

Inside the Battlespace of Stability Operations

A Monograph
By
Major James D. Nickolas
Armor

School of Advanced Military Studies
United States Army Command and General Staff College
Fort Leavenworth, Kansas

First Term AY 99-00

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ABSTRACT

INSIDE THE BATTLESPACE OF STABILITY OPERATIONS by MAJ James D. Nickolas, Armor, 51 pages.

Since the end of the Cold War stability and support operations represent the majority of U. S. Army deployments. The writers of the Army's capstone manual, FM 100-5, *Operations*, grapple with replacing the 1993 version with a comprehensive doctrine which adequately addresses the needs of staff planners to orchestrate military operations. Expounding on the battlespace framework introduced in the 1993 FM 100-5, the writers developed four types of military action: offense, defense, stability, and support (ODSS). To orchestrate military operations, staff planners must understand the relationship among time, space, and mass in order to visualize, describe, and direct those operations towards a common purpose.

By tracing the development of the operational level of war, establishing the systemic nature of operational warfare, and examining the functions of the elements of operational design for the military application of force, the monograph identifies the Newtonian nature of conventional offensive and defensive (OD) operations. A theoretical model based on concepts introduced during the conduct of the first student planning exercise assists in illustrating the functions of the elements of operational design in the OD environment.

Having outlined the Newtonian OD environment, the monograph examines the battlespace of stability operations to determine if the elements of operational design assist staff planners with the development and execution of military operations. Because the nature of operations shifts from the application of *force* to the application of *effort*, stability operations exhibit quantum theory characteristics. Applying the quantum nature of effort application to the theoretical model demonstrates how staff planners must alter their employment of the elements of operational design in the stability environment.

The monograph concludes in both the Newtonian OD and quantum stability environments, the elements of operational design assist planners in determining the battlespace and defining the military problem. The objectivity of the OD environment also enables staff planners to employ the elements of operational design to orchestrate the application of force inside the battlespace. Without this objectivity the quantum stability environment requires staff planners to be inside the battlespace to conduct *just in time* planning. The monograph further concludes non-local causation re-enforces the political nature of the stability environment while further complicating the planning effort. Non-local causation and just in time planning place a premium on information. Information assists the staff planner in both orchestrating operations and organizing force structures to effectively apply military effort within the battlespace.

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Section I

Introduction

To orchestrate military operations, staff planners must understand the relationship among time, space, and mass (combat power), in order to visualize, describe, and direct those operations towards a common purpose¹. In the 1986 version of FM 100-5, *Operations*, the U. S. Army introduced the concept of the operational level of war to facilitate this process. Since the Gulf War, stability and support operations represent the majority of U. S. Army deployments. Do the elements of operational design that evolved from the 1986 version of FM 100-5 provide planners a useful conceptual framework for operating inside the battlespace of stability operations in a humanitarian intervention environment? This monograph examines the nature of time, space, mass and purpose as they relate to offense, defense, and stability operations during humanitarian interventions.

As the Army grapples with a new, diverse, and complex post Cold War environment, the writers of the Army's capstone manual, FM 100-5, struggle with replacing the 1993 version with a doctrinal framework that encompasses U. S. Title 10 & 32, as well as, United Nations mission requirements. To produce this Army-specific doctrine, these writers derived four types of military actions: offense, defense, stability, and support (ODSS). The FM 100-5 writers concluded the Army must be optimized and doctrine must support the comprehensive range of operations (ODSS) required for this new strategic

environment. While concluding that Army doctrine must be comprehensive, the writers also concluded that Army operations routinely require a combination of ODSS missions. For example, at the operational level of war the Army could be pursuing offensive operations, while at the tactical level of war the Army could be pursuing a combination of offensive, defensive, and stability operations².

For the purposes of this monograph, the author focuses the examination on the most prominent nature of the battlespace, i. e., offense, defense, or stability, while tailoring the discussion of the battlespace towards the operational level of war. The monograph will not challenge the conclusions of the FM 100-5 writers, nor will the analysis of the battlespace include the interaction of mission types executed by subordinate units. By focusing the analysis, the author intends to highlight the similarities and differences between the mission types, thereby arriving at conclusions that would ultimately have implications for the interaction of the four mission types.

To establish the framework for the battlespace analysis, the monograph must both describe the evolution of the operational art and determine the nature of the stability environment. Section II, Doctrinal Foundation, examines the theoretical underpinnings of the operational level of war and discusses the current U. S. Army definitions of the elements of operational design. Drawing heavily on the writings of Dr. James Schneider, Professor of Military Theory at the School of Advanced Military Studies, this section will examine the distinction between the operational level of war and the operational art. Understanding that military operations today are themselves complex, while being conducted in ever

more complex environments, the section also introduces the box construct as a methodology for examining military problems. Introduced during a division planning exercise, Col. Swan, Director of the School for Advanced Military Studies, presented the students a cardboard box as a means to think about the battlespace dimensions of time, space, mass, and purpose.

After introducing the doctrinal foundation, the monograph examines the nature of stability operations. Section III, *Stability Operations*, discusses the Principles of Stability and Support Operations as addressed in FM 100-20, *Stability and Support Operations*. Tracing the recent shift in the nature of U. S. Army operations, the monograph examines how military operations differ in the OD and stability environments. Finally, this section re-examines the box construct in light of the nature of stability operations to discern how this environment alters the military problem.

With the doctrinal and environmental foundation laid, the monograph focuses on the essence of the problem. Section IV, *The Battlespace*, discusses the concept of battlespace in the OD and the stability environments by examining how time, space, mass, and purpose shape the box and influence operations. Building on the frameworks developed in Sections II and III, the monograph links Newtonian physics and quantum theory analysis to the battlespace dimensions. Within this analysis, the monograph discusses the quantum physics concept of duality and the principle of complementarity. Throughout this section, the monograph integrates the results from Operation JOINT ENDEAVOR into the analysis of the stability operation's battlespace. The concept of duality suggests

the elements of operational design be extended to function in both the OD and stability environments.

After completing the battlespace analysis, Section V, Conclusions, summarizes the findings of the analysis and points out the relevant conclusions. Expounding on the quantum nature of the stability battlespace, the monograph describes the impact of dualities, non-local causation, just in time planning, and information on how staff planners employ the elements of operational design during stability operations.

Section II

Doctrinal Foundation

The evolution of the operational level of war directly influences the current U. S. Army definitions of the elements of operational design.³ The intellectual ruminations inside the U. S. Army during the late 1970s through the mid 1980s represented the Army's struggle to cognitively grasp the changing nature of warfare. Although instigated as a result of the failure in Vietnam, the impact of the 1973 Arab-Israeli War, and the Army's reorientation on the Soviet threat to Europe, the intellectual fathers of this renaissance stimulated a more systemic examination of the evolution of warfare.⁴ Their recognition of the death of the Napoleonic paradigm of the decisive battle gave way to the Tukhachevskiy concept of the battle in depth which ultimately led to the U. S. Army Air-Land Battle concept. A brief synopsis of the evolution illustrates this influence.

At the conclusion of the First World War, the German and Soviet militaries expended tremendous intellectual capital examining the results of the Great War. Both militaries sought to solve the dilemmas created on the Western Front by the massed armies, increased lethality, decreased mobility, and the apparent disappearance of the decisive battle. Although each army took different approaches to the problem, their combined conclusions eventually influenced the development of American operational thought.

The German thinkers grappled with the results of their two front war. Encouraged by their successes on the Eastern Front and their limited successes of the Hutier/infiltration tactics on the Western Front, they attempted to exploit the combined lessons of these diverse Fronts to restore mobility on the battlefield. In keeping with the tradition of the battle of annihilation, or *Vernichtungsgedanke*, the works of Von Seeckt represented one school of German thought that maintained the emphasis on decisive maneuver as advocated by Von Schleiffen and Von Moltke. This school of thought "provided no basis for any radical change in direction."⁵ The German army would apply the developing technologies in mechanization, armor, and air power toward decisive maneuver aimed at a battle of annihilation.⁶

In conjunction with this reaffirmation of German tactical thinking, the Von Seeckt school of thought also rejected the Von Schleiffen style of command and control in favor of the Von Moltke style. With the return of *auftragstaktik*, the illusion of an effective centralized command and control methodology based on the telegraph, telephone, and radio, gave way to a directive command and

control system. Based on the same technologies, *auftragstaktik* enabled the commander to detach himself from the chaos of the battlefield while maintaining situational awareness.⁷ This directive control sought to balance the tension between the higher commander's desire for control with the subordinate commander's desire to demonstrate initiative.⁸

Paralleling this development in the German army, a rival concept emerged. Advocated by Guderian, the armor idea challenged some of the more traditional German concepts of warfare. Instead of applying new technologies to old tactics, the armor idea sought to develop new tactics by capitalizing on the potential offered by the new technologies of mechanization, armor and air power.⁹ Although this "revolutionary theory [was] seldom put into words and often inadequately presented," it relied on surprise, speed, and the flexibility of panzer divisions to strike deep thrusts into the enemy.¹⁰

