems both in support of the close (direct-fire) battle and in depth, interdicting enemy forces not yet engaged by ground forces or withdrawing beyond their reach. The doctrine assumed, implicitly, possession of air superiority.”³¹

²⁸ George L. MacGarrigle, *Taking the Offensive, October 1966-1967 The United States Army in Vietnam*, (Washington DC: Center for Military History, United States Army, 1998), 96-122.

²⁹ MAJ Robert A. Doughty, *Leavenworth Papers #1 Evolution of US Army Tactical Doctrine 1946-1976*, (Fort Leavenworth KS: Combat Studies Institute, US Army Command and General Staff College, 1979), 40.

³⁰ “Symmetrical opponents” refers to antagonists who are organized and equipped similarly or comparably. “The Joint Operational Environment-Into the Future.” (Norfolk, VA: US Joint Forces Command, 2004), 82.

³¹ Richard Swain, *Lucky War, Third Army in Desert Storm* (Fort Leavenworth KS: US Army Command and General Staff College Press, 1994), 73.

This brings us nearly to our contemporary understanding of phasing. As has been established, phasing was a logical tool of industrial age thinking applied to warfare. This monograph asserts that the critical events that shaped the flow of the stream were; the acceptance of tactical durability (WWI), the need for successive operations and development of operational art and the theory of warfare as a divisible entity during the interwar period, renewal of operational warfare relative to strategic nuclear (1960 to Vietnam) and need to prioritize events in time to maximize firepower and effects (AirLand Battle doctrine, 1973-1989.) Having “rolled out the Indian blanket” on the phasing concept, light is shed on understanding thought processes that made phasing a rational, necessary and useful tool to the operational planner, consistent with the environment of the times.³² Faced with an operational dilemma that could not be solved with one single action (based on resources) phasing assisted the commander to apply resources to a problem through a restraint, to achieve objectives in a sequential manner, resulting in eventual strategic success.

CONCEPTS

The headwaters of phasing began with Napoleon and the course of the stream was decidedly shaped by the events identified above. To continue this analogy of hydrology and erosion, it would be safe to say that if there were no dramatic changes to a landscape, the “flow” of the phasing concept would continue along its current course for the near future. Occasionally, cataclysmic geological events occur, which severely alter the flow of a stream, such as ice ages, earthquakes, and draughts. Sometimes these events are of sufficient size that a watershed is completely altered. In this chapter, the monograph will present concepts that are analogous to those cataclysmic events. The purpose of this chapter is to provide tools to determine if warfare

³² The phrase “rolled out the Indian blanket” was often used by COL David J. Buckley, Chief of Staff, Combined Arms Center, and Fort Leavenworth KS, to describe a lengthy historical review.

has so drastically changed that the concept of phasing no longer flows with the landscape of change.

The first of these cataclysmic events is the information age, circa 1990. The information age combined with the status of the United States as the sole superpower has fundamentally shifted the environment and nature of conflict. Alvin Toffler, a journalist and futurist famous for his works *The Third Wave* and *War and Anti-War* among others, describes the environment as a clash between waves, the Second Wave, or Industrial Civilization, with the Third Wave, or Information Civilization.³³ His argument provides a new lens for analyzing the systemic patterns that shaped civilization, and specifically military institutions. Toffler asserts that there is a hidden code in the civilization of the 2nd Wave, and that guiding principles can be discerned. Most salient of these guiding principles of the second wave to the concept of phasing is standardization and synchronization.

Efficiency in production, during the Second Wave, was gained through standardizing the process by which work was done, along scientific lines. Comparing Toffler's observation to the previously discussed quote from COL Bundel, a correlation between phased campaign planning into discrete areas bears a great resemblance to Toffler's concept of standardization. Toffler's theme of synchronization compares closely with the concepts presented in AirLand battle, but instead of time equals money, time equals firepower, or destruction.³⁴ Phasing campaigns organizes time to optimize firepower at its peak efficiency, thus creating overwhelming *effects*.³⁵ Joint forces move to the beat of the firepower "machine." An example of this is the effects of the Air Tasking Order Cycle, the repetitive process for planning, coordination, allocation, execution

³³ Alvin Toffler, *The Third Wave The Classic Study of Tomorrow*. (New York: Bantam Books, 1981), 46-60.

³⁴ Alvin and Heidi Toffler. *War and Anti War Making Sense of Today's Global Chaos*. (New York: Warner Books, 1993), 44-46.

³⁵ US Army Field Manual 3-0 *Operations* (Washington DC: Department of the Army, 2001), 4-6.

and assessment of air missions, on all other joint operations and the importance of the placement of the Fire Support Coordination Line (FSCL).³⁶

Within Toffler's framework of the 2nd Wave, phasing can be seen as a manifestation of Industrial Age thinking and principles. Consistent with methodologies of the Industrial Age, phasing was largely a way to break down the process of battle into sequential, manageable steps, not unlike an assembly line. Outputs of one phase were inputs into the next. Phases standardized battle, specialized tasks, synchronized actions, concentrated forces or effects to achieve decision, maximized striking power in relation to time, under centralized control. As established in chapter two above, phasing was very effective and logical in the 2nd Wave as a tool for campaign planning.

Other contemporary studies have validated some of Toffler's predictions, most notably, Dr. David S. Alberts and Dr. Richard E. Hayes. Dr. Alberts is the executive agent for the Department of Defense Command and Control Research program and Dr Hayes is a specialist in multidisciplinary analysis of command and control.³⁷ Alberts and Hayes's findings in *Power to the Edge* are consistent with Toffler, but not necessarily in the exact same terminology.³⁸ Albert and Hayes discuss the principle of decomposition as a theme to industrial age warfare, and specifically discuss phasing as decomposition over time.³⁹ The structure of phasing leads us to assume a causal linkage of one phase to another until an endstate is reached, the campaign objective. The whole of the campaign plan is broken into logical parts (decomposed) so that resources (constrained) can be focused toward the campaign objective in a linear, sequential manner.

³⁶ The FSCL facilitates the expeditious attack of surface targets of opportunity beyond the coordinating measure. Forces attacking targets beyond a FSCL must inform all affected commanders in sufficient time to allow necessary reaction to avoid fratricide. JP 3-09.3 *Joint Tactics, Techniques and Procedures for Close Air Support (CAS)* (Washington DC: Department of Defense, 2003), GL-9.

³⁷ Alberts and Hayes, 257-258.

³⁸ Ibid., 56.

Toffler's main assertion is that the themes that were vital to success in the second wave are hopelessly obsolete in the third wave. Within this new lens of third wave principles, (See *Appendix Three*) problems can be discerned with the concept of phasing. Whereas phasing was a logical extension of industrial age thinking applied to war, if Toffler is correct, this construct would not be effective in the "Third Wave" as a tool of campaign design. Specifically, Toffler asserts that the Third Wave "principle of organization" specifically cuts at hierarchal structures of second wave thinking.⁴⁰ The problem comes in the inherent inflexibility of these structures to react quickly to the adapting environment. Consider this hierarchal structure in light of the previously mentioned dogma of carrying phasing from a combatant commander all the way through to joint fighters down to the squad level. The structure itself will inherently reduce flexibility in options, conceptual and procedural, illustrated previously in the logistics priority by phase. Whereas this was acceptable in the second wave, when organization was structured to maximize the effects of firepower, in the third wave, massive firepower will be less and less useful. Already it can be observed that enemies are adapting to marginalize the capability to employ mass firepower, through dispersion and operational shielding.⁴¹ GEN Krulak's observations of the "three block war" are manifestations of the inflexibility of phasing to adequately reflect the reality of conflict.⁴² Organization of battlespace has to be more flexible than is afforded in the hierarchal nature of phasing.

Toffler continues with his "principle of acceleration," which specifically addresses the sequential nature of phasing.⁴³ Toffler comments that simultaneous engineering replaces step by step processes.⁴⁴ This is a fundamental fault line for our concept of phasing. Toffler's assertion

³⁹ Ibid., 49.

⁴⁰ Toffler and Toffler, 70.

⁴¹ "The Joint Operational Environment-Into the Future." (Norfolk, VA: US Joint Forces Command, 2004),65.

⁴² Krulak, *passim*.

⁴³ Toffler and Toffler, 72.

⁴⁴ Ibid., 72.

leads to the harsh realization that planning by phases has two possible negative results.⁴⁵ First, that the time consumed in planning the phases makes the product less relevant by the time of execution, and second that the odds of the projected conditions being met for transition in phases coming as was planned are less and less. The line between planning and execution must become less defined, if a combatant is going to win the acceleration game. Albert and Hayes continue on this idea and further argue that interoperability and agility are the critical capabilities in the Information age, and that the Industrial Age trend of decomposition and hierarchy sacrifices agility.⁴⁶

Are Toffler, Albert and Hayes correct? United States Joint Forces Command (JFCOM) has sought to capture the essence of the current operational environment in “The Joint Operational Environment-Into the Future” (JOE) document, and make predictions of trends will continue into the future. A comparison of the JOE’s Trends, Drivers and Implications, finds significant correlations between Toffler’s views in 1993, Albert and Hayes in 2003, and the JOE’s assessment in 2004.⁴⁷ The environment of warfare is changing from the threat based industrial age models of the cold war to a new capabilities based enemy that seeks to avoid the strengths of the US and still achieve strategic goals. The model they use to describe this new environment of conflict is the “future operational environment,” and adaptation and agility are the paragons of success.⁴⁸

The second cataclysmic shaping event that affects the intellectual landscape of warfare today is systems theory. Ludwig Bertalanffy introduced the concepts of systems theory in his book *General Systems Theory* in 1968, though he remarks in the book that he introduced the

⁴⁵ Ibid., 72.

