WARGAMING–LOGISTICS OF THE AMERICAN CIVIL WAR: WESTERN THEATER–1862

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by

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This thesis and wargame addresses the strategic and operational aspects, and importance concerning logistics during the American Civil War by focusing on the Western Theater of 1862. Through the use of a qualitative discussion format, logistics and resources are highlighted through several characteristics such as the significance of railroads, rivers, and roads to transport troops and supplies, supply production, troop recruitment, value of proper planning and execution of supplies, and contracting services. Although the thesis and subsequent wargame are modeled from events that took place over a hundred years ago, the value of understanding the significance of logistics during war transcends to our current operating environment. The Time, Space, Assets, and Resolution (TSAR) model was used to capture the essential elements that make up a wargame. Furthermore, extensive research using numerous publications and playing classic and modern wargames was conducted to ensure historical elements and suitable mechanics were developed to ensure the intent of the educational outcome of the wargame was at the forefront of the project.

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The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U.S. Army Command and General Staff College or any other governmental agency. (References to this study should include the foregoing statement.)

ABSTRACT

WARGAMING–LOGISTICS OF THE AMERICAN CIVIL WAR: WESTERN THEATER–1862, by Major Raymond P. Phillips, 85 pages.

This thesis and wargame addresses the strategic and operational aspects, and importance concerning logistics during the American Civil War by focusing on the Western Theater of 1862. Through the use of a qualitative discussion format, logistics and resources are highlighted through several characteristics such as the significance of railroads, rivers, and roads to transport troops and supplies, supply production, troop recruitment, value of proper planning and execution of supplies, and contracting services. Although the thesis and subsequent wargame are modeled from events that took place over a hundred years ago, the value of understanding the significance of logistics during war transcends to our current operating environment. The Time, Space, Assets, and Resolution (TSAR) model was used to capture the essential elements that make up a wargame. Furthermore, extensive research using numerous publications and playing classic and modern wargames was conducted to ensure historical elements and suitable mechanics were developed to ensure the intent of the educational outcome of the wargame was at the forefront of the project.

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CHAPTER 1

INTRODUCTION

Use of Wargames to Highlight Importance of Logistics

Media outlets such as books, movies, and games have a great ability to reach the masses to offer a glimpse into historical aspects of combat and can be an effective tool for education. Additionally, wargames also lend themselves to be an effective educational tool in providing principles that transcend the game itself for the hobbyist and military professional alike.[1] One only has to review the wargames available on the market to notice most tend to lean towards reflecting the excitement of a battle story filled with mastermind tactics and maneuver elements to gain the advantage. Unfortunately, wargames that use logistic efforts to determine a player's outcome pale in comparison to those that focus primarily around tactics and strategic methods that are offensive and defensive in nature.

Logistics does not take a military genius to implement, but rather the ability to conduct basic math skills and apply them to estimated transportation speed and distance, and the rate of consumption of supplies based on a specified timeline, often calculated per day, otherwise known as a day of supply.[2] This type of unimaginative skill and perceived lackluster of logistics can be attributed to reasons why there are minimal books, movies, and games that focus on logistics. This is a gap that exists and begs to be

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[1] Peter Perla, *The Art of Wargaming: A Guide for Professionals and Hobbyists* (Annapolis, MD: Naval Institute Press, 2011), 17-22.

[2] Martin Van Creveld, *Supplying War: Logistics from Wallenstein to Patton* (New York: Cambridge University Press, 2004), 1.

filled through research and production of a wargame that focuses on the efforts of logistical methods to determine a player's outcome.

Purpose and Scope

"Wargaming–Logistics of the American Civil War: Western Theater–1862" was designed for a broad audience including Civil War enthusiasts, commanders and staff officers at all levels, and wargamers willing to experience a different type of model focused on logistics as the means to overcome an opponent. The scope of the wargame is concerned with logistics at the operational and strategic levels of war. The focus is logistics; one of three elements of the warfighting function sustainment, the other two elements being personnel services and health support.[3]

A player will contend with aspects of planning and executing the movement of supplies and troops using rail lines, rivers, and road networks. The use of contracts to hire transport assets on the railroads and rivers will also be incorporated in the wargame model. Players will contend with limited supply production and recruitment of troops. A player's ability to plan carefully on when and how resources are provided and support their efforts to accomplish their goals will determine whether or not an opponent can be bested.

The educational value from such a wargame comes in two-fold. First, it gives a player a historical appreciation of the value and strategic importance of logistics during the American Civil War. Secondly, the game will assist the player in understanding how

[3] Headquarters, Department of the Army, Army Doctrine Reference Publication (ADRP) 4-0, *Sustainment* (Washington, DC: Government Printing Office, 2012), 1-1 - 1-2.

logistics can win or lose a battle by either carefully planning and executing or squandering logistical assets. The lessons drawn from playing "Wargaming–Logistics of the American Civil War: Western Theater–1862" are transferrable to today's current requirements at the operational and strategic levels of war. For example, our military still relies heavily upon the civilian market for contracting several services that the government either cannot do itself or at least with fewer expenses. Our military still needs the people's will to support the war efforts through production of supplies and volunteering for military service. Finally, the careful planning and execution of moving troops and supplies will always be required for organized warfare.

CHAPTER 2

LITERATURE REVIEW

American Civil War Logistics During 1862

By 1862 it was apparent the American Civil War would not be quickly resolved as many had previously thought.[4] The North would not accept any terms other than the restoration of the Union, and the South would not stop fighting until they seceded from the Union.[5] The Western Theater proved to be of great value to both the North and the South as it contained great river systems, "the lifeblood of the South," such as the Mississippi, Missouri, Ohio, and Tennessee rivers used to move supplies and troops throughout the region.[6] The Western Theater also linked eastern Confederate states with the Trans-Mississippi West, and was rich with valuable resources, access to ports in the far South, and railroad and industrial centers.[7]

The ability to move supplies and Soldiers during the American Civil War rested primarily upon four modes of transportation: railroads, riverboats, coastal shipping, and wagons/foot power.[8] For the purpose of this paper and associated wargame, coastal

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[4] Rodger Woltjer, *American Civil War: Support Services of the Confederate Army* (New York: Merriam Press, 2017), 67.

[5] Geoffrey Parker, *The Cambridge History of Warfare* (New York: Cambridge University Press, 2005), 223.

[6] Charles R. Bowery, *The Civil War in the Western Theater, 1862* (Washington, DC: Center of Military History, United States Army, 2014), 7.

[7] Ibid.

[8] Earl J. Hess, *Civil War Logistics: A Study of Military Transportation* (Baton Rouge: Louisiana State University Press, 2017), 135.

shipping will not be incorporated in the following chapters because prior to 1862 the Union had enacted the Anaconda Plan proposed by Union General Winfield Scott, which effectively shut down southern ports by placing a Union Naval blockade in the Gulf of Mexico and southeastern coastline in the Atlantic Ocean.[9]

Primary Books and Other Documents Used for Research

The number of publications concerning the American Civil War are too numerous to count; indeed, the challenge is winnowing through and determining which ones are most conducive to the study at hand. The primary topics of concern for this study were understanding the methods of transporting supplies and Soldiers, which in turn would lead one to identify the strategic logistic locations and nodes within the Western Theater, and major events during 1862 and the significance of logistics regarding each event. Narrowing the search into the aforementioned topics suggested the appropriate selection of publications to be civil war logistics centric.

A primary source of study used was the book *Civil War Logistics: A Study of Military Transportation* by Earl J. Hess. This book was filled with the aspects of transportation used during the American Civil War, expanding one's understanding of the importance of the rail and river systems through examples of the degree those systems were used by both the North and South. Additionally, Hess expounded upon how those systems were targeted or protected by each of the belligerents. While Hess discussed in

[9] Hess, *Civil War Logistics*, 109; M. David Detweiler, *The Civil War: The Story of the War with Maps* (Mechanicsburg, PA: Stackpole Books, 2014), 6; Mark Swanson and Jacqueline D. Langley, *Atlas of the Civil War, Month by Month: Major Battles and Troop Movements* (Athens: University of Georgia Press, 2004), 18.

length the operational and strategic use of the steam boats and trains, he also expressed the importance of the tactical use of wagon trains and cattle herds used to supply the army on the march.

Other publications expressed detailed information concerning railroad transportation such as Christopher Gabel's *Railroad Generalship: Foundations of Civil War Strategy* and *Rails to Oblivion: The Decline of Confederate Railroads in the Civil War*. Each publication informed readers on strategic importance of the rail lines and how the Union typically used them more sufficiently than the Confederates due to the South's limited industry causing an exponential breakdown of rail lines, trains, and cars without sufficient ability to repair or replace compared to the Union's efforts. Gabel also detailed the establishment of the Union's United States Military Rail Roads which gave the Union an efficient way of working with the owners of the northern rail lines. The Confederate states established a system in response and put a Major in charge of the operations leaving the system to establish control or at least a way to cooperate with Confederate rail line owners ineffective.

Finally, concerning detailed Civil War logistic information, two books written by Rodger Woltjer, one titled *American Civil War Support Services of the Union Army* and the other titled the same except the word Union is replaced with Confederate. As the reader first examines the two books it is apparent the Union kept better records of their logistic campaign as the book covering Union support services is a whopping 824 pages, whereas the Confederate support services book is limited to 359 pages. Each book gives a good summary of the various departments in each army, and then describes each year of the war through written documentation captured and signifies which support service was

involved which included one or more of the following support services: (1) quartermaster, (2) subsistence, (3) ordnance, (4) medical, (5) paymaster (Union) or finance (Confederate), and (6) engineer.[10] Admittedly, the year by year capture of support services in each of these books is disjointed as it is a reproduction of important or notable logistic/support service aspects as it occurred on the timeline each year, but not tying anything together to develop a coherent storyline. Although the reader may be left wondering what occurred before or after a particular event listed by Woltjer, the books do give a reader the "flavor" of how support services impacted the war, and a starting point from which further research could be conducted is so desired.

Understanding the western theater was of the utmost importance and there were several publications that assisted. First being *The Civil War in the Western Theater 1862* published by Center of Military History, which illustrated the strategic impact the western theater had on the war and reasons behind the battles that took place in the western theater. This publication also gives brief accountings of famous Civil War battles that took place in this region during 1862 to include Fort Donelson and Fort Henry, Battle of Shiloh, and the Mississippi River Campaign which included the Battles of New Orleans, Memphis, Baton Rouge, Vicksburg (which would not be taken by the Union until 1863), and Island Number 10.

Several other books that described battles, persons of interest, and listed details not covered by previous source documents were utilized in an effort to gain a full

[10] Woltjer, *American Civil War: Support Services of the Confederate Army*, 17; Rodger Woltjer, *American Civil War: Support Services of the Union Army* (New York: Merriam Press, 2017), 33.

appreciation of the conflicts associated with 1862. Namely, two books published by Timothy Smith, *Grant Invades Tennessee: The 1862 Battles for Forts Henry and Donelson*, and *Shiloh: Conquer or Perish*; and Winston Groom's *Shiloh 1862*. Each of these books detailed the corresponding battles, the events that led up to the battle, the outcome, and the significance of the battles for each side. Additionally, of significant importance is the role the brown water Navy played on the abovementioned battles, its efforts not only described in the aforementioned books, but also detailed in James McPherson's *War on the Waters: The Union & Confederate Navies, 1861-1865*. This book was instrumental in explaining the joint efforts of the Army and Navy during the war; although during this time joint was not a term used, but rather cooperated efforts usually established at the commander level (positive example during this time was Grant and Foote) versus the utilization of a Joint Chiefs of Staff.

Lastly, Detweiler's *The Civil War: The Story of the War with Maps*, and Swanson's *Atlas of the Civil War Month by Month: Major Battles and Troop Movements*, in addition to all the previously listed books, provided invaluable insight and illustrated the areas where battles and important movements took place. As the saying goes, a picture is worth a thousand words; and this could not truer, especially when one is evaluating battle grounds and their strategic importance in accordance with their surroundings such as logistical nodes, proximity to other important places, and the terrain that affected the flow of the battles.

Wargames

Dr. James Sterrett lectured on the model described as TSAR; (1) Time, (2) Space, (3) Assets, (4) Resolution, and its importance while developing a wargame.[11] These components combined are the means of the wargame, where the ways are the decisions a player makes during game play, and the ends is the purpose of the game. The purpose of wargames "is to convey a vicarious understanding of some of the strategic and tactical dynamics associated with real military operations."[12]

The amount of time that is simulated in a wargame must be determined and tracked. The time can be established where one second in the game equals one second in real time, although this is not typically the case. Most games employ a ratio of one second in real time representing a larger passage of time in game play and will often be employed using a turn-based style such as "Battle for Moscow". Turns may also normally have a fixed length such as "Triumph and Tragedy" or be variable as is the case with "Battle for Moscow".[13]

Space can be represented in many ways for a wargame. Typically, it is done through the illustration of a map with hexes such as "Battle for Moscow", or an area map as in "Triumph and Tragedy", or even through nodal connections like that of "Supply Lines of the American Revolution: The Northern Theater, 1775-1777". Space might also

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[11] James Sterrett, "Time, Space, Assets, Resolution" (MMAS, Wargaming Small Group Lecture Series, Fort Leavenworth, KS, September-November 2017).

