OPERATIONAL-LEVEL DEEP OPERATIONS: A KEY COMPONENT OF OPERATIONAL ART AND FUTURE WARFARE

A MONOGRAPH
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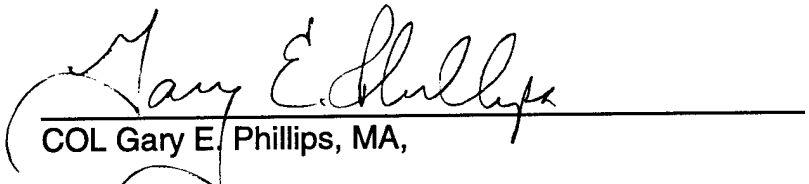

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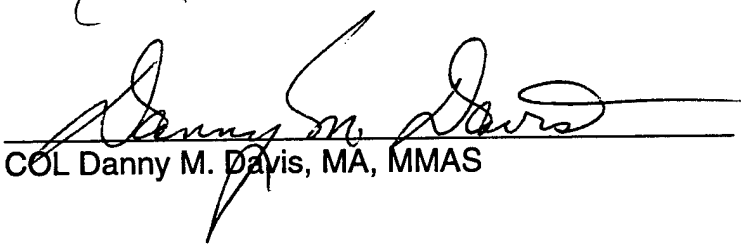

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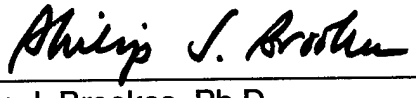

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ABSTRACT

OPERATIONAL-LEVEL DEEP OPERATIONS: A KEY COMPONENT OF OPERATIONAL ART AND FUTURE WARFARE by Major Wayne A. Parks, Aviation, USA, 67 pages.

The United States Military has been conducting joint, operational-level deep operations for over a century. This is the point where US Armed Services have found a common ground to focus their joint efforts. The American Civil War established a baseline for operational art in modern warfare. It also provided a basis for the study of operational-level deep operations. It is unclear whether the future battlefield will require a similar concept of deep operations. Joint Vision 2010 states that it does not.

In this monograph, the author explores the idea that deep operations are an integral part of operational art and will play a critical part in future joint military operations. The monograph first establishes a working definition for deep operations and necessary functional capabilities. Based on this definition, the monograph examines application to modern warfare and potential for the future. It provides historical examples of deep operations in order to examine effects and trends leading to the current doctrine. The monograph places emphasis on explaining the common principles of deep operations, and the purpose for conducting these operations. It describes the operational dimensions, or battlespace, of deep operations in the different situations. It also discusses the operational level functions necessary to operate in the battlespace.

This monograph concludes that joint, operational-level deep operations are part of operational art, and they are relevant in future joint military operations. The concept for operational-level deep operations holds promise for the US Military as it enters the twenty-first century. It offers one potential avenue for meeting the challenges of the battlefield envisioned in the near future by retaining the multidimensional aspect of modern warfare. This potential warrants a more in-depth study of joint, operational-level deep operations, its combat organizations, its command structures, and a joint doctrine.

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Introduction

Deep operations are a key component of operational art and will remain critical in the future. The United States (US) Military will certainly conduct deep operations on the future battlefield. Operational-level deep operations is the point where US Armed Services will find a common ground to focus their joint efforts. In fact, the US Military has been conducting joint, operational-level deep operations for over a century. It is clearly part of operational art on which modern warfare is based. The services must join together to study past application of deep operations to modern warfare in order to construct a force for the twenty-first century. The principal question that the author of this monograph will attempt to answer is: Are deep operations part of operational art and are they relevant in future joint military operations?

The American Civil War established a baseline for operational art in modern warfare. It also provided a basis for the study of operational-level deep operations. Lieutenant General Ulysses S. Grant witnessed, first hand, the ravages of war in close combat as a field commander. His experiences in the western campaigns led him to develop a strategy of dispersed maneuver against the Confederate States of America. Part of this strategy consisted of operational-level deep raids on land and from the sea. Major General William T. Sherman and Admiral David D. Porter carried out these bold maneuvers with great success. The joint effort was mutually supporting, and they were able to divert and disperse the efforts of the Confederates beyond the South's limited means.

The purpose for the North conducting operational-level deep operations still applies today. The Union Army and Navy conducted these operational-level deep raids to negate the Confederate Military's effectiveness, disrupt Confederate command and control, destroy their supplies, break the will of the people, and counter the geographical size of the Confederacy. The battlespace consisted of land and sea features associated with the southeastern expanses of the United States. The principles associated with these operations were security, dispersion, diversion, surprise, tempo, and flexibility. The combat functions included reconnaissance, combat maneuver, fire support, transportation, supply, and communications. These elements have been ever present in operational-level deep operations throughout modern warfare.

Marshall Tukhachevskiy developed a theory for deep operations that may have had an indirect link to the deep raiding ideas of the American Civil War. His relationship and understanding of A. A. Svechin and V. K. Triandafillov's theories assured Tukhachevskiy's theories developed from the concept of operational art. His theory of deep operations evolved around the emerging technology of air power and ground mechanization. The most significant thing about Tukhachevskiy's theory is that it captured a merger of air and ground to produce operational effects, additionally his thoughts were well documented.[1]

Tukhachevskiy's concept for deep operations aimed at, as its purpose, neutralization of the enemy's tactical defense through its entire depth. Air was a new element of the battlespace that was not exploited during the American Civil War. Tukhachevskiy had the advantage of machines to traverse the great expanses of land and air that made up the

present battlefield. The purpose of neutralization was to defeat enemy forces in the operational depths of the enemy. Tukhachevskiy's deep operations theory had all of the characteristics of the deep operational raids in the American Civil War. Principles that his concept stressed were simultaneity, tempo, and interchangeability. The single function added was protection. These elements may have been part of the American concepts, but Tukhachevskiy clearly defined them.

Modern application of modern warfare occurred as a result of World War II. This expanded the theories of Tukhachevskiy and the experiences of the American Civil War. Operational-level deep operations were applied in an ever expanding battlespace and exposed the use of new operational functions. The strategic battlespace was global, and the operational battlespace in many theaters had varying geographical features. Unconventional forces were organized to perform the function of special operations against elements in the enemy's rear. Air forces conducted air interdiction from bases that were relatively safe in the rear of their own forces. Amphibious forces conducted deep amphibious operations in a similar fashion to Admiral Porter's Union Navy forces but with air cover and a larger landing force. Operation Desert Storm expanded the battlespace beyond the earth's atmosphere with intelligence operations supported by space-based systems. Aerial drones and helicopters were also used extensively in this deep battlespace.

Joint Vision (JV) 2010 is a description of modern warfare with operational art as its base. The concepts have introduced the idea of information warfare as a point of emphasis. Information warfare combined with electronic warfare firmly emplaces the

electromagnetic spectrum as a permanent medium in the future battlespace. The electromagnetic spectrum increases the dimensional magnitude of the environment. Information and electronic warfare add two new functions to the already developed aspects of deep operations. These functions are information superiority and electromagnetic spectrum dominance. These two functions incorporate the functions of reconnaissance and communication.

In this monograph, the author will show that deep operations are an integral part of operational art that must be explicitly recognized as such. Second, in spite of JV 2010 forecasts for the future, deep operations will play a critical part in future joint military operations. The monograph consists of three major parts. The parts are titled: *Deep Operations Doctrine*, *Experiences in Operational-Level Deep Operations,* and *Future Concepts*. Within these major parts, this monograph will establish a working definition for deep operations and necessary functional capabilities. Based on this definition, the monograph will examine application to modern warfare and potential for the future.

Parts I through III place emphasis on explaining the common principles of deep operations, and the purpose for conducting these operations. They describe the operational dimensions, or battlespace, of deep operations in the different situations. These descriptions include the notions of time, tempo, depth, and synchronization. They also discuss the operational level functions necessary to operate in the battlespace. Part I introduces the doctrinal concept of deep operations in order to provide a doctrinal basis to compare historical examples and future concepts. Part II provides historical examples of deep operations in order to examine effects and trends leading to the current doctrine.

The reader's understanding of the conceptual experience in deep operations is paramount in understanding the overall possibilities for the future. Part III uses JV 2010 to describe the battlefield of the future as it relates to deep operations. This section overlays the deep operations doctrine and historic elements onto the future battlefield to determine where deep operations fit.

The conclusion summarizes the facts and presents an answer to the primary research question. The arguments presented will require further refinement to determine the proper organization, command structure, and joint doctrine for operational-level deep operations. The intent of this monograph is to stimulate intellectual debate on the future employment of US forces at the operational level.

Deep Operations Doctrine

Since the late 1970's, the US Military has emphasized concepts of operational art that call for deep operations. These operations have been conducted at varying depths on the battlefield to facilitate mission success and protect the force. The depths for deep operations were originally defined by a need to counter the echeloned threat from the Warsaw Pact forces in Western Europe.[2] Over time, friction between the Army and Air Force has divided responsibility for deep battlespace between the land and air components.[3] The original concepts of deep operations and the contemporary search for jointness within the US military require definition of the appropriate joint elements to carry out deep battle at the operational level.

This section defines deep operations at the operational level as conducted by joint forces. Its intent is to view deep operations in relation to operational art and joint operations as prescribed by the current US joint publications. "Joint operational art is the linking of campaigns, battles, and engagements in a design to accomplish strategic objectives. Joint operational art, in particular, focuses on the fundamental methods and issues associated with the synchronization of air, land, sea, space, and special operations forces."[4] It also looks at the arrangement of their efforts in time, space, and purpose in the course of a campaign. The commander's ability to put together an operation in this manner is the essence of joint operational art.

Operational art is difficult to define. Joint publication 3-0 describes a framework of basic elements in an attempt to define operational art. These elements are; synergy, simultaneity and depth, anticipation, balance, leverage, timing and tempo, operational reach and approach, forces and functions, arranging operations, centers of gravity, direct versus indirect, decisive points, culmination, and termination.[5] Joint commanders and planners use these elements as a checklist to plan for successful joint operations. The elements give the commander and his staff a concrete set of factors to plan and conduct joint operations in a dynamic environment. The ideas that spring from considering these factors provide form for the operation. This form, the proper mix and relationship of the elements, is the art of the operation.[6]

Operational-level deep operations are currently conducted by elements of each service. The Joint Force Air Component Commander, Joint Special Operations Commander, Land Component Commander, and Naval Component Commander all

conduct operations in depth.[7] Concurrent application of these forces makes it difficult to ensure a coordinated effort and achieve the desired effects. A common definition of operational-level deep operations is necessary to determine an appropriate joint concept for conducting such operations. To establish a working definition we will examine current doctrine to determine similarities.

Present deep operations theory is a part of US joint doctrine. It parallels the US Army definition. Joint publications describe deep operations using the concepts of depth and simultaneity. Depth is used in terms of geographical space and time to shape future conditions and disrupt the enemy's decision cycle. Operations in depth seek to attack the enemy across the entire battle area to overwhelm him from multiple dimensions. Simultaneity of attack, theoretically, places more demands on the enemy forces and functions than he can handle. Friendly forces apply their capabilities against the enemy's weaknesses that lead to sources of strength and high value capabilities.

Current US Army doctrine defines deep operations as attacking enemy forces and functions beyond the close battle by combining the elements of firepower, maneuver, and leadership.[8] The doctrine goes on to describe as the purpose of deep operations, to "facilitate overall mission success and enhance protection of the force."[9] These effects are achieved principally by destroying, delaying, disrupting, or diverting enemy combat power before it arrives at the battlefront. Deep operations are conducted on an expanded battlefield, in space and time, as determined by friendly capabilities and enemy location. The Army emphasizes fighting the enemy close and deep simultaneously. However, the doctrine describes using deep operations to attack enemy formations enabling friendly

forces to choose the time, place, and method to fight the close battle. This idea appears to allude to a sequential fight rather than a simultaneous one, however the simultaneous engagement close and deep allows shaping of the close fight.

