HISTORICAL SIMULATION AND THE AMERICAN CIVIL WAR

A thesis presented to the Faculty of the U.S. Army Command and General Staff College in partial fulfillment of the requirements for the degree

MASTERS OF MILITARY ART AND SCIENCE

by

CHARLES D. COLLINS, JR., MAJ, USA
B.A., Southwest Missouri State University
Springfield, Missouri, 1977

Fort Leavenworth, Kansas
1991

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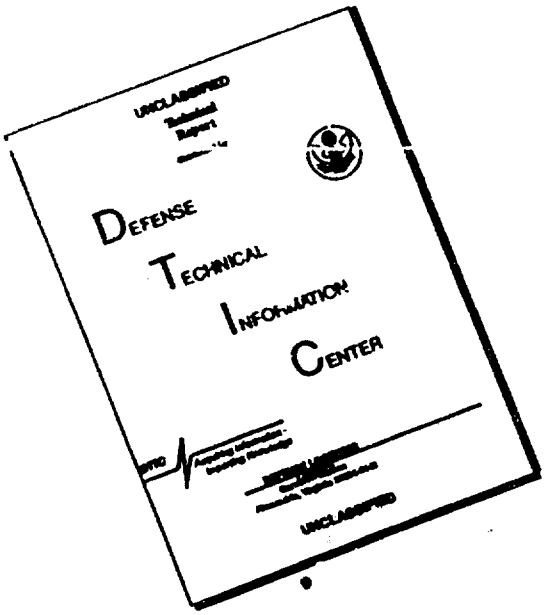

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Approved by:

Mark K Megehee, Thesis Committee Chairman
Mark K. Megehee, M.A.

Robert E Gillespie, Member
LTC Robert E. Gillespie, M.A.

Lowndes F. Stephens, Member, Consulting Faculty
LTC Lowndes F. Stephens, Ph.D.

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Philip J. Brookes, Ph.D.

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 government agency. (References to this study should include the foregoing statement.)

ABSTRACT

HISTORICAL SIMULATION AND THE AMERICAN CIVIL WAR by MAJ Charles D. Collins, Jr., 199 pages.

This analysis examines the validity of using miniature wargaming to study the American Civil War. The analysis specifically examines the miniature wargame rules, STARS*N*BARS III. The goal is to determine whether Civil War combat can be accurately simulated with miniature wargaming.

The study first examines the simulation's rule mechanics to determine their historical soundness. Infantry, cavalry, and artillery combat are each examined in three sections: unit organization, maneuver, and firepower. Each section is subdivided into three areas for analysis: First, an overview of how the section is simulated; Second, an historical overview of the section; and, finally, a determination of historical accuracy.

The rules are then applied in simulating two historical Civil War battles. The battle of New Market is gamed as a controlled reenactment the results of which are compared against the actual battle. The battle of Cedar Mountain is executed as a free-flowing wargame to evaluate historicity.

The overall conclusion of the study is that, although not exact, acceptable accuracy can be achieved in simulating Civil War combat. Wargaming can be used to study history. In historical simulations, gaming and history complement each other in building a more complete understanding of the period's warfare.

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Figures 14, 15, 16 and 17: William Davis, The Battle of New Market (Baton Rouge: Louisiana State University Press, 1983)

LIST OF CHARTS

CHAPTER 1

INTRODUCTION

> Here was the war that went closer to the bone and left a deeper imprint on the national spirit than any other war we ever fought. How did we approach it, how did we fight it and what did we do with the baffling combination of triumph and defeat with which the war left us?
>
> Bruce Catton[1]

The American Civil War was the largest and most costly war ever fought on the American continent. Countless volumes of literature are available to the student of history who wishes to study the conflict. Our nation has also preserved many Civil War battlefields as National Historical sites providing an additional student resource. Amateur and professional historians alike can walk and study the grounds where history was made.

Military historians have devoted countless hours to the study of the Civil War. Their efforts range in nature from an extensive study of leadership to a detailed analysis of the evolution of warfare in the War Between the States. Even though the war was fought more than one hundred years ago, it still captivates interest and offers valuable lessons for today's professional soldier.

This analysis examines the validity of using miniature wargaming to study the American Civil War. The analysis specifically examines Scotty Bowden's miniature wargame rules, STARS*N*BARS III, a simulation for the American Civil War.[2] The goal is to determine whether Civil War combat can be accurately simulated with miniature wargaming.

Although many wargame rules are available for the American Civil War, only STARS*N*BARS III by Empire Game Press allows the wargamer to simulate corps or army level battles while still retaining regiments and batteries as separate maneuver units. Most designers who provide simulations for tactical combat restrict the players to a brigade or possibly one division per side. STARS*N*BARS III is widely accepted as presenting the best simulation for the period.[3] Bowden proclaims that STARS*N*BARS III, more than a mere game, provides a useful simulation of history. Overall, his goal is to have the participant within the simulation feel as if he has gone back in time and space and is actually contending with the problems his historical counterpart faced. Empire Games believes that a study of history is absolutely vital prior to participation in its simulations. They strive to provide not only a game but a tool with which the wargamer can create a model of a battle from the American Civil War.[4]

The purpose of this study is to examine the historical accuracy of the "Stars and Bars" simulation. The reader must accept one basic assumption in order to establish the

historical accuracy of the simulation. For a simulation to be historically accurate, it does not have to produce the exact results as recorded for the historical event. However, the simulation should produce results very similar to those recorded for the event in history, or justify alternative results based upon different actions taken by the simulation participant. The alternative results should reflect the historically demonstrated qualities of the troops, weapons, and leadership involved.

Chapter two of this thesis will provide a brief history of wargaming. This chapter will also include an overview of various rules used to simulate the American Civil War and an introduction to STARS*N*BARS III. Chapters three and four will examine the rule mechanics of the simulation and whether or not the rules are historically sound. Chapter three will concentrate on infantry combat. Chapter four will deal with the cavalry and artillery. Both chapters, in order to accomplish their goal, will answer numerous questions: Does the simulation accurately reflect: (a) Historical frontages and unit sizes? (b) Unit formations, and the capabilities and liabilities of those formations? (c) Unit movement rates and the affects of time, distance and terrain? (d) Different period weapons and their effectiveness? (e) Historical casualty rates and the affects of those casualties on the unit? (f) Realistic time requirements on Civil War battlefields?

Chapter five provides an overview of battlefield command and morale on the Civil War battlefield. Command and Control factors play a key role in the outcome of a battle. A Civil War commander had no guarantees that his orders would be carried out. Many factors assisted or hindered the execution of the commander's orders including the professional skills and abilities of the commander and his staff. The capabilities and current circumstances of the unit receiving the orders must also be considered. This study will examine how well these factors are incorporated into the game simulation?