However different these two German ideas appeared, several common principles bridged the two concepts. "Both rejected any policy of attrition, both relied on rapid, decisive movement, and both laid emphasis on the concentration of force at the crucial point."¹¹ Additionally, the von Seeckt and Guderian schools of thought remained focused on the tactical destruction of the enemy's army.¹²

While the German's sought how to return to the days of von Moltke and the decisive battle, the Soviets pursued a different approach. In the writings of Tukhachevskiy, Svechin, and Isserson, the Soviets took a more systemic point of view. The larger massed armies and continuous battlelines of the Western Front required new solutions. The Soviet theorists recognized the success of the

Hutier/infiltration tactics; however, they also recognized the inability of the German army to exploit those successes due to the increased depth of the defense and the requirement for the attacker to move faster than the defender. While the German theorists concentrated on developing the necessary tactical mobility to allow the attacker to move faster than the defender at the point of penetration, the Soviets broadened their view. In order to defeat an opposing army, battle must be joined in depth.¹³ According to historian Bruce Menning, the Soviets recognized that "decision now came as the result of a whole complex of successive, simultaneous, and related operations."¹⁴ This new means of warfare developed by the Soviets formally introduced the operational level of war. For the Soviets, operational art "was a term...used to bridge the gap between strategy and tactics and to describe more precisely the discipline that governed the preparation for and conduct of operations."¹⁵

The Soviet theorists recognized the changes on the battlefield that prevented a decisive tactical engagement from producing decisive results. Classical Clausewitzian strategy precluded the use of a strategic reserve. Since the purpose of strategy was to ensure the mass of combat power was presented at the decisive point, withholding combat power from the tactical engagement was pointless. The Napoleonic condition that validated this dictum no longer existed. According to Tukhachevskiy, "...that which was expedient in Napoleonic battles, which rarely involved armies numbering over 100,000 men with weapons of limited range, was completely wrong and out of date during the imperialist

war.”¹⁶ The Napoleonic battle of the single point faded; the modern battle of depth emerged.

With the disappearance of the single decisive battle, the operational level of war evolved in order to link strategic objectives with the tactical employment of forces on the battlefield. The conditions that facilitated this disappearance also precipitated the growth of the army as a system. Dr. Schneider posits that two critical aspects of warfare changed which precipitated the death of classical warfare: the emergence of the empty battlefield, and the rise of distributed free maneuver. These changes prevented commanders from conducting a Napoleonic concentration of force.¹⁷ The mechanical aspects of the battlefield dictated tactical actions. The battlefield emptied as lethality grew and the distance between and among fighting units increased.

The increase in the size of the army and in the space required to conduct operations resulted in armies becoming distributed organizations. According to author and futurist Kevin Kelly, “when the sum of the parts can add up to more than the parts, then that extra being (that something from nothing) is distributed among the parts.”¹⁸ Napoleon’s use of the corps organization provided the first glimpse of this concept; however, the nature of the battlefield still allowed for the eventual concentration of Napoleon’s separate corps to create mass at a single point in time and space. The mass Clausewitz discussed influencing the Napoleonic battlefield evolved into the mass of the modern distributed organization.

After the U. S. Army acknowledged the operational level of warfare, the intellectual fathers of this renaissance extended several Clausewitzian and Jominian concepts into the elements of operational design. While these elements developed in order to assist planners in developing campaigns and operations at the operational level of war, their application need not be limited. The elements of operational design apply across all three levels of war. Skillful use of the elements provides the planner with a lever with which he can apply the appropriate force, generating the required results. Just as historian Shimon Naveh applied systems thinking to understand the operational level of warfare, systems thinking can be applied to war itself. War becomes the system composed of several subsystems. Therefore, the tools developed to assist in analyzing one particular subsystem of warfare should apply to all subsystems.

Having briefly examined the evolution of the operational level of warfare and introducing the U. S. Army's elements of operational design, the theoretical model depicted in figures one through three illustrates the evolution of the nature of warfare and how that evolution influences the battlespace dimensions. The box construct assists planners in interpreting the physical dimensions of the battlespace by providing a three dimensional framework for relating time, space, mass, and purpose. The distributed nature of modern military operations creates depth on the battlefield in both time and space. The planner must properly visualize the relationship between friendly and enemy forces on the battlefield in time and space in order to describe how the unit will conduct operations.

multiple ends in war, his limitation of only one means in war directly influenced his concept of center of gravity. If Napoleonic warfare represented the acme of the military art, then the center of gravity which best focuses operations resides within the assembled mass of enemy combat power against which one thrusts the friendly mass of combat power.

Closely related to the concept of the center of gravity is the Jominian concept of decisive points. "Decisive points...serve to provide direction for the application of mass in time and space."²¹ To force a decision upon an enemy commander, the friendly commander must organize his force to strike at an objective which will provide a marked advantage when seized or retained.²² Whether (x) represents a geographic point or a maneuver point, that point in time and space identifies the focal point for action.

The line of operation links this focal point for action with the base of operations. In the box construct, the point on the [1(-)] axis which depicts the rear of the army/logistics base represents the base of operations for the proposed action. From this point, the mass of the army is directed toward the focal point for action represented by (x). The line created by the movement of the mass of the army from [1(-)] toward (x) constitutes the line of operation.

In the box construct, a point on the (1) axis represents the concept of culmination. After the blue and red masses collide at (x), the effects of that collision result in one cube shattering the other. As the blue cube attacks and extends its effects along the (1) axis, the blue [1(+)] axis eliminates or negates the red [1(+)] axis, as well as impacts on the red [1(-)] axis. Culmination for the

attacking blue army would occur at that point on the red (1) axis where the blue army could no longer defend the gains accrued on the red axis. For the defending red army, culmination would occur at that point on their 1 axis where they could no longer resist the effects of the attacking blue army.

Due to the nature of modern military operations, the box construct exhibits slightly different characteristics at the operational level of war. First, the impact of technology alters the 1 axis as illustrated in figure two. Technology

dramatically increases the measurement of $[1(+)]$.

Additionally, mechanization also increases the

logistical measurement of $[1(-)]$. In some

instances, $[1(-)]$ could extend halfway

across the globe. Similarly, space based

systems for communications and

targeting extend (h) into the upper atmosphere.

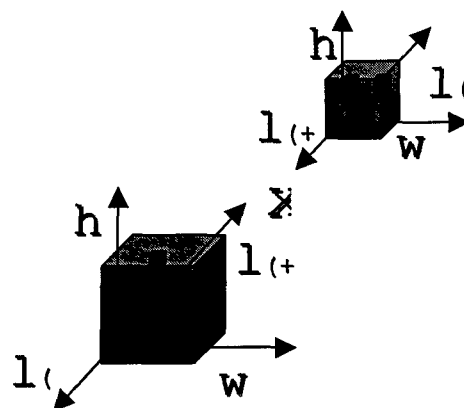


Figure 2.
Operational Forces

The effects of the empty battlefield dramatically impact on the (w) axis. First, the density of forces at any single point on (w) will be substantially less. Second, the total length of (w) will be substantially larger due to the dispersion required by the lethality of the battlefield, plus the overall increase in the size of military forces fostered by industrialization.

The cumulative effect of these changes results in a radically different battlespace as depicted in figure three. The distributed nature of modern military operations precludes the concentration of mass at a single point in time and space. Striking at the depth of the enemy system,

distributed combat power utilizes both time and space to mass effects. Each event depicted in figure three represents a battle or engagement during which each army attempts to strike throughout the depth of their opponent. Similar to the Napoleonic model, each (x) represents a point in time and space where mass effects will be concentrated. However, due

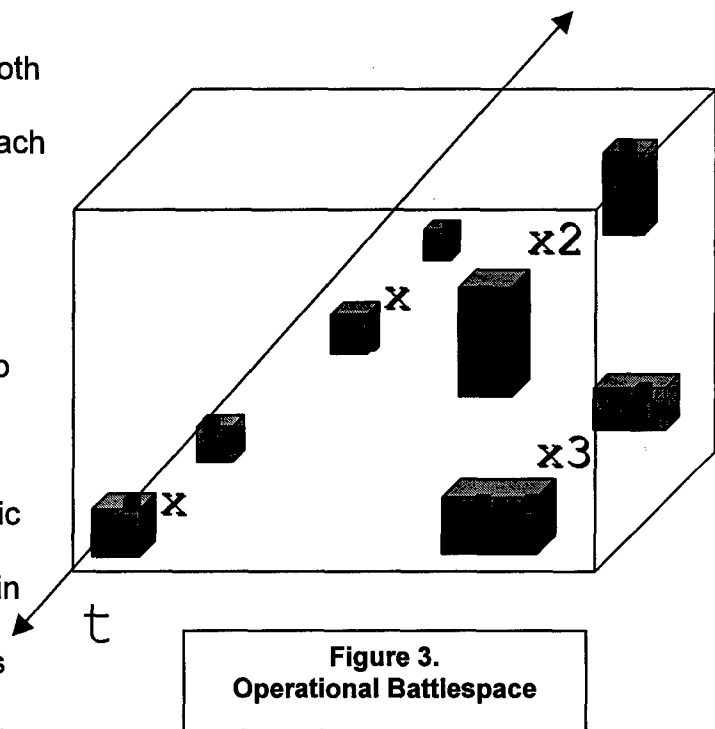


Figure 3.
Operational Battlespace

to the resilience and distributed nature of modern forces, one such blow rarely achieves the desired results. Therefore, commanders must anticipate and direct activities towards both simultaneous and sequential actions throughout the battlespace. The change in the operational battlespace results in several changes in the elements of operational design. In Section IV, The Battlespace, the monograph examines the nature of these changes.