⁴⁶ Alberts and Hayes, 63.

⁴⁷ “The Joint Operational Environment-Into the Future,” 60-69.

⁴⁸ Ibid. 12-13, 74-79.

concept in 1938.⁴⁹ Bertalanffy described the essence of systems thinking as the “scientific exploration of wholes and wholeness.”⁵⁰ Bertalanffy’s work was seminal in its influence of contemporary systems thinkers such as Peter M. Senge, Dietrich Dörner, and Shimon Naveh. Senge describes systems theory as “a framework for seeing interrelationships rather than things, for seeing patterns of change rather than static snapshots.”⁵¹ Dörner explores systems theory as a mechanism to understand errors in complex problem solving.⁵² Naveh goes on to apply systems theory to develop a framework for operational theory.⁵³ Each of these theorists uses systems theory as a tool to respond to the “challenges posed by the complexities of modern society and technology.”⁵⁴

“Thus, a system’s problems, according to Bertalanffy, are problems of the interrelation of a great number of variables, which occur in the fields of politics, economics, industry, commerce and military conduct.”⁵⁵

From a Senge perspective, the process of phasing military operations breaks apart large complex problems into smaller, more manageable ones, *but at a cost*.⁵⁶ The cost is a loss of seeing the consequences of our actions.⁵⁷ In phasing operations, this can be seen most distinctly when decisions are taken in early phases of an operation, that make perfect sense at that time, become irrational in later phases, or the corollary, that decisions made in early phases, trying to be consistent with predicted outcomes later in the operation, make no sense when taken in the phase that they are in. This presents an almost schizophrenic nature to our operations that is detrimentally confusing to most observers, and often to hearts and minds that the operations are trying to influence.

⁴⁹ Ludwig von Bertalanffy, *General Systems Theory* rev. ed. (New York, NY: George Braziller Publishers, 1968), xvii.

⁵⁰ Ibid., xx.

⁵¹ Senge, 68.

⁵² Dietrich Dörner, *The Logic of Failure* (Cambridge MA: Perseus Books, 1996), passim.

⁵³ Shimon Naveh, *In Pursuit of Military Excellence*, (Portland OR: Frank Cass Publishers, 1997), passim.

⁵⁴ Ibid., 4.

⁵⁵ Ibid., 4.

⁵⁶ Senge, 3.

This lack of seeing the “whole” also leads us to the phenomena described in Dietrich Dörner’s book *The Logic of Failure* as “repair service behavior.”⁵⁸ Operational objectives or “goals” are often complex goals, consisting of many different components and relationships with one another.⁵⁹ Take for example the operational objective of a “safe and secure Y” where Y represents a country in which a military intervention is deemed necessary. This general statement is in and of itself a noble goal, but not specific enough, leaving a planner to discern what conditions equal a safe and secure Y. Given this, the planner essentially looks for what is broken and tries to fix everything. The pitfall is that effort is expended on less important tasks at the expense of “higher leverage” interventions.⁶⁰ A lack of systems understanding to a complex situation often yields repair service behavior. Phasing often exacerbates this behavior when operational objectives, when aligned by phase (and based on an assumption of sequential accomplishment) begin to overlap. The more phases overlap, the more the executor is placed in a dilemma over the relative importance of objectives. This places the executor in an environment fertile for repair service behavior, desperate for a logic which links actions to numerous operational objectives.

Dörner presents other base concepts that are important to systems approach to complex problem solving. Borrowing a term from Clausewitz, Dörner warns of “methodism,” or the unthinking application of a sequence of actions once learned.⁶¹ This methodology is largely a product of Dörner’s concept of “deconditionalizing,” or removing a concept from the context of conditions bearing on it, or a tendency to respond to similarities more than differences.⁶² Deconditionalizing, often applied unknowingly, is a coping mechanism to embrace a complex system through analogy, in which a solution set that worked in one problem is assumed to work

⁵⁷ Ibid., 3.

⁵⁸ Dörner, 59.

⁵⁹ Ibid., 59.

⁶⁰ Senge, 69.

⁶¹ Ibid., 95.

in numerous situations. Given this, consider the phasing framework, presented in JP 5-00.1, of deter/engage, seize initiative, decisive operations, and transition.⁶³ This framework is based on significant experience in joint operations and reflects a coherent methodology for traditional symmetric warfare. The problem comes when this methodology is applied to every situation, and the inevitable question of where is the “decisive” operation? Operations conducted in the contemporary and future operational environment will offer few opportunities for a decisive operation, given an enemy who is often seeking to “not lose” versus win. The cracks of deconditionalizing can be discerned in the joint phasing construct upon close examination of its applications.

One of the critical shortfalls of nonsystemic thinking is prosaic appreciation of the relationship of variables. Dörner points out that the interrelationship among variables in a complex system can be grouped into five categories; positive feedback, negative feedback, buffering, critical variables, and indicator variables.⁶⁴ The phasing construct, (often deconditionalized), is a generic framework that seeks an objective of strategic resolution, or at least advantage, based on a synchronized application of the elements of national power, as a *solution set*. The phasing construct uses the elements of branches and sequels to address the elements of uncertainty and continuity, consistent with the basic framework and understanding of the original plan. Graphic representation of phasing leads the viewer to assume that resolution is found at the end of the line, and everyone lives happily ever after. Often, the result tends to be less than expected, and revisionist arguments begin as to incorrect “center of gravity” (COG) analysis, or some other logical conspiracy prevented the plan from being successful.⁶⁵ An

⁶² Ibid., 95.

⁶³ JP 5-00.1, II-16.

⁶⁴ Dörner, 74-76.

⁶⁵ JP 3-0 Doctrine for Joint Operations, (Washington DC: Department of Defense, 1995), III-20 defines center of gravity as “those characteristics, capabilities, or locations from which a military force derives its freedom of action, physical strength, or will to fight.” A specific case

alternate approach may be the critical move to proving these gremlins don't exist. Using the elements of systems thinking presented by Dörner, and Senge, warfare can better be described in a more comprehensive framework as an interaction between systems of antagonists. Expanding the depth of the understanding of "friendly" and "enemy" systems leads to an appreciation of feedback, and shifts from the linear construction of phasing to a more complex, multi-circular framework. Full understanding of buffering systems leads to better appreciation for consequences of defeating these buffers, and finally, understanding critical and indicator variables are the keys to potential high leverage points.

Systems theory application to operational warfighting is certainly not new. The essence of Colonel John Warden's five ring model is viewing the enemy as a system with leadership as the critical innermost ring.⁶⁶ However, systems theory is only the second of the cataclysmic shaping events, the third is the impact of complexity theory and with it a new understanding of adversaries in the contemporary operational environment. Many classical military theorists, such as Clausewitz, have at their root, a merciless "tyrant of men's minds," to borrow from Thomas Jefferson's famous quote.⁶⁷ This merciless tyrant is Sir Isaac Newton, and his concept of Newtonian physics. With respect to Isaac Newton, it is fair to say that tyranny was by no means his intent when developing his *Principia*, quite the opposite. Often, a breakthrough in a field of science leads many theorists to use this new concept as framework to understand other fields of interest, specifically military affairs, by analogy.⁶⁸ The concept of COG, presented by Clausewitz, is an example of the phenomena. The concept is omnipresent in Joint and Army

of *ex post facto* COG theories is Harry G. Summers *On Strategy: A Critical Analysis of the Vietnam War*, (New York: Ballantine Books, 1995), 128-129.

⁶⁶ John A. Warden COL. "The Enemy as a System." *Airpower Journal*, (Maxwell AFB, Air University, Spring 1995).

⁶⁷ "I have sworn upon the altar of God, eternal hostility against every form of tyranny over the mind of man." --Thomas Jefferson. Available online at <http://etext.lib.virginia.edu/jefferson/quotations/jeffcont.htm>. last accessed on 27 Nov 04.

⁶⁸ See Pellegrini's thesis "The Links between Science, Philosophy, and Military Theory."

doctrine and is one of the facets of operational art.⁶⁹ The problem comes when the COG is difficult to discern, or purely conceptual, and therefore difficult to engage. Initial assessments of the terrorist organization Al Qaeda concluded that the COG of the organization was its leadership.⁷⁰ LTC Michael Beech, and Marion and Uhl-Bien's research takes a different approach and studies Al Qaeda with a lens of complexity theory, they conclude that Al Qaeda is a complex dynamic system, which makes conventional "center of gravity" analysis invalid. The COG concept is a critical foundation on which the current, linear based operational framework rests. A fault in this critical "load bearing" concept will cause stress fractures to develop in the entire framework, compromising its structural integrity.⁷¹ These cracks may be repaired on the surface, but the damage is already done, and will continue as the cost to buttress the structure increase exponentially. Sometimes the most economical solution is to realize that a structure has exceeded its design life and move on. Complexity theory is the vehicle that allows the critical thinker to see the cracks in the operational framework, and make the bold decision to build a new framework that fits better with a changing environment.