Chapter six will examine two historical simulations. The purpose of this chapter is to assess whether "Stars and Bars" provides an accurate simulation of the battles of New Market (1864) and Cedar Mountain (1862). These battles were selected because, in each, the infantry, cavalry and artillery all played distinct and significant roles. Additionally, both battles are small enough to allow for a detailed examination. The battle of New Market will not be simulated as a regular free-flowing game. Instead, the actions of the units will be executed as closely to the historical events as possible. The simulation action and results will then be compared with those of the actual battle. The battle of Cedar Mountain will be fought as a regular wargame. The simulation actions and results will then be compared with the historical battle. Chapter seven will state the conclusions of the study.

INTRODUCTION

NOTES

(1)Bruce Catton, America Goes to War(Middletown, Connecticut: Wesleyan University Press, 1958), 13.

(2)This study specifically examines Scotty Bowden's, STARS*N*BARS 3RD EDITION, A SIMULATION FOR THE AMERICAN CIVIL WAR (Arlington, Texas: Empire Games Press, 1985). The simulation analysis refers to the 3rd edition (copy right 1985). The analysis may not apply to any subsequent reprints and revisions of the simulation.

(3)Bill Sessions, "The American Civil Wargame In Miniature, A Review," The Courier Vol. 1, No. 6 (May 1980):3-8.: Jeff Jonas, "American Civil War-Gaming". Military Modeler Vol. 7, No. 9. (Sept 1980) : 41, 70-71.

(4)Scotty Bowden and Rob Smith, STARS*N*BARS 3rd Edition, A Simulation For The American Civil War, (Arlington.Texas: Empire Games Press, 1985), P1-P3.

CHAPTE. 2

WARGAMING

> How much better is this amiable miniature than the Real Thing! here is a homepoathic remedy for the imaginative strategist. Here is the premeditation, the thrill, the strain of accumulating victory or disaster- and no smashed or sanguinary bodies, no shattered fine buildings nor devastated country sides, no petty cruelties, none of that awful universal boredom and embitterment, that tiresome delay or stoppage or embarrassment of every gracious, bold, sweet, and charming thing, that we who are old enough to remember a real modern war know to be the reality of belligerence.
>
> H.G. Wells
> "Little Wars"
> 1913[1]

Wargaming is a system which allows the diverse elements of war to be quantified and organized mathematically so that they can be easily manipulated to simulate actual combat.[2] Wargaming can be played on a two dimensional terrain map with cardboard markers representing units (board gaming) or on a three dimensional terrain map with scale model units (miniature wargaming). Many computer simulation wargames are also available and are very similar to board gaming.[3]

The hobby of wargaming began in 1900 with H. G. Wells' book, Little Wars. However, wargaming is almost as old as civilization itself. Archaeologists have found

small, wooden soldiers in Egyptian tombs, clay figurines from Alexander's era, and small, lead legionaries made during the days of the Roman Empire. Most historians consider the game of chess to be one of the first wargames. Ancient Iraqians played a chess-like game as early as 5000 years ago. Military leaders in ancient India also played a chess-like game called "Chatuianga". Chatuianga used a stylized terrain map. The playing pieces incorporated the four basic arms of India's Army: elephants, chariots, cavalry and infantry. Chess continued to be a limited and abstract simulation of warfare through the Middle Ages and the Renaissance. In 1614, Alberto Struzzi made one of the more noteworthy attempts to expand the role of wargaming. He created an army of miniature wooden soldiers and used them to provide military instruction to the boy who would become Philip IV of Spain.[4] In the late eighteenth century a Scotsman named Jame Clerk, used ship models to work out naval manuevers. His writings were said to be highly respected by both Nelson and Rodney. Rodney credited Clerk with devising the tactics that defeated the French fleet of Admiral de Grasse at the battle of the Saints.[5]

Modern wargaming probably began around 1812 in Prussia. Von Reissiwitz developed a wargame called "Kriegspiel" for his son. His game included terrain maps, dice and scale units for simulating battles. Von Reissiwitz's game decided the outcome of combat using historically-based tables from the Napoleonic Wars. In 1824, Von Reissiwitz's

son, then a lieutenant in the Prussian Guard Artillery, convinced the Chief of the German General Staff that Kriegspiel was more than a child's game. He believed that wargaming could be used to teach the art of warfare. Eventually, the German General Staff became staunch advocates of the Kriegspiel. As used by the Prussian Army, the object of Kriegspiel was not to win or lose but to teach sound tactical techniques. The General Staff also expanded the role of wargaming to formulate and evaluate war plans. Von Molke used Kriegspiel to test his mobilization plans for the Franco-Prussian War of 1870-1871.[6]

The United States Military continues to make extensive use of wargaming. Wargames are used to train leaders in decision making, and are still used to formulate and evaluate war plans. Several years ago, the U.S. Army used a game called, "Dunn Kempf" as a tactical trainer for company grade officers. Dunn Kempf used terrain boards and miniature lead vehicles to teach company/team tactics. Today, most of the Army's wargames use computer simulation. One of the best known examples is the Battle Command Training Program(BCTP). Using BCTP, brigade and division commanders are trained in the art of tactical and operational decision making. Another example is the Armor School's use of a networked simulation system called "SIMNET." In SIMNET, individual tank and infantry fighting vehicle crews occupy mock-up vehicles. The crews view battle simulations on computer monitors. Exercises at the National Training

Center are an example of life-size wargaming. The Air Force's "Red Flag" and the Navy's "Top Gun" are other examples of elaborate wargame models used for training.[7]

Unfortunately, the military makes little use of wargaming as a medium of study to rekindle interest in military history. The United States Military Academy does use a wargame to study the Vicksburg campaign. The simulation complements the military history studies course. Upon completion of the game, the cadets conduct a detailed, after action review to discuss why certain decisions were made and how they affected the outcome of the battle. The Air Force Academy also uses a commercially produced wargame, "Empire in Arms" by the Avalon Hill Game Company, to demonstrate examples of campaign strategy in their Napoleonic history course.[8]

As noted earlier the actual "hobby" of wargaming began around 1900. However, the English credit Robert Louis Stevenson as being the first person to play a wargame simply "for the fun of it." Mr. Stevenson designed a wargame in 1881 to help his young stepson, Lloyd Osbourne, through a difficult convalescence. Stevenson's game consisted of a large terrain map of roads, rivers, and towns chalked onto the attic floor. Stevenson and his stepson moved toy soldiers across the map with each turn representing a day. They inflicted casualties by physically throwing lead weights at the toy soldiers. Stevenson reported that his expert strategy was consistently foiled by his young step-

son's exceptional aim. Stevenson countered with a strategy of always allocating the wobblier soldiers to young Osbourne.[9]

H.G. Wells is considered the founder of wargaming as a hobby because of his book, Little Wars. Wells' game used a toy gun firing wooden bullets to inflict casualties. His tactics involved positioning of guns, proper use of cover, and the use of combined arms (cavalry moved at a ratio of two feet to the infantry's one). Mr. Wells also placed great importance on the massing of ones forces. He based his melee rules solely upon the numbers of soldiers involved. Little Wars also offered suggestions for a more advanced and realistic game. He provided rules for shell burst, rifle range, engineering, and leadership. Unfortunately, there is no evidence indicating that the British Army paid any attention to Mr. Wells' game.[10]