[12] Philip A. G. Sabin, *Simulating War: Studying Conflict Through Simulation Games* (London: Bloomsbury Academic, 2012), 31.

[13] Sterrett, "Time, Space, Assets, Resolution."

be represented through cards such as the game “Illuminati” or “Magic the Gathering”. Furthermore, all elements on the item representing space in the game must have a purpose or effect and be explained so the player can act within the space available appropriately.[14]

While the wargame is meant to be associated with real military operations, the designer must determine “between accurately capturing the almost infinite complexities of reality and keeping our models simple enough to be grasped by ordinary minds and used as a practical guide for action.”[15] This is called fidelity and must be considered throughout the game design with emphasis on the assets the players will control.[16] An asset is anything the player controls on the board. Many wargames use chit, markers, and blocks which are all used for different purposes. For example, the blocks will often represent units with information displaying its capabilities such as movement, action, strength, attack, and defense. Assets the players use can cause resolution.

Resolution can take on two styles; deterministic or stochastic. Deterministic is where a known given input is enacted, therefore a known output will occur, and stochastic is defined as some measure of random outcomes within limits which is used by the vast majority of wargame systems.[17] Randomness will come either before and/or after

[14] Ibid.

[15] Sabin, *Simulating War*, 19.

[16] Sterrett, “Time, Space, Assets, Resolution.”

[17] Ibid.

a player makes a decision or action. Many wargames use combat as a resolution factor, however, there are possibilities to find resolution through other factors besides combat.

During the review of wargames, several commercial wargames were play tested to ensure an understanding of effective rules writing, game mechanics, and discovery of gaming platforms took effect to gain awareness of the various options available to imitate, or at best, to emulate during the creation of this wargame. The wargames that were most valuable to creating this wargame were as follows: (1) “Supply Lines of the American Revolution: The Northern Theater, 1775-1777,” (2) “Battle for Moscow,” (3) “1944: Race to the Rhine,” and (4) “For the People: The American Civil War 1861-1865.” “The Supply Lines of the American Revolution: The Northern Theater, 1775-1777” was especially helpful in that it provided a model that utilized logistics as the basis of resolving combat. Much of that model was incorporated or used as inspiration to develop the mechanics to resolve battle in “Wargaming–Logistics of the American Civil War: Western Theater–1862”.

CHAPTER 3

IMPORTANT ASPECTS OF THE TOPIC

Jomini defined logistics as the ability to move armies, provide supplies through successive convoys, and establish and organize lines of supplies.[18] Creveld stated logistics, although often ignored by many historians, must first be considered prior to execution of what is possible in terms of "numerical strengths, doctrine, intelligence, and arms and tactics."[19] When logistics are taken into account by historians, it is often referred to with only a slight indication of what it takes for armies to move, which in turn leaves an impression that an army's commander only has to make his mind up about which direction he wants his units to move, when in fact logistics must be an integral part of the plan.[20]

When evaluating the importance of logistics as just described, one could argue any war, campaign, or operation could be emulated through a wargame scenario to reflect the impact of logistical decisions to determine a player's outcome. However, this particular wargame will focus on the American Civil War as it offers simplicity, although Hyde acknowledges wargames of this era are, "difficult to master," [21] while also giving a player a multitude of options such as railways, rivers, and road networks as a logistical

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[18] Van Creveld, *Supplying War*, 1.

[19] Ibid.

[20] Ibid., 2.

[21] Henry Hyde, *The Wargaming Compendium* (South Yorkshire, Pen and Sword Military, 2014), 105.

means of troop and supply movement. Railways, in particular, offered Civil War commanders an opportunity to move troops and supplies quicker than ever before throughout the theater of operations.[22]

Railroad

The steam engine, or the iron horse as it was affectionately called, was a product of the industrial age where steam power began to rule. Relative to the wagon pulled by some beast, which was the mode of transporting supplies and troops in the previous hundreds of years, the steam engine could move faster and pull more tonnage. Gabel compared a six-mule wagon team and a 15-car train to highlight the difference in capabilities. A wagon pulled by six mules could carry 500 tons and travel 2.5 miles per hour, whereas the 15-car train could carry 5,250 tons and travel 14.5 miles per hour.[23] Additionally, the iron horse provided operational advantages to commanders not seen before in that the railroad system offered published time tables, which not even the steamers on the rivers could offer.[24]

The advantages did not just rest with capability and reliability differences, but also in the logistical means to maintain each transportation system. The beast of burden used to pull the wagon would need to be fed whether or not the beast was working, which also meant while on the move, additional wagons were required to transport forage which

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[22] Ibid.

[23] Christopher R. Gabel, *Railroad Generalship: Foundations of Civil War Strategy* (Fort Leavenworth, KS: Combat Studies Institute, U.S. Army Command and General Staff College, 1997), 2-3.

[24] Hess, *Civil War Logistics*, 71.

caused diminished returns on that particular logistical system, which was not a concern for engines that only needed fuel when operating.[25] A track, engine, or car train could be replaced or built with the right industrial complex, raw materials, and trained crew as demands increased, which is an advantage the Union had.

The North enjoyed noteworthy advantages over the South such as a greater industrialization complex, larger population pool, and the control of a trained Army and Navy, but the North held the greatest advantage with its railroad complex.[26] "By 1861, 22,000 miles of track had been laid in the Northern states and 9,500 miles in the South."[27] The South certainly had and utilized its railroad system, but in comparison to the Union, the Confederates' mismanagement and lack of industrial complexes to be able to repair and replace its engines, rail cars and railroad tracks led to its inability to support their war effort.[28]

The primary difference between the North and South's ability to use the railroad was in the way each managed the system.[29] The Union took an approach that encouraged cooperation with the railroad professionals by establishing set rates that were considered

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[25] Gabel, *Railroad Generalship*, 1.

[26] Parker, *The Cambridge History of Warfare*, 223; Hess, *Civil War Logistics*, 96.

[27] Civil War Trust, "Railroads of the Confederacy," 1, accessed January 18, 2018, https://www.civilwar.org/learn/articles/railroads-confederacy.

[28] Hess, *Civil War Logistics*, 97.

[29] Christopher R. Gabel, *Rails to Oblivion: The Decline of Confederate Railroads in the Civil War* (Fort Leavenworth, KS: Combat Studies Institute, U.S. Army Command and General Staff College, 2002), 7-11.

fair.[30] By February 1862, a total of 75 Northern railroad companies supported the military cause, which only grew as the war continued.[31] Congress approved an act in January 1862 to give the government authority to seize any railroad necessary to conduct war related activities.[32] This was very seldom used as the Union Army did not have professionals within their ranks who could efficiently operate a railroad system. The North did commission Daniel McCallum, who had been superintendent of the Erie Railroad, as the director of the U.S. Military Railroad (USMRR) with administrative, construction, and operational capabilities.[33] This gave the North an ability that the South could never employ.

The Confederate government was unwilling to enact laws to give power to the Confederate Army to control railroad lines in times of need to support the war efforts.[34] Furthermore, the South was in a continual process with Southern railroad owners regarding how best to support the war effort and the very mention of allowing the government to control the rail system was quickly pushed aside and the discussion became relegated to what the Confederate government would pay.[35] The South did also

[30] Hess, *Civil War Logistics*, 79, 96.

[31] Ibid., 96.

[32] Ibid., 86.

[33] Hess, *Civil War Logistics*, 87; Gabel, Rails to Oblivion, 7.

[34] Hess, *Civil War Logistics*, 97-98.

[35] Ibid.

appoint a director of railroad operations, but didn't give their director authority to act, so very little was accomplished and many directors held the position throughout the war.[36]

The Confederate rail system deteriorated each year the war progressed, often due to the lack of plants able to produce locomotives, cars, and rails in the southern states and support that could be provided. "Most railroad mechanics in the South were Northerners, but they fled the Confederacy upon secession."[37] Philip Daingerfield Stephenson of the 5th Company, Washington Artillery stated, 'Everywhere in the Confederacy the railroads grew worse and worse . . . rolling stock and tracks became more and more useless and dangerous.'[38] Once the Union military started pushing into the Confederacy, the "Southern railroad executives and workers normally fled, leaving much of their rolling stock and track behind."[39] General McCallum would in turn become the director and the Union often invested to improve the condition of the rail line to be used for the Union's war efforts.[40]

Steamboats

Railroads had started becoming the dominant transportation method by 1861, but steamboat power also became a strong proponent of transportation during the Civil

[36] Gabel, *Rails to Oblivion*, 7.

[37] Hess, *Civil War Logistics*, 102.

[38] Ibid., 104.

[39] Ibid., 87.

[40] Ibid.

War.[41] Unlike the cooperative nature that existed between the railroad executives and the Union, the steamboat captains sought to take advantage and profit from the war. In fact, when the war initially began, quartermasters at the lowest levels would each contract the steamers they needed for their commanders, but often at very high prices.[42] Due to the unchecked, decentralized contracting practices that often left the Union with an unfair expense, Lewis Parsons was assigned to oversee steamboat transportation and centralized the contracting process.[43] Parsons thought steamboat owners "to be a more unreliable, uncooperative, and dishonest group of businessmen" than the railroad owners, but because it was necessary to use the river systems in addition to railroads, Parsons was forced to deal with the steamboat owners.[44]

Steamboats had capabilities to move supplies and soldiers through major river systems, and smaller, more maneuverable craft were designed to float on tributaries.[45] Steamboats had limitations due to factors such as the weather or rain fall, or time it would take to get from city to city in comparison to the railroad. For example, a trip from Cincinnati to St. Louis would be 339 miles by rail taking approximately 16 hours, but 702 miles by river taking 50 hours for the trip.[46] The Confederate quartermasters were

[41] Ibid., 39.

[42] Ibid., 41-42.

[43] Ibid., 42, 47.

[44] Ibid., 64.

[45] Ibid., 35.

[46] Ibid., 40.

not as astute as their Union counterparts, as they never appointed someone to regulate steamboat operations and contracting, nor did they keep records of such matters; although there are records through personal accounts that the Rebel army did use steamboats to suit their needs.

Wagons, Man Power, and Beef on the Hoof

The railroad and steamboats were employed at the national or strategic level of logistics, but somehow supplies needed to move from the farms to the depots or levees, and once delivered by rail or river, those supplies needed to reach the armies from the depots or levees.[47] This was done at the regional or tactical level with wagons, or 'Uncle Sam's chariots' and beasts of burden, foot power, and beef on the hoof.[48] Civil War armies traveled with 25 to 35 wagons per 1,000 men, however many Confederate armies such as Bragg's and Lee's often traveled with fewer wagons to accommodate their need for speed.[49]

Wagons carried the bulk of supplies needed which consisted of "three pounds of food for every man and 26 pounds of forage and grain for every horse and mule, every day."[50] "Army wagon trains generally consisted of headquarters, regimental, and supply trains [that] carried rations, clothing, and other goods from base depots to temporary,

[47] Hess, *Civil War Logistics*, 135.

[48] Ibid., 136, 157.

[49] Ibid., 148-149.

[50] Ibid., 138, 164.

smaller depots in the field."[51] The longer an operation or campaign was expected to last away from the direct support of a railroad or steamboat, the requirement for more wagon trains existed, which also meant a slower rate of travel for the army. However, there were times Soldiers would have to bear the bulk of the weight for the necessity of quick movements such as when "Federal forces in the West were compelled to slash land transportation to the minimum as they penetrated Confederate territory" to keep from being vulnerable due to their long supply lines.[52]

When armies needed to mitigate the long supply lines by reducing the number of wagons, and commanders had to rely on their troops to carry their weapons, ammunition, accouterments and food, the armies would also have beef on the hoof.[53] Beef on the hoof was cattle that were driven across the countryside to leave "the roads to troops, trains, and artillery."[54] The cattle were slaughtered on the spot and the meat distributed to the soldiers as part of their daily rations.

Brown-Water Navy

Many of the famous battles in the western theater of the American Civil War during 1862 revolved around the Union attempting to capture forts, cities, and other locations along rivers, namely the Mississippi, Cumberland and Tennessee. These three

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[51] Le Duc William Gates and Adam Scher, *This Business of War: Recollections of a Civil War Quartermaster* (St. Paul, MN: Minnesota Historical Society Press, 2004), xv.