This brief analysis of the development of both the operational level and operational art within the U. S. Army reveals several initial conclusions. The intellectual efforts of the U. S. Army in the 70's and 80's resulting in the Air-Land Battle doctrine synthesized and extended the conclusions reached by the German and Soviet military thinkers of the inter-war period. This effort created a systems based doctrine designed to effectively attack systems based opponents. The doctrine relied on the synchronization of the system to effectively apply

combat power throughout the depth of the enemy system. The development of the elements of operational design grew out of this systems concept in order to assist staff planners in analyzing the enemy system and to assist staff planners in orchestrating friendly systems. The box construct provides staff planners with a visual tool to assist in understanding and applying the elements of operational design. Finally, an understanding of systems thinking allows staff planners to effectively utilize the elements of operational design in and among all three levels of war.

Section III

Stability Operations

In Section II, the monograph examined briefly the evolution of military thought resulting in the U. S. Army formally recognizing the operational level of warfare. In this section, the monograph addresses the next task in the analysis; defining the nature of the stability operations environment.

The nature of stability operations mandates a different relationship among the elements of national power. The role of the Army and of the other armed forces is to support the political, economic, and informational instruments of national power.²³ Two factors highlight this different nature. First, unlike the Clausewitzian combat duel of the OD environment, the stability environment involves multiple parties, pursuing multiple efforts, and seeking multiple outcomes. Second, unlike the OD environment where staff planners design

military operations to apply *force* to achieve a preliminary end-state, the stability environment requires staff planners to design military operations to apply *effects* to assist in achieving a semi-permanent to permanent end-state. To understand this environment and the differing relationship among the elements of national power, the impact of these two factors must be examined.

With the collapse of the Soviet Union, the bipolar world created during the Cold War vanished. This collapse required the leadership of the United States to reexamine the framework for international relations world-wide. Prior to this shift, events on the international stage that concerned the interests of the United States tended to be viewed from an East-West perspective. From a strictly military standpoint, this international framework placed U. S. military operations squarely within the nature of warfare as described by Clausewitz and Jomini. While both men acknowledged the existence and impact of alliances on warfare, the nature of warfare remained unchanged. War was a duel, or wrestling match, between two opponents.

In response to this new international environment, the U. S. reluctantly picked up the mantle as sole super power. Unlike imperial nations of old, the U. S. attempted to look "to a world organization ...to ensure peace and stability," just as it did after both World War I and World War II.²⁴ Under the leadership of President Bush the U. S. conducted both conventional (OD) operations in Iraq/Kuwait, and stability and support (SS) operations in Iraq/Turkey and Somalia.

Under the leadership of President Clinton the U. S. formally embraced this shift in how the U. S. would conduct international affairs. Madeleine Albright proclaimed the new U. S. policy when she asserted, "We will not retreat into a Cold War foxhole."²⁵ The Clinton approach to international affairs gained expression in both the National Security and National Military Strategies (NMS) of 1997 and the National Security Strategy (NSS) of 1998. Whether defined as Shape, Respond, Prepare Now, or linked to the three categories of U. S. interest described in the NSS of 1998— vital interest, important national interest, or humanitarian and other interest - this new strategy impacts on the nature of military operations.

Under the old Cold War bipolar environment, the U. S. military operated within the theoretical constructs of the Clausewitzian duel. Once a threat to a national interest developed, the U. S. military entered into that environment within the context of the bipolar international order. U. S. military operations, whether conducted in war or conflict, generally acknowledged only two sides. Under the new third party international environment, the Clausewitzian duel construct failed. The U. S. military entered environments as a third party, in essence, placing themselves between the two parties engaged in the duel.

The military of the sole super power found itself conducting operations traditionally conducted by the U. N. The different nature of these operations fostered the development of the principles of stability and support operations (see Appendix 2 – Principles of Stability and Support Operations). Unfortunately, the general framework and methodology for conducting these operations

developed during the bipolar environment of the Cold War. Whether authorized under Chapter VI or Chapter VII of the U. N. Charter, traditional peacekeeping as practiced by the U. N. during the Cold War involved only a military component. After the Cold War these operations evolved into even more complex undertakings. Multidimensional peace operations abandoned the military only aspect of traditional peacekeeping. These new operations required not only the integration of the military and diplomatic efforts, but also the cooperation and/or integration of the efforts of international and non-governmental organizations.²⁶ The staff of USAREUR recognized this difference. "From the outset, it was apparent that Joint Endeavor promised to be a dramatic departure from operations...in the past....[T]he Joint Endeavor mission was one of resolving conflict and promoting peace."²⁷

The requirement to integrate the efforts of such a diverse group of organizations highlights the second factor that distinguishes the OD and stability environments. When staff planners employ the elements of operational design in the OD environment, they seek to create the military conditions necessary to achieve the preliminary end-state. This end-state describes the military conditions outlining the final disposition of friendly and enemy forces. In the stability environment, this preliminary military end-state condition already exists. Therefore, the staff planner employs the elements of operational design to determine how to employ military forces in a post-hostilities environment in order to transition from a preliminary to a semi-permanent or permanent end-state.

Acknowledging the shift from the application of military force in the OD environment to the application of military effort in the stability environment, figures four and five illustrate how this shift manifests itself in the box construct.

In the OD environment, the Clausewitzian duel framework limited the number of cubes within the battlespace, while in the stability environment, no limiting factors exist. Consequently, figure four best

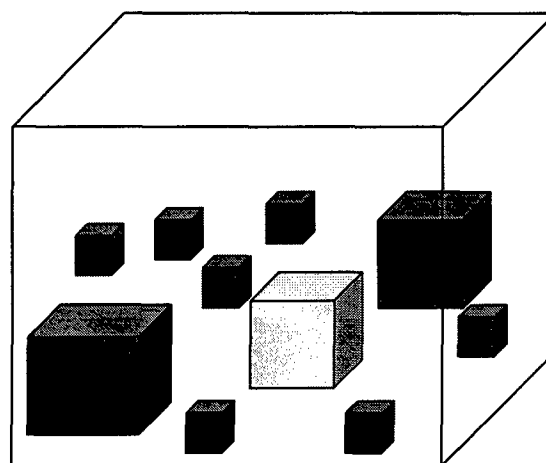


Figure 4.
Stability Battlespace

represents the stability environment. Similar to the OD box construct, the clear box surrounding the activity represented by the blue, red, yellow, and gray cubes depicts the time-space relationship created by the interaction among these forces. The blue and red cubes represent the former warring factions (FWF). The yellow cube represents the military forces conducting peace operations. The multiple gray cubes represent the diverse international and non-governmental organizations that operate in the stability battlespace.

In the humanitarian interest environment surrounding Operation JOINT ENDEAVOR, the FWFs included the Bosniak, Bosnian Croat, and Bosnian Serb militaries.²⁸ The North Atlantic Treaty Organization (NATO) implementing force (IFOR) represented the military force in this stability environment. Due to the multitude of other organizations involved in this battlespace, only a sampling will

be highlighted. Other elements or organizations influencing the battlespace include; the U. N. High Representative – the lead international civilian official in Bosnia, the U. N. International Police Task Force (IPTF), Organization for Security and Cooperation in Europe (OSCE), U. N. High Commissioner for Refugees (UNHCR), the U. N. Mission in Bosnia and Herzegovina (UNMIBH).²⁹

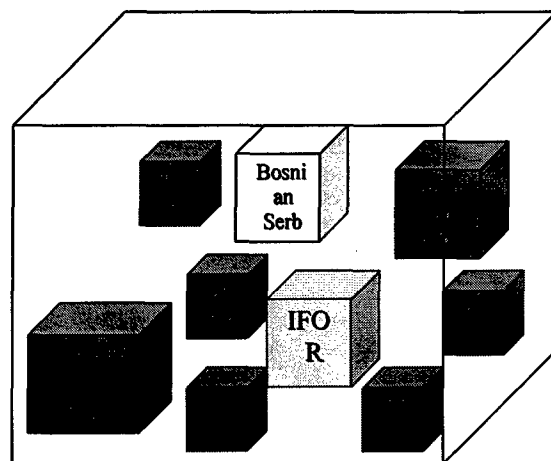


Figure 5.
JOINT ENDEAVOR Battlespace

Figure five represents the box construct depiction of the stability environment of Operation JOINT ENDEAVOR.