Wargaming remained a little known hobby from 1900 to 1950. The influence of the two World Wars probably had a significant affect on the failure of the hobby to grow. In the 1930s, a Captain J.C. Sachs did update the Little Wars rules. Peter Young (later Brigadier General Young), Charles Grant and Don Featherstone all began wargaming with Sach's version of Little Wars. All three went on to become some of the best known writers on the subject of wargaming.[11]

America's foremost wargamer during the 1930s was the journalist and military historian, Fletcher Pratt. His naval war game rules were used by wargamer hobbyists as well

as by the navy for training purposes. Pratt's rules are still available today because wargamers continued to update them through the years. Despite the efforts of these noted individuals, wargaming remained a little known hobby and, almost exclusively, an English pursuit until the 1950s.[12]

In 1952, an American infantry officer, Charles S. Roberts, designed the first, commercially produced, board game of war. His game, Tactics, launched wargaming into a well recognized and practiced hobby enjoyed by thousands around the world. In 1958, Roberts founded the Avalon Hill Game Company. His company produced sophisticated board games which included several wargames. Wargames later became their main product.[13]

In 1966, three U.S. Air Force officers pooled their resources and founded a magazine called Strategy and Tactics. This magazine was geared to the wargamer and concentrated on military history. In the 1970s, Strategy and Tactics formed a subsidiary company called Simulations Publications, Inc. This company eventually produced thousands of board games on everything from ancient warfare to future war in space. By the early 1970s, wargaming had grown from a small special interest hobby in Britain to a large, world- wide hobby. In the United States, most wargamers played board games while miniature wargaming was predominant in Britain.[14]

Miniature wargaming was imported from Great Britain to the United States during the 1970s. Initially, the

small figures used in tabletop gaming were only available from Great Britain. However, it wasn't long before many wargame shops were available in the United States as well. Scotty Bowden, author of STARS*N*BARS III, was instrumental in establishing one of the first wargame shops in the United States. Bowden later established the Empire Game Company which became well known for the historical accuracy of its games.[15]

The story of American Civil War wargaming goes back to 1958 with Charles S. Roberts' Avalon Hill Game Company. Two of the company's first games were "Gettysburg" and "Chancellorville." Both games, capitalizing on the upcoming centennial of the American Civil War, were financially successful. The two games are still available today. The success of the "Gettysburg" and "Chancellorville" games started a wargaming boom in the United States.[16]

Today, there are more than 250,000 confirmed board-gamers in the United States and another 75,000 miniature wargamers. Wargaming periodicals state that most hobbyists are, "Lovers of history who dare to ask the question, what if...?" Hundreds of board games focusing on the American Civil War are available for these gamers. They deal with everything from tactical to strategic levels of war. Their complexity ranges a span from those taking less than an hour to complete to those taking hundreds of hours to complete.[17]

One of the best known Civil War games, "The Terrible Swift Sword" is a grand tactical simulation of the

battle of Gettysburg by Simulations Publications, Inc.(SPI). Using "The Terrible Swift Sword" rules, SPI developed the "Greatest Battles of the Civil War" series. This series is credited with having the most different games developed from one basic set of rules. Currently, the "Great Battles" series consists of: Gettysburg, Kernstown, Wilson's Creek, Monocacy Junction, Pea Ridge, Shiloh, Cedar Mountain, Corinth, Cross Keys/Port Republic, Antietam, Pleasant Hill, Brice's Cross Roads and Tupelo. The "Great Battles" series provide a grand tactical game where individual, cardboard counters represent one regiment or artillery battery. Individual counters also represent brigade leaders and above. SPI acknowledges that the rules for the game are lengthy. However, they state that rather than being complex ,they are merely larger to accommodate historical accuracy.[18]

Several battles of the Civil War are not offered in board- game format. In addition many gamers prefer the visual appeal of ranks of butternut and gray fighting to overcome the ranks of blue. As a result, battles of the American Civil War period are some of the most popular periods in miniature wargaming.[19]

Many different sets of miniature wargame rules are available to those wishing to simulate American Civil War battles on the wargame table. As with board game simulations, the wargamer may choose wargame rules to simulate either tactical or grand tactical actions. In the tactical

game, the simulation participant assumes the role of a brigade or division commander. Tactical rules offer a detailed simulation of the regimental actions within a brigade. The game scale usually has one inch representing 20 yards and one model figure representing 20 men.[20]

Examples of tactical games are Rally Around The Flag by S. Craig Taylor and the Complete Brigadier by John Grossman. Both simulations are designed for the player to assume the role of the brigade commander. "Rally" is a simple set of rules and provides a fast, enjoyable game. The author's intent, however, was to provide a game concerned more with the flavor of the period than with historical accuracy. The "Brigadier", focuses the gamer on the complexity and importance of battlefield leadership. The gamer must provide detailed directives in order to control the drill of each regiment within a brigade.[21]

Grand tactical simulations allow a gamer to play the role of a division, corps or army commander. The scales vary according to the rules being used. An inch can represent anything from 20 yards to hundreds of yards. Figure scales can range from one figure representing as few as 20 men all the way up to hundreds of men. Many grand tactical games have blocks of men representing entire brigades or divisions.[22]

Examples of grand tactical simulations are On to Richmond and Johnny Reb. "Richmond" is an army level game with a figure scale of 1 to 100. At the other end of the

spectrum, using a figure scale of 1 to 20, "Reb" has its player assume the role of a division commander.[23]

Scotty Bowden's STARS*N*BARS III is a grand tactical simulation of the Americar Civil War. The wargamer plays the role of a corps or army commander while still moving individual regiments as maneuver elements. The game scale is one inch to 40 yards and one figure to 40 men. The rules stress the application of proper command and control, and the use of a realistic battle plan. The command and control aspect focuses on command decisions rather than on regimental drill.[24]

Scotty Bowden is best known as one of the leading authorities on the armies of Napoleonic France. He possesses one of the largest collections of Napoleonic archival materials outside of France.

> Bowden's work represents a major contribution to the historical literature on Napoleonic France.[25]
>
> -Military Review

> By relying on primary documents, Bowden has produced a work that clarifies many elements ignored by other historians".[26]
>
> -Military Affairs

Scotty Bowden has also written several books on the American Civil War including: Armies at the First Manassas, Armies at Gettysburg, and Armies at Chickamauga & Chattanooga. Bowden wanted STARS*N*BARS III to allow the gamer to recreate an entire day (or days) of battle. He also wanted

the game to yield realistic results without sacrificing the tactical exercises of individual regiments.