[52] Hess, *Civil War Logistics*, 146.

[53] Ibid., 157, 169.

[54] Ibid., 167.

rivers primarily ran north and south, which offered the Union a method of invasion deep into Confederate territory.[55] The Confederate and Union Army gets a considerable amount of attention dedicated to it when one reads about the American Civil War, but just as important, especially in the western theater, is the brown-water navy.

There were two flag commanders during 1862 that made dramatic impacts for the Union efforts. Admiral Andrew Foote, would command the Western Flotilla, and in conjunction with Army General Ulysses S. Grant would take Forts Henry and Donelson before moving south along the Mississippi River where his further efforts would accomplish the seizure of Island Number 10.[56] In fact, during the battle of Fort Henry, Grant's men could not arrive in time due to bad weather, and because Confederate Brigadier General Lloyd Tilghman moved most his men to Fort Donelson, the remainder of Confederate forces surrendered to Foote.[57]

Foote was replaced by Admiral Charles Davis after the Union's success at Island Number 10 upon which he helped lead the brown-water navy to the seizure of Fort Pillow, Memphis, and then meet Admiral David Farragut at Vicksburg, although the capture of Vicksburg did not initially succeed during 1862 due to a lack of ground troop support. Farragut was the commander of the West Gulf Blockading Squadron and successfully campaigned along the Mississippi River moving North and seized, along

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[55] Timothy B. Smith, *Grant Invades Tennessee: The 1862 Battles for Forts Henry and Donelson* (Lawrence: University Press of Kansas, 2016), 2.

[56] James M. McPherson, *War on the Waters: The Union and Confederate Navies, 1861-1865* (Chapel Hill, NC: University of North Carolina Press, 2012), 72, 74, 78.

[57] Ibid., 74-75.

with Army General Benjamin Butler, Fort Jackson, Fort Saint Philip, New Orleans, and Baton Rouge before moving onto Vicksburg.[58]

Although both Foote and Farragut had great successes during their campaigns in 1862, it was not without distress. Both men were experienced blue water navy officers and felt much more at home on the open seas compared to the confined rivers; both lamented the dangers of the river outweighed those of the ocean.[59] Furthermore, Foote would suffer an injury that would eventually remove him from command of the Western Flotilla. However, both men proved to be of vital importance to the Union strategy of controlling the Mississippi River and accomplished great feats with distinguished careers. Farragut was named the first rear admiral in the history of the U.S. Navy.[60] Foote was well remembered by Welles, the Secretary of the Navy, as contributing, not only to the success of the Union victories, but more importantly, "the creation of a river navy without any precedent to guide him."[61]

Major Events in the Western Theater of 1862 and the Relevancy to Logistics

The Confederacy had little difficulty predicting where the Union would coordinate its offensives as one could look at a map and understand the strategic importance of the rail lines and rivers that sustained the population and war efforts from

[58] McPherson, *War on the Waters*, 56-57, 65-66; Winston Groom, *Shiloh, 1862* (Washington, DC: National Geographic Society, 2014), 29.

[59] McPherson, *War on the Waters*, 68, 78.

[60] Ibid., 69.

[61] Ibid., 84.

both sides.[62] The very life blood of the South was also its critical vulnerability. Furthermore, the South had several disadvantages in the west including the sheer size it had to defend with less men, material, and logistical ability than the North.[63] Additionally, the very founding principle of the Confederate states to uphold states' rights was also part of its failure to effectively coordinate efforts and focus on specific strategic outcomes. Therefore, the Confederate government "decided on the unwise policy at the beginning of the war to defend every nook and cranny of the Confederacy, whether threatened or not, thereby leaving the actual vulnerable locations significantly weaker."[64]

With this concept in mind, the beginning of 1862 had Confederate forces spread across an imaginary east/west line from Springfield, Missouri, to Columbus, Kentucky, to Forts Henry and Donelson, to Bowling Green Kentucky. The Union had enacted the Anaconda Plan during 1861 which was designed to cut off outside supplies delivered by coastal shipping through the use of naval blockades in the Atlantic and Gulf of Mexico. The remainder of the Anaconda Plan included controlling the Mississippi River in order to cut the Confederate states in half and reduce their logistical ability of shipping supplies and men.

The Union first focused its efforts on the Tennessee River attacking Fort Henry on February 6, and subsequently Fort Donelson along the Cumberland River on February

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[62] Gabel, *Railroad Generalship*, 9.

[63] Smith, *Grant Invades Tennessee*, 2.

[64] Ibid.

16.[65] The advantage to this was to allow the Union passage into the south, as far as northern Alabama, and "capture Clarksville and Nashville, the latter being an extremely important supply, political, and psychological center for Tennessee and the Confederacy."[66] Due to the success of the Union efforts of seizing Fort Henry and Fort Donelson in relatively short order, capturing approximately 12,500 of Confederate troops, Confederate General Sidney Johnston retreated from Bowling Green on February 11 to Nashville on February 16 and then subsequently to Murfreesboro after the fall of Fort Donelson.[67] Johnston left Nashville undefended and allowed the Union to take control of Nashville on February 25.[68]

From urging by Confederate General Beauregard, Johnston agreed to consolidate Confederate troops at Corinth to protect the major rail line, Memphis and Charleston Rail Road, which ran all the way into the eastern theater splitting at Chattanooga and running to Richmond, Virginia and Charleston, South Carolina.[69] Johnston and Beauregard consolidated a large contingent of his subordinate commanders to include Ruggles from Memphis, Polk from Columbus, Bragg who brought troops from Mobile and Pensacola, and Lovel was also asked to send troops from New Orleans to support the efforts at

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[65] Swanson and Langley, *Atlas of the Civil War*, 34.

[66] Smith, *Grant Invades Tennessee*, 151-152.

[67] Smith, *Grant Invades Tennessee*, 151; Swanson and Langley, *Atlas of the Civil War*, 34.

[68] McPherson, *War on the Waters*, 78.

[69] Detweiler, *The Civil War*, 23.

Corinth, Mississippi.[70] This movement by the South was an example of the use of interior lines and done through almost exclusively rail lines.[71] These converged Confederate forces of 40,000 troops for the counterpunch were reorganized as the Army of Mississippi with "three main corps commanded by Polk, Hardee, and Bragg."[72] Grant marched his army to Pittsburg Landing where the Confederates caught him by surprise. These moves culminated with Grant fighting the infamous Battle of Shiloh against Johnston on April 6-7, which was the largest battle up to this point with 13,000 Federal casualties and 10,700 Confederate casualties including Albert Sidney Johnston, who was replaced by Beauregard.[73] These overwhelming losses set the realization on how costly this war would be for both sides.

While General Grant continued fighting south between the Mississippi and Tennessee Rivers, Brigadier General Pope and Admiral Foote turned their attention to the north of the Mississippi River.[74] The Union attacked Island No. 10, "so named because it was the tenth island down from the confluence of the Ohio and Mississippi Rivers at Cairo" and the Confederate forces surrendered on April 7.[75] After the Battle of Shiloh

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[70] McPherson, *War on the Waters*, 58; Swanson and Langley, *Atlas of the Civil War*, 36; Detweiler, *The Civil War*, 24.

[71] Detweiler, *The Civil War*, 24.

[72] Swanson and Langley, *Atlas of the Civil War*, 36.

[73] Ibid., 38.

[74] McPherson, *War on the Waters*, 80.

[75] McPherson, *War on the Waters*, 78; Swanson and Langley, *Atlas of the Civil War*, 38.

Foote pressed fifty miles south down the Mississippi River to attack Fort Pillow.[76] The joint efforts of the Union Army and Navy stalled at this point and it would be several months before the Union would take Fort Pillow due to the fall of Corinth which cut the rail connection to Fort Pillow forcing the Confederates to evacuate on June 4.[77] This left Memphis as the next Union target which fell subsequently on June 6 leaving Vicksburg as the remaining major Confederate stronghold on the Mississippi River.[78]

Meanwhile, in the deep South, at the mouth of the Mississippi River, General Butler and Admiral Farragut proceeded to attack past Forts St. Philip and Jackson from April 18-24 and seized New Orleans on April 25 without a shot fired.[79] The rumors of the Federal forces attacking New Orleans prior to their arrival led to panic which caused the citizens to destroy a large number of goods including 30,000 bales of cotton, hogsheads of tobacco and barrels of sugar, corn, and rice to keep the Union Soldiers from using it.[80] This panic and self-destruction of goods occurred even in Baton Rouge eighty miles upriver.[81] At one point after Admiral Farragut accomplished his initial mission at New Orleans, he thought to move to Mobile, AL, or Tallahassee, FL, to ensure those ports

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[76] McPherson, *War on the Waters*, 82.

[77] McPherson, *War on the Waters*, 86-88; Swanson and Langley, *Atlas of the Civil War*, 40, 42.

[78] Swanson and Langley, *Atlas of the Civil War*, 42.

[79] Swanson and Langley, *Atlas of the Civil War*, 38; McPherson, *War on the Waters*, 65.

[80] McPherson, *War on the Waters*, 65.

[81] Ibid.

were controlled and not just blockaded; of course this would suit Farragut better as he preferred to be on the open ocean.[82] However, he received specific instructions to the contrary to "Carry out your instruction of January 20 about ascending the Mississippi River, as it is of the utmost importance . . . Mobile, Pensacola, and in fact the whole coast sinks into insignificance compared to this."[83]

By the end of 1862, the Union had pushed the Confederate defensive line farther south controlling vital locations such as Nashville, and most of the Mississippi River including Memphis, New Orleans, and Baton Rouge. The only exception to controlling all of the Mississippi River and fully enacting the Anaconda Plan was the stretch of river from Port Hudson to Vicksburg.[84] The Union victories and claims of territories were vital to the Confederate states to logistically support its own war efforts, not to mention the South's morale, but also the grand strategy of the Confederacy to be recognized by foreign governments such as Great Britain or France and therefore lend their support to the South's war efforts against the Union.[85]

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[82] Ibid., 68.

[83] Ibid.

[84] Swanson and Langley, *Atlas of the Civil War*, 40, 42.

[85] McPherson, *War on the Waters*, 67.

CHAPTER 4

MAJOR DESIGN ARGUMENT

Educational Outcome from Wargame

"Wargaming–Logistics of the American Civil War: Western Theater–1862" is designed to simulate the importance of logistics to the commander. To better understand logistic terminology the use of military publications will add clarification. "Sustainment is the provision of logistics and personnel services to maintain operations through mission accomplishment and redeployment of the force."[86] "Sustainment, through mission command, enables decisive action. Sustainment provides the operational commander with operational reach, freedom of action and endurance."[87] "Operational reach is the distance and duration across which a unit can successfully employ military capabilities."[88] Furthermore, "attaining operational reach requires gaining and maintaining operational access in the face of enemy . . . actions."[89] Once operational reach is surpassed, the commander has culminated and can no longer logistically support the mission. Operational reach is displayed in the wargame through the number of supplies required to allow the player to move or take action within the game.

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[86] U.S. Joint Chiefs of Staff, Joint Publication (JP) 3-0, *Joint Operations* (Washington, DC: Government Printing Office, 2017), xiv.

[87] Headquarters, Department of the Army, ADRP 4-0, *Sustainment*, 3-1.

[88] Ibid., 3-5.

[89] U.S. Joint Chiefs of Staff, JP 3-0, *Joint Operations*, II-8.

"Successful sustainment enables freedom of action by increasing the number and quality of options available to the commander."[90] Freedom of action requires sustainment commanders to synchronize the sustainment plan with the operational plan to ensure supported commanders can operate freely and unencumbered due to limited resources. Freedom of action is displayed in the wargame through the player acting as both sustainment commander and supported commander. The player will simultaneously plan movement of supplies and Soldiers by river, rail, or roads to meet the mission tasks and strategy planned by the dual-hatted player acting as the supported commander. Likewise, it is vital for the supported commander to seize and control the rivers, rails, and roads to provide the sustainment commander the means to provide supplies and Soldiers.

"Endurance stems from the ability to create, protect, and sustain a force, regardless of the distance from its base and the austerity of the environment. Endurance involves anticipating requirements and making the most effective, efficient use of available resources."[91] This aspect is displayed in the wargame through the creation of supplies at the strategic level and movement of the supplies to the troops for sustainment and consumption, recruitment of new Soldiers and movement of Soldiers to bolster the commander's combat power in the field, and the decision and effort the commanders must make to protect valuable resource centers. The battles conducted in the wargame are also based on logistics in that a unit cannot conduct battle without the right supplies,

[90] Headquarters Department of the Army, ADRP 4-0, *Sustainment*, 1-1.

[91] Headquarters Department of the Army, Army Doctrine Reference Publication (ADRP) 3-0, *Operation*s (Washington, DC, Government Printing Office, 2016), 2-9.

which helps ensure the commander does not focus efforts on battling his/her opponent without considering the effects of logistics support.