The Army is a maneuver oriented ground force primarily interested in attaining operational objectives related to geography. They will conduct attacks oriented on enemy forces, but these attacks are generally focused on terrain oriented objectives. The Army can achieve the purpose of deep operations by maneuvering to occupy terrain. Deep maneuver usually consists of massing ground and helicopter formations against deep objectives from dispersed positions.[10] The Army also has the capability to deliver indirect and direct fires deep in order to bring about destruction, delay, disruption, or diversion of the enemy force. The Army uses artillery systems and attack helicopters in conducting tactical deep operations to deliver fires on the enemy. These operations are normally performed in support of maneuver forces conducting operational-level deep operations. Maneuver and fires require long-range, intelligence-acquisition and targeting assets to track enemy forces and to determine the effects of the deep operations. The Army expends much effort in tactical deep operations for the ultimate goal of maneuvering divisions and corps' against operational objectives.

The US Air Force equates operational-level deep operations to air interdiction. Joint Publications cite interdiction as a method to add depth to the operational level battlefield.[11] "Interdiction disrupts, delays, or destroys an enemy's surface military potential, before it can be used against friendly forces."[12] The effects of air interdiction can provide the friendly force freedom of action at the strategic, operational, or tactical

level of war. Strategic and operational interdiction can have delayed results for ground forces in the immediate vicinity of enemy attacks. The ground commander may not realize the effects achieved by strategic and operational interdiction for 72 hours or more. Tactical interdiction, close to the battle area, can produce more rapid results for the surface commander in most cases.[13] This is the crux of many disagreements between the air component and land component commanders. The US Air Force views its primary responsibility as support to the theater level commander with the limited assets it can employ across the battlespace. The US Air Force leadership believes that strategic and operational effects achieved by air interdiction can produce greater benefits.

Air interdiction is part of counterland operations whose purpose is to dominate the surface environment and prevent the opponent from doing the same.[14] The Air Force sees counterland operations as either independent operations or in association with surface forces. Since air assets cannot effectively occupy enemy terrain, their primary effort is toward effects against enemy systems. Air interdiction seeks to attack target sets such as command and control systems, logistics, movement networks, or follow-on forces.[15] The Air Force prefers to attack those systems that the Army cannot reach with their assets. The Air Force believes that they have the ability to conduct air interdiction in the initial stages of a conflict independently. The effects that they achieve will decisively halt an adversary until ground forces arrive.

US Navy and Marine Corps doctrine does not address deep operations as a separate concept differing from their normal military functions. However, the idea of depth is mentioned in their most basic warfighting philosophies. The Navy is modifying their

traditional role of deep-sea maritime operations with a new emphasis on littoral operations.[16] This emphasis towards employing Navy and Marine Corps forces along seacoasts calls for a doctrine of power projection. Naval expeditionary forces must be capable of independently projecting power at operational depths.[17] Marine Corps doctrine remarks on the use of, "deep air support to interdict enemy reinforcements".[18] Navy and Marine Corps doctrine does not describe deep operations in any detail. However, their use of interdiction parallels the deep operations concepts of the Army and Air Force.

The purpose for conducting deep operations is similar in the Army and Air force doctrine. This is to disrupt, delay, or destroy enemy combat power before it can effect friendly forces in the close fight. The difference is the depth and level of war that they focus their efforts. The Air Force possesses the systems capabilities to attack at ranges far greater than the Army can, and do it quickly. This allows the Air Force to continuously attack at operational-level depths, while the Army must expend a greater effort at tactical depths to protect the maneuver force's push toward their operational objectives. The Air Force, however, must attack air defense systems and enemy aircraft to provide them freedom of action in the enemy's rear area. The Air Force does not overlook this point in their doctrine, but they believe that this can be conducted simultaneously in order to dominate the theater battlespace. Due to the Air Force's system capabilities, the theater commander places great demands on them to conduct operations over a broad, deep area.

Differences between air and ground capabilities drive the way different services conduct their operations. The Army possesses the capability to occupy terrain, while the Air Force is more suited to attacking enemy systems without occupying terrain. The Air Force is vulnerable to enemy attack once they have landed on the ground. They cannot easily occupy terrain behind enemy lines and provide a force to protect themselves. Both methods of conducting deep operations take time and require mutually supporting efforts to achieve the theater commander's operational objectives. The Air Force, Navy, and Marine Corps emphasize the use of aerial platforms to deliver operational effects deep against the enemy force through air interdiction. The Marine Corps conducts ground operations in similar fashion to the Army's methods. The differences found between the air and ground forces in the Navy and Marine Corps are similar to the differences between the Army and Air Force in conducting deep operations at the operational level. Air interdiction is concentrated deep, while ground forces are focused on the close fight.

US military doctrine recognizes operational art as part of modern warfare. Joint doctrine addresses deep operations as an element of operational art using the concepts of depth and simultaneity. The forms in which the services conduct their deep operations are different, but the operational objectives are the same. The art of conducting joint, operational-level deep operations could provide results that are more effective. It is the combination of these joint forces attacking deep that provides overwhelming effects against the enemy. Joint, operational-level deep operations is a form of warfare that allows friendly forces to simultaneously attack the enemy throughout the depth of his structure.

Experiences in Operational-Level Deep Operations

The purpose, principles, and functions of deep operations have remained fairly constant since the American Civil War. However, the changing technology and less structured battlefields of today have changed the doctrinal and organizational requirements for future campaigns. This section takes a look at how the experiences of war and a theory of deep operations can provide insight into future US concepts. It uses the American Civil War as the basis for developing US conceptual experiences for operational-level deep operations.[19] It also uses the Russian concepts on deep operations recorded in their Field Regulations prior to World War II. Other events are described in this section to add depth to the concept as a result of varying experiences and the continuing developments in war. It is war where military organizations are placed to the ultimate test and truly stretch the fabric of doctrine, organizations, and equipment.

The US has dealt with the problem of the expanding battlefield through deep operations for over a century. The expansion of the battlefield first occurred in the nineteenth century and was caused by the improved lethality of weapon systems at greater ranges. As the lethality and range of weapons increased, forces began to disperse over a greater area for survivability.[20] The expanding battlefield also resulted from a need to maneuver from one battlefield to another. This was necessary to mitigate the effects of weapons lethality and range.[21] Air, land, and sea transportation improved and allowed the movement of forces and weapons at greater speeds and distances. The combination of improved weapons and transport systems expanded the battlefield significantly over the last two centuries.

During the American Civil War, the Union Army developed a raiding strategy that combined army and naval forces to interdict Confederate logistics and sustainment bases deep in the southern states.[22] The advent of the airplane brought about deep bombing strategies and airborne operations in the enemy's rear.[23] This technological innovation contributed to the development of a theory on deep operations by the Russian General, Marshall Tukhachevskiy. His theories were tested against the Germans in World War II, with great success.

World War II provides many examples of military forces conducting operations well beyond the forward line of troops. Conventional air, land, and sea forces combined with special forces and guerrilla forces to disrupt or destroy the enemy.[24] General Douglas MacArthur's experiences during World War II led him to conduct a deep amphibious operation at Inchon during the Korean War. This operation "broke the back of the North Korean assault in 1950."[25] Deep operations were central to the air and ground campaigns that defeated Iraqi forces in the Kuwaiti Theater of operations in 1991.

The American Civil War

The American Civil War generals were trained in a napoleonic style warfare that emphasized an offensive strategic system resting on a tactical approach of mass and frontal assault.[26] Operational art and deep operations were not formally recognized in military doctrine but were certainly practiced. The Confederate Army was adept at conducting deep tactical raids against Union communications and logistics.[27] Over time, the Union generals also became proficient in deep operations to counter the large area of

the Confederate States. They began raiding the Confederate lines of communications with regularity.[28] They also used deep operations to engage the enemy in an economy of force role that prohibited the Confederates from reinforcing the main battle area. In addition to tactical raids, the Union conducted raids at an operational level to achieve strategic goals.

The Union had a propensity for joint, operational-level planning from nearly the beginning of the war with the Confederacy. Major General George Brinton McClellan succeeded Major General Winfield Scott as General-in-Chief. He immediately put forth a strategic plan that attacked the Confederates at more than one strategic point and from many directions. This was accomplished by combining the efforts of the Army and Navy to penetrate deep into the Confederacy. The Army continued to engage the Confederate Army and attack deep to sever the rail lines of communications. The Navy disrupted the river lines; transport troops seized coastal ports and attacked inland, as well as providing fire support to the Union warships or gunboats. This caused the Southern generals to disperse their forces and allowed the North's industrial power and command of the sea to achieve the Northern war aims more quickly.[29]

Unfortunately, the "continental" thinker Major General Henry Wager Halleck succeeded McClellan in 1862.[30] Halleck dispensed of McClellan's combined concept and returned to the napoleonic idea of concentration and mass by land forces to destroy the enemy's army and gain decisive victory. The Navy blockaded the seaboard and cut off southern commerce.[31] In March 1864, Lieutenant General Ulysses S. Grant replaced Halleck and revived some of McClellan's joint operational thoughts. Grant did not

directly attribute his ideas to McClellan, but the parallel between the two strategies was strikingly similar.[32] However, Grant's strategic plans for breaking the stalemate between the North and South were conceived more from his experiences in the west than from McClellan's influence. Grant and Major General William T. Sherman collaborated on a deep raiding strategy to overcome the strategic impasse of territorial conquest of the Confederacy.[33] This began an interesting experiment in joint, operational-level deep operations conducted against the Confederacy.

Grant's plan called for three operational level raids aimed at the subsistence base of the three Rebel armies located in Georgia and the Carolinas. The strategic purpose was to destroy the confederate transportation and supply systems in order to cause the South to capitulate.[34] These raids attacked the enemy's will, territory, resources, and communications. They cut the railroad and river lines of communication, attempted to capture two major Rebel ports, take livestock, and wreck foundries and mills important to the war effort. This required a combined effort between the Union Army and Navy.

Grant and Sherman first tested this concept by having Sherman conduct a raid on Meridian, Mississippi supported by a deception operation from the Navy. The raid was successful in confirming the feasibility of Grant and Sherman's raiding strategy. They confirmed that Sherman could march as fast as his adversaries and subsist off of the captured enemy stores and occupied land. They also confirmed the size of force necessary to conduct these raids. Sherman was to take his army to capture Atlanta and then launch a raid to Savannah on the Atlantic coast. The plan also gave him the option of raiding to the Gulf of Mexico after capturing Atlanta. Major General Nathaniel P.

Banks was to land at Mobile and raid inland towards Atlanta. Finally, Major General William F. "Baldy" Smith was to launch a raid from southeastern Virginia through North Carolina and capture the port at Wilmington. Each of these operations bypassed the strength of the Confederate Army to attack into their rear.

Grant found trouble in Washington selling his complete raiding strategy to the politicians. He could not spare Smith's forces if he was to move on Richmond and protect Washington as the politicians and Major General Henry Halleck demanded.[35] Banks also never achieved his portion of the operation because of a delay resulting from an expedition into Texas.[36] This left Grant with Sherman's army to conduct the deep raids, and possibly a naval amphibious assault on Fort Fisher, North Carolina. The object was, in Grant's words, "to close the port of Wilmington."[37] The Navy Department needed this operation quickly in order to close down the Wilmington-based commerce raider CSS Tallahassee and deny this important port to the South's war efforts. Grant committed 6,500 men from the Army of the James River to the Navy for this expedition.[38] Admiral David D. Porter was named to head the North Atlantic Squadron that would descend on Wilmington.