Bowden states that the fundamental task of the game designer is to control time within the simulation. He believes that the more closely he is able to pattern the events in a game after those of historical events the better job he has done in simulating history.[27]

A unique aspect of "Stars" is the telescoping time concept. Bowden believes this concept is necessary because, in the battles of the 19th century, there were actually two battles being fought simultaneously, the tactical battle and the grand tactical battle.

> The grand tactical battle was concerned with movement of significant numbers of units over large areas. This movement was for all practical purposes simultaneous by both sides and the amount of direct conflict with each other was minimal, tended to be of low intensity and long duration.
>
> On the other hand the tactical battles were intimate, intense and cyclic. They were done in the face of the enemy. Distances were short. Combat was sharp and decisive. The action of initiative flowed back and forth between the combatants. The time between the events was so short that someone was always moving or firing or fleeing before the other could react effectively.[28]

The purpose of the telescoping time concept is to allow the co-existence of two battles on the wargame table at the same time. Bowden used the struggle for "Bloody Lane" at Antietam to demonstrate this concept. The fight lasted for three hours with never more than a division attacking at a time. Attacks were usually conducted by

brigades or individual regiments. These battles raged back and forth between attacks and retreats. It was the grand tactical movement of operational reserves that decided the final outcome of the fight at "Bloody Lane." However, the tactical battles provided the reason for the grand tactical maneuver.[29]

The simulation is played in what are called hourly rounds. One complete turn represents the movements and actions which might occur during an hour of actual time. Each hourly round is divided into several distinct phases. The initial phase of an hourly round begins with command and control functions. First, the gamer attaches leaders to units. Then, after issuing orders, he determines the unit's reactions to those orders. The next phase consists of grand tactical movement. Units may move up to the distance they could accomplish in one hour of marching.[30]

Following grand tactical movement, any units within 13" of the enemy may participate in tactical combat. Tactical combat is conducted in four, separate sub phases, with each representing 15 minutes of battle time.

STARS*N*BARS III provides the wargamer with a medium which blends the tactical and grand tactical battles into one, wargame simulation. The next three chapters will examine the mechanics or rules of the simulation to derermine if they are historically sound.

CHAPTER 2

NOTES

(1)Peter Perla. The Art of Wargaming (Annapolis. Maryland: Naval Institute Press. 1990), 3.

(2)Dane Ridenour, How to Get Started In Wargaming (Arlington. Texas: Empire Games Press. 1975) , 5-8.

(3)Mark Serravalle. "The Arm Chair General." Civil War Times Illustrated vol. XXV, No. 7 (November 1986) : 30-37.

(4)Edward W. Girard, "History of Wargaming." Second Wargaming Symposium :(Washington D.C. : Washington Operations Research Council, 1964) , 8-12.

(5)Donald Featherstone, Naval Wargames (London: Stanely Paul. 1965). 12.; Perla. Art of Wargaming., 16. 20-21.

(6)George Gush,A Guide to Wargaming(New York: Hippocrene Books. 1980). 22-24.

(7)Gary C. Morgan. "Wargaming and the Military." Fire & Movement No. 66 (June/July 1990): 31-36. : Eric M. Walters. "The Right Tool Wrongly Used." Fire & Movement No. 66 (June/July 1990): 36-39.

(8)Morgan, "Wargaming and the Military." 31-34. : Walters, "The Right Tool Wrongly Used." 36.

(9)Gush, A Guide to Wargaming. 24-26.

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(26)Robert Epstein, review of Armies at Waterloo, by Scotty Bowden, In Military Affairs, vol. XLVIV, No. 4. (October 1985): 215.

(27)Bowden, STARS*N*BARS III, 1/1-3.

(28)Ibid., P/2

(29)Ibid., P1/P3.

(30)Ibid.,VII/1-VII/4.

CHAPTER 3

THE INFANTRY

"We marched forward, elbow to elbow, into the very jaws of death."

Private Ned Hampton
18th Tennessee, battle of Murfreesboro[1]

The infantry bore the brunt of the fight in the American Civil War.[2] This chapter will discuss infantry combat and how closely STARS*N*BARS III simulates Civil War infantry combat. Specifically, the simulation mechanics of infantry combat will be examined in three sections: unit organization: maneuver; and firepower. Each section will be further subdivided into three areas for analysis: First, an overview of how "Stars and Bars" simulates the area being discussed; Second, an historical overview of the area: and, finally, an analysis of the historical accuracy of the simulation. It is important to note that the overview of the simulation mechanics is only meant to provide a basic understanding of "Stars and Bars". It is not meant to teach the reader how to conduct the simulation. Chapter three, alone, will not entirely validate the historical accuracy of the infantry combat procedures in "Stars and Bars". Howev-

er, it will provide a background of information necessary for understanding the historical simulations reviewed in chapter six.

Unit Organizations

The Simulation

Scotty Bowden's, STARS*N*BARS III, is a grand tactical simulation of combat in the American Civil War. The wargamer, in "Stars and Bars" uses metal military miniatures to conduct simulated battles of the Civil War. Military miniatures are available in different scales from 5mm to 54mm for simulating the war. The scale refers to the height of the military miniature. Miniatures in 15mm or 25mm are the most common scales used for simulating the Civil War. In "Stars and Bars" all scale ranges and distances are listed in 25mm scale with the 15mm scale appearing immediately following in parenthesis. All scale ranges and distances listed in this study will be in 15mm scale.[3]

The ground scale for "Stars and Bars is one inch equals 40 yards. Each terrain contour represents about 16 feet in elevation. Each military miniature, usually referred to as a casting or figure in wargaming, represents 40 actual men. Individual infantry castings are mounted either three of four figures per movement stand. The infantry regiment is the basic maneuver unit in the simulation. A regiment is represented by a grouping of figures on adjacent stands. A 480 man regiment would have 12 figures mounted.

four each, on three stands or four stands with three figures each (Figure 1). Normally, wargamers have an officer figure, a standard bearer and a musician on the center stand. This is strictly for visual appeal in representing the regimental commander, his staff and the color party. It has no bearing on the simulation. The simulation places no importance on individual companies within the regiment. However, a stand or stands of figures may be placed to the front of the regiment to represent skirmish companies.[4]