Beech's paper describes the basics of Complexity Theory in three critical concepts, emergence, self-organization and resilience.⁷² Emergence can be characterized as an organizing "idea" or force that causes numerous "agents" to act in concert, each with a concept of individual fulfillment.⁷³ Emergence differs from traditional hierarchal chain of command in that each entity (or agent) chooses interdependent relationships in order to achieve mutual fulfillment of their own individual requirements.⁷⁴ In the case of Al Qaeda, individuals choose to become part of

⁶⁹ JP 3-0, III-10.

⁷⁰ Chapter 4 will discuss Operation Enduring Freedom in detail.

⁷¹ Load Bearing-The capacity of an element in a building structure to support a weight in addition to its own, whether vertically or laterally. Thus a load-bearing wall is one which supports part of the structure in addition to its own weight. Definition available at www.merlinprojects.com/misc/glossary.htm last accessed on 26 November 04.

⁷² Michael F. Beech, LTC, "Observing Al Qaeda Through the Lens of Complexity Theory" Center for Strategic Leadership US Army War College. Student Issue Paper S04-01 July 2004. 5.

⁷³ Ibid., 5.

⁷⁴ Ibid., 5.

cells to fulfill individual senses of duty and higher awareness of Islam. Cells form bonds with Al Qaeda to provide resources and ideas that benefit both the cell and the network. This model is consistent with the findings of the 9/11 Commission on how terrorists organized to conduct the attacks on the World Trade Center and the Pentagon.⁷⁵

Emergence alone is not unique enough to create these fractures in the center of gravity concept. The next critical concept in complexity theory is self organization. Beech identifies five fundamental elements of self organizing networks as adaptation, correlation, coupling, aggregation and recursion.⁷⁶ Dynamic complex networks are constantly in a state of flux in relation to their organization among the numerous agents. Changes in the environment cause constant reactions amongst the agents to seek optimal fulfillment (in their perspective) through *adaptation*.⁷⁷ The combination of the needs of the individual agents and the changing environment cause the agents to adopt measures of compromise and competition, called *correlation*.⁷⁸ Bonds between individual agents, called coupling, are assessed as loose, moderate or tight. Sets of agents, bound through correlation develop into *aggregates*.⁷⁹ Due to the dynamic nature of adaptation, aggregate do not necessarily develop into fixed structures. Through the mechanisms of correlation and aggregation, complex networks are said to be *recursive*, or having multiple means of redundancy, which contributes to the networks *resilience*.⁸⁰

How does this differ from a traditional COG approach? A traditional COG analysis would lead the planner to seek the primary source of moral or physical strength, power and

⁷⁵ National Commission on Terrorist Attacks Upon the United States, *The 9/11 Commission Report, Final Report of the National Commission on Terrorist Attacks Upon the United States* auth.ed. (New York, NY: W.W. Norton & Company Publishers, 2004), 146-173.

⁷⁶ Beech, 5-6.

⁷⁷ Ibid., 5-6.

⁷⁸ Ibid., 5-6.

⁷⁹ Ibid., 6.

⁸⁰ Ibid., 6.

resistance.⁸¹ Dr Joe Strange, a faculty member of the Marine Corps War College and a contemporary expert on the center of gravity concept as it has been presented in Clausewitz and Joint and Service doctrine, asserts that multiple COGs are possible, and “the job is to determine the interrelationship of multiple COGs within and among the levels of war, and to devise effective strategies and campaign plans against them.”⁸² The planner would then develop an assumption that either leadership, or fundamental Islam or something else, or all of them is the overall source of moral or physical strength, and develop a campaign plan, using direct or indirect approach to affect this COG. The reality may be, if Al Qaeda is a dynamic complex system that there really is no primary source of moral or physical strength, and that individual agents constantly reorganize along lines that meet their own concepts of fulfillment. This initial COG assumption has monumental impacts on the design of any campaign. Complexity theory provides a more sophisticated model of an enemy than previous, industrial age, hierarchal models that may no longer be viable in the contemporary operational environment. Beech, Marion and Uhl-Bien provide convincing arguments that Al Qaeda is a complex, dynamic network through analysis with complexity theory. This monograph posits that any conflict, past or present, when viewed through the more sophisticated lens of complexity theory, will reveal complex, dynamic networks *at some scale in every conflict*. Al Qaeda is more symbolic of the first atom that science has been able to see. The analogy is that a perceived hierarchal structure is revealed when an observer looks at a macro level, but when a more sophisticated microscope analyzes the structure, the reality of complex, dynamic structure is revealed in everything else as well.

The combination of information environment, systems theory, and complexity theory provides the forbidden fruit which opens the eyes to a new world order. Once eaten, the operational artist gains a startling perception on concepts that were previously accepted as tenets

⁸¹ Dr. Joe Strange, “Centers of Gravity and Critical Vulnerabilities.” *Perspectives on Warfighting, Number 4*, 2d ed. (Quantico, VA: Marine Corps University, 1996), ix.

⁸² Ibid., 18.

and becomes suddenly aware of his own nakedness. It is only in this state of new perception that phasing can be set aside as the antediluvian concept that it is.

CASE STUDIES

The purpose of this chapter is to review the use of phasing in two contemporary campaigns; DESERT SHIELD/DESERT STORM 1990-91, and Operation ENDURING FREEDOM 2001-2002. This will provide the framework for analysis of these case studies in Chapter 5 using the established concepts of information environment, systems theory and complexity theory. The campaigns were chosen based on three factors. First, they were all conducted by United States Central Command (USCENTCOM), so there is a common thread in their execution, in that they were consistent with an evolving strategy for one area of responsibility (AOR) and allows the narrative to build from one operation to the next, without establishing a tremendous amount of background material to establish context.⁸³ Second, the operations were of sufficient size and duration to properly be called a campaign, and not confused with a single discrete engagement. Third, the operations are recent enough that changing aspects of the environment of conflict can be traced from one to the next. There are methodological dangers in limiting our net of candidates to one AOR (USCENTCOM), in that the assumption that conclusions reached through analysis of this one set of case studies is applicable to all other AORs and to Joint Doctrine. In light of this, consideration to the peculiarities of each combatant commander's responsibilities must be made, before it can automatically be assumed that a tool which fits for one must in turn fit for all.

⁸³ Area of Responsibility (AOR) The geographical area associated with a combatant command within which a combatant commander has authority to plan and conduct operations. JP 3-00, GL-3.

Operation DESERT SHIELD/DESERT STORM 1990-1991.

On 2 August 1990, Saddam Hussein invaded Kuwait and the United Nations Security Council passed Resolution 660 condemning the invasion and calling for the immediate and unconventional withdrawal of Iraqi forces from Kuwait.⁸⁴ On 7 August, President George H.W. Bush directed the commitment of US military forces to the defense of Saudi Arabia, which became Operation DESERT SHIELD. In September of 1990, even as troops were deploying for DESERT SHIELD, planners began to consider options for offensive action to remove Iraq from Kuwait. On 15 January, 1991, the Secretary of Defense,(SECDEF) Richard Cheney, signed an execution order for an offensive to remove the Iraqis. Air operations for Operation DESERT STORM began on 17 January 1991, ground operations began on 24 Feb 1991. The US lead coalition, under GEN H. Norman Schwarzkopf, executed a turning movement into southern Iraq which caused the Iraqi Republican Guards to withdraw toward Iraq to escape being surrounded. On 28 February 1991, a cease fire went into effect that ended offensive operations for the coalition.

Once a cease fire was agreed to by Iraqi officials, the mission of the coalition changed dramatically and focused on three tasks, occupation of southeastern Iraq until a United Nations permanent cease fire was established, emergency support to Kuwait until relieved by a Department of Defense Reconstruction Assistance Office, and to begin redeployment of Coalition forces.⁸⁵ The transition from combat to post combat operations occurred very quickly, and the coalition was unprepared for the full range of effects that occurred based on the success of DESERT STORM.

“Soon after hostilities ended, Shiites in unoccupied southern Iraq revolted to depose Saddam's Baathist supporters. North of Baghdad, the Kurds reignited their centuries-old struggle against the Baghdad government. After some initial setbacks, Saddam's forces regrouped and began a brutal program to repress both revolts. In full view just across the

⁸⁴ Swain, 22.

⁸⁵ Ibid., 319.

military demarcation line, American forces watched helplessly as Republican Guard soldiers killed thousands of their countrymen. In northern Iraq, the Kurds fled north to seek refuge from the marauding Iraqis in the mountains of eastern Turkey and western Iran. In the south, refugees fled to Kuwait and Saudi Arabia, toward the Americans.”⁸⁶

For Operation DESERT SHIELD and DESERT STORM, US National Policy Objectives were described in the Final Report to Congress on the Persian Gulf War as; the immediate, complete, and unconditional withdrawal of all Iraqi forces from Kuwait; restoration of Kuwait's legitimate government; security and stability of Saudi Arabia and the Persian Gulf; and safety and protection of the lives of American citizens abroad.⁸⁷ In order to achieve these policy objectives, Commander in Chief, United States Central Command (USCINCENT), in coordination with the Commander, Joint Force/Theater of Operations developed a campaign plan to achieve three common objectives; counter Iraqi aggression, secure Kuwait and provide for the establishment of a legitimate government in Kuwait.

US military objectives during Operation Desert Shield (2 August 1990) were to:

1. Develop a defensive capability in the Gulf region to deter Saddam Hussein from further attacks;
2. Defend Saudi Arabia effectively if deterrence failed;
3. Build a militarily effective Coalition and integrate Coalition forces into operational plans;
4. Enforce the economic sanctions of UNSC Resolutions 661 and 665.⁸⁸

The threat of a continued Iraqi attack into Saudi Arabia was present through September of 1990, when Republican Guard Division began to reposition away from the Saudi border.⁸⁹ Once this event occurred, the focus of USCENCOM became offensive operations to dislodge the Iraqis from Kuwait.