In Section IV, The Battlespace, the monograph examines how staff planners utilize the elements of operational design in this type of environment to orchestrate military effort to achieve the desired results.

In this section, the monograph examined the nature of the stability environment concluding the following: the nature of modern peace operations developed during the Cold War bipolar environment, and this nature alters how military forces operate within that environment by replacing force with effect.

Section IV

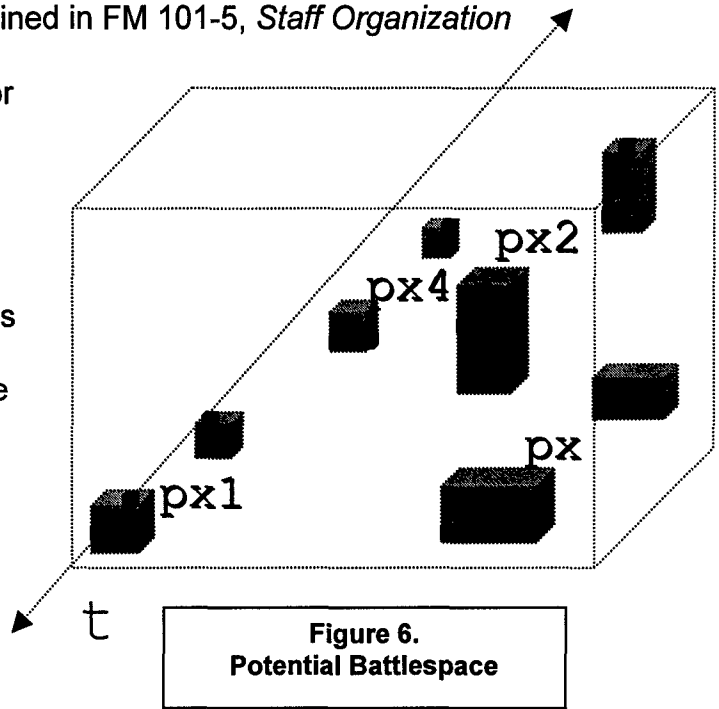
The Battlespace

In this section, the monograph examines how the box construct differs in the OD and S environments at the operational level of war and how these differences influence the applicability of the elements of operational design. In Section II, Doctrinal Foundation, the monograph briefly traced the evolution of U. S. Army operational thought, while introducing the box construct for analyzing the battlespace. In Section III, Stability Operations, the monograph described the stability environment. From the Clausewitzian/Jominian view of the Napoleonic battlefield, to the Soviet view of the deep operation battlefield, the U. S. Army combined these two outlooks into the Air-Land Battle doctrine of the 1980s. A systems theory of warfare, Air-Land Battle employed the elements of operational design to assist planners in analyzing the battlespace to determine the most effective and efficient methodology of applying force to achieve one's purpose. While Air-Land Battle has been replaced by the 1993 version of *Operations*, the elements of operational design remain in the doctrine to fulfill the same purpose.

Before proceeding to analyze the OD and S environments, the monograph must review how staff planners employ the elements of operational design. Applying the elements of operational design is a two step process³⁰. First, staff planners use the elements to help determine the dimensions of the battlespace. Second, once the battlespace is defined, the staff planner utilizes the elements of

operational design to determine the most effective methodology for conducting operations within the battlespace.

Within the box construct, the staff planner executes the two step process as follows: the staff estimate, as outlined in FM 101-5, *Staff Organization and Operations*, provides the data for framing the preliminary outline of the clear box; the Military Decision Making Process (MDMP) then refines the dimensions of the clear box while simultaneously determining how to achieve the intended purpose by orchestrating operations within that box.³¹ (See figure six)



Staff “estimates must visualize the future and support the commander’s battlefield visualization.”³² These estimates provide current information relevant to the time, space, and mass (combat power) dimensions of the battlespace. During this process, potential friendly centers of gravity and decisive points may be identified as the separate staff elements analyze the current disposition of the organization in relation to time and space. This analysis also identifies potential lines of operation and conditions leading to culmination as the separate staff elements visualize the current organization in time and space relative to the potential enemy threats.

The MDMP process builds on the efforts of the staff estimates. Integrating the results of the separate staff estimates, the mission analysis step in the MDMP refines the dimensions of the clear box. The separate staff elements analyze how the effects of each staff element estimate impacts on their particular area of interest. This process results in a common shared vision of the battlespace. By defining the dimensions of the clear box, the staff essentially defines the military problem. By defining the military problem, the staff identifies friendly centers of gravity and decisive points that require protection and potential enemy centers of gravity and decisive points that require destruction. Additionally, the integrated analysis establishes one point of the line of operation – the base of operation. Collectively, this information also further identifies conditions leading to both friendly and enemy culmination.

The results of the mission analysis shape the remaining steps of the MDMP. Having defined the battlespace, the staff planner develops courses of action (COA) designed to attack enemy centers of gravity and decisive points, while simultaneously protecting friendly centers of gravity and decisive points. In COA development the staff planner formulates a coherent plan designed to strike at the decisive points in the enemy system by synthesizing the initial staff estimates, the mission analysis, and any other relevant data. By orchestrating these simultaneous and sequential strikes, the plan establishes the line of operation and identifies potential culmination points in both time and space.

The integration of the cognitive and mechanical aspects of warfare becomes the essence of this two step process at the operational level of war.

According to Naveh, operational logic requires that cognitive tension and operational judgement balance tactical excellence.³³ The elements of operational design assist staff planners in the cognitive process of translating broad political objectives into attainable military objectives by linking simultaneous and sequential tactical actions. Additionally, this two step process assists planners in structuring the theater of operations in order to execute the tactical actions.

Returning to the box construct, the staff utilizes this two step process to determine the *potential* dimensions of the clear box. The staff then proscribes the *required* dimensions of the clear box by establishing the military purpose of the operations, the size and type of military forces required to create and operate within the box, and finally orchestrates operations within the box. The staff executes this entire process while remaining cognizant of any political or organizational restraints.

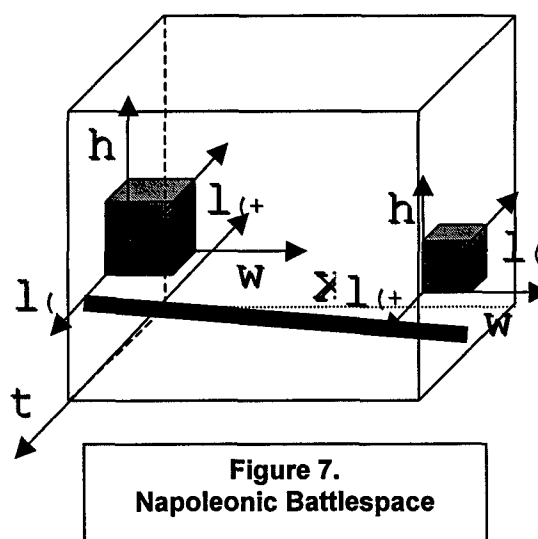
In the OD environment, this two-fold process follows the logic of Newtonian physics. The essence of Newtonian physics is predictability through the application of mechanical force.³⁴ In principle, no matter how complicated or complex a task, if one knows enough information surrounding an event, one can predict exactly how that event will unfold. Newton derived his laws of motion from simple experimentation. "The lesson of Newtonian physics is that the universe is governed by laws that are susceptible to rational understanding."³⁵

For the staff planner, this "predictability" manifests itself in both the staff estimate and the MDMP through the application of military force. To determine the dimensions of the battlespace, the staff planner gets inside both the blue and

red cubes. Extrapolating from the relationship among the blue and red cubes and the environment over which they will fight, staff planners determine the time and space requirements for OD operations. The elements of operational design assist the staff planner in examining this relationship while at the same time they assist the staff planner in orchestrating a series of simultaneous and sequential actions formulated to achieve the desired end.

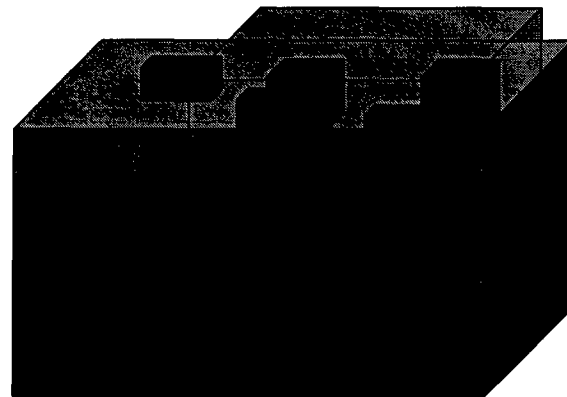
During the staff estimate and mission analysis, the staff planner examines the two competing military systems. This examination includes all political, informational, and economic considerations. Following the adage of Sun Tzu, the planner attempts to understand fully the strengths and weaknesses of the two opponents. By examining the capabilities and potentialities of each system, while simultaneously applying those capabilities and potentialities upon the air and ground of the future conflict, the staff planner determines the nature of the force needed to protect friendly units while simultaneously attacking enemy units.