The success of Sherman's march to Savannah was dependent on the Navy being in a position along the Atlantic coast to support him with stores. Both the sea and land operations depended on common principles to achieve their objectives. These principles were security, dispersion, diversion, and surprise. Security of the raiding forces land and sea lines of communications was a must. The sea and land maneuvers also depended on the principles of dispersion, diversion, and surprise.[39] Dispersion of Confederate forces

through actions in their rear allowed Sherman to bypass strong points and concentrate on his logistics-raiding mission. Sherman also used holding-turning forces to divert the attention of Confederate General Joseph E. Johnston's Army of Tennessee away from the raiding forces. These diversions, from the primary land campaigns, allowed Sherman and Porter a manageable force ratio for offensive operations. The surprise achieved by these unexpected raids provided Union forces the initiative.

The Union Army and Navy expanded their battlespace, fighting to the depth of the Confederacy, to negate the Confederate Army's effectiveness, disrupt the Confederate command and control, destroy their supplies, and break the will of the people. Sherman and Porter possessed the advantage of time and tempo in conducting their operations. This advantage was determined by the ability to effectively continue operations for the necessary amount of time that allowed the link up between Sherman and Porter. The tempo of the sea and land raids reduced the Confederate force's ability to react. Time was now on the Union side to link Sherman's land forces with Porter's naval forces. When Sherman completed his task at Savannah, he began to synchronize an attack through the Carolinas to Wilmington and completely cut off the South's lines of communications east of Atlanta. This also denied the Confederacy critical ports on the Atlantic coast. These synchronized raids, deep into the South's territory, increased the tempo of operations for the Confederate Army at a time when they could not afford it.

The physical environment, in which the raiding forces operated, had the potential of interrupting the tempo of the deep raiding forces. The battlespace for these operations ranged across many geographical features. These included rivers, seas, beaches, marshes,

forests, mountains, plains, and valleys. The manmade features included cities, farms, siege forts, engineering obstacles, entrenchment, mines, roads, trails, bridges, and railroads.[40] This environment required both Sherman and Porter to become innovative with their standard organizations to take advantage of, or overcome, situations encountered by changing conditions.

Certain combat functions were required to conduct deep operations within this physical environment to permit flexibility and speed in execution. These functions included reconnaissance, combat maneuver, fire support, and engineering. Sherman determined that his fighting force could not consist of simply cavalry if he wanted to achieve the strategic results demanded of his campaign.[41] He would require infantry and engineer troops to do a thorough job of destruction. The necessity for extensive combat forces was reduced because the raiding strategy avoided hostile armies in order to destroy supplies, physical structures, and communications. Fire support was necessary to protect the forces and assist in the destruction task. Porter also required infantry for amphibious landings as well as engineers to remove obstacles along the beaches and inland. The Navy provided fires from the sea and river networks. The inland raids required lightly equipped mounted field artillery batteries for fire support to allow greater speed and momentum.[42]

Other important functions contributing to the success of these deep operations were transportation, supply, and communications.[43] An amphibious landing force and land raiding force required a tremendous logistical effort. Sherman solved this partially by acquiring as many stores as he could through the capture of Confederate logistical assets.

This reduced the amount of supplies transported and denied the enemy his own precious stores. Porter's Navy dominated the sea-lanes and was able to move logistics freely to the operational area. A lack of communications with Washington did not hamper Sherman's efforts and may have actually provided him the freedom of action he needed. His greatest challenge was to maintain his supply through foraging since a lack of communications with Quartermaster General Montgomery Meigs hampered his ability to coordinate resupply. This was overcome by continuing to move and feed off the land until he reached the coast and was resupplied from Porter's ships. The Quartermaster Department coordinated with Porter to transport supplies to supply depots along the coast. The department would forward the supplies from these bases to meet Sherman wherever he might appear. Sherman reduced the need for external lines of communications and unburdened himself from lengthy logistical links to a sustainment base.

The conduct of these operational-level deep raids grew out of circumstances rather than the original Union plans. The idea of three operational level raids turned to two. Also, the link up occurred between the Army and Navy rather than just Army forces. It was a great gamble by Grant and the Navy Department. They were testing a new form of warfare. The flexibility of this plan, to use deep operational raids, allowed Sherman to head for the coast when General John B. Hood's army left his front at Atlanta to attack the Army of the Cumberland and the Army of the Ohio. This was a joint operation of a quality that today's US military is seeking. The joint deep nature of this operation is aptly portrayed by these statements from Sherman to Porter.

So maneuver as to hold a large portion of the enemy to the seacoast whilst I ravage the interior, and when I do make my appearance, we will make short work of them all. [Give me] two or more points along the coast where I can communicate with you, and where I should have some spare ammunition and provisions in reserve.[44]

Deep operations, in the form of deep operational raids, provided the Union with a set of successful campaigns that helped achieve the final strategic goal of rejoining the North and the South. The Union Army and Navy linked two campaigns together in order to deny the Confederate Army free access to their logistics and transportation systems. The experience gained from these operations resulted in a set of principles and functions that would appear in future like operations. The principles are security, dispersion, diversion, surprise, tempo, and flexibility. The functions are reconnaissance, combat maneuver, fire support, transportation, supply, and communications. The battlespace included the land and the littoral regions where the land and sea joined together. This physical environment extended across the great expanses of the southeast United States and was broken up by many geographical features.

This was the beginning of operational art and the formation of modern warfare. The Union had established an ability to campaign in the enemy's rear area while also engaging his combat forces in close combat on three major fronts. These fronts were distributed between Virginia, Tennessee, and the Carolinas. Grant's vision of conducting simultaneous and successive deep raids, linked to distributed close operations, was the essence of operational art. The greatest vision was probably the linkage of deep operations between joint forces attacking from different directions and by different means. This dispersed the Confederate Army's focus and cut the lifeline to their strategic

supplies. This was key to the Union achieving their strategic goal of defeating the South and returning the Confederacy to the United States of America. Deep operations became an integral part of operational art and modern warfare for the United States.

Russian Deep Operations Theory

In 1876, the Russians conducted a major exercise modeled on the raids of the American Civil War and their own use of Cossacks.[45] The Russian Empire conducted deep penetration operations with the Cossacks as early as the 1700's.[46] They were well suited for independent operations in the enemy's rear. The Russian's studied the American cavalry raids and combined this tactic with their own form of deep operations. The wide expanses of the Russian plains and the "...far more pronounced 'material element' in modern war..."[47] led the Russians to advocate the employment of cavalry in this manner. By using the concept of an 'American raid' (amerikanskiy reyd)[48], the Russians launched a cavalry force as deep as 150 kilometers during the 1876 maneuvers. The Russians' concluded that it was hard to counter the technique of raiding deep into the enemy's rear.

The most prominent period for the Russians' development of deep operation theory came between World War I and World War II. A. A. Svechin, V. K. Triandafillov, and Marshal Tukhachevskiy were preeminent Russian military theorists in this time period. Their military thought stemmed from technological advances in the world. Svechin first described "operational art" as a bridge between tactics and strategy in a series of lectures in 1923-24.[49] Triandafillov teamed up with Tukhachevskiy and continued with this

concept. They began introducing the theory of deep operations throughout the 1920's and 1930's while holding various high-level positions in the Russian military. Triandafillov was killed in a plane crash in 1931 leaving Tukhachevskiy to refine their thoughts. Tukhachevskiy described tactics, strategy, and war strategy as three levels of war.[50] These translated essentially into what Svechin earlier described as tactical, operational, and strategic levels of war. Tukhachevskiy used these constructs to develop a theory of an expanding battlefield where the technological advances of the time could be used to best effect.

Triandafillov's and Tukhachevskiy's initial focus was at the tactical level with a concept called deep battle. The deep battle aimed at achieving a breakthrough and exploitation of the enemy front throughout the tactical depth of his defenses.[51] Triandafillov and Tukhachevskiy expanded deep battle into the theory of deep operations as a result of Svechin's influence with the idea of operational art. The focus of deep operations was to achieve decisive action at the operational level.

Tukhachevskiy's idea for deep operations was directed at neutralization of the enemy's tactical defense through its entire depth. This meant three things to Tukhachevskiy. First, the destruction of the enemy's artillery and machine-guns to prevent them from obstructing attacking infantry and tanks before they could reach their desired depth. Second, the disruption of the enemy's command and control systems. Third, the delay or isolation of the enemy's reserve in order to destroy it in detail.[52] These effects would provide the attacking forces the initiative necessary to achieve the complete destruction of the enemy.

These precepts emphasized air and land combat with little attention paid to naval operations. This had more to do with the nature of the perceived threat than with shortsightedness by the authors. Russia's landmass is extensive, and the threats presented came from either the east or west over land. The physical characteristics of these expansive areas are analogous to the geography that Sherman dealt with in his maneuvers. The southeast United States and Russia were both large landmasses with small force to space ratios. This made it difficult to mass forces for decisive battle. Tukhachevskiy and his contemporaries dealt with this and the appropriate operational depths by establishing operational objectives. These objectives included enemy operational reserves, army headquarters, major signals centers, airfields, army and higher long-range artillery, and major logistic dumps. They also defined this depth by the limit of advance for friendly forces.[53] The depths of the operational objectives were approximately 100 kilometers. The probable tempo equaled a rate of advance at 50 kilometers per 24 hours.[54] These numbers were developed in order to frame the theory not necessarily reflect reality. Tukhachevskiy's battlespace could have varied with the enemy situation and his own army's capabilities.

Tukhachevskiy used the principle of simultaneity to explain expanding the battlefield in depth and time. This passage from the 1936 Russian Field Service regulation, PU-36, defines the term simultaneity best:

> **The resources of modern defence technology enable one to deliver simultaneous strikes on the enemy tactical layout over the entire depth of his dispositions. There are now enhanced possibilities of rapid regrouping, of sudden turning movements, and of seizing the enemy's rear areas and thus getting astride his axis of withdrawal. In an attack, the enemy should be surrounded and completely destroyed.[55]**

Tempo was also a dynamic dimension of Tukhachevskiy's ideas. Tempo is the operational rate of advance that gains momentum as each level of depth was reached. This rate of advance depended on the leading element in a deep operation and ignored the idea of a linear front. Triandafillov introduced the principle, "*interchangeability* of combat troops and fire."[56] This concept suggests that the effects of fires could replace the presence of combat troops in certain circumstances. It is around these terms of simultaneity, tempo, and interchangeability that Tukhachevskiy developed his deep operational and tactical thinking.

"Thinking deeper" principally came from Tukhachevskiy and Triandafillov's maneuver-based concepts combining the functions of mobility, firepower, and protection.[57] Tanks provided the protected mobility that was necessary to maneuver at tactical depths. This, combined with the extended ranges of artillery systems, led to the deep battle concepts presented in the 1929 Russian Field Service Regulation, PU-29. Infantry forces were not yet mechanized in 1929. This limited the ability of the Russians to use the "all-arms" approach in deep battle.[58] Eventually, this was corrected by placing infantry in troop carriers to keep pace with armor. Chapters 5 and 7 of PU-36 [the 1936 Field Service Regulation] emphasized cooperation between infantry battalion, tank and artillery commanders.[59] This opened up greater possibilities for large-scale maneuver postulated in Tukhachevskiy and Triandafillov's theories. Tukhachevskiy's thoughts matured as technology provided a method to expand deep battle into deep operations.