⁸⁶ Robert H Scales. *Certain Victory The US Army in the Gulf War*, (Fort Leavenworth KS: Command and General Staff College Press 1994), 326.

⁸⁷ Final Report to Congress, *Conduct of the Persian Gulf War*, Pursuant to Title V of the Persian Gulf Conflict Supplemental Authorization and Personnel Benefits Act of 1991 (Public Law 102-25) APRIL 1992 Available online at <http://www.ndu.edu/library/epubs/cpgw.pdf>. last accessed on 27 November 04. 74.

⁸⁸ Ibid., 75.

⁸⁹ GEN H. Norman Schwarzkopf and Peter Petre, *It Doesn't Take a Hero*, (New York, NY: Bantam Book Publishers, 1992), 346.

CINCENT Mission Statement (17 January 1991)⁹⁰

Conduct Offensive operations to:

1. Neutralize Iraqi National Command Authority
2. Eject Iraqi Armed Forces from Kuwait
3. Destroy the Republican Guard
4. As Early as Possible Destroy Iraq's Ballistic Missile, NBC capability
5. Assist in the Restoration of the Legitimate Government of Kuwait.

Given these theater strategic objectives, CENTCOM planners identified six operational objectives to accomplish the mission.⁹¹

1. Attack Iraqi political-military leadership and C2
2. Gain and maintain air superiority
3. Sever Iraqi Supply lines
4. Destroy known nuclear biological and chemical (NBC) production, storage, and delivery capabilities
5. Destroy Republican Guard forces in the KTO (Kuwait Theater of Operations)
6. Liberate Kuwait City.

In order to achieve these operational objectives, CENTCOM planners identified three Centers of Gravity which were central to their campaign design. First, was command, control and leadership of the Saddam Hussein regime, second Iraq's weapons of mass destruction capability, third, the Iraqi Republican Guard. The "Combined Operation Plan (OPLAN) for Offensive Operations to Eject Iraqi Forces from Kuwait" was organized into four sequential phases⁹²

1. Phase I Strategic Air Campaign
2. Phase II Air Supremacy in KTO
3. Phase III Battlefield Preparation
4. Phase IV Offensive Ground Campaign.

To further clarify the ground campaign (Phase IV), CENTCOM planners further divided this phase into four sub-phases⁹³.

1. Phase I Logistical buildup
2. Phase II Force repositioning;
3. Phase III Ground attack; and
4. Phase IV Tactical consolidation.

⁹⁰ Final Report to Congress, 119-120.

⁹¹ Ibid., 120.

⁹² Ibid., 116-122.

⁹³ Ibid., 281.

Distinctly absent in the CENTCOM campaign planning was any real mention of post conflict operations.⁹⁴ Simultaneous to the development of the campaign plan in Saudi Arabia for the liberation of Kuwait, another group was planning the emergency response and reconstruction effort for Kuwait following an Iraqi withdrawal. Displaced Kuwaiti government planners, oil officials, and health care experts, established an office five blocks from the White House, called the Kuwait Emergency Recovery Program (KERO), and was headed by Fawzi Al-Sultan, Kuwait's dynamic representative to the World Bank.⁹⁵ In September of 1990, KERO began to inquire about US Army Civil Affairs capability through the US Department of State, and after a briefing describing the capabilities of Civil Affairs, submitted a formal request to President Bush for assistance in the reconstruction of Kuwait.⁹⁶ After extensive staffing and consideration at the political and eventually military level, the Joint Staff directed the Army to create a task force of Civil Affairs, and others, to facilitate the reconstruction of Kuwait. On 21 November 1990, elements of the 352 Civil Affairs Command and other units were activated from the US Army Reserve to serve as the Kuwait Task Force. Reception for the Kuwait Task Force in theater was less than spectacular. Due to confusion over who the task force worked for and a lack of willingness of USCENTCOM planners to work on anything that wasn't related to the fight, the Kuwait Task Force struggled to integrate post-war considerations into any of the operational campaign.⁹⁷

From a military aspect of the elements of national power (DIME) DESERT SHIELD and DESERT STORM was extremely effective.⁹⁸ The war lasted from 17 January until approximately 1 March, and accomplished the National Policy Objectives established by

⁹⁴ A period of *post conflict* activities exists from the immediate end of the conflict to the redeployment of the last US Service member. JP 3-0, III-23.

⁹⁵ Janet A. McDonnell, *After the Storm. The US Army and the Reconstruction of Kuwait*. (Washington DC: Department of the Army, Center for Military History, 1999), 15.

⁹⁶ *Ibid.*, 17.

⁹⁷ *Ibid.*, 43-44.

President Bush and his advisors. Many have found fault in the coalition's inability to achieve a long term solution for Iraq in 1991. In considering this indictment, Richard Swain's analysis in *Lucky War* seems most cogent.

“Because the Gulf War was a coalition war, it remained a war of limited objectives. At no time was the destruction of Iraq a serious consideration. The strategists seem always to have had a keen eye on what the postwar regional balance of power would look like, not wishing to exchange one destabilizing imbalance for another.”⁹⁹

Operation ENDURING FREEDOM 2001-2002

The strategic environment for the United States changed dramatically on Tuesday, September 11th 2001. At 08:46:40, American Flight 11 crashed into the North Tower of the World Trade Center, killing all on board. At 09:03:11, United Airlines Flight 175 struck the South Tower of the World Trade Center, killing all on board. Approximately thirty minutes later, at 09:37:46, American Airlines flight 77 crashed into the Pentagon. United Flight 93 crashed near Shanksville, Pennsylvania after a struggle with passengers at approximately 10:03, killing all the passengers on board.¹⁰⁰ Subsequently the World Trade Center Towers fell based on the structural damage resulting from the impact and subsequent heat from the jet fuel. Later that day, President Bush, in a restricted National Security Council meeting, established the policy that the United States would punish not just the perpetrators of the attack, but also those who harbored them.¹⁰¹ This policy was initially focused on Al Qaeda, who was determined to be responsible for the attacks on 9/11, and its state sponsor, Afghanistan, ruled by the fundamentalist Taliban regime.

In a Presidential Address to the Nation on 7 October 2001, President George W. Bush outlined operations in Afghanistan as the beginning of an even broader global campaign on

⁹⁸ DIME (Diplomacy, Informational, Military and Economic) reflects the instruments of national power. See FM 3-0, *Operations*, 1-4.

⁹⁹ Swain, 1.

¹⁰⁰ *The 9/11 Commission Report*, 7-14.

¹⁰¹ *Ibid.*, 330.

terrorism.¹⁰² This broader campaign was further refined in January of 2002 in his State of the Union Address, where President Bush identified two strategic aims.

“First, we will shut down terrorist camps, disrupt terrorist plans, and bring terrorists to justice. And, second, we must prevent the terrorists and regimes who seek chemical, biological or nuclear weapons from threatening the United States and the world. Our second goal is to prevent regimes that sponsor terror from threatening America or our friends and allies with weapons of mass destruction.”¹⁰³

Operation ENDURING FREEDOM (OEF) was an “enabling campaign” in a wider Global War on Terrorism aimed at protecting American national security.¹⁰⁴ OEF began on 7 October, 2001, with the Taliban in control of 80% of Afghanistan, and Anti-Taliban forces, most notably the Northern Alliance, on the defensive. By March of 2002, the Taliban had been removed from power and the Al Qaeda network in Afghanistan destroyed.¹⁰⁵ OEF continues today to restore Afghanistan to a democratic government and eliminate pockets of Taliban and Al Qaeda resistance, specifically in the border regions between Pakistan and Afghanistan.

The US National Policy, which guided OEF, was established in President Bush’s Address to the Joint Session of Congress and the American People, on 20 September 2001.

“Our war on terror begins with al-Qaida, but it does not end there. It will not end until every terrorist group of global reach has been found, stopped, and defeated.”¹⁰⁶

SECDEF Donald Rumsfeld publicly announced strategic military objectives for OEF in his announcement on 7 October 2001.

“The current military operations are focused on achieving several outcomes: To make clear to the Taliban leaders and their supporters that harboring terrorists is unacceptable and carries a

¹⁰² “Presidential Address to the Nation,” White House available from <http://www.whitehouse.gov/news/releases/2001/10/20011007-8.html>. Last accessed on 8 October 2004

¹⁰³ “President Delivers State of the Union Address.” White House, available from <http://www.whitehouse.gov/news/releases/2002/01/20020129-11.html>. Last accessed on 8 October 2004.

¹⁰⁴ John G. Clement. “Operation Enduring Freedom as an Enabling Campaign in the War on Terrorism.” School for Advanced Military Studies, (Fort Leavenworth KS: US Army Command and General Staff College, 2003), 26.