Due to the distributed nature of the modern battlefield, this force can not be applied at a single point operationally, but must be directed throughout the depth of the enemy's formation. Dr. Schneider characterized this transformation of the application of force as a shift from the laws of solid mechanics to the laws of fluid mechanics. In the box construct, this shift is illustrated as follows; Figure seven



depicts the Napoleonic battlespace wherein the larger more cohesive army concentrates force at a single point. This mass (combat power) acts as a lever against a fulcrum. The result is a dislodged or defeated enemy.³⁶

At the operational level, mass (combat power) must flow throughout the depth of the enemy system. Just as combat power increased with the addition of troops in the Napoleonic era, at the operational level combat power increases as the pressure created by maneuver drives deeper into the enemy



**Figure 8.
Operational Battlespace**

system. The resilience of modern distributed systems also requires that this depth include time, as well as space. Therefore the fluid nature of modern force application looks like figure eight.

The elements of operational design assist the staff planner in determining where and how to apply this pressure throughout the depth of the enemy system. While the Clausewitzian center of gravity applied directly to the battle of the single point, on the modern distributed battlefield, that concept must be extended. Dr. Schneider and Lawrence Izzo provide a modern concept. "The center of gravity is the greatest concentration of combat force."³⁷ Staff planners direct this fluid concentration of combat force against decisive points throughout the depth of the enemy system.

Integral to this planning is the development and protection of adequate bases of operation from which the lines of operation, or flows of combat force, originate. Similarly, as this concentration of combat force flows through the enemy system, the staff planner remains cognizant of potential impediments that reduce the effectiveness of the flow or cause the flow to stop. Identification of these potential culminating points by the planner ensures plans contain adequate measures to preclude culmination.

A second influence of Newtonian physics manifests itself in organizations as reductionism. The U. S. Army is no exception. This reductionism creates parts and organizes them into functions. Each function possesses its own responsibilities. "We really believed that we could study the parts, no matter how many of them there were, to arrive at knowledge of the whole."³⁸ This Newtonian framework influences how staff planners look at the application of military power and how they plan for that application.

Staff planners see themselves as one component of national power; diplomatic, informational, military, or economic (DIME). In the OD environment, this reductionism helps the staff planner categorize activities inside the battlespace as either contributing toward the diplomatic, informational, military or economic purpose. Additionally, this framework helps define the battlespace by placing constraints on forces available, and on the environment over which forces conduct operations. Like the Newtonian mindset itself, this framework, DIME, establishes separate functions with separate responsibilities which staff planners attempt to integrate.

Historically, in the OD environment, the integration of the DIME usually takes place at or above the operational level of war. While the DIME helps shape the dimensions of the clear box, within that box staff planners apply the military component of national power to achieve military end-states. The tactical application of force remains devoid of direct political, economic, and / or informational objectives.

Similarly, this reductionism influences the planning and conduct of operations inside the army. Divided into functional areas, the organization of the staff itself illustrates the Newtonian influence on staff planning. In the OD environment the essence of staff planning is determining the time, place, method, and purpose for applying force. Given the distributed nature of military forces, staff planners must account for the *time* required to develop the theater of operations, the *time* required to apply force during a simultaneous engagement, the *time* required between sequential engagements, and the total *time* required to conduct the entire series of military actions.

Linked closely with time is the mass (combat power) and space required to conduct these operations in time. The mass/space required for theater development, for each simultaneous action, for each series of actions, and the total mass/space required significantly alters the dimensions of both the clear box and the force cubes within the theater.

Tying time, space, and mass (combat power) together is purpose. Given the systemic nature of war at the operational level, the staff planner can

reasonably conclude that the purpose for all operational level actions must contribute to the disruption of the enemy system.³⁹

This analysis of the OD environment demonstrated the Newtonian characteristics of how force is applied to achieve military objectives. To determine if the U.S. Army structure and planning procedures remain functional in a non-force oriented environment, the monograph must re-examine the stability environment through the lens of quantum physics. To assist in this examination, the monograph must first provide a brief description of the quantum theory world-view.

In contrast to the predictable Newtonian world-view, the quantum theory view deals in probabilities and contingency. "Probabilities are the odds that something is going to happen, or that it is not going to happen."⁴⁰ Therefore, even with "perfect" information about an event, quantum theory can not predict the outcome. It can only predict the probabilities. This uncertainty resides in the nature of both the world and our relationship with it.

In quantum theory, a particle in motion can not be precisely described. Newtonian physics sought to determine the exact position and momentum of a particle in motion in order to determine where that particle would be in the future. In the OD environment, the staff planner relies on this same predictability to both structure the battlespace and to orchestrate actions within the battlespace. Quantum theory, however, precludes determining the exact position and momentum of the particle in motion. The more precisely we know one measurement, the less precisely we know the other. Heisenberg's uncertainty

principle, or the Principle of Complementarity, precludes objectivity because the observer's relationship with the observed influences what occurs.⁴¹

While the Principle of Complementarity describes the quantum view of probability, Dr. Schneider believes this principle also illustrates the nature of the stability environment. Quantum effects express the level of complexity in a relatively small place in a short time with little or no direction. "Because of the number of agencies – gray boxes [in the box construct]...you can't make predictions because of there [are] so many players."⁴²

In the humanitarian interest environment this uncertainty manifests itself in every potential action staff planners contemplate. Whether an action of force or effort, the intended consequences or results ultimately depend on those observing the action. Actions taken for the sake of force protection can be seen as provocative acts. Similarly, "objective" actions taken to safeguard innocent personnel can be viewed as favoring one side of the dispute over the other.

Returning to the box analogy, the different characteristics of the stability environment require similar changes to the construct. In the OD box, the blue and red cubes (combat power) attempted to shatter each other. In the stability environment military forces apply effort, not force. Instead of attempting to shatter each other, the cubes attempt to alter the nature of each other.⁴³ Additionally, more than two opposing military forces operate in the clear box. Since a preliminary or military end-state exists, these multiple organizations attempt to alter the nature of the primary cubes to achieve the final end-state.

In the JOINT ENDEAVOR box construct, the blue, white and red cubes represent the formerly warring factions. The yellow cube represents the external military forces (IFOR) operating inside the battlespace to influence the blue, white, and red cubes. The gray cubes represent the non-combatants within the battlespace. In this construct the alteration of the color of a cube represents change (the result of any effort). The goal of a stability operation requires the appropriate color change among the FWF cubes within the battlespace. As a military force enters the battlespace, operations among the differing cubes within the battlespace contributes to the color changing effort. (See figure nine)

The interaction among these cubes generates effects that staff planners cannot predict. With the multiple organizations inside the battlespace, the staff planner can no longer effectively anticipate how military effort alters a targeted cube because other cubes inside the battlespace simultaneously attempt and achieve effects on the same targeted cubes. Not only have the efforts of the military yellow cube changed the blue, white, and red cubes, but any enduring change contains results of inputs from the gray cubes as well. (See figure ten)

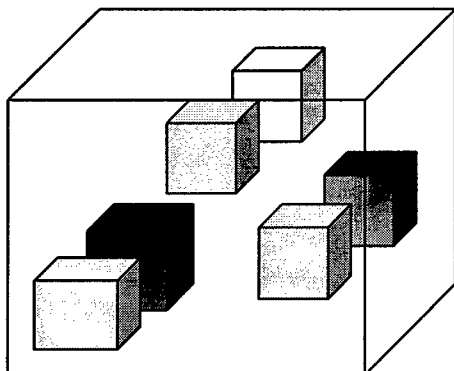


Figure 9.
Military Effort in the Battlespace

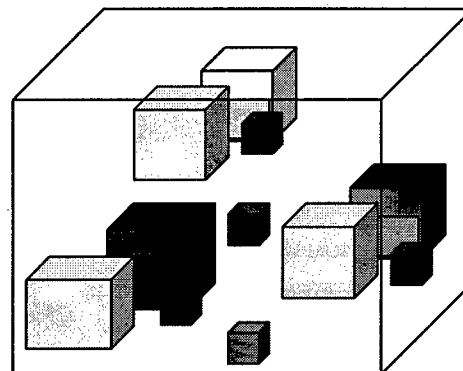


Figure 10.
Total Effort in the Battlespace

A second difference in the two views involves our relationship to the world around us. In the Newtonian view, the world of nature is out there. "We can observe, measure, and speculate about the external world without changing it."⁴⁴ Because one measures and quantifies events without changing them, one can predict the outcome of future events. This predictability relies upon the objectivity of the observer. Predictability assumes repeatability. Both rely on this external view of the world. Objectivity remains possible due to the belief in an external world-view.