The Russian tactics for deep operations centered on the methods for envelopment and penetration. The Russians' favored technique was the turning movement. However,

Tukhachevskiy saw the need to drive parallel to the enemy's flank as deep as possible and then turn in across the enemy's rear in a full envelopment. This allowed destruction of the encircled force. A penetration was necessary if the enemy did not present an assailable flank. This penetration had a similar effect as the envelopment, by creating a flank and diverting enemy combat power. Once the initial attacking force reached sufficient depth, a follow-on deep operational force would exploit the breakthrough to achieve the operational objectives.[60] This required independent formations of airborne, aviation, and cavalry to limit the enemy's freedom of action, while the exploitation force attacked at operational depths. These independent forces attacked deep simultaneously to contain the enemy's operational reserves and reinforcements, disrupt operational command and control, and deny the tactical commander critical resources. This joint and combined effort allowed thorough destruction of the enemy's forces throughout the operational depths of his defenses.

Tukhachevskiy's ideas were embodied in the 1936 Field Service Regulations. However, the most significant changes in Russian thought came after 1938. Stalin had Tukhachevskiy and five of his six most capable associates shot as part of the purge of officers. After this, Russian deep operations theory was replaced by other concepts until 1942. In early 1942, the Russian Supreme Headquarters (Stavka) realized that drastic changes were needed in order to regain the initiative from the Germans. The Russian's needed an offensive maneuver strategy instead of the attrition theory adopted at the beginning of World War II. They reincarnated Tukhachevskiy's deep operations theories and reorganized for combat in the manner that Tukhachevskiy and Triandafillov had

envisioned.[61] The basic framework can still be seen in Russia's current operational concepts emphasizing forward detachments and operational maneuver groups.

Tukhachevskiy's ideas, by themselves, seemed more like military science at the tactical level rather than operational art. However, the influence of Svechin, Triandafillov and new technological advances continued to project his ideas toward the expanding battlefield and operational maneuver in the enemy's rear area. Triandafillov appeared to be a more elegant and incisive writer than Tukhachevskiy.[62] After Triandafillov's death, Tukhachevskiy continued to write and lecture about the series of tactical battles and deep operational breakthroughs that made up deep operations theory. Without Triandafillov's elegant and incisive style, Tukhachevskiy may not have been able to articulate completely the operational art of deep operations. Tukhachevskiy's ideas evolved from the tactical deep battle to operational-level deep operations just as the American tactical deep raids evolved into operational-level deep raids. Tukhachevskiy took almost twenty years to completely develop his theory. Grant, on the other hand, had the benefit of practical application during the American Civil War to accelerate some of the same ideas.

The Russian deep operations idea was characteristic of the American deep operational raid. They both had as a purpose to attack operational targets and deny the enemy freedom of action in their own rear area. Where the American deep operation also aimed to break the will of the people, Tukhachevskiy's idea did not mention this as a target. His idea, however, was aimed at operational reserve forces. The Americans avoided enemy combat forces when possible. This difference was partly due to

Tukhachevskiy's method of penetrating enemy combat forces to reach their rear area. By this time, the Russians possessed new technology in the form of indirect artillery, armor protection (tanks and armored personnel carriers), and aviation. Armored systems allowed the Russians to attack through the enemy rather than simply go around. Indirect artillery and aviation allowed them to attack deep to destroy or disrupt enemy operational reserves. Mobility was key in both forms of deep operations, but firepower and protection were more predominant in Tukhachevskiy's concept.

Tempo, security, diversion, and surprise were common principles in both concepts. Tukhachevskiy, however, did not discuss the principles of dispersion or flexibility. His concepts emphasized simultaneity and interchangeability. His concept also included the functions of mobility, firepower, and protection. The extensive land mass encountered in the American Civil War and on the Russian plains required both concepts to seek a way to mass forces in time and space in order to achieve decisive action at the operational level. Tukhachevskiy did not involve naval operations as part of his deep operations idea, but aviation was a critical element. Independent air operations and ground operations were joined together to achieve similar aims. The United States considers this joint operations even though Tukhachevskiy did not use that particular description. Tukhachevskiy's deep operational ideas evolved similar to what has been described in this paper as operational art. His ideas sought to link simultaneous air and ground operations into a single deep operation throughout the depth of the enemy's tactical and operational structure.

The remainder of this section, on experiences in operational-level deep operations, will briefly describe certain aspects of the modern application of modern warfare. The following examples don't change the concept of operational art and deep operations previously discussed. They simply, and briefly, touch on the application of air power, special operations, joint amphibious operations, and the conduct of a modern conflict.

World War II

World War II was a global war with many theaters of operation spread across a large portion of the earth's surface. The air, land, and sea presented the Allied and Axis powers the medium in which they could wage war. The European, China-Burma-India, and Pacific Theaters were fought on the land, sea, and in the air.[63] The deep operations concepts for the land and sea were similar to those already presented in this monograph. The air power theories of Guilio Douhet and Billy Mitchell were also tested. In each of these theaters, the commanders attacked their enemy's rear in an attempt to achieve decisive results.

Aviation played a prominent role in deep operations in all theaters of operation. Army Air Forces were used in strategic attack, interdiction, and close air support roles. Britain, Germany, and the US placed a heavy emphasis on strategic bombing in the European Theater. However, British and US resources not committed to strategic bombing raids were concentrated on interdicting enemy operational reinforcements and lines of communications. They were especially effective for the Allies in interdicting rail lines and bridges across France and Germany. Interdiction operations contributed to

success at the operational level.[64] General Elwood (Pete) Quesada's, Ninth US Tactical Air Commander, interdiction operations were a fine illustration of this success. In preparation for and following the landing at Normandy, Quesada's forces conducted interdiction operations against many targets to isolate the Normandy area from receiving German reinforcements and supplies. He learned that the most valuable targets were the train locomotives and the bridges crossing the Seine and Loire rivers. These interdiction operations denied the Germans freedom of movement in their rear area at the operational level.[65]

Deep airborne operations were primarily executed to support the advance of friendly ground troops. The Germans often employed airborne troops in operational-level deep actions.[66] The first use was in the invasion of Holland in May 1940, and another was the invasion of Crete in May 1941. Losses were so heavy in these actions that the Germans ceased using paratroops for deep operations and employed them only as ground troops in close combat.[67] The British and US Armies also conducted operational level deep airborne operations with varying degrees of success. The invasion of Normandy and Operation Market Garden resulted in tactical success and operational failure. The ground troops could not penetrate to operational depths to relieve the airborne troops. Airborne forces found themselves too lightly equipped and tactically immobile once they reached the ground at operational depth.[68] Tukhachevskiy foresaw this problem and made mechanized airborne forces a key requirement in the operational-level land battle.[69]

US Commanders in the Pacific Theater used their Air Forces in the same manner as their European counterparts. The US land forces, Army and Marines, conducted island

hopping campaigns to destroy the Japanese forces and gain land for air bases.[70] These bases were then used for conducting operational and strategic air raids against the Japanese.[71] The US Navy could position their aircraft carrier groups so that they could also conduct operational raids as well as providing close air support for troops on the islands of the Pacific. Additional tasks given to the air commanders were deep reconnaissance, interdiction raids on reinforcements and sea-lines of communications, and attacking enemy air.

During World War II, unconventional forces performed many tasks associated with operations in the enemy's rear area. This was not a new method of waging war, but it caused the formation of unique military organizations to conduct *special operations*.[72] At the operational and strategic level, unconventional warfare was conducted deep behind enemy lines by special military forces and partisans. This contributed to the operational campaign objectives by disorganizing and demoralizing the enemy.

Unconventional warfare in the enemy's rear area was conducted in all theaters of operations. In the European Theater, the Germans conducted special operations in each of their cross border invasions for strategic and operational purposes. Russia initially made limited use of special operations. In early 1942, with the reemergence of deep operations, Red Army soldiers began conducting unconventional warfare regularly. Britain and the US engaged in this type of warfare out of necessity rather than from a well-conceived plan. For a time, it was the only war on land that they could fight. Germany had conquered much of the European continent. This denied the Allies direct use of conventional ground forces, until sufficient combat power could be generated for

the landings on the continent. Russia, Britain, and the US were also engaged in unconventional warfare in the China-Burma-India and Pacific Theaters against Japan.

Partisans were present in the rear areas of almost every belligerent during World War II. Their efforts were initially disorganized and individualistic. They covered the battlefields near and far behind the front line of troops. The partisan efforts generally had strategic level effects. An example of this is the war waged by Marshal Tito's partisans in Yugoslavia. Tito's forces established a close cooperation with Russia long before the Red Army reached the border of Yugoslavia. Their efforts tied up a considerable amount of German manpower and resources that could have been used as strategic reserves.

The Allies made best use of the partisans, and the Axis Powers could never overcome the effects of partisan warfare. Even with the most sophisticated weapons, Germany was extremely susceptible to their tactics and techniques. Allied Special Forces worked with partisans to build resistance groups behind enemy lines.[73] These partisan groups conducted guerrilla operations against lines of communications and minor enemy forces. They also collected intelligence. The British and Americans provided equipment, explosives, and training teams to the partisans through their Special Operations Forces. In a few cases, they sent operational groups directly into France for direct action against the enemy's rear. The Russians formed continuous, solid partisan areas and linked Red Army soldiers with them to disorganize German defenses.[74] French, Yugoslavian, Ukrainian, Polish, and other partisan groups were formed into professional and organized detachments to conduct operational and strategic level tasks in support of the Allied efforts.[75]

Special Forces also conducted operations independent of the partisans and took on many different names and organizational structures during World War II. There were commando units, special air and boat services, rangers, special service forces, independent companies, and raiding units--just to name a few. Each type of force was organized to perform some special task in the enemy's rear area. These Special Forces conducted strategic and operational reconnaissance, intelligence, and interdiction. Interdiction included deception, harassing, and sabotage raids. They supported the main forces operations by destroying material, disrupting and destroying lines of communication and headquarters, and seizing key points. These forces were also extremely valuable as forward observers directing friendly air to interdict deep, operational targets.

Special Operations Forces performed these tasks to enhance operational campaign objectives. US Rangers, on one occasion, seized a road crossing on the Irsch-Zerf road across the Saar. They remained there for nine days in the German rear area and denied him the use of the road for operational reinforcements.[76] British Commandos, on another occasion, crossed the Weser River and infiltrated at night to attack the village of Lesse from the rear. They seized a road bridge over the Aller River for the same purpose of denying operational reinforcements to the German front.[77] These examples are only a small fragment of the operational level actions conducted by Special Operations Forces in World II.

World War II introduced new technological and organizational means for conducting deep operations. The operational battlespace expanded as the range of mechanized and

aviation systems improved. Armored forces and air power allowed the belligerents to maneuver through, around, or over enemy lines. Special Operations Forces made a great contribution to this effort by disorganizing and demoralizing the enemy. Although these endeavors were not always well coordinated, their results were relatively effective. Army, Air, Navy, and Marine forces conducted operations deep in the enemy's rear area in large theaters of operation. Special Operations Forces gained a new significance in militaries across the world as a result of World War II. Operational-level deep operations were not recognized as such by US doctrine at this point. However, the experiences gained continued the thought of joint deep operations at the operational level as they were experienced in the American Civil War. The modern application of modern warfare in the US would result in operational art in the form of deep operations combining land, air, naval, and special forces.