To best represent the importance of logistics, the key aspects will include production of supply, modes of transportation including land and water, movement of supplies and troops, and controlling logistic elements to allow and reinforce troop movements, attacks and defense. Players will have to determine what is most important concerning logistics, and how to best employ their plans of supplying troops and moving supplies/troops around the board/map to best their opponent. The player with the strongest strategy to control the modes of supply production and transportation will become the victor.

The TSAR Model

Using the TSAR Model previously addressed in chapter 2, a discussion of game design concerning Wargaming–Logistics of the American Civil War: Western Theater–1862 will be given. This will give the reader an ability to logically understand the components of the wargame in a systematic way and couple that understanding with the aforementioned learning objectives to gain a full appreciation of the wargame. Although the best way to truly gain a full appreciation of anything is by immersing oneself into it to gain experiential learning; in this case, by actually playing the wargame.

Time

Although a discussion of time is often not far removed from the aspect of space, the attempt to define the two separately will be made. The year of 1862 during the American Civil War was chosen due to the fact that although the war had been going

since April of 1861, the war was far from having any clear victors. Both sides were still resolved they would overcome the other and held on to the belief the war would come to a quick end. However, the bloodiest battles of America's history were still yet to come starting with the Battle of Shiloh in April 1862. During 1862 the Union fought using the strategy of cutting the Confederate in half by controlling one of their primary logistical means, the Mississippi River. To mark the passage of time in the game, each player will use the player's aid mat which has a tracker dividing each month by two-week intervals; therefore, the players will have up to 24 turns to accomplish their goals.

Space

The Western Theater of the American Civil War consists of seven states including Kentucky, Tennessee, Georgia, Alabama, Mississippi, Louisiana, and western Florida of which all states are illustrated on the game board. The basis for the game board was developed from the map on page 8 of Bowery's *The Civil War in the Western Theater, 1862* and refined by removing the numerous water tributaries illustrated and adding additional population centers to create a nodal style map.[92] The emphasis of the nodal style map is to use the rivers including the Alabama, Arkansas, Chattahoochee, Cumberland, Green, Mississippi, Missouri, Ohio, Red, Tennessee, and the Wabash rivers; the rail lines and roads linking the population centers together. Rail lines can also be utilized as roads in the game, but to keep the map from being too congested, roads were only illustrated where there were no rail lines, but roads existed.

[92] Bowery, *The Civil War in the Western Theater, 1862*, 7.

Three types of locations exist on the board game; (1) Union/Confederate controlled, (2) fortified structure, and (3) Confederate resource space. The Union/Confederate controlled locations are cities and towns shown in either a light blue or red color respectively to indicate which belligerent controlled the location at the beginning of January 1862. The majority of the information used to illustrate these locations were drawn from Detweiler and Swanson's books.[93]

Fortified structures are illustrated with the same aforementioned colors indicating initial control at the beginning of the wargame and are also indicated through a thick outside border. The fortified structures include Fort Donelson, Fort Henry, Fort Hindman, Fort Leavenworth, Fort Pillow, Island No. 10, Port Hudson, and Vicksburg. All fortifications illustrated were defended military forts or in the case of Vicksburg was a city that was well defended and withstood several attacks/sieges by the Union and did not fall until 1863, therefore it also receives the same defensive advantage in game terms as the military forts.

Confederate resource spaces are located throughout the game board and give the Confederate player the ability to create and draw supplies under the condition the Confederate player controls the resource space. The Confederate resource spaces include Atlanta, Clarksville, Columbus, Jackson, Little Rock, Memphis, Nashville, and Selma. These locations were chosen based on historical knowledge that these cities were critical to the limited industry and large agricultural hubs the southern states relied on. Furthermore, Herman's "We the People: The American Civil War 1861-1865," was also

[93] Detweiler, *The Civil War*, 16-19; Swanson and Langley, *Atlas of the Civil War*, 30-33.

used as a secondary source as the game board also has selected resource centers indicated.[94]

Assets

Each player controls several assets including leaders, ground troops, the Union's brown-water navy, various supplies, the movement of troops and supplies by way of river, rail, or road, the ability to destroy or repair rail lines, and claim territory after gaining control through battle or movement into unguarded locations. Ground troops are indicated by the numbers one through six on a hexagon shaped block with a number on each side. Each number represents a brigade, consisting of approximately 2,000 troops, which was the standard fighting unit often commanded by brigade generals.[95] Players are able to recruit additional troops to bolster their strength on the battlefield during the warmer months of the year from April through August. To highlight the significance of maintaining support for the war, the Confederate player must maintain at least 50% of the state that it draws it recruitments from. The Union player draws its recruits from the union of the states and therefore recruits come from off the map, unlike the south where each state recruits individually for the war effort.

Leaders, like the troops, are kept generic for the purpose of the game and are indicated with a white star and either blue or red background. The prominent leaders on

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[94] Mark Herman, "We the People: The American Civil War 1861-1865," 3rd printing, game board and rules of play (The Avalon Hill Game Co, Devir, GMT Games, 2014), 35.

[95] American Battlefield Trust, "The Civil War in Four Minutes: Army Organization," YouTube, June 7, 2013, accessed January 13, 2018, https://www.youtube.com/watch?v=DgqHXVTYfl0.

both sides include the likes of Grant, Buell, Thomas, Halleck, Polk, Johnston, Tilghman, Price, Van Dorn, and McCulloch just to name a few. However, using the specific names of these leaders in the game may actually detract from the intent of the game because these leaders are well known and players may try to reenact battles or scenarios based on a specific leader, where the intent is to have each player create and execute their own plans. A leader's role in war cannot be ignored and is of utmost importance, but using a specific leader is not of significant value for the purpose of highlighting and educating players on the importance of logistics.

The use of the Union's brown-water navy in the Western theater of the American Civil War cannot be dismissed as highlighted in chapter four. To present the Union player with an option to use the Navy on the rivers, the player will have four chits to be used at any place along a river, each giving the player an advantage of attack strength. The additional four chits can only be used once during game play, which may not exactly mimic the utilization of the Navy on the rivers, but the intent of the game is not to give the Union player an overwhelming advantage of success with the simple utilization of the Navy and therefore negating the educational purpose of highlighting the need for strong logistical planning.

Supplies are divided into two types; war supplies represented by small red cubes and food supplies represented by small green cubes. The food supplies represent the food and forage necessary to sustain a brigade and the horses and mules associated with each brigade. Numbers of weight, type, and amount of food vary from source to source, but averages put the amount of food at 3 pounds per man and 26 pounds of forage in grain

and hay for each horse and mule daily.[96] However, the intent is for the players to understand the operational and strategic implications of providing enough food to the fighting force, not the tactical means such as specific daily ration requirements. In terms of the game, the troops are unable to move anywhere without being able to consume food supplies which indicates the old adage that an army does not march on an empty stomach.

The war supplies represent ammunition, explosives, and weapons which give the players the ability to attack, defend, destroy or repair rail lines. Just as with the food supplies, the knowledge of how many rounds each man would carry, which would change based on expectation of enemy contact, is not of consequence, but rather the understanding that each war supply will give the brigade what it needs to fight.[97] A tactic often used by both the Union and Confederate armies was to destroy rail lines to prevent its use by their enemy. The rail lines were destroyed in various ways such as burning the timber that held the rail line bridges, creating hot fires and laying rails in them until they became pliable at which point soldiers would bend them around trees making them unusable or even flipping whole sections of rails over and removing the timber.[98] It was estimated "on the basis of needing five minutes to loosen one rail, that 2,200 troopers could destroy five miles of line in one hour."[99] Again, the tactics behind the destruction of the rail line is not of importance for gaming purposes, but the strategic aspect of

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[96] Hess, *Civil War Logistics*, 138; Jonathan K. Rice, *Moving Mountains: A Study in Civil War Logistics* (Bloomington, IN: Xlibris Corp, 2011), 11-19.

[97] Rice, *Moving Mountains*, 22-23.

[98] Hess, *Civil War Logistics*, 235-254.

[99] Ibid., 251-252.

closing a supply line off to the enemy is of great significance. Likewise, the ability to open the rail line through repair has strategic impact on the success of a player's ability to move troops and supplies and therefore war supplies will represent the ability to repair a rail line. Repairs could often be done with relatively great speed as one account of Sherman's destruction of 80 miles of track and 60 bridges and trestles in Mississippi 1864 were repaired by the Confederates, who were strapped for resources, within two months.[100] For game purposes and to average the repair times of a rail line it will take an army two turns representing a month for repairs.

The final aspect of assets the players control are the transportation methods available to move troops and supplies by rail, river, or roads. As previously stated the scope of transportation is at the strategic and operational levels, so the player is not physically moving a replica or symbol of a train, ship, or wagon, but rather that is implied when moving troops and supplies by rail, river, or road. Each mode of transportation has its advantage and disadvantage that a player must consider. For example, there are more roads available than rail lines or rivers but traveling by roads severely limit the distance a player can march in a turn. Average march rates were variable based on external factors such as weather and terrain, and internal necessity. Buell's army in pursuit of Bragg's army in late summer 1862 was able to march about 15 miles a day, Sherman mandated a march rate of 10 to 20 miles per day, and some strenuous marches required 20 to 30 miles per day.[101] To average these march rates on a nodal map that does not reflect equidistance

[100] Ibid., 238.

[101] Ibid., 142, 170.

between nodes, a player will be allowed to march an army using the road networks to one node away.

The rivers provide the players the opportunity to move the greatest amount of supplies in a single move. Even though traveling by river was slower than rail, this aspect is not noticeable in the game as the turns amount to two weeks. So, the fact that a trip from Cincinnati to St. Louis would be 339 miles by rail taking approximately 16 hours, but 702 miles by river taking 50 hours for the trip is negligible because in a two week turn a player could travel the distance of any rivers on the map.[102] What does affect the player is the limitation of where rivers can transport troops and supplies. The amount carried cannot be specifically calculated as there were various types of steamers used, so a chart describing shipping options was created for the player to choose from. The player will also have a limited number of contracts to be used per turn to represent the ability to contract with the ship owners. Parsons wrote of the importance of contracts stating, "There can be no doubt, as a general rule, that it is the policy of the Government to secure its transportation by contract with private parties rather than by attempting to perform it by its own boats and employe[e]s, [and private enterprise] will always perform the same service cheaper than the Government can."[103] A player using the Mississippi and Arkansas Rivers will be required to spend one contract point due to the size and depth of river requiring fewer ships to move supplies, whereas all other rivers will require two

[102] Hess, *Civil War Logistics*, 40.

[103] Ibid., 47.

contract points representing a larger number of smaller ships needed to move the same amount of supplies.

The limited number of contracts available to a player also extends to the use of transporting troops and supplies by the railroad. The railroad does not have the same ability to transport as many troops and supplies as the steamboats do, but they are more numerous and can reach more locations on the map, the very reason the railroad became a strategic center piece during the American Civil War. Not all rail lines were built using the same size of gauge, so the game board displays two different rails sizes indicating the differences in gauges. A player must use a contract for each change of gauge size and whenever the rail line changes a cardinal direction due to it being associated with a different railroad owner. The Union player will have additional contract points to spend per month due to the Union's ability to manage their railroad system better than the Confederates through the creation of the US Military Railroad system.

Resolution

Resolutions exist after each move which may mean simply a transfer of troops and or supplies have taken place from one node to another node. If the node is not defended, but not controlled by the player moving the troops, the resolution is the moving player controls the node. This replicates instances such as when Nashville was abandoned by Confederate troops fearing they would be cut off from their supply line and the Union army simply moved into Nashville and controlled the territory. If a node is defended and a player attempts to move troops into the defended mode then resolution will take place by either a battle or the defending player retreats. In either case, the focus of resolution is on which player has prepared their logistic needs to best support their needs. A player

needs to balance the number of troops, food supplies, and war supplies to be able to move and fight. Battle resolution is based on the number of troops and war supplies available to each player, and if a player decides to retreat to save his troop numbers, the player will forfeit supplies to the other player. This model is not unlike when an army is in a hasty retreat and does not have time to move the vast amounts of supplies as they retreat leaving it to the enemy.

The overall resolution of winning the game is based on events at the end of 1862. Each player has different goals to pursue as follows:

Union Player–(1) decimating the Confederate Army (Union has a 5:1 ratio by end of turn 24 or 8:1 ratio prior to turn 24), (2) capturing at least four Confederate Resource locations effectively cutting off resupply ability and three or more state capitols, or (3) capturing key locations along the Mississippi River (all but Vicksburg, Grand Gulf, and Port Hudson) effectively cutting off the Confederate Army's ability to use the rivers and ports in New Orleans for resupply as the Confederate rail lines lack capacity to fully support all supply efforts required by the Confederate Army.