¹⁰⁵ “Operation Enduring Freedom-Afghanistan” available from <http://www.globalsecurity.org/military/ops/enduring-freedom.htm>. Last accessed on 8 October 2004

¹⁰⁶ Ibid.

price; to acquire intelligence to facilitate future operations against al Qaeda and the Taliban regime that harbors the terrorists; to develop relationships with groups in Afghanistan that oppose the Taliban regime and the foreign terrorists that they support; to make it increasingly difficult for the terrorists to use Afghanistan freely as a base of operation and to alter the military balance over time by denying the Taliban the offensive systems that hamper the progress of the various opposition forces; and to provide humanitarian relief to Afghans suffering truly oppressive living conditions under the Taliban regime.”¹⁰⁷

Given the SECDEF established national strategic objectives, CENTCOM planners identified six operational objectives.¹⁰⁸

1. Taliban aircraft and air defense capability,
2. Northern Taliban force concentrations
3. Eastern Taliban force concentrations
4. Southern Taliban force concentrations
5. Western Taliban force concentrations
6. Al Qaeda Infrastructure.

In the scope of ten days between September 11th and September 21, General Tommy Franks had to produce a framework for a campaign plan for operations in Afghanistan.¹⁰⁹ USCENTCOM developed a campaign plan framed by this national policy, publicly promulgated strategic military objectives, and General Franks’ identified operational objectives. Rooted in a series of plans called the “INFINITE RESOLVE” options, developed to retaliate for bombings of US embassies in Nairobi, Kenya and Dar es Salaam, Tanzania on 7 August, 1998 and the attack on the USS Cole on 12 October 2000, OEF introduced the use of ground forces in Afghanistan.

¹⁰⁷ Secretary of Defense Donald Rumsfeld and Chairman of the Joint Chiefs of Staff Richard Myers Brief on Military Operations in Afghanistan, available online at <http://www.globalsecurity.org/military/library/news/2001/10/mil-011007-usia04.htm>. Last accessed on 8 October 2004.

¹⁰⁸ Dr. Milan Vego, “What Can We Learn from Enduring Freedom?” US Naval War College *Proceedings*, July 2002. 2.

¹⁰⁹ GEN Tommy Franks and Malcolm McConnell, *American Soldier*. (New York, NY: Harper Collins Publishers, 2004), 249

On 20 September, 2001, GEN Franks briefed his campaign plan for OEF to the President of the United States at the White House.¹¹⁰

In order to achieve the operational objectives CENTCOM planners identified a theater-strategic Center of Gravity as the “Islamic radicalism fomented by the leadership of Al Qaeda.”¹¹¹ The associated Operational Centers of Gravity were al Qaeda finances and support from the Taliban regime. Tactical centers of gravity were identified as the cave complexes along the Afghanistan and Pakistani border.¹¹² The resulting campaign plan for OEF was organized into four phases, along nine logical lines of operation.

Phase I	Set Conditions and Build Forces to Provide the National Command Authority Credible Military Options
Phase II-	Conduct Initial Combat Operations and Continue to Set Conditions for Follow-on Operations
Phase III	Conduct Decisive Combat Operations in Afghanistan, continue to build coalition, and Conduct Operations AOR wide
Phase IV	Establish Capability of Coalition Partners to Prevent the Re-emergence of Terrorism and Provide Support for Humanitarian Assistance Efforts.

USCENTCOM Lines of Operation.¹¹³

1. Political Military actions to isolate the Taliban.
2. Support to the Afghani opposition groups.
3. Direct attack on al Qaeda and Taliban Leadership
4. Direct action and reconnaissance
5. Operational fires
6. Attack on cave/tunnel complexes
7. Humanitarian assistance
8. Information Operations

¹¹⁰ Ibid., 268-272.

¹¹¹ John A. Bonin, and Mark H.Gerner, “Continuous Concentric Pressure.” *The Land Warfare Papers Number 43*. (Arlington VA: The Institute of Land Warfare Association of United States Army September 2003), 7.

¹¹² Ibid., 7.

9. Operational Maneuver with Ground forces.

GEN Franks described the CENTCOM operational methodology as “Lines of Operations and Slices.”¹¹⁴ The slices represented the various aspects of the country that were affected by the lines of operation. This conceptual methodology that he used was an attempt to convey the campaign with a complexity that was necessary to capture the essence of a true *integrated* joint fight, in contrast to his observations of Desert Storm as “a patchwork of deconflicted service operations, but not a joint effort.”¹¹⁵ General Franks predicted and realized tremendous gains in effectiveness by a closely integrated joint fight, versus phased application of joint capabilities demonstrated in the DESERT STORM model. These gains in an integrated joint fight coupled with the tremendous increase in capability of precision munitions combined to create tremendous, constant pressure, which rapidly collapsed the Taliban regime.¹¹⁶

OEF was successful in accomplishing the strategic objectives identified in the statement of 7 October 2001. Colin Gray, defense analyst and strategic theorist, assessed the coalition victory in OEF as, “decisive,” in that it was decided that Afghanistan would have a change in central government, and that it was unlikely to be a safe haven for terrorists for some time to come.¹¹⁷ As the sum total of lessons learned from OEF have not been totally captured, the campaign’s effectiveness certainly impacted decision makers such as President Bush and Secretary of Defense Rumsfeld in the decision to invade Iraq.

ANALYSIS

The purpose of this chapter is to answer the first research question (Is phasing still valid?) by analyzing the case studies presented in Chapter 4 using the concepts of information age, systems theory, and complexity theory, presented in Chapter 3. Through this analysis, the

¹¹³ Ibid., 7.

¹¹⁴ Franks and McConnell, 335.

¹¹⁵ Ibid., 378.

¹¹⁶ Bonin and Gerner, 6.

monograph will make an assertion to the continued relevance of phasing to the current operational environment.

Toffler asserts that the Gulf War in 1990 was a combination of 2nd and 3rd Wave trends on the part the US military, called the “Dual War,” against an opponent that was decidedly in the 2nd wave.¹¹⁸ He highlights the different wars in the nature of the air campaign which he asserts that there was actually two air campaigns, one that was based on old technology of dumb bombs and was attrition based, the second which was based on new technology of precision munitions, attacking strategic air defense, command and control and political targets with great accuracy. This increased technology widened the depth of the battlefield and made the Iraqi troops on the front lines in Kuwait less relevant in Toffler’s view, and marked the watershed of third wave conflict.

Given the arrival of Toffler’s Third Wave, how might it have changed the operational approach to planning DESERT SHIELD and DESERT STORM (DS/DS)? Realization of the destructive capability of precision munitions was not yet common knowledge, combined with the abundance of skeptics to their usefulness, so campaign planners for DS/DS essentially used this third wave capability to increase their destructive power in second wave terms. This manifests itself in the sequential nature of the offensive operations phases, in which the first three phases were exclusively air oriented (approximately 37 days), then transitioning to a ground campaign (approximately 4 days). The combination of Tomahawk cruise missiles, precision strikes from stealth equipped aircraft accounted for approximately 2% of the sorties, yet accounted for 40% of the strategic targets attacked.¹¹⁹ A lack of appreciation for the full potential of these third wave capabilities led to three results. First, the underassessment of the capabilities of integrated joint firepower led to over kill on deployment of land forces. Second, lack of confidence in

¹¹⁷ Colin S. Gray *Defining and Achieving Decisive Victory*. Strategic Studies Institute, (Carlisle PA: US Army War College, 2002), 4.

¹¹⁸ Toffler and Toffler, 73.

integrating joint capabilities led to sequentially applying them, which is why there was an air campaign then a ground campaign. The overall result was a much slower operational tempo for DS/DS than could have been achieved with a fully integrated third wave fight. Saddam Hussein gave the coalition forces the luxury of a six-month buildup through DESERT SHIELD to DESERT STORM, which allowed the coalition to plan and execute under second wave thinking. General Tommy Franks, who participated in DS/DS as an Assistant Division Commander for the 1st Cavalry Division, recognized this and referred to DS/DS as a “patchwork of deconflicted service operations, not a true joint effort.”¹²⁰ Phasing in DS/DS served as the mechanism to make General Frank’s observed “patchwork” look like a quilt.

As indicated above, DS/DS was successful in 1991 in achieving its objectives using the 2nd wave thinking. The primary reason for this success is that Saddam Hussein was completely rooted in 2nd wave thinking from his experience in the war with Iran. His reliance on the hierarchal, second wave structures and belief that bigger is better led him to assume that the Iraqi Army would inflict sufficient casualties on the American led coalition that they would leave him in a position of strategic advantage. The casualties endured by Iraqi Divisions arrayed against the Saudi border were nothing new to a man who had engaged in eight years of war against Iran.¹²¹

It may be unfair to judge decision-makers of the DS/DS time period out of context of the time in which the decisions were made. There was a significant sensitivity to the thought of mass American casualties, as well as the strategic environment that had been shaped by events such as the failed 1980 raid to save Americans held hostage in Tehran, Iran and the bombing of the Marine barracks in Lebanon in 1983. These events, combined with the specter of the Vietnam War, shaped ground breaking events such as the Weinberger Doctrine, also referred as the Powell Doctrine, which mandated overwhelming force committed to accomplish American strategic

¹¹⁹ Ibid., 77.

¹²⁰ Franks and McConnell, 378.