Deep Amphibious Assault

General Douglas MacArthur's experiences as a commander in the Pacific during World War II led him to develop the plan for a deep, amphibious assault on Inchon during the Korean War.[78] He could have massed in the southern portion of the peninsula and penetrated to the enemy's depths for a breakout to the north. He chose, instead, to take advantage of North Korea's lack of modern air and naval forces. At a time when the peninsular campaign was bogged down along the Pusan perimeter, he launched one of the most astounding joint deep operations in modern warfare. This cut off North Korea's

supply line and attempted to seal off the entire southern peninsula.[79] MacArthur's intent was to destroy the North Korean People's Army (NKPA).[80]

United Nation forces, primarily US, conducted this operation over a period of approximately twenty days. It covered several hundred miles around the Korean Peninsula and through the Flying Fish Channel. Against the advice of several Navy officers and the Joint Chiefs of Staff in Washington, MacArthur selected Inchon as the landing sight. A narrow, treacherous, and easily mined channel, along with extreme low tide conditions, made this a high-risk adventure. The Flying Fish Channel had a thick nest of offshore islands that could be manned and fortified to threaten the landing. The beaches in the harbor were few, small, and scattered. Most of the area consisted of piers and high concrete seawalls that would have to be scaled with ladders. After the landing, the troops would be required to fight over land, conduct urban combat, and then a river crossing. The most vital element for success was to be surprise in order to seize Inchon and Seoul before the North Koreans could react.[81]

This operation required the utmost in joint cooperation. The Navy conducted deception operations along the coast to hide the true landing point. They also cleared the channel of mines prior to the naval armada arriving. During the landing, fire support was provided from the air and the sea until the field artillery could be brought ashore. The amphibious assault was conducted by Marine forces, but the move inland required additional Army reinforcements. The sea-based logistical support for this operation was immense. All support had to come from naval and air forces, until the land forces broke free from the Pusan Perimeter. This deep amphibious landing at Inchon eventually led to

the capture of Seoul, the breakout of the Pusan Perimeter, and the pursuit and exploitation of the NKPA into North Korea. This deep amphibious landing is a further example of joint deep operations at the operational level. This idea is an extension of the ideas developed in World War II for applying new technology to the ever-expanding battlefields of modern warfare.

Desert Storm

The operations in Desert Storm failed to bring about any great revolution in the basic theories of deep operations. AirLand Battle doctrine and Follow-on Forces Attack (FOFA), which were conceived in the late 1970's, dominated the ground and air portions of Operation Desert Storm.[82] These ideas look remarkably like Tukhachevskiy's theoretical concepts for deep operations. AirLand Battle and FOFA place great importance on operational-level deep operations to disrupt, delay, or destroy enemy forces, logistics, or communications. These concepts stress a battlefield framework that fit the conduct of operations against the Warsaw Pact. This framework is organized into close, deep, and rear areas in relation to a forward line of troops.[83] The central idea for deep operations on this battlefield is to attack the enemy's operational maneuver forces so as to meter their flow onto the tactical battlefield into manageable force ratios. AirLand Battle and FOFA concepts carried the US Military into the 1990-1991 Gulf War. There, instead of establishing a defense in central Europe, they found themselves conducting an offensive maneuver across the great expanses of desert. Deep operations remained the

same whether it was intended to disrupt follow-on echelons in the defense or attack to exploit the offense.

The original plan in Desert Storm called for a deep penetration to attack and destroy the Iraqi operational reserve, specifically the Republican Guard. This was later revised to a wide envelopment from the west to bypass the defensive strength of the Iraqi forces and take advantage of their open flank. The ground attack was supported by the Air Component Commander in the close and deep battle. The deep interdicting operations would prevent reinforcement or withdrawal of Iraqi forces to the north of the Euphrates River.[84] It would also disrupt and destroy Iraqi operational command, control, communications, and logistics.

The air operations were conducted in a similar fashion to the World War II strategic bombing campaigns. The US Air Force was concentrating its attacks on strategic and operational targets independent of the US Third Army ground attack plan.[85] The Air Force plan was originally developed by a group from the Air Staff in the Pentagon called Checkmate. Their plan was based on a "concept of centers of gravity" by the Prussian theorist Carl von Clausewitz. Centers of gravity are those key elements from which the enemy derives their freedom of action, physical strength, or will to fight.[86] The Air Force plan was called Instant Thunder and focused first on strategic targets and then on operational ground targets, particularly the Republican Guard Forces. It was thought by some that these efforts from the air alone would cause Iraq to capitulate.[87] Massive air strikes were not able to complete the operational objectives alone. To complete the deep

operational objective required envelopment by the ground forces. This ensured the final defeat of the Republican Guards.[88]

Helicopters were used to conduct deep operations at the tactical and operational level. The 101st Air Assault Division launched its heliborne forces deep into the tactical depths of the battlefield. From these tactical depths they conducted deep attacks with their AH-64 Attack Helicopters at operational depths along the Euphrates River.[89] This technology, combined with the long-range ATACMS missiles, gave the ground commander a new capability to attack out to a range of almost 300 kilometers.

The problem of logistics still plagued the ground forces on the highly mobile battlefields of Desert Storm. The US XVIIIth Airborne and VIIth Armored Corps' were required to push their logistical trains as far forward as possible to maintain the momentum that the ground campaign required. The 101st Air Assault Division employed a forward operating base deep into the enemy's rear area to support their operations at operational depths. The Air Force was able to maintain their airfields in the protected zones of the Coalition rear area. The ranges that they were required to fly allowed fixed base security and operations.

Intelligence was the beneficiary of many new technological systems during this conflict. The extensive use of space based systems to disseminate national imagery to brigade and battalion level was new to this battlefield. These systems, in combination with unmanned aerial vehicles, gave the US a significant capability to see the deep portions of the operational area in advance of conducting deep operations. Special Operations Forces were also used extensively to gather intelligence and direct air strikes

deep into the Iraqi rear area. 'Seeing the battlefield' was critical to the success and survivability of joint systems attacking deep into the enemy's rear.

Desert Storm was yet another example of the application of modern technology to conduct deep operations on the modern battlefield. The US concept for operational-level deep operations that was developed in the late 1970's had now moved from an abstract idea to practical application. This modern application of deep operations provided a launching point for the US from which to leap into the future and recognize deep operations as operational art. Spaced based systems and helicopters were added dimensions in this illustration of deep operations. The previously described battlespace expands to encompass space. Helicopters add a capability to the functions of reconnaissance, combat maneuver, fire support, transportation, and supply.

James J. Schneider, Professor of Military Theory in the US Army's School for Advanced Military Studies, claims that the current form of warfare began with the industrial revolution and the American Civil War.[90] This new form of warfare, or modern warfare, is called operational art.[91] That is the theory that this monograph is based on. The American Civil War first introduced joint deep operations as an indispensable part of operational art and modern warfare. Marshall Tukhachevskiy recorded his theory of deep operations and related it to operational art. Modern application of this concept changed with technology. Just as Tukhachevskiy's theories depended on technology, the conduct of modern war adjusted to technological advancements in flight and mechanization during World War II and after. Special Operations also emerged as an organization to contribute to the deep operational concept. This section attempted to illustrate, through

historical examples, the impact of experiences in war and a theory of deep operations on current and future doctrinal concepts in the US Military. The evolution did not appear to be deliberate, but joint, operational-level deep operations in the current US joint doctrine is certainly historically based.

The historical examples presented so far in this paper represent only a fragment of the possibilities available for research on operational-level deep operations. However, they do present a framework that helps define common principles, operational dimensions of the battlespace, and operational level functions of deep operations. The common principles are security, dispersion, diversion, surprise, tempo, flexibility, simultaneity and interchangeability. The functions are reconnaissance, special operations, combat maneuver, fire support, transportation, supply, and communications.[92] The battlespace includes the land, air, space, and the littoral regions where the land and sea join together. Each example had a common purpose for conducting these operations. All deep operations are intended to overwhelm the enemy by placing more demands on his forces and functions than he could handle in order to cause him to capitulate. The remainder of the monograph will examine future possibilities of operational-level deep operations in relation to these characteristics.

Future Concepts

What is the future concept for operational-level deep operations? Has the US Military experience provided any insight to this question? Preparing for the future is a challenge faced by the leaders of many nations, and the United States is not immune from

the uncertainty that the future brings. Any attempt to describe what the future has to hold for the United States and its military is purely speculative and beyond the scope of this paper. Because of this, the author will use *Joint Vision 2010* as a base in developing his ideas.[93] This section will describe a concept for operational-level deep operations based on the JV 2010 description of the state of armed forces.

An unpredictable future is a familiar phenomenon experienced by the US Armed Forces. The US Military tradition calls for a small professional force around which a greater citizen soldier army is mobilized.[94] The military also faces a change in their civilian leadership every two to four years. This civilian leadership may or may not have any military experience. Additionally, the US Military is subject to budget controls that may or may not fit their vision for future warfare. These things, combined with many other uncertainties, can cause the most detailed long range plans to fail.

Proper and detailed analysis is one of the ways to overcome the *fog* and *friction* that may occur in preparing for a future wartime environment.[95] However, a rigid plan may prohibit the flexibility necessary to adjust to unforeseen changes. This section will present some of the factors that the US military may encounter as part of a joint, operational level deep operation. These factors are subject to wide interpretation and only provide a concept that allows planners flexibility in organizing for these operations.[96] The discussion in this section will center on the JV 2010 operational concept and the purpose, principles, functions, and battlespace for joint, operational-level deep operations. Unpredictability will still prevail. However, these factors will assist in

narrowing down the definition while still providing versatility to the final operational concepts.

Operational concepts

Before beginning a discussion on future deep operations, it is necessary to first address the joint environment for the future. Joint Vision 2010 prescribes a common joint cultural environment in which to develop doctrine and organizations for future battlefields. This common culture may be possible, but the service personalities are sure to have an impact. The services see themselves in light of the medium in which they operate. Their concerns about institutional legitimacy and relevance sometimes interfere with developing a joint culture.[97]

Joint forces operate at the strategic, operational, and tactical levels of war. The operational level of war is where they truly come together for decisive action on the battlefield.[98] Joint Force Commanders will need to understand operational art in order to employ forces at this level. Joint Vision 2010 does not discuss the differences between service personalities, but it does discuss the importance of Joint Force Commanders understanding of operational art. This is necessary in order to comprehend the new operational concepts presented in Joint Vision 2010. Operational art is the point where the services can find a common ground from which to operate. In particular, deep operations provide the common ground for joint forces to combine their capabilities. Deep operations have been, and will be in the future, the operations where joint forces conduct decisive action against the enemy.

Joint operational art is defined in the document, *Concept for Future Joint Operations* (CFJO).[99] This definition does not differ significantly from the definition listed in the current joint publications. Operational art for the future will remain the pivotal point where services join together to link their particular tactics to strategic objectives. The operational level of war is embedded in the definition of operational art as, "the design and execution of theater and subordinate campaigns and major operations".[100] This is the point where deep operations fit into the equation for future doctrine. Each of the examples in the previous sections of this paper discuss how the services performed a particular tactical task in pursuit of an operational or strategic goal. The services conducted direct action against the enemy, or they supported the other services in their endeavors. This is what JV 2010 projects for operational art in the future, bringing the concepts together at the operational level.[101] Deep operations is operational art at its best.

Purpose of deep operations

It is unclear whether the future battlefield will require a concept of deep operations. Joint Vision 2010 states that it does not. It states that, "the simultaneous application of combat power throughout the battlespace has an exponentially greater effect and achieves decisive results more quickly [than fighting deep]."[102] The CFJO suggests that the era of deep operations has ended. Dominant maneuver will replace the notion of deep operations with a more sophisticated concept.[103] In the past, deep operations have been necessary to prevent the enemy's freedom of action. This shaped the close battle and

provided a favorable force ratio for the friendly force. The example of the American Civil War and the Inchon Operation in Korea showed how the US gained the initiative through deep, operational raids and a deep, amphibious landing. These deep operations dispersed the enemy's focus and resources to relieve pressure at other points in the theater. World War II and Desert Storm demonstrated the ability to overwhelm the enemy through simultaneous action across the entire depth of the operational battlefield. When the US Military possessed the advantage deep, they also possessed the ability to engage the enemy many places on the battlefield simultaneously. It was deep operations that provided the simultaneity that dominant maneuver requires.