Confederate Player–(1) maintaining the Confederate Army above the prescribed limits given to the Union player to achieve victory, (2) holding Confederate territory including at least five of eight Confederate Resource locations and at least five of seven state capitals (by the end of December 1862, the Confederates still had possession of Jackson, Selma, Columbus, and Atlanta as primary resource centers, and five state capitols including Little Rock, Atlanta, Montgomery, Jackson and Tallahassee), and (3) holding more than four contiguous locations along the Mississippi River (three of which include Vicksburg, Grand Gulf, and Port Hudson).

Players who have play tested this wargame have all concluded they have a better understanding of the complexity of moving troops and supplies and the difficulty of keeping the right amount of supplies pushed to the player's troops. The Confederate player almost always commented on the lack of transportation lines throughout the southern states making it problematic when trying to find efficient routes to move their troops and supplies around. These and other similar comments illustrated that even though the wargame does not exactly mimic history, it does provide the educational intent of illustrating the importance of logistics during war and how applying logistics appropriately a player can maintain operational reach, freedom of action, and endurance.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Every commander at all levels must understand the utmost importance of logistics to support the mission, and no argument is made that a commander does not understand this concept. "Everyone accepts the fact that armies cannot exist unless they are fed, supplied, and moved to meet the enemy, but relatively few historians seem interested in finding out how those necessary goals of military operations actually worked."[104] However, many commanders may not have a true appreciation of the complexity that exists when planning and executing logistic requirements. The intent of "Wargaming–Logistics of the American Civil War: Western Theater–1862" is to highlight that very notion. Although this wargame takes place in a time long ago, the same challenges of acquiring supplies, moving troops and supplies across vast distances using vulnerable modes of transportation, and planning for future logistic requirements while also maintaining current needs have not changed for hundreds of years, since the origin of organized warfare.

Playing through this wargame illustrates the challenges of logistics based on the many limitations applied to the player drawn from historical events. Limitations include limited contracts available to apply against rail and river transportation assets illustrating a limited budget, although money available/spent is not directly calculated, and limited number of transportation assets available. The amount of troops and supplies a player can

[104] Hess, *Civil War Logistics*, xi.

move are also limited based on the type of transportation utilized. Additionally, a limited number of supplies are produced each month further demonstrating the reliance upon the civilian sector to support the war effort. Similarly, the war must be successful and worth the effort to gain and keep the people's will to support the war efforts. This includes the people's willingness to volunteer for service in the military, and the wargame demonstrates this aspect, especially through the Confederate's ability to maintain sovereignty in each state. A player must consider each of these aspects in accordance with their own goals; weigh them against what they anticipate their opponent's goals are, and plan carefully before executing because once the movement of troops and supplies are in motion there is no easy way to recoup from wasteful or overzealous plans.

Recommendations

The scope of "Wargaming–Logistics of the American Civil War: Western Theater–1862" is on the strategic and operational scale with the focus being logistics, one of three elements of the warfighting function sustainment. Further research and subsequent development of a wargame could be narrowed or expanded in many different forms. For example, if one wanted to expand the wargame to encompass all three elements of the warfighting function sustainment instead of focusing primarily on logistics, the addition of health service support and personnel services could provide a fuller aspect to what sustainers had to contend with concerning medical and personnel aspects. Likewise, adding any of the other warfighting functions to include information, mission command, movement and maneuver, intelligence, fires, and protection could also benefit those who are interested in the dynamics that type of wargaming model would provide. Although adding or focusing on a different warfighting function would

drastically alter the wargame's educational intent. The wargame could also be expanded to include the entire duration of the American Civil War lasting from 1861 to 1865 and could also be further expanded by including the entirety of the Civil War theater. This type of project would indeed take considerable time and effort and may even be too vast to do justice in the confines of a Military Masters of Art and Science degree.

The scope could be narrowed to a logistical tactics level if a specific battle, such as the Battle of Shiloh, were the focus of a wargame. This would alter the scope and be better suited for company and battalion commanders, battalion staff officers to understand logistic requirements at the tactical level. In this type of wargame, the concern would weigh heavy on specific numbers and weights of supplies required to support the troops and the battle, what tactical methods of moving and issuing supplies were used, and how much a man, horse, or mule could carry. Obviously, this type of wargame has value, but certainly changes the nature of the intent of the educational outcome.

"Wargaming–Logistics of the American Civil War: Western Theater–1862" is very specific in its intended educational value in both scope and focus. The model used to replicate historical aspects of logistics used during the American Civil war in the Western Theater was well researched through numerous publications and play testing several wargames to understand the various models currently available that have been proven to work. Even with extensive research conducted, there is always room for improvement and value added through additional research and changes made in the wargame model. Anyone with interest to tackle such an endeavor should be encouraged to do so.

APPENDIX A

RULES FOR WARGAMING–LOGISTICS OF THE AMERICAN CIVIL WAR: WESTERN THEATER–1862

1.0 Introduction

"Wargaming–Logistics of the American Civil War: Western Theater–1862" is a two-player game of supply and logistics at the strategic and operational level set during 1862 of the American Civil War in the Western Theater. A player will either control the actions of the Confederate or Union Army. The Confederate player is trying to establish a line of defense to protect its territory of seceded states from the Union. The Union player is trying to defeat the Confederates by breaking through the Confederate Army's defense and gain control of the succeeded states.

This game reflects the advantages and difficulties both sides had concerning logistics. While the railroad provided advantages of moving troops and supplies in an expedited manner, usually with an associated calculable time-table, it also provided opportunities of attack from the opposing side. Each side is challenged with the balance of supply production, supply requirements, movement of troops and supplies against the objective of seizing or protecting vital supply lines and locations. Mistakes by players in this game are not easily forgiven or overcome, and often costs the player much more than anticipated.

2.0 Components

This game is played with the following materials: (1) map of American Civil War Western Theater, (2) 124 dark green supply cubes, (3) 84 light green supply cubes, (4) 86

dark red war supply cubes, (5) 52 light red war supply cubes, (6) 30 Union Unit counters, (7) 30 Confederate Unit counters, (8) 4 Union Brown-Water Navy counters, (9) 16 rail line destruction counters, (10) 16 rail line repair counters, (11) 60 Union area control counters, (12) 60 Confederate area control counters, (13) 6 Union leader counters, (14) 6 Confederate leader counters, (15) 24 six-sided dice [24d6], (16) two player's aid handouts, and (17) two game turn markers.

2.1 Map

The map (see Appendix B) represents the Western Theater of the American Civil War and surrounding states and is comprised of 11 states including Union controlled states Illinois, Indiana, and Ohio; Confederate controlled states Arkansas, Tennessee, Georgia, Alabama, Mississippi, Louisiana, and western Florida; and neutral states Missouri and Kentucky. Union controlled states are listed in blue font, Confederate controlled states are listed in red font, and neutral states are listed in yellow font. The map is a nodal style map where players will move troops and supplies to and through areas shown on the map.

There are four types of areas on the map:

1. Cities/towns are areas that each opponent is trying to control. The beginning of the game has each city/town color coded to illustrate which player has control (players will mark areas as they gain control with territory control counters (see 2.5 Union and Confederate Area Control Counters). The Confederate player controls all locations with a red background, and the Union player controls all locations with a blue background. Each city/town may also have additional markers to indicate it is something more.

Figure 1. City/town Area

Source: Created by author.

2. Fortified areas are like cities/towns in color markings except they have a thick colored border with six sides and are usually, but not always, military posts or forts. They represent having an ability to defend itself from being taken without force as a city/town can be. Each fortified area has a defense of 3, meaning that to be taken by force without any additional defending army, an opponent must be able to roll three battle dice with either a 1 or 2. Defending Armies, who are well supplied, in a fortified area can give an opponent trying to take the area an even greater challenge.

Figure 2. Fortified Area

Source: Created by author.

3. Confederate resource spaces are areas that have a green block in the lower right side of a city/town with a green outside border. This indicates an area where supplies are generated for the Confederate player.

Figure 3. Confederate Resource Space

Source: Created by author.

4. Capital cities are illustrated using all caps and bold font. Capital cities can also be designated as other areas such as a Confederate resource space.

Areas are connected by three types of transportation lines (if a transportation line is touching an area, that area is considered to have that type of transportation line available to use by a player) which the players will use to move troops and supplies:

1. Roads are illustrated with a light brown thick line. (See Appendix C: Player's Aid, Map Key)
2, Rail lines consist of two types of tracks indicated by either a slender line with short cross lines or a similar version with thick lines. The slender line rail lines indicate a standard gauge track, and the thick rail lines indicate various sized gauge tracks. Rail lines also act as roads where roads are not shown to keep the map cleaner and easier to read. (See Appendix C: Player's Aid, Map Key)
3. Rivers are indicated by light or dark blue lines and each river is labeled in blue font. (See Appendix C: Player's Aid, Map Key)

2.2 Units and Leaders

Each player has several counters they will control often designated blue for the Union player or red for the Confederate player where the asset solely belongs to one or

the other player. Each player has six-sided unit counters with the numbers 1-6 designated per side representing a brigade, approximately 2,000 Soldiers, per designated number. For example, the number 1 represents one brigade (2,000 Soldiers) and the number 6 represents six brigades (12,000 Soldiers). A single brigade or several brigades, including stacks of counters, are called an Army (which is the term that will be used throughout this rule book for convenience of a naming convention) allowing a player to activate and move all units belonging to that Army singularly or together.

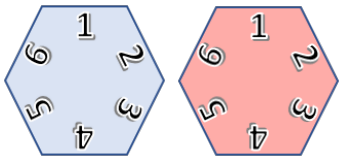

Figure 4. Union and Confederate Unit Counters

Source: Created by author.

Leaders are represented in a generic fashion with either a blue or red background with a white star in the middle of the counter. Leaders do not count as a unit, but they do allow each player to move into an occupied area and conduct battle with their Army. Leaders can be captured or killed (when the Army the leader commands has been captured or eliminated). If either player has no leaders remaining during game play, that player loses the game.

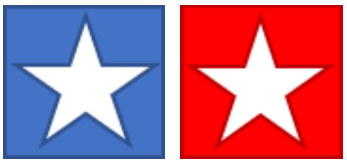

Figure 5. Union and Confederate Leader Counters

Source: Created by author.

One of the Union's objectives is to control the Mississippi River, which can be quite challenging considering the number of fortified areas in the Confederate territory. The Union has the opportunity to use their Brown-Water Navy in an attempt to gain some advantage on the rivers. There are four Brown-Water Navy counters that the Union player may use at any time on any area connected by the rivers. Each Brown-Water Navy counter either has a 1 Str or 2 Str associated with it indicating the number of strength the player gains when attempting to take control of an area. The Union player can use any combination of their Brown-Water Navy during their turn, but once the counter is used, it is discarded for the remainder of the game. If the Union player decides to attack a fortified area with a Brown-Water Navy counter with a 1 Str, then that fortified area loses 1 defense, leaving the fortified area with a defense of 2. Furthermore, if the Union player decides to use two of their Brown-Water Navy counters, one with Str 1 and one with Str 2, against an undefended fortified area, then the Union player would effectively defeat the fortified area's defense points and take control of the area using the territory control marker (see 2.1, Fortified Areas for more details). The Union player can activate their Brown-Water Navy at any time during their turn on any river but must attack from an area they control along the river, which includes the Gulf of Mexico, which means the

Union player could attack New Orleans using their Brown-Water Navy but must do so with careful consideration.

Figure 6. Union Brown-Water Navy

Source: Civil War Talk, "Building a Brown Water Navy," American Civil War Forums, accessed December 12, 2017, https://civilwartalk.com/threads/building-a-brown-water-navy.105324/.

2.3 Supply Cubes

Supplies come in two types: food supplies represented by dark and light green plastic cubes and war supplies represented by dark and light red plastic cubes. Food supplies are used to activate/move an Army. War supplies are used to attack, defend, destroy rail lines, or repair rail lines. The light green and red cubes represent 1 unit of supply and the dark green and red cubes represent 5 units of supplies. Supplies are piece limited, meaning if all supply cubes supplied with this game are on the board, then no more supplies can be generated on a given turn. If, during the supply generation, this looks to be the case, the Union player generates supplies first and the Confederate player will generate any remaining supplies at the Confederate Resource Space areas of their choosing, following applicable rules. (4.1 Supply and Reinforcement Generation)

1 Food 5 Food 1 War 5 War

Figure 7. Food and War Supply Cubes

Source: Created by author.