¹²¹ John Keegan, *The Iraq War*, (New York NY: Alfred A. Knopf Books, 2004), 68-69.

goals that were deemed vital to US interests. However, a more aggressive effort to integrate the joint fight in time, versus the phased application of them may have produced more “operational shock” versus the campaign that was executed, which was an attrition war at a much higher scale.¹²² An integrated joint fight could have produced action sooner, narrowing windows for response by Saddam Hussein. America won in the Toffler principle of *acceleration* early on, once Saddam Hussein forfeited initiative and pulled his Republican Guard Divisions away from the border of Saudi Arabia.¹²³ Had he retained the capability to threaten Saudi Arabia and interdicted the means of force projection for the coalition, the result may have been different. But the coalition’s 2nd wave thinking was most marked when the ground war “ended” and they failed to recognize the changing nature of the conflict, considering the Shiite uprising in the south and the Kurdish uprising in the north. In this case, Saddam Hussein won the race of acceleration and was quick to restore order in these regions at a high price. The coalition’s sequential thinking resulted in failure to capitalize on events that could have established conditions for long term stability in Iraq earlier, with less effort.

It is more interesting to analyze DS/DS from a systems perspective. Consider the number of systems interacting during the period of the campaign, and opportunities for high leverage interventions, outside of kinetic solutions become apparent. For example, the Iraqi system was composed of Saddam Hussein and the Ba’ath Party apparatus, the Republican Guards, the regular Iraqi Army, the Shiite population in Southern Iraq, the Kurdish population in Northern Iraq, the Iraqi oil industry and affected by the systems of Iran and Turkey, just to name a few. The Kuwaiti system consisted of the infrastructure of Kuwait, the deposed government, and the oil industry. The coalition system is exponentially more complicated when the individual interests of all the participants and strategic end state for the region are considered. But the lack of seeing the enemy as a complex system resulted in numerous failures to recognize a high leverage

¹²² Naveh, 16-17.

intervention, which may have produced victory at lower cost. Consider the possibility of conducting operations that encouraged or reinforced the Shiite uprising that occurred after the ground campaign, earlier. If Iraqi forces had to reposition out of Kuwait to restore order in Southern Iraq, they would be extremely vulnerable to kinetic attack while in transit.

The most glaring failure of lack of systemic thinking in the campaign plan for DS/DS is the failure to fully consider post conflict operations in Kuwait and Iraq during the planning for the campaign. Consideration of the Kuwaiti system of systems, specifically oil and infrastructure may have changed the approach to conducting operations. The answer was not adding a post conflict or transition phase to the end of the campaign plan, but an appreciation for the whole in planning the operation from the start. Phasing provides the luxury of only worrying about now, which Senge reminds us, comes with a cost. The cost in this case was monumental damage to the Kuwaiti oil industry and environment, accomplished by an Iraqi army with plenty of time on its hands, poor consideration for the terms of cease fire, which cost the lives of thousands in failed revolts in north and south Iraq, and set the conditions for a costly 12 year deterrence mission in Kuwait for the United States.

COG analysis was the organizing basis for the campaign plan for the coalition in DS/DS. Given the brief analysis of complexity theory provided in Chapter 3, consider the possibility that the Ba'ath party structure in Iraq as a dynamic complex organization, consistent with the analysis of Al Qaeda as described by Beech, Marion and Uhl-Bien. Coalition analysis determined that the Saddam Hussein regime was one of the centers of gravity, with a defined hierarchy with Saddam Hussein at the center.¹²⁴ Briefly consider the situation if Saddam was killed by a precision air strike in DS. More than likely one of Saddam's sons would have succeeded him and the Ba'ath party would have continued. In order to defeat the complex network of the Ba'ath party (and Saddam Hussein) it is necessary to completely destroy the meta-aggregates of the Republican

¹²³ Toffler and Toffler, 72.

Guard, Special Republican Guards, and Ba'ath Party. As it happened, the Republican Guard was able to escape Kuwait largely intact, and the network proved much more resilient than was postulated with a simple center of gravity assessment. Certainly, combat operations from DS pressured the network, and caused agents to adapt, but even the advertised destruction of the command and control system did not defeat the recursive ability of the network, and Saddam and the Ba'ath party lived to fight another day. The Ba'ath party complex network continues to be an issue in Iraq today post Operation Iraqi Freedom, even after the defeat of the Republican Guards, capture of Saddam Hussein, and death of his sons. As was presented in Chapter 3, when examined under the lens of complexity theory, what at the macro level appeared to be a traditional hierarchal structure may in fact at the micro level be a complex, dynamic network. Approaching campaign design with a sequential, phased campaign designed to influence a COG that is in fact dynamic, adaptive and resilient will often find the phases achieving an end state that was not exactly desired.

DS/DS, as was cited by Richard Swain in *Lucky War*, was a campaign of "limited objective."¹²⁵ Given that it was not an objective of the campaign to change the government in Iraq, the end state achieved met the criteria of decision, according to Colin Gray's assessment. But the lack of realization of the changing environment of war with the onset of Toffler's Third Wave, combined with the Second Wave designed phasing plan resulted in the sequential application of joint firepower, and conflict termination in less than optimal conditions. The use of phases and lack of viewing systemic wholes resulted in potential lost opportunities and significant additional post conflict problems that may have been avoided. The lack of sophistication in campaign design with respect to COG analysis contributed to the already bad post conflict situation, and revealed that liberating Kuwait without addressing the Iraq issue in the long term deferred continued operations into Iraq for a period of 12 years.

¹²⁴ Final Report to Congress, *Conduct of the Persian Gulf War*, 119-120.

In the period that separated DS/DS and OEF adversaries of the U.S. began to adapt to the American's capability to deliver precision firepower. At least three events shaped adversaries perspectives on the Americans. The first was the failed raid in October, 1993 in Mogadishu, Somalia. This event shocked Americans with news footage of American bodies dragged through the streets of Mogadishu on what began as a humanitarian relief mission. The second was the American experience in conducting peacekeeping operations in the Balkans, and the coercive campaign of ALLIED FORCE versus the Serbians. This reinforced a perception of risk aversion and demonstrated that there were procedures that could be followed to reduce vulnerability to American precision fires. Finally, the bombing of the American embassies in 1998 and the bombing of the USS COLE in 2000 reinforced that terrorists could attack the United States with little concern over retaliation. The nature of conflict was becoming decidedly more complex, as enemies sought to adapt to avoid American strengths yet still achieve their strategic goals. This was the environment that nurtured the development of Al Qaeda.

The campaign plan that generated OEF was rapidly assembled, (approximately 10 days) versus the six months that it took to generate the campaign plan for DS/DS. Albeit, the two campaign plans were in markedly different scales of size, the speed that the OEF plan was generated was, in part, critical to its success. This recognizes the importance of acceleration, giving an adversary little time to change the nature of the conflict, or conduct operations to deny entry. GEN Franks recognized the leap ahead in the potential of an integrated joint fight and used the method of logical lines of operation to communicate it. This is certainly a step in a positive direction toward the systems integration considering a Toffler approach in the Third Wave. But closer examination of the phasing framework that guided the operations brings light on their 2nd wave thinking. The phasing for OEF, and the lines of operation, organized operations to optimize firepower at its peak efficiency, which in turn would create the overwhelming effects deemed

¹²⁵ Swain, 1.

needed. This was conducted with amazing speed, to the point where after a short amount of time, the firepower machine was actually growing short of targets. Special Operations forces (SOF) raced to link up with the Northern Alliance in order to feed target opportunities to the firepower machine (as well as Predator Unmanned Aerial Vehicles.) GEN Franks comments in *American Soldier* on the anxiety felt by the Secretary of Defense waiting for the SOF forces to link up with the Northern Alliance, as targets were getting scarcer and scarcer, despite the technology of Joint Surveillance Target Attack Radar System (JSTARS) and Predator Unmanned Aerial Vehicles (UAVs.)¹²⁶ This phenomena of destruction as progress is indicative of 2nd Wave thinking. The addition of a Phase IV (Post Conflict) reflects an awareness of the reality that firepower does not solve every problem, yet as firepower is the organizing principle for the entire campaign, phase IV often seems disjointed, and usually an afterthought.

The total number of systems to be considered in the OEF campaign is staggering. Consider the systems of Al Qaeda, the Taliban, Northern Alliance, Pakistan, and Uzbekistan just for starters. The tribal structure of the majority of the population of Afghanistan leads one to realize that each of these tribes is a system in themselves. The American lead coalition is, of course, its own complex system of systems, including American, British, and Australian systems as well. But complexity of the interaction is critical to seeing the whole, and *not just the enemy*. Current trends in Operational Net Assessment are important to a more sophisticated understanding of adversaries, but this must be carried forward to understanding friendly coalitions as well.¹²⁷ Warfare is interaction among systems, not just discrete events intervening in the enemy's system, as lines of operation may lead one to believe. Deconstruction of the systems into these discrete snapshots comes with a price, which is often missed opportunities, and

¹²⁶ Franks and McConnell, 296.

¹²⁷ Operational Net Assessment (ONA) is the integration of people, processes, and tools that uses multiple information sources and collaborative analysis to build shared knowledge of the adversary, the environment, and ourselves. US Joint Forces Command, Doctrinal Implications

short term solutions that generate long-term problems. This price often comes in the form of fratricide, or negative perceptions of American actions in Muslim communities.

Similar to the case of DS/DS, COG analysis was the basis for the design of the campaign plan. As has been discussed above, recognition of Al Qaeda as a complex, dynamic system may drastically alter the approach in which the planner pursues influencing it. Pressuring the network will force the network to adapt, and this adaptation may on the macro level, in old hierarchal understanding, be falsely characterized as success. Realization of the adaptive nature of the network and recognizing opportunity for other intervention is the road to understanding warfare at this micro, complex level. The speed of this adaptation and nuances of its detail does not lend itself to phased, sequential planning. The phenomena of “decisive operations” fits well into a western theme of closure, but in reality may only be a mirage on the horizon of wider conflict.