It is important to look at the purpose of deep operations to determine if it is a necessary concept for the future. This monograph first introduced the definition for deep operations on pages eleven and twelve. This definition is, "Joint, operational-level deep operations allow friendly forces to simultaneously attack the enemy throughout the depth of his structure. The combination of joint forces attacking deep provides overwhelming effects against the enemy." Joint Publication 3-0 states the intent and goal of deep operations theory.

> **The concepts of simultaneity and depth are foundations of deep operations theory. The intent is to bring force to bear on the opponent's entire structure in a near simultaneous manner that is within the decisionmaking cycle of the opponent. The goal is to overwhelm and cripple enemy capabilities and enemy will to resist.**[104]

Joint doctrine, as well as service doctrine, goes on to imply that depth equates to distance behind a linear front. Joint Vision 2010 suggests that the future battlefield will not have a linear front with a contiguous array of forces. However, as the above

definition and history suggests, the enemy will have a structure. This structure is generally arranged with critical elements positioned deep toward the rear of the enemy force. This is done to protect high value assets.

The Merriam Webster Dictionary provides insight into the possible definitions for future deep operations. The word *deep* can take on many different meanings, but the word *operation* is clearly defined in its military form. The definitions for *deep* that apply to this discussion are, "extending far from some surface or area; extending far downward; extending well inward from an outer surface, extending well back from a front surface; having a specified extension in an implied direction, usually downward or upward; and remote in time or space."[105] *Operation* is defined as, " a military action, mission, or maneuver including its planning and execution."[106] When combining these definitions, an operation would need some sort of surface to extend from or be separated from in time and space.

It appears to the author that history, current doctrine, a structured enemy, and definition of the terms demonstrate a need to pursue deep operations as part of future operational concepts. The author suggests that the current joint definition for future operational-level deep operations should be adjusted to state the purpose for conducting them. This purpose is restated as; *to simultaneously attack deep into the enemy's structure, as determined by friendly joint capabilities, to overwhelm and destroy his will to resist and his capability to wage combat against friendly forces.*

Principles of deep operations

US Army doctrine and current joint publications use the principles of war as a foundation. This is similar to the way an artist uses colors when painting. The colors are tools for the artist. The ability to blend them together to present an image is a descriptor of artistic talent. The operational artist must also possess a baseline of colors. Military planners and commanders use a set of principles, simulating the artist's colors, to design their image of joint operations. The principles of war describe the foundation of war at the strategic, operational, and tactical levels. Principles for operational-level deep operations are not described in current publications or in the CFJO. The deep operations principles presented below represent fundamentals that were characteristic of operational-level deep operations in the past. The author presents them as guiding principles for the future in planning and executing joint, operational-level deep operations.

The common principles, exhibited in the past, of operational-level deep operations were tempo, diversion, surprise, interchangeability, dispersion, flexibility, simultaneity, and security. The author reduces these principles to tempo, surprise, mobility, versatility, simultaneity, and security. Some of the historical principles fit into the definitions of the author's principles. Diversion is a method to help achieve surprise. Dispersion is a method to help achieve security. Interchangeability and flexibility are characteristics of the term versatility.

Tempo is the rate at which the forces engage the enemy in order to overwhelm them and gain the initiative. *Surprise* gains the initiative by striking the enemy at unexpected times and from unexpected directions. A diversion may be required to achieve surprise.

When operating in the enemy's rear area, the deep force will seldom have the advantage in overall numbers. Surprise will allow them an advantage in achieving success, well out of proportion to the effort expended.[107] *Mobility* allows freedom of action to engage the enemy while denying the enemy a chance to quickly mass on the deep operating force. It assists in maintaining a high tempo and protecting the force.

Deep operations require *versatility* to accommodate the dynamics of combat as the enemy or friendly situation fluctuates. The deep force must be able to shift focus or tailor itself to a wide variety of situations quickly and effectively. Versatility takes into account the principle of interchangeability as prescribed by Tukhachevskiy, and flexibility as described from the American Civil War. Deep operations forces must be able to conduct multiple functions and adjust to a continuously changing situation. *Simultaneity* is, "bring[ing] force to bear on the opponent's entire structure in a near simultaneous manner to overwhelm and cripple enemy capabilities and the enemy's will to resist."[108] This is similar to Tukhachevskiy's use of this term. *Security* of the force conserves the fighting potential of the force. Securing the deep force includes the security of combat elements and logistical support elements. Dispersion of forces can provide added security from massed fires by the enemy.

These principles allow deep operation forces the initiative necessary to overwhelm the enemy. Gaining the initiative and overwhelming the enemy can quickly exhaust the enemy's will to resist. By using these principles, deep operation forces can achieve success through dislocation of the physical and moral foundation of an enemy force. The operational-level deep forces operate deep within the enemy's combat structure. It is

important that they avoid a battle of attrition that will exhaust friendly force capabilities, before the operational and strategic objectives are achieved. Continuous, distributed operations are what these principles are meant to provide to the deep operation force. These principles for joint, operational-level deep operations deny freedom of action to the enemy and retain it for friendly forces. Operational artists can design their image of these operations around the above principles.

Functions in deep operations

Deep operations require a variety of functions to achieve an operational purpose. These functions dominate the deep battlespace and work within the principles described above. They come together in a series of simultaneous actions and contribute to a decisive action against the enemy's structure. By stressing one function or another, the commander and his planning staff can overwhelm the enemy and disassemble his combat structure. These operational functions are information superiority, dominant maneuver, precision engagement, full-dimensional protection, focused logistics, electromagnetic spectrum dominance, special operations, and command and control. These functions are a combination of the historical functions presented in section two and the operational concepts presented in the CFJO. The functions presented in section two were reconnaissance, special operations, combat maneuver, fire support, transportation, supply, and communications.

The Chairman of the Joint Chiefs of Staff, as the author of Joint Vision 2010, provides the first five functions. They take advantage of the strengths of the joint

services and their emerging technologies. They also encompass many of the historical functions listed above. Information technology is the bedrock of these five functions. *Information superiority* is the ability to collect, process, analyze, archive, and disseminate information on the friendly situation, enemy situation, and the environment of deep operations. It is also the ability to deny this information to the enemy.[109] Information superiority also includes the historical functions of reconnaissance and communications. *Dominant maneuver* applies information, engagement, and mobility capabilities to accomplish assigned operational tasks. This is done using dispersed joint air, space, sea, and land forces.[110] Dominant maneuver includes the historical function of combat maneuver. *Precision engagement* enables forces to locate the objective or target, provide responsive command and control, generate the desired effect, assess the level of success, and retain the flexibility to reengage with precision when required. It includes the historical function of firepower.

Full-dimensional protection is the multi-layered offensive and defensive capability to protect forces and facilities from enemy attacks while maintaining freedom of action during deployment, maneuver, and engagement. *Focused logistics* is the fusion of information, logistics, and transportation technologies to provide rapid response, to track and shift assets while enroute, and to deliver tailored logistics packages and sustainment directly to the operational-level deep force.[111] It includes the historical functions of transportation and supply.

Electromagnetic spectrum dominance is the control of the entire range of wavelengths and frequencies for radio, infrared, visible light, ultraviolet, X rays, and

gamma rays.[112] This control will protect friendly forces from the effects of enemy weapon systems and provide freedom of action throughout the entire spectrum. *Special operations* interact with civilians, guerrillas, partisans, or other human resources in the enemy's rear area. It gains the support and confidence of these elements to achieve the desired military endstate. Special operations can also gather information for friendly use during deep operations.

Command and control is an important function at the operational level of war. The operational-level deep operations commander must deal with forces from all services and, in some cases, different countries. The commander must break free from his own service parochialism and begin to 'paint' an operational picture to effectively employ these forces. The actions of each force must work directly toward a strategic goal using operational objectives. Command and control is the integration point for all activities of the various services and countries into a coherent campaign.[113]

The key functions for joint, operational-level deep operations are dominant maneuver and precision engagement. The remainder of the functions described above support these key functions. The purpose of joint, operational-level deep operations is to achieve military conditions conducive to a political settlement at a minimal cost of lives and national resources. This is achieved by capitalizing on the complementary strengths of air, land, and sea forces. The functions of dominant maneuver and precision engagement provide the key concepts to utilize joint forces to achieve this purpose.

Battlespace for deep operations

The environment, in which the US military will conduct operational-level deep operations, is defined by the term battlespace. Battlespace is a combination of time and space. Time relates to the tempo and simultaneity of the operation. Space equates to the physical volume that surrounds the belligerents on the operational battlefield. Battlespace includes the breadth, depth, and height of time and space in which friendly and enemy forces operate.[114]

The full spectrum components of the JV 2010 battlespace include air, land, sea, space, and the electromagnetic spectrum.[115] The land and sea are physical spaces that militaries are extremely familiar with in war due to the extensive history of operating in these mediums. Air and space exploration is still relatively new and requires a multidimensional perspective by military planners. The electromagnetic spectrum further complicates the dimensional magnitude of the battlespace. The electromagnetic spectrum consists of the environment in which communications, information, electronic survivability equipment, and lasers operate. The CFJO refers to the electromagnetic spectrum mostly for information operations. However, electronic survivability equipment is becoming the armor of the future for some systems on the land, sea, and in the air.[116] Laser technology is also advancing to a point where it can be used as a weapon rather than just for designation and weapons guidance. These systems use the electromagnetic spectrum and must be an integral part of the battlespace in JV 2010.

The CFJO also defines battlespace in the form of breadth, depth, and height.[117] As mentioned earlier in this section, JV 2010 discounts the linear battlefield of the future. It

is important to note here that the terms depth, breadth, and height imply a relationship to an area; which is a surface included within a set of lines.[118] As long as the military will be working within the confines of the earth's surface, they will have to deal with some form of linearity. The choice to see every future battlefield as nonlinear may be shortsighted. It is also important to note that the enemy will have a choice. As we have seen in previous examples, friendly and enemy forces seem to regularly choose to fight with some contiguous array of forces. The US concepts for fighting on a nonlinear battlefield may not be accommodated by the situation.

Future deep operations will be conducted, within this battlespace, at depths that extend well inward from the area where the enemy's structure begins. Its purpose is to break down this structure thus making it non-linear. Operational-level deep operations will place significant pressure on the enemy's internal structure using the multidimensional environment described above. This will place more demands on the enemy than he can handle. This will cause the enemy to implode from inside his structure rather than wait for him to breakdown around the edges.

A future concept for operational-level deep operations will only be a hypothetical plan for action. The factors presented in this section are offered as plausible elements for planning and conducting this type of operation. They are not all-inclusive, but they provide a point of departure to assess and analyze the immediate situation surrounding such an operation.

Conclusion

Joint, operational-level deep operations are part of operational art, and they are relevant in future joint military operations. The current US joint doctrine has it right. This doctrine recognizes deep operations theory as an element of operational art. However, it does not describe the theory or how it fits into operational art. One must look to history to understand why deep operations theory is significant to contemporary joint operations. General Ulysses S. Grant is the father of modern warfare; meaning that he introduced operational art to the US Military.[119] Operational art was the vision of connecting simultaneous and successive deep raids to distributed close operations using joint forces. This continued to be the trend in history. Modern application of modern warfare used the joint, operational-level deep operation to achieve operational and strategic objectives. Future US joint operational concepts, without deep operations, could return to the classical strategy of attrition warfare.