2.4 Rail Line Destruction and Repair Counters

Each player has an option to destroy or repair rail lines that have been destroyed. Destroying rail lines were a tactic employed by both belligerents of the war. Destroying a rail line can be an advantage of defense or offense depending on the reason a player is destroying a rail line, but it stops any player from using the destroyed section of rail line until it is repaired, so caution is advised when a player is considering to destroy a rail line. The destruction counter is a white X with a black background and the repair counter is a yellow cross with a white background.

Figure 8. Rail Line Destruction and Repair Counters

Source: Created by author.

2.5 Union and Confederate Area Control Counters

As each player gains control of areas, they will need to mark it with the appropriate area control counter. The Union player will use the 34-star flag that was flown by the Union from 1861 to 1863. The Confederate player will use the Confederate flag to mark areas.

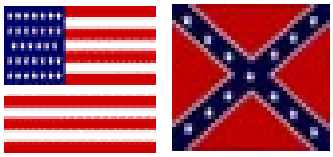

Figure 9. Union and Confederate Area Control Counters

Source: Wikimedia Foundation, "Modern Display of the Confederate Flag," accessed October 22, 2017, https://en.wikipedia.org/wiki/Modern_display_of_the_Confederate_flag.

2.6 Player's Aid

Each player will receive a player's aid (see Appendix C) that will include a map key to assist the players in deciphering the map symbols, a track that each player will use to keep track of the turns in the game with a game turn marker, a track key illustrating which turns supplies and troop reinforcements are generated, and contracts showing how many troops and supplies can be moved by either river or rail.

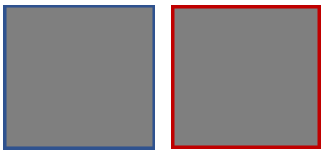

Figure 10. Game Turn Marker

Source: Created by author.

3.0 Set-Up

Each player will place their Game Turn Marker on the first turn on their player's aid (Turn 1, Jan).

The following table will illustrate where and how many Armies, leaders, and supplies should be placed on the map to start the game:

Table 1. Union Player Set-up

		Union	
Location	**General**	**Number of Troops**	**(brigades/green/red)**
Cairo, IL	Union Leader	10,000	(5/7/3)
Paducah, KY	Union Leader	10,000	(5/7/3)
Louisville, KY	Union Leader	40,000	(20/28/14)
Lexington, KY	Union Leader	8,000	(4/5/2)
St. Louis, MO	Union Leader (x2)	71,000	(35/49/24)
		139,000	69 total brigades

Source: Created by author.

Table 2. Confederate Player Set-up

Confederate			
Location	**General**	**Number of Troops**	**(brigades/green/red)**
Columbus, KY	Confederate Leader	15,000	(7/9/4)
Bowling Green, KY	Confederate Leader	30,000	(15/21/10)
Ft. Henry	Confederate Leader	2,000	(1/5/5)
Ft. Donelson		2,000	(1/5/5)
New Orleans, LA		8,900	(4/5/2)
Mobile, AL		9,300	(5/7/3)
Pensacola, FL		9,000	(5/7/3)
Springfield, MO	Confederate Leader	7,000	(3/4/2)
Little Rock, AR	Confederate Leader	17,000	(8/11/5)
Fayetteville, AR	Confederate Leader	8,000	(4/5/2)
		108,200	53 total brigades

Source: Created by author.

Recommendation when setting game up: Place Union Unit Counters with appropriate numbers facing south and place Confederate Unit Counters with appropriate numbers facing north to indicate how many brigades are in an Army. Stack Unit Counters on top of each other with the lowest number needed to fulfill what is listed in tables 1 and 2 above. For example, Little Rock indicates eight brigades, so one Confederate Unit Counter would be placed at Little Rock with the number six facing north and a second Confederate Unit Counter would be stacked on top of the first Unit Counter with the number two facing north giving the Confederate player a total of eight brigades. Using this technique allows the players to do a quick count of how many brigades are in each

area by counting all bottom stacks, which cannot be seen, by six and adding the number showing on the top of the stack. Leader Counters will be stacked on top of the Unit Counters. Keep supplies stacked in a neatly order as it can become congested and confusing during game play if a player allows their supplies to be haphazardly stacked.

Figure 11. Set-up Illustration

Source: Created by author.

4.0 Sequence of Play

This game is played over a series of 24 turns, each turn representing approximately two weeks. Each turn will be played in the following sequence: (1) Supply and Reinforcement Generation, (2) Movement of Supply and Troops, (3) Battle and Destruction/Repair of Rail Line, (4) End of Turn.

4.1 Supply and Reinforcement Generation

Supplies are generated only on odd turns; on even turns this step is skipped (see Appendix C, Player's Aid). Confederate supplies are generated at Confederate Resource Spaces with 10 Food Supplies and 5 War Supplies unless the area is controlled by Union player, in which case no supplies are generated. Union supplies are generated off map with a regularity of 40 Food Supplies and 20 War Supplies at St. Louis and Indianapolis.

Soldier reinforcements are generated only on turns 8 (APR), 10 (MAY) 12 (JUNE), 14 (JULY), and 16 (AUG) (see Appendix C, Player's Aid). Confederate reinforcements are produced at one brigade per state, except Florida, as long as at least 50 percent of the state is still controlled by the Confederacy, not counting Forts (see table 3).

Table 3. Required Number of Areas Controlled by Confederate Player to Produce Confederate Reinforcements by State

State	Number of Areas
Alabama	3 or more locations
Arkansas	3 or more locations
Florida	does not produce reinforcements
Georgia	2 or more locations
Louisiana	3 or more locations
Mississippi	6 or more locations
Tennessee	3 or more locations

Source: Created by author.

Confederate reinforcements are generated at the capital of the state; if capital is taken, but player still controls required number of areas (listed in table 3) to produce reinforcements, the reinforcements are generated in location furthest away from Union controlled location within that state. If there is more than one location that fits that description, it is at the Confederate player's discretion where reinforcements are generated.

Union reinforcements are generated by creating new Armies. One Union Unit Counter with four brigades at Indianapolis, and one Union Unit Counter with four brigades at St. Louis.

4.2 Movement of Supplies and Troops

Movement of Supplies and Troops takes place on either the roads, rail lines, or on the rivers. Each mode of movement has different rules associated with it and distinct advantages and disadvantages a player must consider.

Movement by rail lines or rivers are done by expending contract points. The Union player has eight contract points per turn to spend on rail or river travel. Additionally, the Union player can enact Railroad Generalship giving the player an additional two contract points that can be used for rail travel only. The Confederate player has eight contract points per turn to spend on rail or river travel. Each player will need to track how many contract points have been used during a turn. Any contract points not spent during a turn are discarded; contract points cannot be saved for another turn.

Travel on the Mississippi and Arkansas River cost one contract point and all other rivers cost two contract points to move supplies and troops. Player's will spend the appropriate contract points for each river that is traversed. For example, if a player ships supplies and/or troops on the Mississippi and Cumberland Rivers, then the player would spend three contract points; one for the Mississippi River and two for the Cumberland River.

Rail lines cost one contract point for each change of cardinal direction and change of rail gauge size (see Appendix C, Player's Aid). A change of cardinal direction is changing from north/south line to east/west line. If a line is moving north and the line veers off to the northeast or northwest, no additional contract point is required to be spent. For example, if a player wanted to move supplies and/or troops from Selma, Alabama west and then south via Jackson, Mississippi to New Orleans, Louisiana, that player would spend three contract points. One contract point for the various gauge rail line from Selma, Alabama to Meridian, Mississippi, a second contract point from Meridian, Mississippi to Jackson, Mississippi for transitioning to standard gauge (even though the rail line is still running in the same cardinal direction), and finally a third

contract point for transitioning to a rail line that is running north/south to New Orleans, Louisiana.

Each rail contract can support up to a total of six brigades, or 12 supply cubes, or a combination of brigades and supply cubes as the following table indicates (see Appendix C, Player's Aid).

Table 4. Rail Contract

6 Brigades/0 supplies
5 Brigades/2 supplies
4 Brigades/4 supplies
3 Brigades/6 supplies
2 Brigades/8 supplies
1 Brigade/10 supplies
0 Brigades/12 supplies

Source: Created by author.

Each river contract can support up to a total of eight brigades, or 16 supply cubes, or a combination of brigades and supply cubes as the following table indicates (see Appendix C, Player's Aid):

Table 5. River Contract

8 Brigades/0 supplies
7 Brigades/2 supplies
6 Brigades/4 supplies
5 Brigades/6 supplies
4 Brigades/8 supplies
3 Brigades/10 supplies
2 Brigades/12 supplies
1 Brigade/14 supplies
0 Brigades/16 supplies

Source: Created by author.

The Union player has the initiative and will move first at the beginning of each turn. Each player will take turns conducting actions including moving supplies/brigades to desired areas, battling for areas, and destroying/repairing rail lines. A player taking an action consists of moving supplies/brigades from one area to another area. There is no limit to how many supplies/brigades can be moved from one area to another during a player's action other than what is restricted by contracts or modes of transportation. Once a player has taken an action, the Army that was moved is considered exhausted and cannot be moved again during that turn. (To keep track of which brigades have moved and are considered exhausted, it is recommended to stand the Unit Counters on its side with the correct brigade number at the top.) After a player is complete with an action, the opponent will take their action, and this process will continue until each player consecutively passes on their action, at which point the end of the turn will take effect

(see 4.4 End of Turn). Players will take actions within limitations given for contracting per mode of transportation and the associated rules:

1. Players must expend one food supply per brigade prior to moving regardless of distance moved or mode of transportation.
2. Supplies/brigades moving by road can travel up to one location in a turn as long as there is a road or rail line, which can be substituted as a road for the purposes of movement by foot, illustrated on the map.
3. Each brigade can carry on foot when traveling by road up to three supply cubes.
4. Supplies/brigades moving by rail or river can move anywhere on the map, as long as it is supported by the appropriate number of contract points, previously described, and the area is not contested nor the rail line is destroyed.
5. Supplies/brigades cannot move past contested areas including areas with enemy troops and enemy owned fortified areas, even if no enemy troops are present.
6. Armies can move freely into uncontested areas, even if the area is controlled by the enemy, but is not occupied by enemy troops or is not an enemy fortified area.
7. Armies can be moved only one time during a turn regardless the mode of transportation. Supplies can be moved many times during a turn.
8. Armies moving into uncontested enemy areas gain control of the area and will place the corresponding Area Control Counter on the area to indicate which player controls the area.

Example of play using movement as follows: Union player moves 24 supplies and four brigades from St. Louis via Mississippi River to Cairo (accounting for two contract points spent, one for 4 brigades/8 supplies and one for 16 supplies per table 5). Confederate player moves six supplies and three brigades from Bowling Green to Clarksville via rail line (accounting for contract point spent). Union player moves 16 supplies from Indianapolis to Paducah via Wabash River (again accounting for contract points spent for a total of four contract points spent from the first and current moves). Confederate player moves seven supplies and four brigades from New Orleans to Island No. 10 via the Mississippi River (accounting for a contract point for a total of two contract points including the second and current turn).

Up to this point no players have entered a contested area and have been able to move freely. Once a player decides to move into a contested area or destroy/repair a rail line then a sub phase of battle will begin, which does not end the turn, but must be resolved before further action is conducted.

4.3 Battle and Destruction/Repair of Rail Line

Armies moving into a contested area (area occupied by enemy troops or enemy controlled fortified area whether or not occupied by troops) must have a leader attached at which point the battle sequence begins. One exception to the action rule limiting a player to only moving supplies/brigades from one area to another is the coordinated attack action. The coordinated attack action allows a player to move two or more Armies located in adjacent friendly controlled areas that are also adjacent to the enemy contested area for an attack. The player using the coordinated attack action will lose one battle dice for each additional Army to represent some level of difficulty of coordinating attacks. For

example, a player who meets the required conditions to conduct a coordinated attack with three different Armies would lose two battle dice if all three Armies were enacted.

The players have various options to choose from during the battle sequence as follows:

1. Refusing Battle

    a. Defender may refuse battle by moving to an adjacent friendly area, if there is one available; if that is not an option, the defender must fight (movement to adjacent friendly area means Supplies/Soldiers moving by foot to a location that does not have a road or rail line represented on the map may only move one location away from origin point but cannot cross a river without a road or rail line).

    b. When the defender moves into an adjacent friendly area, the defender will leave all supplies behind, unless a leader is with the unit in which case the unit will leave behind 1/2 of each supply type, rounding up.

    c. The attacker automatically moves into the area the defender left and acquires supplies left behind, that ends that Army's turn.