The analysis of the campaigns of DS/DS of 1990-91 and OEF of 2001-2002 have provided new insights to the campaign planner on the changing nature of warfare through the lenses of Third Wave warfare, Systems Theory and Complexity Theory. In light of this analysis, this monograph concludes that phasing has reached the threshold of irrelevance in campaign planning.

CONCLUSIONS AND RECOMMENDATIONS

This journey through the history of phasing, introduction of the concepts of Third Wave Warfare, Systems Theory, and Complexity Theory, case studies and analysis of Operations DS/DS and OEF leads to four conclusions. These conclusions will in turn influence and support recommendations for action, mostly for the Joint Staff and Joint Forces Command.

First, the development of the concept of Operational Net Assessment is a critical step in recognizing the impacts of systems theory and complexity theory. In order for this to meet its

of Operational Net Assessment (Norfolk VA: Joint Warfighting Center Doctrinal Pamphlet Series 4, February 2004), 4.

true potential, the recognition of the nature of the friendly system must also be included as well. Warfare is the interaction of systems between antagonists, not just the insertion of discrete events into one opponent's system. Clausewitz recognized that warfare was composed of competing wills, and operational net assessment provides the critical, sophisticated model for understanding the friendly and enemy systems interaction. But the potential effect of this sophisticated interaction is nullified if made to fit into the sequential model of phasing. Phasing represented the linear thought processes of the 2nd wave, and focused its efforts to align the actions of men with the rhythm of the machine, in this case firepower. True integration of systems understanding will require appreciation of feedback, and interaction. Phasing does not perform this task well, so alternatives are recommended.

The second conclusion comes from the reality that the United States is engaged with complex, dynamic enemy systems in almost every case. The continued optimization of joint forces under the aegis of transformation will result in more, dynamic, complex friendly organizations as well, in order to compete. The continued importance of inter-agency cooperation reinforces the emerging dynamic, complex environment of contemporary warfare. It is impractical to attempt to make this complex, dynamic system mold itself to industrial age designed phasing, and more adaptive methods of campaign design must be developed.

The third conclusion is an outgrowth of the second. It has been argued that adversaries are in reality dynamic, complex entities. However, the government process of the United States is, by law, a hierarchal organization. The Unified Command Plan is a product of this hierarchal mindset and in turn drives the combatant commander to look at the world through the "soda straw" of his regional combatant command. The emergence of complex enemies confounds our organizational structure as enemies are inclined to exploit seams between combatant commands as niches, recognizing the problems of coordinating their activities. Phased, combatant commander campaign plans result in repair service behavior, as the COCOM is only capable of influencing part of the problem within his AOR. Systems and complexity theory approaches to

problems do not lend themselves to the bureaucratic, hierarchical structures found in the current unified command plan. The COCOM becomes the conceptual seam between complex enemies and hierarchical government *procedures* tied to specific, phased events, such as budget cycles, election cycles and others. Elimination of phasing campaigns is a conceptual step toward transforming the defense community toward the third wave.

The final conclusion that can be drawn from this study is that the foundations of the classic operational art that is joint doctrine today may be losing their relevance. These tools worked well in the environment of the second wave and reflect maturation consistent with their relative ages. The contemporary operational environment and the new perception of the battlefield afforded by systems theory, and complexity theory convinces the practitioner of operational art that linear based structures are quaint antiques to a day gone by. The luxury of viewing warfare through the linear construct is rapidly diminishing, and the elimination of phasing is the first step toward recognizing the problem.

In light of these conclusions, this monograph makes the following recommendations. First, that Joint Forces Command must commission a study to fully develop alternatives to phasing for campaign planning. This monograph includes three possibilities, by no means all-inclusive. Historically, the defense community has taken many of its cues from the changes in the business world. Senge and Dörner's works were largely focused on the business world. In the case of eliminating phasing, the defense community may not have the luxury of waiting while suitable replacements are developed outside. The collective brainpower of the Joint Forces Command and its civilian think tanks need to be brought to bear to solve this problem.

The second recommendation is that it may be time to reconsider the Unified Command Plan in light of complex, adaptive enemies seeking niches. Joint Forces Command and the Joint Staff must consider whether in light of the contemporary operational environment, that the hierarchical, regionally structured Unified Command Plan will still be relevant after the implementation of a full systems approach to warfighting. This study may be a logical upshot of

the first. The end result of this revision is that seams between unified commands must be nearly transparent, if they are in any way detrimental to that systems ability to respond to challenges.

The final recommendation is that in light of the diminishing relevance of linear approaches to problem solving, and the recommended changes above, a new framework of operational art will need to be developed. Approaching problems under the old linear approach may be one of the reasons for the length of time it takes to get resolution of foreign policy crises. Adopting new methodologies that use systems and complexity theory will in turn require new, framework of operational art nested with these concepts.

ALTERNATIVES

Dismantling the phasing concept through a rational methodology is not difficult, but brings with it the responsibility to develop alternatives. It is important to point out that alternatives to phasing would be categorized as “emerging doctrine” or theories based on a perceived mismatch between the current operational environment and current doctrine. These proposed alternatives are not fully developed, and presented here as working ideas, which will require significant research, development and testing before they are ready for implementation.

The first alternative presented is Senge’s *Causal Loops*. “Reality is made up of circles, but we see things in straight lines, herein lie the beginnings of our limitations as systems thinkers.”¹²⁸ Senge describes one of the fundamental reasons for fragmented thinking in Western culture is derived from language, with subject-verb-object structure, that biases us toward a linear view. He asserts that we need a language made up of circles and establishes *causal loops*, or systems diagrams as an answer to the problem. “When reading a feedback circle diagram, the main skill is to see the “story” that the diagram tells: how the structure creates a particular pattern of behavior (or in a complex structure, several patterns of behavior) and how that pattern might

¹²⁸ Senge, 73.

be influenced.”¹²⁹ Using reinforcing, balancing feedback and delays, Senge’s system describes the building blocks of systems thinking. He goes on to describe two systems archetypes; the limits to growth and the shifting the burden archetype, which describe most problems found in business situations today. Senge’s causal loops reflect a distinct difference in the way in which problems are addressed. Whereas phasing depicts a linear progression of cause and effect, Senge’s Causal Loops first communicate the enemy as a system, then analysis identifies high leverage points for action. From this point, the friendly “system” would be designed to impact the enemy system at those leverage points.

There is some congruence in phasing and Senge’s causal loops in assisting the commander’s visualization of the problem, facilitating integration and identifying contingency and opportunity. Emerging concepts such as ONA, provide the critical groundwork that enables the shift to causal loops, which communicates the complexity of systems thinking. Recognizing the enemy and all of the players as complex, adaptive systems and communicating it through causal loops provides a significant advantage over the traditional linear phasing construct. A radical shift in the way we look at operational art, Senge’s loops meets screening criteria adequately enough for further development of the concept for use in the contemporary operational environment. As presented in the *Fifth Discipline*, causal loops require work, in capturing concepts of risk, logistical posture, and force protection when compared with the phasing concept.

Sharing a common root concept with Senge is COL Robert Shaw’s theory of *Spheres*. Shaw concurs with Senge’s analysis that reality is not best portrayed in straight lines, but diverges from Senge slightly by asserting that reality is best portrayed in a three dimensional spherical structure.

“Spheres allow integrated visualization of the battlefield prior to and during combat operations at a given time. It is a holistic approach versus a linear sequential model. It also

¹²⁹ Ibid., 76.

allows you to look at different battlefield operating systems within a given area at a time as percentage of effort, which can be used to regulate the size of a sphere. Spheres allows logistics planners and executors to evaluate the relative “value” of a specific geographic location by size of sphere.”¹³⁰

COL Shaw is convinced that the phasing construct may work well at the tactical level and even in some cases at the operational level, but should not be the vehicle for campaign planning, as it tends to myopically focus on one aspect of the campaign, versus seeing the fight as a whole. Shaw asserts that Spheres can be seen as geographic or conceptual in nature. A geographic sphere could represent the total capabilities of a specific unit to effectively engage “targets” in kinetic and non-kinetic means. Geographic spheres would intersect where multiple units are capable of engaging at the same space and time, such as air component, land component and special operations component, and therefore require coordination. By directing the nexus of these spheres the commander can mass effects to reduce or collapse an enemy’s sphere. Both size and color can be used to represent relative effort, or capability at a given time in geographic spheres. Spheres can also be used in a conceptual mode, to describe the interaction of intangible factors such as morale, leadership and motivation, yielding more accurate representations of capability, portrayed in relative size or color of a sphere.

The Spheres concept potentially meets the criteria of assisting visualization, though again, it is a fundamental shift in how information is presented. A potential strength of spheres when fully developed and implemented is in visualizing integration of multiple systems in time, much better than phasing today. Frameworks for contingency and decision-making are possible in a more comprehensive development of the theory. Shaw’s model conceptually provides a means to communicate systems thinking, complexity and would appear a more suitable framework for campaign design than the phasing construct. The biggest challenge with the spheres analogy is in portraying it using the information methods we have today. COL Shaw,

¹³⁰LTC Robert C. Shaw, “The Spheres Approach to Campaign Design.” interview by author, (Fort Leavenworth KS: 24 September 2004).

who specifically cites the limitations of the current five paragraph field order as a vehicle for communicating a campaign plan, admits the limitations of communicating a campaign plan on paper or in the information technology realm using the spheres methodology. As presented, additional work would be required to develop the concept and experiment with techniques to communicate it.