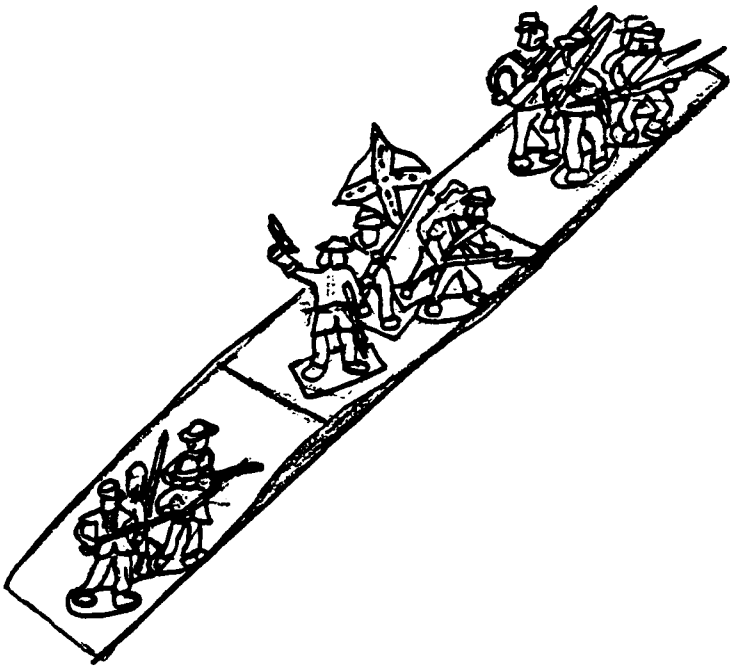

Figure 1
A 480 MAN Infantry Regiment

Historical Overview

The Regiment. The basic tactical organization for the infantry in the Civil War was the regiment. Regular

regiments of the United States Army consisted of from 2 to 4 battalions. Each battalion had a theoretical strength of 1000 men divided into eight infantry companies.[5] Rarely did the battalions serve together. The regulars usually fought in ad hoc battalions formed from several companies of one or more regiments.[6]

Volunteer regiments did most of the fighting on both sides during the war. Most volunteer regiments consisted of a single battalion. With very few exceptions, volunteer regiments were known by their sequential number and state of origin such as the 14th Indiana or 17th Virginia. On paper, each regiment consisted of about 1000 men divided into ten companies. U.S. Army Regulations dictated that each company would consist of 97 men and three officers. A company had one captain, a first lieutenant, a second lieutenant, a first sergeant, four sergeants, eight corporals, two musicians, one wagoner and eighty-two privates. A colonel commanded the regiment. He was assisted by a lieutenant colonel, a major, an adjutant (usually a lieutenant), a quarter master (usually a lieutenant), a surgeon and an assistant surgeon.[7]

The regimental headquarters also had several enlisted personnel. These included a sergeant major, a regimental quartermaster sergeant, a commissary sergeant, a hospital steward, two principal musicians and twenty-four bandsmen. The army dropped bandsmen from the table of organization soon after the war began.[8]

Units seldom achieved or maintained the regulation strength of 1000 men once on campaign. The 36th Illinois started the war with 1,151 men. The 14th Indiana had 1,134 men. As late as 1864, the 66th Georgia recruited 1,500 men into its formation. However, due to attrition from battle losses, sickness, stragglers, absentees and deserters, regiments seldom numbered over 400 men in the field.[9]

The North had a very poor replacement system. Many states gave priority to forming new regiments rather than sending replacements to the field. This caused many Federal regiments to dwindle down in number to less than 200 effectives. The 13th Massachusetts mustered only 107 men in May, 1864. The 20th Maine, of Little Round Top fame, possessed a mere 80 men in late 1863. These very small regiments would often be broken up to provide replacements for other regiments. The average strength for a Union regiment was 700 men in 1861, 500 in 1862, 320 in 1863, 400 in 1864 and 500 in 1865.[10]

The South also experienced difficulty in providing replacements for their units. Many Confederate regiments fought at Antietam with fewer than 100 men in their ranks. The 17th Virginia began the battle with only 55 soldiers.[11] Private Hampton's regiment, the 18th Tennessee, began the war with 1000 men and in less than a year was down to 527 men.[12] Confederate regiments throughout the war averaged 600 in 1861, 450 in 1862, 450 in 1863, 250 in 1864 and only 150 in 1865.[13]

Commanders found the small size of the units to be a tactical advantage as the war progressed. A regiment of two or three hundred veteran troops was very manageable. Unit leaders could easily control the regiment by verbal command and personal example.[14]

Brigades, Divisions and Corps. The Army organizations of both the North and South were very similar. This was probably because most of the senior officers, for both sides, were educated at the same military institution, West Point. Additionally, most of these officers had previously served together many times in the same regiment.[15]

Regiments were grouped into brigades. Usually, two to six regiments of infantry combined to form a brigade. Early in the war, mixed brigades of foot and mounted troops, such as Hampton's Legion, served together. This practice was not usually seen after 1861.[16]

Divisions consisted of three or four brigades joined together. A corps was formed when two to four divisions were combined. Then, two to four corps under a single commander made up an army.[17]

Analysis

No specific guidance is provided within the simulation on how to organize units for simulating the American Civil War. Bowden states, "Because units in the American Civil war underwent so many, rapid changes in leadership, organization, composition and eliteness of forces, it is

impractical to provide specific guidance." He recommends that wargamers consult existing books on the war for determining orders of battle. The term order of battle refers to the structure of an army at the time the battle was fought. He highly recommends the "Official Records" as providing detailed information on brigade, division, corps and army organizations.[18]

"Stars and Bars" does closely parallel history when dealing with an average regimental strength of 400 men. The instructions for mounting figures on movement stands offers three example regiments: a 360 man unit, a 400 man unit and a 480 man unit. Additionally, all the examples provided within the rules to illustrate key points use regiments of around 400 men.

For building orders of battle the gamer is expected to have a working knowledge of history. The actual organization procedure requires the player to research the battle being simulated. The manpower of a unit is determined by dividing the historical strength by 40. An example would be Brigadier General John Echol's Confederate brigade at the battle of New Market. Echol's had the 22nd Virginia Infantry with 580 men, the 23rd Virginia with 579 men and the 26th Virginia with 425 men. Based on using movement stands with either three or four figures the wargamer could represent Echol's brigade with 40 miniature figures. Both the 22nd and 23rd Virginia would each have five stands of three figures each. The 26th Virginia would have ten figures

based on three stands. Overall the historical accuracy of unit organizations within "Stars and Bars" depends on how much research the gamer applies toward building historical orders of battle.

Maneuver

The Simulation

There are two types of movement in "Stars and Bars". They are grand tactical and tactical movement. Grand tactical movement allows a brigade which is not engaged in combat to move up to the distance that could be accomplished in one hour of marching. Tactical movement represents the tactical maneuvering of a unit (a regiment or brigade) in contact with the enemy. Each of these movements will be discussed in detail in the following paragraphs.[19]

An important consideration in movement is the formation of the moving unit. The formation is the determining factor in how far a unit can move. The predominant formation in "Stars and Bars" is the infantry line. A unit with 12 figures mounted on adjacent stands would represent 480 men in two ranks of 240 each. The line formation allows the regiment to deliver maximum firepower to the front. However, it is also the slowest formation for movement.

Regiments can also form road columns, field columns or place stands in skirmish order. A regiment forms a road column by placing its stands one behind another. Units use

the road column to make administrati e marches during grand tactical movement or to move reserves in tactical movement. The field column is formed with a frontage of two or more stands having the remaining stands in ranks to the rear. The field column has the advantage of having good cross country movement and also has some frontal firepower. Several field columns attacking side by side also have the potential of overwhelming an enemy defending in line formation.