2. Accepting Battle

    a. Attacker must expend war supplies to earn battle dice (war supply goes back into the pool of supplies). Each war supply equals one battle dice. Players may not earn more battle dice than the number of brigades in their Army. For example, a player with 12 war supplies and 10 brigades may only earn 10 battle dice, and the reverse is true if a player has 10 war supplies and 12 brigades then only 10 battle dice could be earned.

b. Defender may, but is not required to expend war supplies to earn battle dice, (one war supply = one battle dice)

3. Conducting Battle

a. Defender rolls battle dice (1 or 2 results in 1 brigade from attacker's Army being eliminated, and for every 2 brigades eliminated from the attacker, the attacker also loses a battle dice)

b. Attacker rolls battle dice (1 or 2 results in 1 brigade being removed from defender's Army)

4. Attacking an Unoccupied Fortified Area

a. Fortified areas represent having an ability to defend itself. Each fortified area has a defense of 3.

b. The attacking Army must be able to roll three battle dice with either a 1 or 2 to take control of the fortified area. Earning battle dice is the same as described above in paragraph 2) Accepting Battle.

c. If an attacking Army fails to take control of the fortified area, then that Army moves back to the area it was in prior to attacking with no penalties other than the supplies it lost while attempting to attack.

5. Attacking an Occupied Fortified Area

a. Attacking a fortified area with an occupying defending Army is as described in the aforementioned paragraphs 2) Accepting Battle and 3) Conducting Battle.

b. Attacking Army will eliminate the fortification's defense points first (first three battle dice with a roll of 1 or 2 count towards defeating the

fortification's defenses), and then any additional battle dice with a result of a 1 or 2 will eliminate the opponent's brigades as previously described.

6. Determining Battle Results

a. At the conclusion of battle, if an Army is not destroyed, the number of brigades and leaders are counted. If an Army is occupying a fortified area, the additional defense points associated with the fortified area are counted as well. The player with the highest number achieves victory; if there is a tie, the defender is the victor.

b. If the defender is the victor, the attacking Army leaves all its supplies with the defender and moves back to the area it was in prior to attacking.

c. If the attacker is the victor, the defender must leave all its supplies with the attacker and move to adjacent friendly area, and the attacker occupies territory.

d. If defender cannot retreat to an adjacent friendly area (see rules above regarding a defender refusing battle for clarification), the defending Army must surrender; meaning all brigades and leaders of that Army are removed from the board.

Player's may also decide to destroy or repair a destroyed rail line which is conducted by the following actions:

1. Destruction of Rail Line

a. A player expends four war supplies (must also have at least four brigades and a leader) and designates a rail line to be destroyed during their action.

b. The length of rail line that is destroyed is only the distance of rail line that links the closest two areas together. For example, a player who has an Army with the appropriate supplies, brigades, and a leader at Jackson, MS could destroy one of four sections of rail lines (Jackson, Mississippi to Vicksburg, Mississippi; Jackson, Mississippi to Winona, Mississippi; Jackson, Mississippi to Meridian, Mississippi; or Jackson, Mississippi to Holmesville, Mississippi).

c. The player destroying the rail line will place the Rail Line Destruction Counter next to the section of the rail line that is being destroyed. At the end of the turn, if the enemy has not interfered (see below), the Rail Line Destruction Counter is placed on the section of the rail line illustrated it is destroyed and cannot be used until it is repaired.

d. If an opponent player attacks the unit trying to destroy the rail line before the end of the turn, the Army destroying the rail line must accept battle and win the battle in order for the destruction of the rail line to take effect at the end of the turn. (An opponent can move supplies/brigades through the rail line intended to be destroyed until the rail line is actually destroyed per guidance in previous paragraph).

2. Repair of Rail Line

    a. The same rules apply to repairing a rail line as outlined for destroying a rail line. Follow the steps of destroying a rail line and substitute destroy for repair.

4.4 End of Turn

Once both players have passed on their actions, then the end of the turn takes effect. Destruction or Repair Rail Line Counters are placed on the Rail Line. The Game Turn Marker is moved to the next number on the Player's Aid and the players start back from Supply and Reinforcement Generation sequence as appropriate.

5.0 Victory Conditions

The Union Player can achieve victory through one of two ways:

1. Decimating the Confederate Army (Union has a 5:1 ratio by end of turn 24 or 8:1 ratio prior to turn 24, or there are no more leaders remaining). The player will calculate at the end of a turn.

or

2. Capturing at least four Confederate Resource locations effectively cutting off resupply ability and at least three state capitols.

and

3. Capturing key locations along the Mississippi River (all but Vicksburg, Grand Gulf, and Port Hudson) effectively cutting off the Confederate Army's ability to use the rivers and ports in New Orleans for resupply as the Confederate rail lines lack capacity to fully support all supply efforts required by the Confederate Army.

The Confederate Player can achieve victory through “holding the line”:

1. Maintaining its Army above the prescribed ratio limits given to the Union player to achieve victory.

and

2. Holding Confederate territory; at least five of eight Confederate Resource locations and at least five of seven state capitols. (By the end of December 1862, the Confederates still had possession of Jackson, Selma, Columbus, Atlanta, and Little Rock as primary resource centers, and five state capitols including Little Rock, Atlanta, Montgomery, Jackson and Tallahassee.)

and

3. Holding more than four locations along the Mississippi River, three of which include Vicksburg, Grand Gulf, and Port Hudson.)

APPENDIX B

MAP OF AMERICAN CIVIL WAR WESTERN THEATER

Figure 12. Map of American Civil War Western Theater, 1862

Source: Created by author.

APPENDIX C

PLAYER'S AID

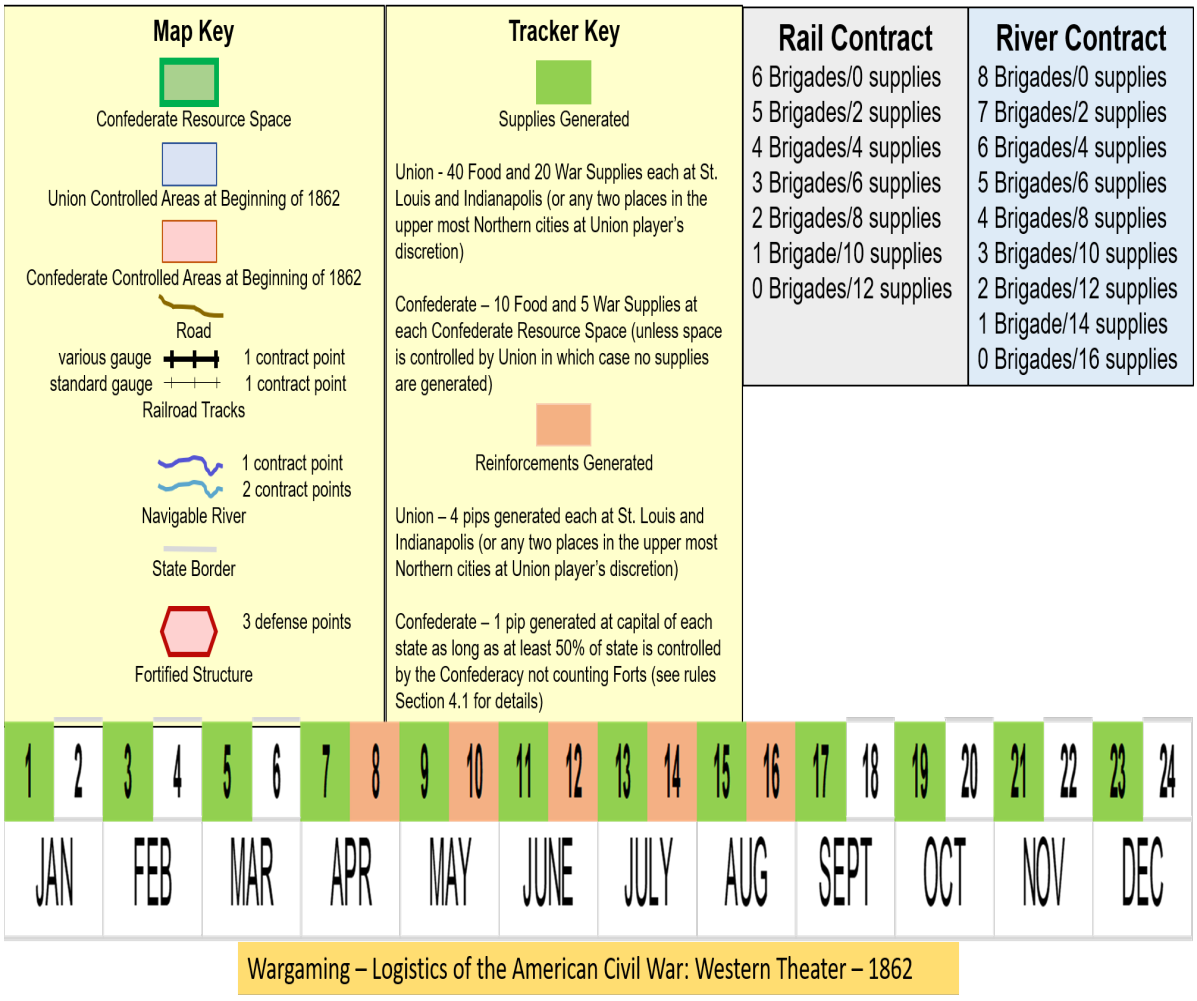

Figure 13. Player's Aid Handout

Source: Created by author.

APPENDIX D

COUNTERS

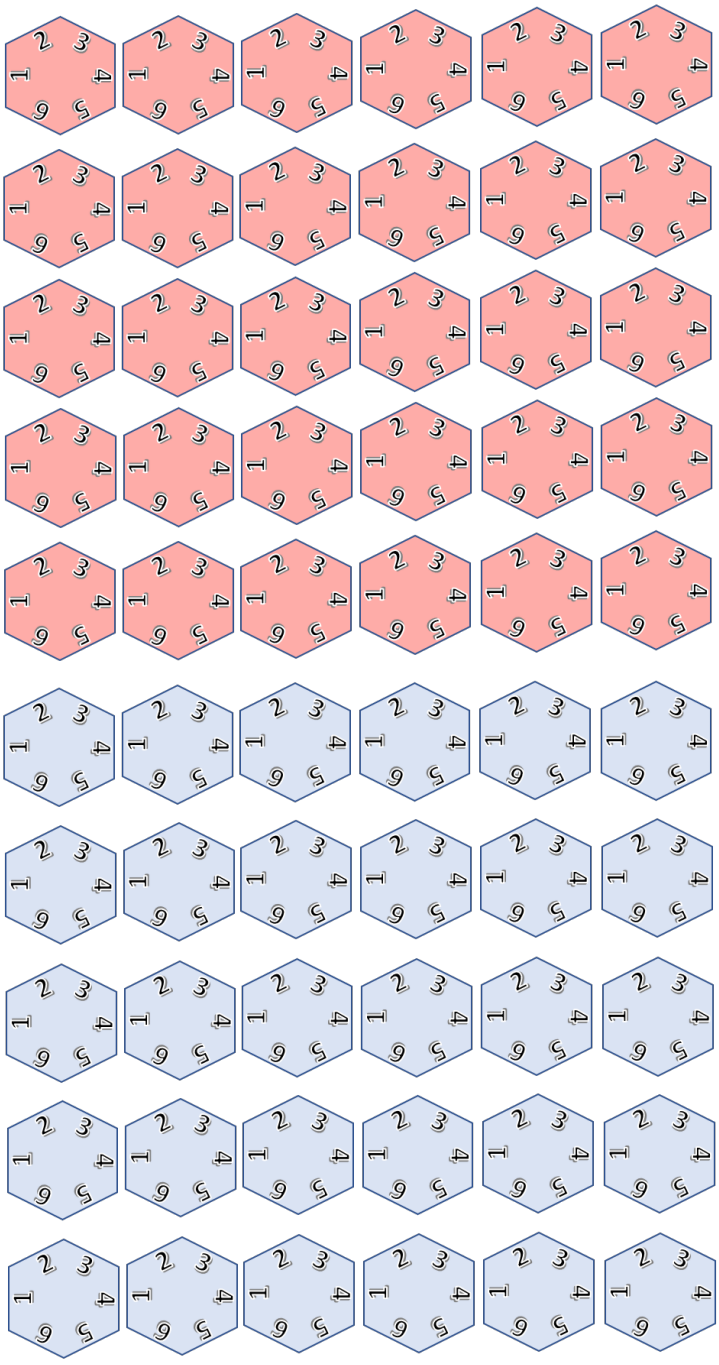

Figure 14. Unit Counters

Source: Created by author.