An approach to campaign design is to utilize electrical circuit theory as an analogy for operational campaign design. Electrical circuit theory gives us a powerful mechanism to communicate complexity with a tremendous vocabulary of schematic symbols, which is universally understood in engineering applications. It is robust enough to accommodate parallel as well as series phenomena, and the complexity of its representations are only limited literally by the observer's ability to understand them. Critical concepts of electricity would in turn be "translated" into operational concepts for the warfighter, and the analogy expanded through the medium of electrical circuits. As electrical theory has law, the adoption of electrical circuit analogy would almost certainly lead to exactness in application of military force. As the model is developed and refined, exact applications of force would be calculated using a predetermined concept of risk. Exact criteria could be established that would "rate" Lines of Communication in terms of Ampere load. "Circuit breakers" are mechanisms for determining contingency and opportunity. When "resistance" in reality is much lower than expected, than "current" can be redirected to other places on the battlefield. If resistance is higher, either parallel lines can be established to lower the relative resistance, or higher current applied.

Electrical theory building blocks translated to operational concepts			
Electrical concept	Unit of Measure	Definition ¹³¹	Operational Concept Corollary
Potential	Volt	The practical meter-kilogram-second unit of electrical potential difference and electromotive force equal to the difference of potential between two	Logistics

¹³¹ Merriam Webster's Online Dictionary. Available online at <http://www.merriamwebster.com/cgi-bin/dictionary>. Last accessed on 8 October 2004.

		points in a conducting wire carrying a constant current of one ampere when the power dissipated between these two points is equal to one watt and equivalent to the potential difference across a resistance of one ohm when one ampere is flowing through it	
Current	Ampere	The practical meter-kilogram-second unit of electric current that is equivalent to a flow of one coulomb per second or to the steady current produced by one volt applied across a resistance of one ohm	Forces Combat Power
Resistance	Ohm	The practical meter-kilogram-second unit of electric resistance equal to the resistance of a circuit in which a potential difference of one volt produces a current of one ampere	Friction, Enemy forces
Power	Watt	The absolute meter-kilogram-second unit of power equal to the work done at the rate of one joule per second or to the power produced by a current of one ampere across a potential difference of one volt : 1/746 horsepower	Firepower/Capability

The electrical circuit analogy, based on the exactness of the process would tend more toward the science than art. The fact that electrical theory has specific laws (i.e. Ohm's laws etc) in which calculations can be conducted that yield exact answers to circuit phenomena may not translate directly into operational concepts. Assessing the resistance of specific elements may be overwhelming complex or exceed the capabilities of the operational net assessment. Finally, by its nature, circuit theory is a closed system, whereas warfare would more accurately be described as an open system.¹³² But these initial limitations are not of themselves so significant that electrical circuit analogy could not be further developed.

Phasing, in essence, is a framework on which the concepts of operational art are attached. The current linear phasing construct does possess the sophistication to adapt to the concepts of Third Wave warfare, Systems thinking and Complexity. In practice, war fighters are challenged

to adapt the realities of operational environment to an unsophisticated industrial age frame that no longer fits. The development of the concept of causal loops, Shaw's Spheres, or electrical circuit analogy is the means to getting a framework that is more capable of supporting the security challenges of the 21st Century.

¹³² Bertalanffy, 40-41.

APPENDIX 1 Definitions

Merriam Webster	
¹ phase	Pronunciation: 'fAz Function: <i>noun</i> Etymology: New Latin <i>phasis</i>, from Greek, appearance of a star, phase of the moon, from <i>phainein</i> to show (middle voice, to appear) -- more at FANCY 1 : a particular appearance or state in a regularly recurring cycle of changes <<i>phases</i> of the moon> 2 a : a distinguishable part in a course, development, or cycle <the early <i>phases</i> of her career> b : an aspect or part (as of a problem) under consideration 3 : the point or stage in a period of uniform circular motion, harmonic motion, or the periodic changes of any magnitude varying according to a simple harmonic law to which the rotation, oscillation, or variation has advanced considered in its relation to a standard position or assumed instant of starting 4 : a homogeneous, physically distinct, and mechanically separable portion of matter present in a nonhomogeneous physicochemical system 5 : an individual or subgroup distinguishably different in appearance or behavior from the norm of the group to which it belongs; <i>also</i> : the distinguishing peculiarity
² phase	Function: <i>transitive verb</i> Inflected Form(s): phased; phas-ing 1 : to adjust so as to be in a synchronized condition 2 : to conduct or carry out by planned phases 3 : to introduce in stages -- often used with <i>in</i> <<i>phase</i> in new models>¹³³
Joint Publication 3-0	
Phase	Phasing is a basic tenet of campaign plan design. Phasing assists commanders and staffs to visualize and think through the entire operation or campaign and to define requirements in terms of forces, resources, time, space, and purpose. The primary benefit of phasing is that it assists commanders in achieving major objectives, that cannot be attained all at once, by planning manageable subordinate operations. Phasing can be used to gain progressive advantages and assist in achieving major objectives as quickly and effectively as possible. Phasing also provides a framework for assessing risk to portions of an operation or campaign, by which plans to mitigate this risk may be developed. Sustainment and access operations underpin the entire campaign.¹³⁴

¹³³ Merriam Webster's Online Dictionary, Available online at <http://www.merriamwebster.com/cgi-bin/dictionary>. Last accessed on 8 October 2004.

¹³⁴ JP 3-0, III-18-19.

APPENDIX 2 Evolution of Phasing From 1950-1968

Evolution of Phasing from 1950-1968		
Year	Publication	Definition
1950	FM 100-15 <i>Field Service Regulations-Larger Units</i> (Page 19)	Used but never defined term
1957	JCS Publication 1 <i>Dictionary of US Military Terms for Joint Usage</i> (Page 80)	Defines the term only in reference to amphibious operations, as “A step in the operation, at the end of which a reorganization of forces may be required and another action initiated. Although certain phases may overlap in time, they usually occur in the following order...” ¹³⁵
1960	FM 101-5 <i>Staff Officers Field Manual Staff Organization and Procedure</i> (Page 310)	Phases of Accomplishment- (under Concept of Operation, Joint Staff) -Provide a phase for each step in the operation at the end of which a reorganization of forces may be required and another action initiated.
1963	FM 100-15 <i>Field Service Regulations Larger Units</i> . (Page 24)	A phase is a distinct period or subdivision of an activity or operation at the conclusion of which the nature and characteristics of the action change, and another type of action is initiated. Phasing is an asset in planning and controlling an operation. Field Armies frequently phase their operations when A reorganization or major regrouping of forces is planned Major adjustments are envisioned in logistics support A change in nature of operations is contemplated.
1964	JCS Publication 1 <i>Dictionary of US Military Terms for Joint Usage</i>	Term dropped, only phases of Government and Phase Lines used.
1968	FM 100-5 <i>Operations</i> (Page 5-6)	At higher echelons of field command, corps and field army, it is normal to phase operations based on expected duration, complexity, the friendly or enemy situation, terrain, or the scope of the mission. A phase is a distinct period of an operation, at the conclusion of which the nature and characteristics of the action change. As an aid

¹³⁵ Joint Chiefs of Staff Publication 1 *Dictionary of US Military Terms for Joint Usage*. (Washington DC: Department of Defense, 1957), 80.

		in planning and controlling and operation, phasing is used to simplify a lengthy action. Phasing is normally necessary when a Commander is unable to visualize the operation through its completion or contemplates a major organizational change. Phasing of an operation may be described in terms of time, distance, attainment of intermediate objectives (or phase line), terrain or occurrence of a specific event.
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APPENDIX 3 Toffler's Waves

Toffler's Principles of the 2 nd Wave ¹³⁶		
1	Standardization	Procedures and administrative routines had to be standardized along with hardware. Standardized steps were used in the process was the most scientific and efficient means to production.
2	Specialization	Division of Labor, specialists who did only one task over and over again.
3	Synchronization	Time equals money, time organized to ensure that machines operate at peak efficiency society moves to beat of machines.
4	Concentration	Movement from great dispersion of resources and personnel in First Wave to concentration in order to achieve efficiency
5	Maximization	Bigger is better. Maximize growth without regards to ecological or social consequences.
6	Centralization	Centralized power, organization

¹³⁶ Ibid., 14.

Toffler's Principles of the 3rd Wave¹³⁷		
1.	Factors of Production	Knowledge is the ultimate substitute for other inputs, most versatile and the most important factor of production
2	Intangible Values	Value of organization lies in its capacity for acquiring, generating, distributing and applying knowledge strategically and operationally.
3	De-massification	Not all products look exactly alike, mass customization and servicing of micro-markets versus mass markets.
4	Work	Non interchangeability of labor as skill requirements skyrocket.
5	Innovation	Constant innovation is needed to compete-new ideas as capital.
6	Scale	Scale of operations shrink, vast amounts of muscle replaced by small differentiated work teams.
7	Organization	Bureaucratic structures inflexible, position less important than flexibility and maneuver
8	Systems integration	Rising complexity calls for more sophisticated integration and management.
9	Infrastructure	Networks for linking information
10	Acceleration	Every interval of time is worth more than the one before it. Simultaneous engineering replaces step by step processes.

¹³⁷ Toffler and Toffler, 66-72.

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