In contrast to this, quantum physics maintains there is no such thing as objectivity. Contrary to the Newtonian application of lethality in the OD environment, the humanitarian interest environment deals with effort. The objectivity the staff planner maintains while analyzing the OD battlespace dimensions no longer exists for the staff planner in stability operations. Returning to the Clausewitzian concept of the duel, in the OD environment the staff planner examines the two duelers with a certain degree of detachment. Although involved in the duel, the staff planner determines the strengths, weaknesses, size, power, and lethality of the two opponents. This detachment enables the planner to predict the impact of force application. As the "duel" changes from force application to effort application while growing from two opponents to multiple participants, objectivity vanishes. The planner cannot predict the impact of effort application because of the interdependent relationships among the participants.

Returning to the box construct, as the different elements interact, their interaction or effort results in the effects depicted as color changes. Like the Heisenberg principle of uncertainty, the resulting color change involves the inputs from both elements. No matter how precise the yellow force measures the degree of their effort to change the red cube, the input from the red cube ultimately determines the shade of orange created. Additionally, the efforts of the gray cubes impact directly on the efforts of the yellow and red cubes by altering the shade of orange created. This uncertainty dramatically impacts upon the staff planner's ability to effectively utilize the elements of operational design to orchestrate tactical efforts.

At the beginning of this section, the monograph discussed the two step process in which staff planners use the elements of operational design. Before examining this two step process in the stability environment, a brief analysis of a thought problem of quantum physics helps provide the proper perspective. A problem known as Schroedinger's cat best illustrates the influence of quantum theory in the stability environment.

A live cat is placed in a box. The box has solid walls, so no one outside the box can see into it...A device will trigger the release of either poison or food; the probability of either occurrence is 50/50. Time passes. The trigger goes off. The cat meets its fate.⁴⁵

According to Schroedinger, the cat remains both alive and dead until the moment we actually observe it. Inside the box, the cat exists only as a probability wave.

Similarly, in the humanitarian interest environment, objectivity is impossible. Like Schroedinger's cat, the activities between the belligerents differ once one attempts to observe them. One's actions in observation directly impact

upon how the belligerents now act between themselves and among those observing.

The lack of a coherent "enemy" system presents the most difficult aspect of applying the elements of operational design to the humanitarian interest environment. If the operational level of war requires the existence of an operationally minded enemy, the stability environment appears devoid of this enemy. The lack of an enemy system fails to diminish the complexity of the environment; on the contrary, stability operations in a humanitarian interest environment provide the staff planner with great complexity. The systems approach that benefited from the application of the elements of operational design requires even greater intellectual vigor and acuity. Since the planner no longer strictly attempts to apply force, but must instead achieve results by applying effort, the absence of a systems based opponent dramatically increases the difficulty of the military problem.

Unlike the Newtonian OD environment where the staff planner measures the level of force applied, the stability environment provides no means for measuring effort. The uncertainty principle even brings into question the effectiveness of the effort exerted due to the potential for radically different interpretations of the military effort.

While the two step process in the OD environment established the battlespace, defined the military problem, and provided a plan to orchestrate military force to achieve the intended purpose, the nature of the stability environment precludes this predictability. Potentially, staff planners can establish

the battlespace and define the military problem; however, staff planners can only determine the *probabilities* concerning the orchestration of military effort to achieve desired effects.

Returning to the problem of Schroedinger's cat, the elements of operational design assist the staff planner in establishing the dimensions of the box. The elements even assist the planner in determining what potentially can occur within the box. Just as Schroedinger's box precluded the observer from determining the outcome of the cat's fate until the observer entered the box, the staff planner faces the same dilemma during stability operations. To identify an opponent's center of gravity and the corresponding decisive points vulnerable to influence, the staff planner must interact among the various factions within the stability battlespace.

In the OD environment the center of gravity remained the greatest concentration of combat force. This definition enabled staff planners to design the flow of that force through the battlespace to achieve the desired objective. To effectively utilize this concept within the stability environment, the definition of center of gravity must be extended again. During the classes on theory, Dr. Schneider provided an extended definition of center of gravity that assists staff planners in this environment. The center of gravity is that physical obstacle that stands between you and your organization achieving its mission.⁴⁶ From this extended definition, decisive points become those areas where military forces apply effort to remove the obstacle.

Identifying centers of gravity, determining decisive points, and establishing a line of operation occur as the military organization interacts with the other factions inside the stability battlespace. In Operation JOINT ENDEAVOR, link analysis provided the means for staff planners to orchestrate operations. Relying on a network of information collectors, USAREUR (Forward) "associated indicators, personalities, contact networks, and then related activities which could point to probable future events or actions."⁴⁷ The results of this analysis enable USAREUR to act within the battlespace with effect.

In this section, the monograph examined the nature of the OD and stability battlespaces and how staff planners employ the elements of operational design within these two different environments. The Newtonian nature of the OD environment enables staff planners to determine the dimensions of the battlespace, to define the military problem, and to orchestrate the application of force within the battlespace. Within the stability environment, the quantum nature of the battlespace limits the effectiveness of the elements of operational design. Like the problem of Schroedinger's cat, the staff planner can determine the dimensions of the battlespace; however, to define the military problem and to orchestrate the application of *effort* within the battlespace, the staff planner must be *inside* the battlespace.

Section V

Conclusions

The evolution in warfare resulting in the creation of the operational level of war fundamentally altered the manner in which military forces approached operations. During the 1970's and 1980's, the U. S. Army grappled with this theoretical dilemma and developed the Air-Land Battle doctrine. This systems based doctrine provided the army a framework for understanding and operating at the operational level of war. Within this doctrine the intellectual fathers created several tools for commanders and staff planners to assist them in executing the doctrine.

After tracing this evolution, the monograph also identified the differing nature of military operations within the OD and stability environments. Within the Newtonian OD battlespace staff planners orchestrate the military application of *force* in order to achieve the preliminary (military) end-state. Within the quantum stability battlespace staff planners orchestrate the military application of *effort* in order to achieve the final (political) end-state.

Just as physicist Stephen Hawking describes "dualities" or correspondences which suggest there exists an underlying complete unified theory of physics, this same principle suggests there exists an underlying unified theory of warfare uniting both the OD and stability battlespaces. This principle also "suggest[s] that it may not be possible to express this theory in a single fundamental formulation. Instead, we may have to use different reflections of the

underlying theory in different situations.”⁴⁸ While it is beyond the scope of this monograph to identifying this underlying unified theory of warfare, the elements of operational design provide these “reflections”.

The elements of operational design assist commanders and staff planners by providing a means to analyze the two competing systems and the area over which they operate. Properly employed, these elements assist the staff planner in defining the military problem. The two step process of this employment helps frame the battlespace while identifying how to orchestrate operations within that battlespace.

The radically different battlespace of the stability environment mandates staff planners alter their application of these elements. The nature of stability operations limits the direct applicability of all of the elements of operational design. While still of tremendous value to the staff planner, the objectivity required to successfully employ the elements diminishes because the nature of the problem shifts from applying *force* to applying *effort*. Without the ability to see into the stability battlespace, the staff planner must anticipate how the organization will *interact* with all forces within the battlespace as opposed to determining how to direct force against forces within the battlespace.

The quantum nature of the stability environment limits the utility of the elements of operational design in the two step process. While the OD environment enabled staff planners to employ the elements to objectively determine the battlespace, define the military problem, and orchestrate the application of military force, the absence of objectivity in the stability environment

alters this application. Returning to the box construct outlined earlier, staff planners employ the elements to determine the dimensions of the clear box defining the battlespace. The elements also assist planners in constructing the dimensions of the initial friendly military system required to operate within the battlespace. The absence of objectivity and a coherent enemy system limits the staff planners' ability to define the military problem and to orchestrate effort while outside the battlespace.

The relevance of the elements of operational design resides in their utility to planners for directing this interaction inside the stability battlespace. Staff planners must understand this fundamental difference in applying the elements in these two environments. Once inside the battlespace, the quantum nature of the stability environment suggests acting should precede planning.

Organizational theorist Karl Weick believes quantum theory portends new approaches to organizational analysis. "Until we put the environment in place, how can we formulate our thoughts and plans? In strategic planning, we act as though we are responding to a demand from the environment; but, in fact, ...we *create* the environment through our own strong intentions."⁴⁹

By extending the definition of the center of gravity, this element of operational design remains relevant for the staff planner inside the stability battlespace. To direct military effort at the obstacle impeding our mission accomplishment, the staff planner must be inside the battlespace. As Mr. Weick suggests, planning becomes "just in time" in nature. The absence of predictability within the stability environment also means the military effort may or may not be

sufficiently resourced or directed toward the appropriate decisive point or points. The staff planner must continually reassess what constitutes the true center of gravity and what military activity constitutes the required effort. The interdependence of these activities with all the forces operating within the stability environment also suggests multiple centers of gravity may present themselves. Additionally, the "just in time" nature of this process precludes the development of a coherent line of operations inside the battlespace which would describe the sequential employment of effort.