The purpose and principles for conducting operational-level deep operations apply to the future concepts as they applied in past experiences. For example, Tukhachevskiy's idea of interchangeability is found in JV 2010's concepts of dominant maneuver and precision engagement. Versatility incorporates the American Civil War principles of dispersion and flexibility. The land and sea have been the battleground that modern warfare was built around. An effort needs to be made to explore, in depth, the use of air, space, and the electromagnetic spectrum. This may reveal great secrets for the ability to exploit the enemy deep within their combat structure. In addition to information

superiority, the function of electromagnetic spectrum dominance must be developed to aid in the operational-level, deep, future concepts.

The concept for operational-level deep operations holds promise for the US Military as it enters the twenty-first century. It offers one potential avenue for meeting the challenges of the battlefield envisioned in the near future by retaining the multidimensional aspect of modern warfare. The services need to join together with one concept of joint, operational-level deep operations. This is a place where the art of warfare can flourish to advance the US towards other future concepts. The idea needs further refinement. The scope of this paper was rather narrow, limited to specific types of experiences where the full use of joint forces was possible. It did not address the smaller, less resource intense conflicts that the US has experienced. The ideas presented in this monograph can assist in developing future joint combat organizations, command structures, and a joint doctrine for operational-level deep operations. Let the experiences of past wars and this concept guide the US Military into the future; and let them ensure that they remain flexible enough to adapt to the certain change that will come with the next war.

ENDNOTES

[1]Richard Simpkin claimed that Tukhachevskiy's deep operations theory was better developed and documented than any other version of maneuver theory in history. Richard E. Simpkin, *Race to the Swift, Thoughts on Twenty-First Century Warfare* with a forward by General Donn A. Starry, US Army (Retired) (London: Brassey's Defence Publishers, 1985, reprint, Great Britain: A. Wheaton &Co. Ltd., Txeter, 1986), 49.

[2]See John L. Romjue *Prepare the Army for War: A Historical Overview of the Army Training and Doctrine Command 1973-1993* (Fort Monroe, VA.: Office of the Command Historian, U.S. Army Training and Doctrine Command, 1993), 88. See also explanation on p.

[3]Joint Publication (JP) 1 acknowledges possible rivalries between services in the US Armed Forces. Joint Staff, Department of Defense, *JP1, Joint Warfare of the Armed Forces of the United States* (10 January 1995), I-3. This division of battlespace was also recently discussed by General (retired) Frederick M. Franks during a Battle Command Training Program seminar given at the School of Advanced Military Studies. The discussion concerned the deep battle synchronization line (DBSL) in the Korean Theater of Operations and reconnaissance and interdiction phase line (RIPL) in the European Theater of Operations. He also described the friction between the land component and air component commanders during Desert Storm.

[4]Joint Staff, Department of Defense, *JP 3-0, Doctrine for Joint Operations* (1 February 1995), II-3.

[5]ibid, II-5 thru II-23.

[6]This description of science and art come from James J. Schneider's paper on the theory of operational art. See James J. Schneider, *Theoretical Paper No. 3, The Theory of Operational Art*, 2nd Revision, (Fort Leavenworth, KS: U.S. Army Command and General Staff College, 1 March 1988), 2-3.

[7]Joint Publication 1-0 sites the operations at Inchon as a "deep amphibious landing" which is one example of the effectiveness of interoperability between components. This same joint doctrine sites other examples of service components conducting operations in depth and the necessity for joint coordination and cooperation. *JP1, Joint Warfare of the Armed Forces of the United States* (1995), II-7.

[8]See Headquarters, Department of the Army, *Field Manual 100-5, Operations* (14 June 1993), 6-14.

[9]ibid, 6-14.

[10]ibid, 6-14.

[11]*JP 3-0, Doctrine for Joint Operations* (1995), III-11 and III-12.

[12]Headquarters, US Air Force, *Air Force Manual (AFM) 1-1, volume 1, Basic Aerospace Doctrine of the United Air Force* (September 1997), 48.

[13]Air Force doctrine does not directly define deep operations. The 1992 version of AFM 1-1, volume 1, equates deep operations to air interdiction. Headquarters, US Air Force, *AFM 1-1, volume 1, Basic Aerospace Doctrine of the United Air Force* (March 1992), 12.

[14]ibid, 48.

[15]ibid, 49.

[16]Headquarters, Department of the Navy, *Naval Doctrine Publication (NDP) 1, Naval Warfare* (28 March 1994), 59-60. US Navy doctrine appears to be in a transition period. The emphasis on littoral operations is part of a chapter entitled "Where We Are Headed – Into the 21st Century". This monograph will view littoral operations as the primary role for the US Navy in the most current doctrine being published.

[17]ibid, 64-65.

[18]Headquarters, United States Marine Corps, *FMFM 1, Warfighting* (6 March 1989), 76.

[19]James Schneider makes the claim that Lieutenant General Ulysses Grant " 'invented' operational art as it is currently understood." The author uses this premise as a base theory for this monograph. See discussion later in this monograph. James J. Schneider, *Theoretical Paper No. 3*, 15.

[20]See James J. Schneider, *Theoretical Paper No. 4, Vulcan's Anvil: The American Civil War and the Emergence of Operational Art* (Fort Leavenworth, KS: School of Advanced Military Studies, 16 June 1991), 6-14.

[21]ibid, 18-22.

[22]See Archer Jones, *Civil War Command and Strategy* (New York: The Free Press, 1992), 181-186.

[23]See Giulio Douhet, translated by Dino Ferrari, *The Command of the Air* (Washington, D.C.: Office of Air Force History 1983), 3-92.

[24]See Otto Heilbrunn, *Warfare in the Enemy's Rear* (New York: Frederick Praeger, Inc. 1963), 19-30.

[25]*JP 1, Joint Warfare of the Armed Forces of the United States* (1995), II-7. A letter from Colonel Donald McB. Curtis to the editor of *Army* magazine in July 1985 claims that the Inchon amphibious landing plan actually came from a pentagon produced war plan. Since other references claim that this was General MacArthur's plan, it's possible that the GHQ developed the Inchon plan and sent it to the Pentagon. See Clay Blair, *The Forgotten War, America in Korea 1950-1953*. (New York: Anchor Books, Doubleday, 1987), 87.

[26]The most influential American Civil War Generals were graduates of West Point. They were deeply influenced by Antoine Henri Jomini's descriptions of Napoleon's strategy and tactics. Dennis Hart Mahan spent four years in France where he studied and observed French doctrine. As a faculty member and superintendent of West Point, he would transform Jomini's thoughts into the methods of field fortification to better suit the American way of war. A large share of Civil War field commanders above the divisional level were students of these concepts. See Edward Hagerman, *The American Civil War and the Origins of Modern Warfare* (Bloomington & Indianapolis: Indiana University Press, 1988), 3-16.

[27]In 1862, J.E.B. Stuart, Nathan Bedford Forrest, and John Hunt Morgan conducted raids on Union communications and logistics with dramatic effects. See Christopher D. Bellamy, *The Evolution of Modern Land Warfare, Theory and Practice*, (London: Routledge, 1990), 67. In mid-June of 1862, J.E.B. Stuart was able to destroy $7,000,000 worth of Union stores in a deep raid that encircled General

McClellan's forces. See also Ned Bradford, ed., *Battles and Leaders of the Civil War*, 2nd ed. (New York: Hawthorne Books, 1887/1888; reprint, New York: Fairfax Press, 1979), 152.

[28]On 4 July 1863, the 8th Pennsylvania Cavalry was ordered to attack between the Confederate Army and the Potomac. They interdicted and destroyed the Confederate trains sent over the mountains west of Gettysburg to Williamsport. As part of this same action, another example of deep attacks by the Union Cavalry occurred. As the Confederates were consolidated at Williamsport, the Union Cavalry conducted deep penetrating attacks that destroyed Lee's only remaining bridge in his rear. See John L. Collins, *A Prisoner's March from Gettysburg to Staunton,* in *Battles and Leaders of the Civil War*, ed. Ned Bradford, 2nd ed. (New York: Hawthorne Books, 1887/1888; reprint, New York: Fairfax Press, 1979), 401, 406.

[29]See Rowena Reed, *Combined Operations in the Civil War* (Annapolis, Maryland: Naval Institute Press, 1978), xii-xxiii. Reed concentrates on the naval portion of combined strategy and tactics in this book. It is a good work for presenting the elements effecting the use of naval and land components in joint operations. This represents some of the doctrinal principals currently being addressed in joint warfare by the US Navy.

[30]ibid, xix. Halleck was not totally against the use of Navy vessels to transport troops as was evidenced with the advance on Vicksburg. He just did not seem to agree with wasting forces on a large navy when he needed them to face Lee and Johnston on land in the classical strategic sense.

[31]See Jones, *Civil War Command and Strategy*, 141-142.

[32]ibid, 181. Archer Jones alludes to the fact that General W. F. "Baldy" Smith brought a "McClellanesque perspective" to the discussions of strategy. His loyalty remained with his first chief and his strategy.

[33]ibid, 181-183. In order to complete the strategy proposed by Halleck, Grant would need enough forces to occupy the entire southern region from the Mississippi to the Atlantic. This would also take an undeterminable amount of time to accomplish. They did not care to expend their precious human resources on a long attrition based war. Grant and Sherman devised a plan that they believed allowed them a quicker and more decisive end to the war. Additionally, Grant and Sherman saw exhaustion in the Confederate States and took advantage of it through a deep raiding strategy to quickly drain the South's limited resources.

[34]ibid, 182,183.

[35]See discussion on elements influencing Grant's decision to remain with a classic strategy of land warfare in Reed, *Combined Operations in the Civil War*, 321-329.

[36]ibid, 322-324. Banks was a victim of Halleck's concern with spreading the Army out to handle each and every threat presented to the US. He was trapped on a mission up the Red River when the waters behind him fell.

[37]ibid, 333.

[38]ibid, 333.

[39]Hagerman, *The American Civil War and the Origins of Modern Warfare*, XIV.

[40]These natural and manmade features in the geography are described throughout the previous listed references. A full understanding of their effects require a complete reading of these sources. This short description only serves to provide the reader some of the factors involved in land and sea movement.

[41]The raids previously conducted in the war consisted solely of cavalry in quick hit and run fashion. They did not have the time, temperament, or tools necessary for complete destruction tasks required. See Jones, *Civil War Command and Strategy*, 183.

[42]See Hagerman, *The American Civil War and the Origins of Modern Warfare*, 296.

[43]ibid, 293.

[44]Government Printing Office, *The War of the Rebellion: A Compilation of the Official records of the Union and Confederate Armies*, 128 vols., ser. 1, XLIV (1880-1901), 843.

[45]See Bellamy, *The Evolution of Modern Land Warfare,* 127-130.

[46]ibid, 128.

[47]ibid, 128.

[48]ibid, 130.

[49]A. A. Svechin was critiquing the existing strategic concepts in Russia as a result of the experiences from World War I and the Civil War in Russia. With the influence of the German military historian and analyst Hans Delbrueck, Svechin developed the concept of operational art. See discussion in V. K. Triandafillov, *The Nature of the Operations of Modern Armies*, trans. William A. Burhans; edited and with a forward by Jacob W. Kipp; introduction by James J. Schneider (Newbury Park, Ilford: Frank Cass & Co. LTD, 1994), xiv-xvi.

[50]ibid, 64-65.

[51]Richard E. Simpkin, *Red Armour: An Examination of the Soviet Mobile Force Concept* (Oxford, England: Brassey's Defence Publishers, 1984), 142.