Skirmish order resembles the line formation. However, the stands, instead of being adjacent, must be separated by four to seven inches (160 to 280 scale yards). This represents the loose formation adopted by men in skirmish order. Individual soldiers would spread out to take advantage of whatever cover is available.

Units move as a brigade in grand tactical movement (Figure 2). Because grand tactical movement represents the administrative marching of a unit over the period of an hour, formations are grouped into two broad movement categories. Line, column and skirmish formations are grouped as field movements. The road column is separate because of its ability to move quickly on roads.

An infantry line can move 50" (2000 scale yards) cross country. A road column could move 60" (2400 scale yards). A unit conducting grand tactical movement can approach no closer than 13" (520 scale yards) to the enemy.

A unit already within 13" of the enemy is not allowed to conduct grand tactical movement.[20]

GRAND-TACTICAL MOVEMENT TABLE

UNIT TYPE	MAXIMUM GRAND-TACTICAL MOVEMENT DISTANCES: FIELD MOVEMENT	ROAD COLUMN	MODIFIERS TO MAXIMUM G-T MOVEMENT DISTANCES: UP EACH CONTOUR	LIGHT WOODS	DENSE WOODS**	SWAMPS** AND MARSHES**
Infantry & Foot Artillery*	63" (50")	75" (60")	-1¼"(1")	½ mv	¼ mv	¼ move
Cavalry, Mtd. Infantry and Horse Artillery	75" (60")	90" (72")	-1¼"(1")	¼ mv	⅛ mv	Not allowed
Artillery that can 'prolong'	8" (6")	8" (6")	-2½"(2")	¾ mv	½ mv	Not allowed
Leader castings	75" (60")	90" (72")	-1¼"(1")	½ mv	¼ mv	½ move

* Heavy and siege artillery move at one-half (½) maximum, and incur double movement penalties for moving up contours.
** Impassable to limbered artillery not on a road.
*** Leader castings which are attached to a unit or to a ME always move at the same rate as that of the ME.

VII/2

Figure 2

Units within 13" of the enemy are considered to be engaged in tactical combat. These units must use the Tactical Movement Table (Figure 3).

An infantry unit in road column can move up to 16" (640 scale yards), in line 10", (400 scale yards), or in skirmish order, 15" (600 scale yards). If a brigade moves as a unit, it is limited to the speed of the slowest unit in the brigade.

TACTICAL MOVEMENT DISTANCES

UNIT TYPE	FIELD/ROAD COLUMN	LINE	CHARGE	SKIRMISH ORDER
Infantry and Dismounted Cavalry	20"(16")	12½"(10")	*	18½"(15")
Cavalry and Mounted	30"(24")	25"(20")	30"(24")	30"(24")

* Same as column move, if in column formation, or same as line move, if in line formation.

	REGULAR FIELD MOVEMENT	FIELD GALLOP	PROLONG
Foot Artillery:			
Light	15"(12")	22½"(18")	4"(3")
Medium	12½"(10")	18½"(15")	3"(2½")
Heavy	8"(6½")	12½"(10")	1½"(1")
Siege	6"(5")	Not Allowed	Not allowed
Horse Artillery:			
Light	18½"(15")	27½"(22")	4"(3")
Medium	15"(12")	24"(19")	3"(2½")

Horse artillery may not be heavier than medium Charge = Initiates close action combat

TERRAIN WHICH IMPEDES OR MODIFIES TACTICAL MOVEMENT

UNIT TYPE	MOVE FUNCTION	LIGHT WOODS	DENSE WOODS	ACROSS LOW WALL OR FENCE	WALL OVER 4 FT. HIGH	INTO/OUT FROM A STRUCTURE	ACROSS SWAMP/ MARSH	UP ONE CONTOUR
Infantry/ Dismtd. Cavalry	- Maneuver or Charge	¾	½**	-½"(½")	-4"(3")	-4"(3")	¼	-½"(½")
Cavalry/ Mounted Infantry	- Maneuver	½	¼**	-2½"(2")	Impass	NA	¼**	-½"(½")
	- Charge	½**	NA	-2½"(2")**	Impass	NA	NA	-½"(½")
Artillery	- Maneuver	½	Impass	-4"(3")	Impass	NA	Impass	-½"(½")
	Gallop	NA	Impass	NA	Impass	NA	Impass	½"(½")
	Prolong	NE	½	½	Impass	NA	Impass	-1¼"(1")

Impass = Terrain is impassable for this unit type/situation.

Charge = Initiates close action combat.

NA = Not allowed.

NE = No effect on movement.

** = Formed units which perform designated function across this type terrain are disordered. Note: Any formed unit which is in or moves across dense woods is disordered.

The above modifiers to movement are shown in two different ways. When a fraction is shown (ie ¾, ½, or ¼) that means that the maximum move distance possible is that percentage of a full move. When a minus number is shown (ie. -4"(3"), that means that the number shown is to be deducted from the full move distance a unit can move during that tactical impulse.

VIII/12

Figure 3

Historical Overview

Doctrine. The drill manuals of the era outlined drill and tactics available to American Civil War infantry. These manuals were almost direct translations of the most current French drill manuals of the day. The primary purpose of drill and tactics was to maneuver soldiers to and across a battlefield in the quickest and most organized manner possible.

Prior to the Civil War, the foremost American military writer was Winfield Scott. His 1835 work, Infantry Tactics or Rules for the Exercise and Maneuver of the United States Infantry was a direct translation of a French drill manual released in 1791. Scott's "Tactics" was a three volume work. The first volume covered the training of the individual soldier and his movements within the company. Volume 2 provided instruction on the maneuver of a regiment and instructions on skirmish tactics. Scott's third volume dealt with the maneuver of brigades, divisions and corps. The United States Army adopted Scott's "Tactics" as its official drill manual in 1840 and continued to use it until 1855.[21]

Scott's manuals emphasized control and order over speed and elan. He understood the inaccuracies of the musket. As with other armies, he adopted the common practice of massing fires from close order formations.[22] Scott stressed the need for infantrymen to remain elbow to elbow while in close order formations. He firmly believed this was the only way the regiment could stay aligned and prevent gaps from appearing.[23]

In the mid 1850s, the rifle replaced the musket as the primary infantry weapon. The musket had a limited effective range of around 100 yards. The rifle extended the kill zone out to 500 yards. Scott republished his manual in 1852, 1857, 1860, and 1861. However, he never revised it to compensate for the introduction of the rifle. Because of

this, the army needed a new manual to replace Scott's "Tactics".[24]