Quantum theory suggests another "reflection" impacting on staff planners. "Scientists have observed a level of connectedness among seemingly discrete parts that are widely separated in time and space."⁵⁰ Events within the stability battlespace can be influenced by "non-local causes". The complexity of the stability battlespace thereby increases tremendously. Non-local causation directly impacts on the staff planners' ability to apply the elements of operational design. The center of gravity, or obstacle, impeding mission accomplishment may now shift from inside to outside the defined battlespace. Additionally, non-local causation dramatically impacts upon the staff planners' ability to estimate when military efforts culminate. Non-local causation re-enforces the political nature of stability operations by continually altering how military forces apply effort inside the battlespace.

Finally, quantum theory suggests "in a constantly evolving, dynamic universe, information is the fundamental ingredient, the key source of structuration – the process of creating structure."⁵¹ Information inside the stability

battlespace not only assists staff planners in employing the elements of operational design, information should assist staff planners in developing force structures to achieve the required effect. The adaptability defined in *FM 100-20* must go beyond unfamiliar purposes and methods and include unfamiliar structures. These structures should be "organizational wave packets - resources to expand in potential until needed."⁵² Once inside the stability environment, staff planners must capitalize on the information produced through the interaction of forces within the battlespace to design and employ unique military structures specifically created to achieve a specific effect.

Staff planners must comprehend the different nature of the OD and stability environments and develop the mental flexibility to employ the elements of operational design. Understanding these differences and how they influence the utility of the elements, staff planners will develop the skills required to orchestrate the military application of force, as well as to orchestrate military effort to achieve a desired effect.

Appendix 1 – U. S. Joint and Army Peacekeeping Terminology⁵³

Peace operations: A broad term that encompasses peacekeeping operations and peace enforcement operations conducted in support of diplomatic efforts to establish and maintain peace (JP 1-02, 339)

Peacekeeping: Military operations undertaken with the consent of all major parties to a dispute, designed to monitor and facilitate implementation of an agreement (cease-fire, truces, or other agreement) and support diplomatic efforts to reach a long-term political settlement (JP 1-02, 339)

Military or paramilitary operations that are undertaken with the consent of all major belligerent parties; designed to monitor and facilitate implementation of an existing truce agreement and support diplomatic efforts to reach a long-term political settlement; includes:

- observation and monitoring of truces and cease-fires
- reporting and monitoring
- supervision
- investigation of complaints and violations
- negotiation and mediation
- liaison
- supervision of truces (FM 100-23, 2 to 12)

Peace enforcement: The application of military force, or the threat of its use, normally pursuant to international authorization, to compel compliance with resolutions or sanctions designed to maintain or restore peace and order (JP 1-02, 339)

The application of military force, or the threat of its use, normally pursuant to international authorization, to compel compliance with generally accepted resolutions or sanctions; purpose is to maintain or restore peace and support diplomatic efforts to reach a long-term political settlement; includes:

- restoration and maintenance of order and stability
- protection of humanitarian assistance
- guarantee and denial of movement
- enforcement of sanctions
- establishment in supervision of protected zones
- forcible separation of belligerents
- may include combat action (FM100-23, 2 to 12)

Peace building: Post conflict actions, predominantly diplomatic and economic, that strengthen and rebuild governmental infrastructure and institutions in order to avoid a relapse into conflict (JP 1-02, 339)

Post conflict actions, primarily diplomatic, that strengthen and rebuild civil infrastructures and institutions in order to avoid a return to conflict; includes:

- restoring civil war

- rebuilding physical infrastructures
- reestablishing commerce, schools, and medical facilities
- assistance in conduct of elections and plebiscites
- the mobilization of former belligerent parties
- nation assistance

Peacemaking: The process of diplomacy, mediation, negotiation, or other forms of peaceful settlement that arranges an end to a dispute, and resolves the issues that led to it (JP 1-02, 339)

The process of diplomacy, mediation, negotiation, or other forms of peaceful settlements that arranges an end to a dispute, and resolves the issues that led to it; includes:

- military-to-military contracts
- security assistance operations
- exercises
- peacetime deployments (FM 100-23, 2 to 12)

Nation assistance: civil and/or military assistance rendered to a nation by foreign forces within that nation's territory during peacetime, crisis or emergencies, or war based on agreements mutually concluded between nations; includes:

- security assistance
- foreign internal defense
- other USC 10 (DoD) programs (JP 1-02, 303)

Humanitarian assistance operations: military operations providing a secure environment to allow humanitarian relief efforts to progress; includes disaster relief, refugee assistance, humanitarian and civic assistance, and civil support (FM 100-23-1, 1-2 to 1-3)

Support to diplomacy: Military actions taken in peace or conflict conducted to prevent (or reduce) conflict; components include: peace making, peace building, preventative diplomacy (FM 100-23, 2 to 12)

Preventative diplomacy: diplomatic actions taken in advance of a predictable crisis to prevent or limit violence; includes: preventative deployments, shows of force, and higher levels of readiness (FM 100-23, 2 to 23)

Appendix 2 – Principles of Stability and Support Operations⁵⁴

Primacy of the political instrument: Stability and support operations use diplomatic, economic, and informational means to change behavior. Military power protects those means and establishes the conditions in which they can function effectively. At times, military operations add a measured amount of coercion to reinforce political means.

Unity of effort: Stability and support operations require the combined efforts of all the instruments of national power. Many agencies and Armed Forces of the United States and friendly foreign governments work together for a common goal and even larger number of non-government organizations make major contributions. All these organizations must work together, each supporting the others.

Adaptability: The U. S. Army was not designed for stability and support operations. To accomplish them, Army leaders must adapt their thinking to unfamiliar purposes and methods. Civilian agencies and organizations are not acclimated to operating in a hostile environment. Likewise, the Armed Forces are not used to severe restraints on the use of their destructive power. The Army must realize its potential for many useful but non-traditional activities to support and integrated national effort.

Legitimacy: Legitimacy is used in two related senses. One refers to popular assent to the exercise of government powers by a particular group and in accordance with a particular constitutional method. The second sense refers to the propriety of particular government actions. In either case, legitimacy is the subjective determination that the right people are exercising an authority in a proper way for reasonable purposes. Legitimacy is often the center of gravity in stability and support operations. In peace operations, the intervening force, whether it is present for peacekeeping or peace enforcement, must demonstrate that it is serving the interest of the people who judge it. Legitimacy depends primarily on correct behavior.

Patience and Perseverance: Success in stability and support operations often depends on changing people's attitudes and behavior. That requires persuasion, sometimes aided by a minimum amount of coercion. Patience helps limit the level of violence and aids in avoiding escalation to war. Perseverance is also related to adaptability. Operational objectives must be flexible enough to permit a change of policy when one does not appear to be working.

Restraint: The intent to solve a problem without conventional war requires restrictions on the use of force. Escalation of violence leads to war and must be avoided. Coercion is only used against people and organizations actively engaged in violence. Even coercion against a violent opponent should be minimized. No one should be considered a permanent enemy.

Security: The environments of peace and conflict can appear benign to soldiers. Commanders must be aware of the constant possibility of attacks on soldiers and never allow their soldiers to let down their guard. Force protection is an important command responsibility at all levels.

ENDNOTES

¹ During the second week of the division planning exercise, Col. Swan completed the doctrinal instruction by expressing to the students the importance of grasping the relationship among time, space and combat power.

² On 30 July 1999, the writers of FM 100-5 briefed the Advanced Military Studies Program students on the current status of the writing effort. The ideas presented are the author's interpretation of both the briefing and of the information provided on the slides used during the brief.

³ No consensus exists in current doctrine concerning what constitutes the elements of operational design. The current FM100-5 refers to the Concepts of Theater and Operational Design and lists center of gravity, lines of operation, decisive points, and culmination. In FM 100-7, *Decisive Force: The Army in Theater Operations*, they are referred to as Key Concepts of Operational Art and Design. In addition to the four concepts mentioned in FM100-5, the *Decisive Force* manual also lists indirect approach, deception, and positional advantage and strategic concentration of forces. Adding further confusion to the issue, Joint Publication 3.0, *Doctrine for Joint Operations*, refers to the Facets of Operational Art. The joint facets include three concepts which made both army manuals, center of gravity, decisive points, and culmination; however, this manual also includes synergy, termination, direct versus indirect, arranging operations, forces and functions, operational reach and approach, timing and tempo, leverage, balance, anticipation, and simultaneity and depth. I will use the terminology and components approved by Dr. Schneider. For the purposes of this paper, the elements of operational design are those four concepts outlined in FM 100-5, center of gravity, lines of operation, decisive points, and culmination.