[52]See Simpkin, *Deep Battle*, (London: Brassey's Defence Publishers, 1987), 39.
This definition is taken from a quotation by Tukhachevskiy on "modern means of neutralisation".

[53] ibid, 50-51.

[54]ibid, 47.

[55]ibid, 182. "Soviet Field Regulation 1936 (PU-36)" gives a good description of Tukhachevskiy's thoughts on simultaneity.

[56]Simpkin, *Race to the Swift,*38,39.

[57]See Simpkin, *Deep Battle*, 37.

[58]ibid, 36.

[59]ibid, 36.

[60]ibid, 40,41.

[61]See Simpkin's *Race to the Swift* and Bellamy's *Evolution of Modern Land Warfare* for a further discussion on the OMG. After WWII, the soviets began to recover the ideas produced by the deep operations theorists prior to the purge by Stalin in the late 1930's. This resulted in a theory of operational deep maneuver. Simpkin, *Race to the Swift,* 38-40. Bellamy, *The Evolution of Modern Land Warfare.*

[62]Simpkin, *Deep Battle*, 32, 33.

[63]The European Theater, for this monograph, is defined as operational campaigns on and around the continent of Europe. The Atlantic campaign is viewed as strategic and has no operational application to this study.

[64]The Allied Air Command for the European Theater was placed under General Eisenhower. The proponents of air in the US and Britain saw the need to conduct strategic bombing and forego the invasion of Europe completely. Eisenhower's staff planned for the use of air power closer to the invasion force. An account of the struggle for command of the US and British Air Forces in the European Theater alludes to operational air interdiction missions more in line with today's definition. See David Eisenhower, *Eisenhower: At War, 1943-1945.* (New York: Vintage Books, 1987), 112-117.

[65]See Thomas Alexander Hughes, *Overlord, General Pete Quesada and Triumph of Tactical Air Power in World II* (New York: The Free Press, 1995) 28-31, 149-155.

[66]Heilbrunn, *Warfare in the Enemy's Rear*, 131.

[67]ibid, 132.

[68]See Bellamy, *Evolution of Modern Land Warfare,* 87, 89, 100. See also Colonel Roger Hand's article, "Overlord and Operational Art," *Military Review* LXXV, no. 3 (May-June 1995), 86-91.

[69]Simpkin, *Deep Battle*, 75, 76.

[70]See, D. Clayton James, *The Years of MacArthur, Volume II, 1941-1945* (Boston: Houghton Mifflin Company, 1975), 281.

[71]ibid, 198-211. See also Ronald H. Spector, *Eagle Against the Sun; The American War with Japan* (New York: Vintage Books, 1985), 445-506.

[72]The current joint doctrine definition for special operations aptly describes the type that was performed in World II by most forces. Special operations is defined as, "Operations conducted by specially organized, trained, and equipped military and paramilitary forces to achieve military, political, economic, or psychological objectives by unconventional military means in hostile, denied, or politically sensitive areas. These operations are conducted during peacetime competition, conflict, and war, independently or in coordination with operations of conventional, nonspecial operations forces. Political-military considerations frequently shape special operations, requiring clandestine, covert, or low visibility techniques and oversight at the national level. Special operations differ from conventional operations in degree of physical and political risk, operational techniques, mode of employment, independence from friendly support, and dependence on detailed operational intelligence and indigenous assets." Joint Staff, Department of Defense, *JP1-02, DOD Dictionary* (Updated through April 1997), 494.

[73]The British Special Operations Executive (SOE) and American Office of Strategic Services (OSS) had varying degrees of success. In most cases, these forces were organized under the theater commanders and cooperated exclusively with the overall operational and strategic objectives. However, Burma presented a less than cooperative relationship. See Heilbrunn, *Warfare in the Enemy's Rear*, 95-111.

[74]Major Edgar M. Howell, *The Soviet Partisan Movement 1941-44* (Washington D.C.: Department of the Army Pamphlet, 1956), 179.

[75]Colonel C. M. Woodhouse in his Foreword to O. Heilbrunn, *Partisan Warfare* (New York: Praeger 1962), xiii.

[76]Heilbrunn, *Warfare in the Enemy's Rear*, 52.

[77]ibid, 52-53.

[78]D. Clayton James, *The Years of MacArthur, Volume III, 'Triumph and Disaster' 1945-1964* (Boston: Houghton Mifflin Company, 1985), 465.

[79]General MacArthur discusses his remarks about the purpose of the operation during a high-level meeting at the Dai Ichi Building on August 23, 1950. This was a conference to explain his intentions to a Washington contingent. Douglas MacArthur, *Reminiscences* (New York: McGraw Hill, 1964), 349-350.

[80]The purpose of this operation was not completely achieved. Even though MacArthur was successful in landing at Inchon and cutting North Korea's lines of communications, his forces never completely sealed off the southern peninsula. He had to settle for partial destruction of the NKPA and pressure lifted from the Pusan perimeter. See Clay Blair, *The Forgotten War*, 124.

[81] ibid, 230-233. MacArthur saw Inchon as the only option, since the alternative would be "a continuation of the savage sacrifice" in the Pusan Perimeter. See Clay Blair's description of the meeting on Inchon between MacArthur, his staff, and top level officials from Washington.

[82]AirLand Battle is a US Army concept that resulted from the massive doctrinal revisions led by General William E. DePuy when he assumed command of Training and Doctrine Command (TRADOC). This concept was conceived as a result of many debates on General DePuy's ideas on the Active Defense. This comment was derived from Richard M. Swain's *"Lucky War", Third Army in Desert Storm.* (Fort Leavenworth, KS: US Army Command and General Staff College Press, 1994), 72,73. See also John L. Romjue, *From Active Defense to AirLand Battle: The Development of Army Doctrine, 1973-1982* (Fort Monroe, VA.: Office of the Command Historian, US Army TRADOC, June 1984). FOFA is a concept developed at the same time as, and in coordination with AirLand Battle. It describes a concept of interdiction at varying depths of the enemy forces. The intent is to use conventional weapons, not forces, to attack Soviet operational level forces before they can reach the NATO forward defensive positions in Europe. For a further discussion, see Thomas G. Runge, Lt. Col., USAF, *Firepower and Follow-on Forces Attack – Making Every Round Count* (Maxwell Air Force Base, Alabama: Airpower Research Institute, March 1991), 4-6.

[83]*FM 100-5, Operations,* 6-11 thru 6-15.

[84]Swain, *"Lucky War"*, 73.

[85]ibid, 181. The US Air Force spent an abundant amount of resources to ensure air superiority in the theater prior to shifting efforts to support the ground campaign. The effort seemed to payoff since the ground forces were able to shift around the battlefield at will without air interdiction from Iraqi Air Force.

[86]Carl Von Clausewitz, *On War,* edited and translated by Michael Howard and Peter Paret; introductory essays by Peter Paret, Michael Howard, and Bernard Brodie; with a commentary by Bernard Brodie (Princeton: Princeton University Press, 1976), 485-486.

[87]For a complete discussion on the Instant Thunder Plan, see John A. Warden III, *The Air Campaign* (Washington, D.C.: National Defense University Press, 1988) 51-58. See also Thomas A. Keaney and Eliot A. Cohen, *Gulf War Air Power Survey Summary Report* (Washington, D.C.: US Government Printing Office, 1993) 35-40.

[88]Swain, *Lucky War,* 183.

[89]ibid, 209, 229-230.

[90]James J. Schneider poses the idea that warfare changed from Napoleanic classical strategy to operational art as a result of the American Civil War. Other historians and theorists may not agree with him. The author of this monograph chooses to use Schneider's view for his concepts. James J. Schneider, "Theoretical Implications of Operational Art," *Military Review*, LXX, no. 9 (September 1990), 17-27. Schneider, *Theoretical Paper No. 3.* 15.

[91]ibid, 24.

[92]The author includes Tukhachevskiy's functions of mobility, firepower, and protection in the functions of combat maneuver and fire support.

[93]The development of future joint operations is a monumental task in light of the differences in service cultures within the US Military. The author could never conduct the research necessary to dispute the overall concepts presented in *Joint Vision 2010.* If the author finds reason to dispute the subject matter in this document, it will be noted. Joint Chiefs of Staff, *Concept for Future Joint Operations, Expanding Joint Vision 2010*, (Washington D.C.: May 1997).

[94]See note on Mahan's return from France in the late 1820's. This observation was made by Mahan, causing him to transform the US Army's theories of war and education system at West Point. Hagerman, *The American Civil War and the Origins of Modern Warfare*, p. 7.

[95]The terms *fog* and *friction* come from Carl Von Clausewitz' writings on warfare. Fog and friction are resistant forces that make normal efforts difficult. Clausewitz states that theory can never quite define them. Clausewitz, *On War*, 119-121.

[96]See Henry Mintzberg, *The Rise and Fall of Strategic Planning – Reconceiving Roles for Planning, Plans, Planners* (New York: The Free Press, 1994), 5-21, 159-219.

[97]See Carl H. Builder, with a forward by Sam Nunn, *The Masks of War - American Military Styles in Strategy and Analysis*, A RAND Corporation research study (Baltimore: The Johns Hopkins University Press, 1989), 27-30.

[98]This is a conclusion made by the author through the study of joint operations over a period of approximately ten years. The *Concept for Future Joint Operations* is focused at this level and does not attempt to prescribe strategic policy or structure issues. This requirement will be left to the students and faculty of the US War Colleges. See *Concept for Future Joint Operations*, 5.

[99]ibid, foreword. The CFJO expands Joint Vision 2010 to provide more detail for follow-on capabilities assessments.

[100]ibid, 61, 62.

[101]ibid, 61, 62.

[102]ibid, 50.

[103]ibid, Concepts for Future Joint Operations, 50.

[104]*JP 3-0, Doctrine for Joint Operations* (1995), III-11.

[105]See Merriam Webster, *Webster's New Collegiate Dictionary* (Springfield, Massachusetts: G. & C. Merriam Company, 1977), 295.

[106]ibid, 804.

[107]This definition comes from *FM 100-5, Operations*, 2-5.

[108]*JP 3-0, Doctrine for Joint Operations* (1995), xi.

[109]CFJO, 39, 86.

[110]ibid, 2.

[111]ibid, 2-3, 49-56. These definitions are derived directly from the Joint Vision 2010 operational concepts.

[112]These are electromagnetic fields that are used in communication, information, and survivability systems. See Merriam Webster, 366.

[113]Lieutenant Colonel Clayton R. Newell, US Army, wrote an article on operational art that used this description of operational level command and control. He goes on to make the point of tactical command and control is service specific. Also, the strategic perspective is at the national level considering all elements of national power. He states that, "The operational perspective is the highest view of war where the concern is primarily military." See Clayton R. Newell, Lieutenant Colonel, US Army, "What is Operational Art?" *Military Review* LXX, no. 9 (September 1990), 15-16.

[114]This description of battlespace comes from current joint and army doctrine. See *JP 3-0, Doctrine for Joint Operations* (1995). See also *FM 100-5, Operations*, 6-12, 6-13.

[115]*CFJO*, 70, 83.

[116] For an example of this see Wayne A. Parks, Major, US Army, *Tactical Deep Operations: Planning to Maneuver the AH-64*, (Monograph, U.S. Army Command and General Staff College, School of Advanced Military Studies, Fort Leavenworth, KS, First Term AY 97-98), 12-24. See also Chris Bellamy, *The Future of Land Warfare* (New York: Scholarly & Reference Division, St. Martin's Press, Inc., 1987), 218-241

[117]*CFJO*, 77.

[118]Merriam Webster, 60.

[119]See Schneider, *Theoretical Paper No. 3*, 48.

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