William Joseph Hardee's Rifle And Light Infantry Tactics For The Exercise And Maneuvers Of Troops When Acting As Light Infantry Or Riflemen partially superseded Scott's works in 1855. Hardee's "Tactics" provided an update of Scott's first two volumes. Hardee's primary contribution had to do with increased rates of march and greater emphasis on skirmish tactics. Hardee based his works on the French doctrine of the "Chasseurs a Pied" (infantrymen who jogged around the battlefield as if they were light cavalry). The "Chasseur" doctrine acknowledged the increased range of the rifle and was an attempt to move men more quickly through the kill zone.[25]

Both the North and the South widely accepted Hardee's work. The biggest criticism was that he failed to update Winfield Scott's third volume.[26] Northern politicians and military leaders also disapproved of their soldiers drilling with a manual credited to a Confederate general. Brigadier General Silas Casey of the Union Army solved this problem and updated Scott's third volume in 1862 when he published Infantry Tactics, For The Instruction, Exercise, and Maneuver of the Soldier, Company, Line of Skirmishers, Battalion, Brigade, or Corps D' Armee.[27]

Formations. The drill manuals provided detailed instructions on tactical formations. Antoine Henri Jomini

was the best known tactical theoretician of the time. His writings favored offense over defense. Jomini, in his 1838 book, Summary of the Art of War, stated there were five methods of forming troops: in deployed lines, columns, deep masses, skirmish order, and in small squares.[28] For the most part, these formations remained the predominate battlefield formations of the American Civil War.[29]

All three American manuals, Scott's, Hardee's, and Casey's recognized the basic formations outlined by Jomini. They emphasized the two rank infantry line as being the predominant formation for both attack and defense.[30] In the line of battle, the standard, 10 company regiment aligned itself two men deep with companies abreast of one another. Early in the war, a typical battle formation had six companies on line. The regiment held two companies in reserve roughly 300 yards to the rear. The two remaining companies formed a skirmish line across the front of the unit. Normally, the skirmish line deployed 300 to 500 yards to the front.[31] Later in the war, the skirmish line became heavier and more important. Regiments could deploy as great as half the regiment as skirmishers. In brigade and division actions, it was also common to deploy entire regiments as skirmishers to the front of the parent brigade or division.[32]

An important aspect of the infantry line was the frontage that it covered. Hardee's "Tactics" specified that a regiment in a two-rank line would occupy 30 to 40 inches

times the number of files. Hardee directed that soldiers should "feel lightly the elbows of his neighbors" when advancing in line of battle.[33]

Many historians believe the soldiers tended to bunch together in combat and that the frontages of infantry regiments were far less than those stated by the period drill manuals. Jack Coggins in Arms and Equipment of the Civil War states. "Unit frontage in battle formation equals the number of men divided by number of ranks multiplied by two feet."[34] Paddy Griffith in Battle in the Civil War states that a brigade of 1500 men might occupy a frontage of less than 500 yards.[35]

Before the Civil War, the column was the standard formation used to close with the enemy for shock action. The purpose of the column was to place maximum force of penetration against a narrow front. Regiments normally formed a column with a frontage of one or two companies. Later in the war, there were examples of brigades forming massive columns with the regiments on line stacked one behind the other. One of the best known column attacks was used at Spotsylvania Court House on November 7, 1864. This attack used a division column with one brigade on line and three others stacked in line behind the first.[36] These brigade and division columns make up the deep masses Jomini spoke of in his Summary of the Art of War. The advantage of the column was its greater mobility and ease of control (especially in rough terrain). The disadvantage was it

produced a dense target in which only the front line units could return fire.[37]

Skirmish formations were used to cover both line and column formations. The standard skirmish tactic was to drive off enemy skirmishers and probe the enemy's main line. Rarely were skirmish units used to assault enemy positions. Little specific information is available on skirmish frontages.[38]

Hardee states:

> The interval between skirmishers depends on the extent of the ground to be covered but in general it is not proper that the groups of four men should be removed more than 40 paces from each other. The habitual distance between men of the same group in open ground will be 5 paces; in no case will they lose sight of each other.[39]

Basically, this means that skirmishers would cover four times the normal frontage. However, Hardee goes on to say that a company deployed as skirmishers should occupy the same frontage as the regiment. This would employ six to eight times the normal frontage.[40]

Tactics. The French School also influenced formations and tactics above the regimental level. The primary attack formation was for regiments to deploy in successive lines one behind another. The interval between regiments was intended to be 250-300 yards. This allowed successive lines to remain relatively safe from enemy fire and provided

ample maneuver room for regiments to swing right or left if threatened from the flank.[41]

The theory of using successive lines or "wave" attacks was to apply continuous pressure against a defender. If enemy fire slowed or stopped the first line, the following line could pass through and continue the attack. In reality, however, the "wave" attack rarely worked. The succeeding lines tended to bunch up to as close as within 25 yards of the front line. The formation began to resemble a giant column rather than successive lines. The ensuing regiments had no room to maneuver. Rifle and cannon fire passing over the first line would often strike the second line. The second line usually became disordered as it attempted to pass through the crippled first line. The intermingling of lines destroyed the formation and hampered command and control. The ensuing chaos usually resulted in defeat.[42]

Divisions used variations of the successive lines attack. Sometimes, brigades would deploy their regiments in a line side by side. One or two brigades formed the front line with the remainder deployed in reserve. The reserve regiments usually remained in a column formation. There were also examples of divisions imitating Napoleon's favorite "mixed order" formation. In this formation, a brigade would deploy its regiments on line with one regiment skirmishing to the front. On both flanks the division deployed brigades in columns. The Union used this formation

with some success at the second battle of Fredericksburg in 1863.[43]

Both sides used a small scale version of the French tactic, the "Zouave Rush". The Americans called it the "Indian Rush." This tactic is very similar to our modern day tactic of fire and maneuver. Two units (usually part of the same regiment) would advance side by side using alternating bounds. One unit advanced while the other took cover and returned fire. Despite the success of this tactic, there are no historical examples of it being used above the regimental level. This is probably because it required special training and was difficult to coordinate even in small units.[44]

Grand Tactical and Tactical Movement. Although railroads and steamships could be used for strategical movement, the primary means of movement for the infantry was still the foot march. On good roads, the infantry could cover as much as three miles in an hour. However, the effects of weather conditions such as heat, mud, ice or snow could reduce the rate of march to below two miles per hour.[45] Two and a half miles per hour, to include rest halts, was considered a good average. As is still the practice today, units usually marched 50 minutes and rested 10 minutes.[46]

Jackson took about 12 hours to complete his famous flank march at the battle of Chancellorsville.[47] It took

almost three hours to get all 15 brigades of his corps on the road. The lead units needed six and a half hours to complete the 12 mile march. Trail elements needed three more hours to close in and assume their attack positions.[48]

The distance troops under fire could move was less predictable. The drill manuals prescribed several different march steps for tactical movement. Hardee's "Tactics" retained Scott's direct step of twenty-eight inches and his "common time" rate of 90 steps per minute. He also retained his "quick time" rate of 110 steps per minute. However, Hardee did provide provisions for a faster rate of march. He proposed a "double quick" step of 33 inches at a "double quick" rate of 165 steps per minute in addition to a "run" of 180 steps per minute. These new steps, theoretically, allow a man, in one minute, to cover 70 yards at common time, 86 yards at quick time and 109 yards at double quick time.[49]