⁴ Paul H. Herbert, *Deciding What Has to be Done: General William E. DePuy and the 1976 Edition of FM 100-5, Operations* (Washington, DC: Government Printing Office, 1988), 1. Herbert also acknowledges the tremendous influence of DePuy's own wartime experiences in shaping the "active defense" doctrine that was both a product of, and a further catalyst for, the intellectual renaissance. Naveh, pg. 250-276, also credits civilian reformers, notably William Lind, Steven Canby and John Boyd, with influencing the intellectual debate that continued in the Army after the introduction of the active defense. "Boyd's and Lind's endeavors to interpret modern maneuver by means of systemic criteria provided the uniformed reformers with the keys for the development of and advanced conceptual substitution for the traditional paradigm of tactical attrition." (pg. 262) Using systems thinking to analyze the Soviet theory of operations, Canby provided the following contributions; the exact essence of the Soviet theory of operations, cognitive tools for criticizing the active defense, and the concept of light forces. In addition, Naveh credits General Starry, General DePuy's eventual successor at TRADOC, as the military visionary whose influence led to the operational theory of Airland Battle.

⁵ Matthew Cooper, *The German Army* (New York: Stein and Day, 1978), 119.

⁶ *Ibid.*, 135. This school of thought believed the failure of the German Army in World War I did not reside in doctrine. Rather, the war demonstrated a greater need for mobility which command and instrumentation would resolve.

⁷ Shimon Naveh, *In Pursuit of Military Excellence – The Evolution of Operational Theory* (Portland, Oregon: Frank Cass Publishers, 1997), 57-59.

⁸ *Ibid.*, 57. Naveh believes the best translation of *auftragstaktik*, directive control, was suggested by Richard Simpkin.

⁹ Cooper, *The German Army*, 138.

¹⁰ *Ibid.*, 142.

¹¹ *Ibid.*, 139.

¹² Naveh maintains that the German military doctrine employed in World War II failed to meet his criteria for operational thought. Dr. Epstein reiterated this belief during a lecture to the SAMS student body on October 13, 1999.

¹³ Mikhail Tukhachevskiy, *New Problems in Warfare* (Carlisle Barracks, Pennsylvania: Government Printing Office, 1983), 5.

¹⁴ Bruce W. Manning, "An Operator/Planner's Introduction to Operational Art", 9.

¹⁵ *Ibid.*, pg. 9.

¹⁶ Tikhachevskiy, *New Problems in Warfare*, 4.

¹⁷ Dr. James J. Schneider, "Vulcan's Anvil: The American Civil War and the Emergence of Operational Art" (Leavenworth: US Army Command and General Staff College, 1991), 6.

¹⁸ Kevin Kelly, *Out of Control* (New York: Addison-Wesley, 1995), 469.

¹⁹ Carl von Clausewitz, *On War*, trans. and ed. by Michael Howard and Peter Paret (Princeton, New Jersey: Princeton University Press, 1976), 595. Dr. Schneider and Lawrence Izzo in *Clausewitz's Elusive Center of Gravity* maintain that Clausewitz's discussion of centers of gravity in Book Eight are the root of any confusion concerning the application of this concept. In Book Eight, they believe Clausewitz carried his physical analogy of the duel too far when he applied it to war plans. Clausewitz described three likely centers of gravity, the enemy's army, his capital, or an allied army if the enemy has a strong protector. Although Clausewitz acknowledged other center's of gravity, within the construct of his theory of war focusing as it did on fighting and the engagement, "the defeat and destruction of his fighting force remains the best way to begin."

²⁰ *Ibid.*, pg. 97. In chapter two of book one, Clausewitz discusses the purpose and means in war. While acknowledging several ends to be pursued in war, he acknowledged only one means.

²¹ Robin P. Swan, "The Pieces of a Military Chessboard – What is the Contemporary Significance of Jomini's Design of a Theater of Operations?" (Leavenworth: US Army Command and General Staff College, 1991), 32.

²² Dr. James J. Schneider, "The Theory of Operational Art" (Leavenworth: US Army Command and General Staff College, 1988), 28.

²³ Department of the Army, *FM 100-20 Stability and Support Operations (Draft)* (Washington, DC: Government Printing Office, 1995), v. Emerging Army doctrine on stability and support operations clearly establishes that SS operations are not war. However, the doctrine also stipulates that in SS operations combat may be required.

²⁴ Dennis J. Quinn, ed. *Peace Support Operations and the US Military* (Washington, DC: National Defense University Press, 1994), xiii. According to Mr. Quinn, the U. S. turned to the U. N. after World War III (the Cold War) just as it did after World War II and the League of Nations after World War I to ensure peace and stability in the world.

²⁵ *Ibid.*, 13. This quote is taken from a paper written by Barry R. McCaffrey when he served as the Director for Strategic Plans and Policy for the Joint Staff.

²⁶ William J. Durch, ed. *UN Peacekeeping, American Policy, and the Uncivil Wars of the 1990s* (New York: St. Martin's Press, 1996), 2-4. Durch also maintains that multidimensional operations can entail greater casualties than traditional peacekeeping, can exert greater pressure to use force to keep a peace accord, and can involve tasks not usually considered traditional peacekeeping. These new tasks include; guarding polling stations, transporting refugees, and assisting with the demobilization and disarmament of local forces.

²⁷ Center for Army Lessons Learned. *TASK FORCE EAGLE Initial Operations, Operations JOINT ENDEAVOR* (Leavenworth: US Training and Doctrine Command, 1996), 11.

²⁸ United States General Accounting Office – National Security and International Affairs Division. *Bosnia Peace Operation – Mission, Structure, and Transition Strategy of NATO's Stability Force* (Washington, DC: US General Accounting Office, 1998), 3.

²⁹ United States General Accounting Office – National Security and International Affairs Division. *Bosnia Peace Operation*, 31. The Senate report's organization chart as of December 1997, illustrated the elements inside and outside Bosnia involved in this stability environment. The organizations I selected to illustrate the box construct consist primarily of the operational level organizations/functional activities as outlined by the report. The chart depicted subordinate organizations and functions and further outlined lines of authority and lines of coordination. While depicting the coordination effort occurring at the highest levels inside and outside of Bosnia, the report also acknowledged that coordination occurs at all levels among the organizations.

³⁰ The idea of the two step process came to the author after a SAMS Campaign Planning exercise; OPERATION Barbarossa-Mission Analysis. During this exercise, the seminar acted as the OKH staff tasked to interpret Directive 21 for the invasion of Russia using current U. S. joint doctrine.

³¹ Although I have described this two step process from the army perspective of FM 101-5, JP 3-0 outlines a similar process. The staff planners for the CINC utilize the elements of operational design while developing theater strategic estimates and designing campaign plans.

³² Department of the Army, *FM 101-5, Operations* (Washington, DC: Government Printing Office, 1993), C-1.

³³ Naveh, *In Pursuit of Military Excellence*, 146.

³⁴ Gary Zukav, *The Dancing Wu Li Masters – An Overview of the New Physics* (New York: Bantam, 1980), 20. According to Zukav, "Newton's laws depict events which are simple to understand and easy to picture."

³⁵ *Ibid.*, 28.

³⁶ Schneider, "Vulcan's Anvil", 6-11.

³⁷ James J. Schneider and Lawrence L. Is, "Clausewitz's Elusive Center of Gravity", *Parameters* 14 (September, 1987), 56.

³⁸ Margaret J. Wheatley, *Leadership and the New Science – Learning about Organization from an Orderly Universe* (San Francisco, CA: Berrett-Koehler Publishers, Inc, 1992), 27.

³⁹ Schneider, "Vulcan's Anvil", 66. Dr. Schneider maintains that seven conditions are necessary for operational art to exist. The sixth condition requires that the enemy must be operationally minded, i.e. the enemy must also be employing a systems type military. This sixth requirement led me to the conclusion that the purpose of all operational level actions must contribute to system disruption.

⁴⁰ Zukav, *The Dancing Wu Li Masters*, 27.

⁴¹ Wheatley, *Leadership and the New Science*, 35.

⁴² Dr. Schneider provided these insights during a review of this monograph.

⁴³ The CALL, Operation Joint Endeavor, Initial Impressions Report, described this shift from force to effect as follows; rather than massing "in time and space," Task Force EAGLE more often attempted to mass tactical effects "on audiences—over time." pg xii.

⁴⁴ Zukav, *The Dancing Wu Li Masters*, 29.

⁴⁵ Wheatley, *Leadership and the New Science*, 59.

⁴⁶ Dr. Schneider, during theory class on 23 July, 1999.

⁴⁷ Center for Army Lessons Learned. *TASK FORCE EAGLE Initial Operations*, 83. Just as quantum theory would suggest, this pattern analysis could not be conducted outside of the battlespace. The information needed for link analysis required months to develop. "Collection and analysis operations that were started in January 1996, received their first products in March 1996."

⁴⁸ Stephen Hawking, *A Brief History of Time* (New York: Bantam Books, 1996), viii.

⁴⁹ Wheatley, *Leadership and the New Science*, 37.

⁵⁰ *Ibid.*, 39.

⁵¹ *Ibid.*, 104.

⁵² *Ibid.*, 37.

⁵³ COL Kiaura provided this compilation of terms to our seminar during our lessons on Somalia.

⁵⁴ Department of the Army, *FM 100-20 Stability and Support Operations (Draft)* (Washington, DC: Government Printing Office, 1995),

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