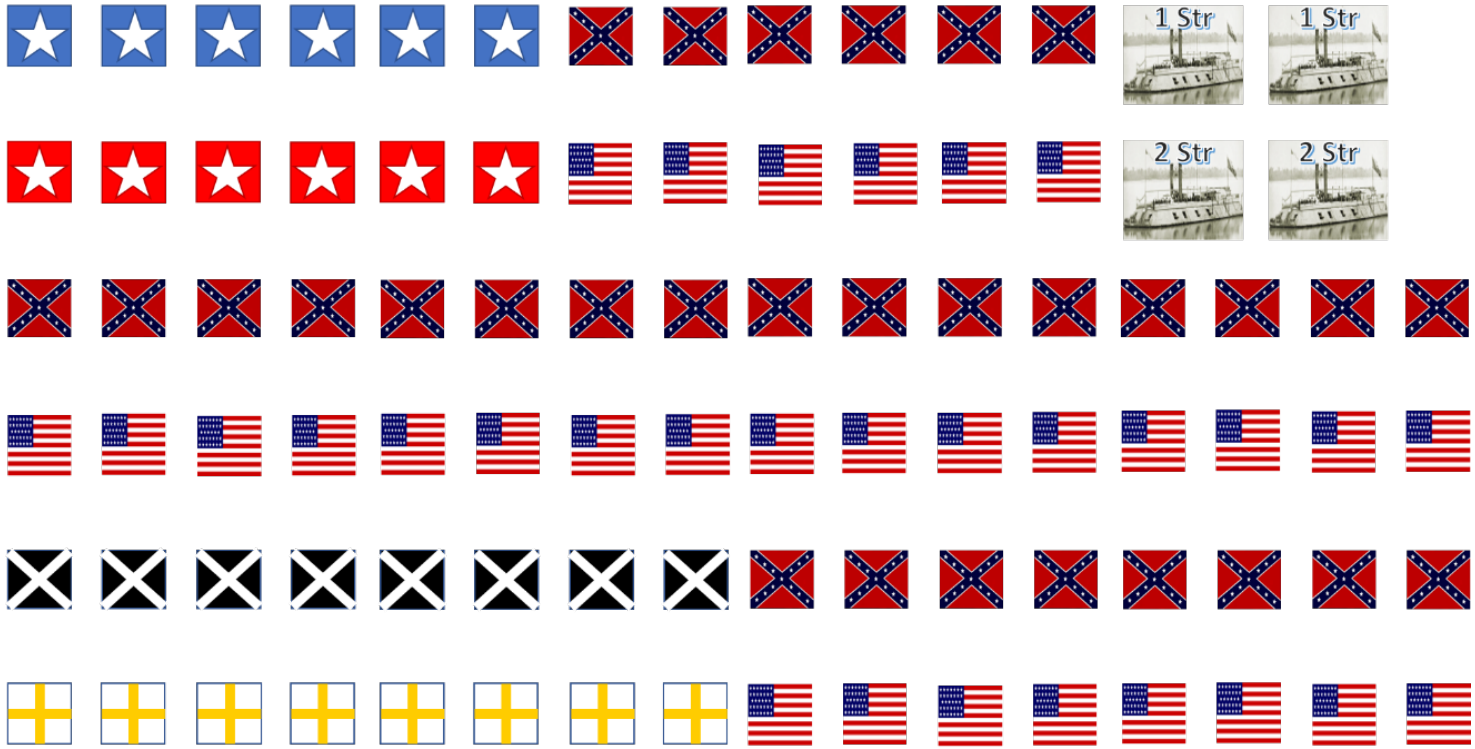

Figure 15. Various Counters I

Source: Created by author.

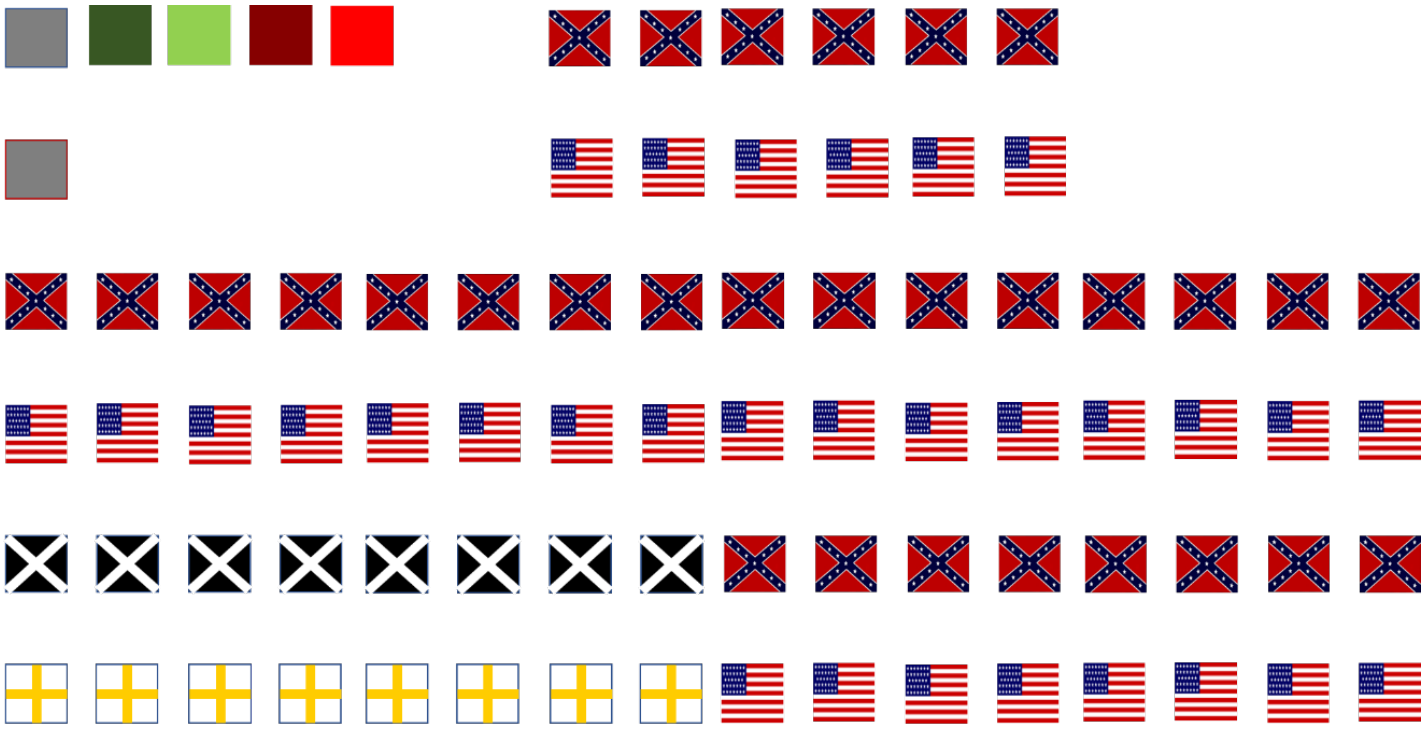

Figure 16. Various Counters II

Source: Created by author.

BIBLIOGRAPHY

Publications

Bowery, Charles R. *The Civil War in the Western Theater, 1862*. Washington, DC: Center of Military History, United States Army, 2014.

Detweiler, M. David. *The Civil War: The Story of the War with Maps*. Mechanicsburg, PA: Stackpole Books, 2014.

Gabel, Christopher R. *Railroad Generalship: Foundations of Civil War Strategy*. Fort Leavenworth, KS: Combat Studies Institute, U.S. Army Command and General Staff College, 1997.

———. *Rails to Oblivion: The Decline of Confederate Railroads in the Civil War*. Fort Leavenworth, KS: Combat Studies Institute, U.S. Army Command and General Staff College, 2002.

Gates, Le Duc William, and Adam Scher. *This Business of War: Recollections of a Civil War Quartermaster*. St. Paul, MN: Minnesota Historical Society Press, 2004.

Groom, Winston. *Shiloh, 1862*. Washington, DC: National Geographic Society, 2014.

Headquarters, Department of the Army. Army Doctrine Reference Publication (ADRP) 4-0, *Sustainment*. Washington, DC: Government Printing Office, 2012.

———. Army Doctrine Reference Publication (ADRP) 3-0, *Operation*s. Washington, DC, Government Printing Office, 2016.

Hess, Earl J. *Civil War Logistics: A Study of Military Transportation.* Baton Rogue: Louisiana State University Press, 2017.

Hyde, Henry. *The Wargaming Compendium.* South Yorkshire: Pen and Sword Military, 2014.

Long, E. B., Bruce Catton, and Barbara Long. *The Civil War Day by Day: An Almanac, 1861-1865*. New York: Da Capo Press, 1971.

McPherson, James M. *War on the Waters: The Union and Confederate Navies, 1861-1865*. Chapel Hill, NC: University of North Carolina Press, 2012.

Parker, Geoffrey. *The Cambridge History of Warfare*. New York: Cambridge University Press, 2005.

Perla, Peter. *The Art of Wargaming a Guide for Professionals and Hobbyists*. Annapolis, MD: Naval Institute Press, 2011.

Rice, Jonathan K. *Moving Mountains: A Study in Civil War Logistics*. Bloomington, IN: Xlibris Corp, 2011.

Sabin, Philip. *Simulating War: Studying Conflict Through Simulation Games*. New York: Bloomsbury Publishing, 2012.

Smith, Timothy B. *Grant Invades Tennessee: Tthe 1862 Battles for Forts Henry and Donelson*. Lawrence: University Press of Kansas, 2016.

———. *Shiloh: Conquer or Perish*. Lawrence: University Press of Kansas, 2014.

Sterrett, James. "Time, Space, Assets, Resolution," MMAS, Wargaming Small Group Lecture Series, Fort Leavenworth, KS, September-November 2017.

Swanson, Mark, and Jacqueline D. Langley. *Atlas of the Civil War, Month by Month: Major Battles and Troop Movements*. Athens: University of Georgia Press, 2004.

U.S. Joint Chiefs of Staff. Joint Publication (JP) 3-0, *Joint Operations*. Washington, DC: Government Printing Office, 2017.

Van Creveld, Martin. *Supplying War: Logistics from Wallenstein to Patton*. New York: Cambridge University Press, 2004

Woltjer, Rodger. *American Civil War: Support Services of the Confederate Army.* New York: Merriam Press, 2017.

———. *American Civil War: Support Services of the Union Army.* New York: Merriam Press, 2017.

Websites / Films

American Battlefield Trust. "The Civil War in Four Minutes: Army Organization." YouTube. June 7, 2013. Accessed January 13, 2018. https://www.youtube.com/watch?v=DgqHXVTYfl0.

Civil War Talk. "Building a Brown Water Navy." American Civil War Forums. Accessed December 12, 2017. civilwartalk.com/threads/building-a-brown-water-navy.105324/.

———. "Railroads of the Confederacy." Accessed January 18, 2018. https://www.civilwar.org/learn/articles/railroads-confederacy.

CRW Flags. "34 Star Flag - (1861-1863) (U.S.)." South Sudan. Accessed October 22, 2017. www.crwflags.com/fotw/flags/us-1861.html.

The Civil War: A Film by Ken Burns. By Ken Burns, Geoffrey C. Ward, and David G. McCullough. Produced by Ric Burns.

Wikimedia Foundation. “Modern Display of the Confederate Flag.” Accessed October 22, 2017. en.wikipedia.org/wiki/Modern_display_of_the_Confederate_flag.

Games

Andruszkiewicz, Jaro, and Waldek Gumienny. “1944: Race to the Rhine.” Phalanx: London, United Kingdom, 2014.

Angiolino, Andrea, and Mainini Andrea. “Sails of Glory.” Camaiore LU, Italy: Ares Games, 2013.

Besinque, Craig. “Triumph and Tragedy: European Balance of Power.” Hanford, CA: GMT Games, 2015.

Chadwick, Frank. “Battle for Moscow,” 2nd ed. GMT Games, RBM Studio, Victory Point Games, 2009.

Fry, Phil. “1805: Sea of Glory.” Hanford, CA: GMT Games, 2009.

Fryxelius, Jacob. “Terraforming Mars.” Vellinge, Sweden: FryxGames, 2016.

Herman, Mark. “We the People: The American Civil War 1861-1865,” 3rd Printing. The Avalon Hill Game Co, Devir, GMT Games, 2014.

Myers, James R. “Logistics Command.” Westinghouse: Pittsburgh, PA, 1978.

Racer, Ted. “Paths of Glory: The First World War.” Hanford, CA: GMT Games, 1999.

Russell, Tom. “Supply Lines of the American Revolution: The Northern Theater, 1775-1777.” Hollandspiele, 2017.

Sivél, Richard. “Friedrich.” Rio Rancho, NM: Rio Grande Games, 2004.

Smith, Eric Lee. “The Civil War.” Victory Games, 1983.

Vaccarino, Donald X. “Dominion.” Rio Rancho, NM: Rio Grande Games, 2008.

von Reisswitz, George Heinrich Leapold Freiherm, and von Reisswitz, George Heinrich Rudolf Johann Baron. “Kriegsspiel.” United Kingdom: Too Fat Lardies, 1824.