Analysis

Formations. The line formation is the basic battlefield formation in "Stars and Bars". In keeping with the drill manuals of the period either an entire regiment or any number up to half of a regiment may be placed in skirmish order. The rules closely parallel historical data and do not allow skirmishers to be placed more than 520 yards to the front of a formed unit. The simulation does not allow for the drill manual's guidance that each regiment should hold two companies in reserve. It is important to remember,

however, that the intent of "Stars and Bars" is for the wargamer to assume the role of a division or corps commander. Commanders at division and corps level are concerned with brigade or division reserve rather than company reserves. In addition, the drill manuals were designed for a regiment of 1000 men. As noted earlier, battlefield losses quickly reduced the regiments to an average strength of 400 men. The smaller units discontinued the practice of holding back regimental reserves. Therefore, the presence of a two company reserve for each regiment is not critical to the simulation. [50]

Bowden believes that, with military miniatures, formation frontages are crucial to the accurate simulation of the American Civil War. In "Stars and Bars", infantry figures are mounted either three or four figures per stand. Each stand is one inch wide and represents 40 yards of scale frontage. The three figure stand corresponds to Coggins and Griffith's estimations of two feet per soldier. The four figures per stand represents a frontage of 18 inches per man. Bowden based his denser formation on the Army Officer Pocket Companion, published in 1862. The "Pocket Companion" allows for 18 to 20 inches per front rank man in the formation.[51] The wargamer may choose to use three or four figures per stand. Different stands also may be mixed, which permits greater flexibility in building regiments of different historical strengths.[52]

The simulation requires units in skirmish order to occupy a minimum frontage of four times the normal frontage or a maximum of up to seven times the normal frontage. These frontages are very much in line with the guidelines provided by Hardee.[53]

Tactics. "Star and Bars" provides no guidance on brigade or division formations and tactics. The wargamer is expected to be aware of and to use historical formations. The mechanics of the simulation allow the wargamer to use all the formations and tactics discussed. The difficulty in passing through other units is simulated by not allowing units to move through other friendly units in motion (formed units not in skirmish formation). This accurately simulates the difficulty in coordinating a successive "wave" attack. The second wave unit must wait until the lead unit has stopped before moving through its ranks. The penetrating unit is then subjected to the same enemy fire that stopped the lead unit.[54]

Grand Tactical and Tactical Movement. "Stars and Bars" uses grand tactical movement to simulate extended marches. As noted earlier, grand tactical movement represents the marching a unit could accomplish in one hour's time. In almost all battles, more time is spent marching and maneuvering than is spent in actual combat.[55] A simulation of Jackson's march at Chancellorsville requires 12 hourly rounds (a game time representation of 12 hours) to

complete. One hourly round is spent forming the corps for movement. Seven more hours are used to move 12 miles with the trail units being 3 hours behind the lead units. Still another hour is needed to deploy the corps for the attack. Overall a very accurate simulation of Jackson's march.[56]

"Stars and Bars" tactical phases basically represent about 15 minutes of battle time. Using the above rates, a man should be able to cover 1000 to 1600 yards in 15 minutes. However "Stars and Bars" only allows a movement of 400 to 640 yards per 15 minutes of battle time. The theoretical movement rates laid out in the period drill manuals do not take into account many of the factors affecting battlefield movement. The terrain, as well as many other factors, such as unit fatigue and motivation affects movement. Additionally, the nature of the threat greatly influences how much ground can be covered. The actual determination of historical accuracy of movement rates will be examined in the simulations of the battles of New Market and Cedar Mountain.[57]

Fire Power

The Simulation

Tactical combat is the most detailed phase of the "Stars and Bars" simulation. The tactical combat phase consists of alternating move counter-move sequences divided into four sub-phases. Each side has the opportunity to move and fire twice. Side A moves, receives defensive fire from

the enemy, and then returns fire on the enemy. Side B then follows the same sequence. Then side A again, followed by side B. Each sub-phase represents roughly 15 minutes of tactical combat.

Each time a unit fires, the results are determined on the small arms table (Figure 4). These fires are considered a series of volleys or discharges rather than a single volley.[58] "Stars and Bars" makes provisions for four basic types of infantry weapons: rifled muskets; smoothbore muskets; breech-loading rifles; and repeating rifles. Infantry fire is divided into three range categories: close range (120 yards or less); medium range (200 yards); and long range (out to 480 yards). No infantry fire is allowed beyond 480 yards. At close range, rifles have a small advantage over smoothbores. At medium range, rifles are moderately effective while smoothbores are only partially effective. At long range, rifle fire will only produce random casualties with smoothbores being almost totally ineffective.[59]

> To issue small arms fire, a unit must follow these steps:
>
> 1. Determine the morale classification of the firing troops. (Morale and training plays an important role in the effectiveness of infantry fire. Morale will be examined in chapter 5).
>
> 2. Determine the number of troops firing and the distance to the target.
>
> 3. Multiply the number of figures firing by the fire power factor shown on infantry small arms chart. The resulting number is percentage chance needed to inflict casting casualties.

4. Modify the full percentage by the appropriate modifiers to arrive at the net percentage to inflict casting casualties.[60]

Example. A Confederate "Veteran Regular" infantry regiment fires at a long range target. The Confederate unit has eight figures in a line formation. The target is a Union regiment in line formation behind a rail fence (light cover). The "Veteran Regular" unit has a 32% base chance to inflict a hit on the target unit (4% per casting X 8 firing castings = 32%). However, since the target unit is behind light cover (multiply by .9, from modifiers on small arms chart), the 32% is modified to 29% (32 X .9 = 28.8%). A die roll of 30 or higher would result in no casting casualty for the target unit.

SMALL ARMS TABLE
For Rifled Muskets, Smoothbore Muskets, Breechloading Rifles, and Repeating Rifles

RANGE:	0 - 4"(3")	4.1 - 6"(5")	6.1 - 15"(12")
	FIRE TABLE I "CLOSE RANGE"	FIRE TABLE II "MEDIUM RANGE"	FIRE TABLE III "LONG RANGE"
Morale Class (below), showing % per casting firing:			
CRACK	30	18	6
ELITE	28	15	5
VETERAN REG	24	12	4
REGULAR	20	10	3
GREEN	16	8	2
MILITIA	10	5	1

MODIFIERS

Firing on the flank of any unit other than skirmishers	x 2
" " a formed unit in column formation	x 1.5
" " a mounted unit other than artillery	x 1.5
Firing unit is issuing "Unsurpressed Fire"	x 2
" " is "Disordered"	x 0.5
Firing unit armed entirely with smoothbore muskets	x 0.75
" " " " " breechloading rifles	x 1.5
" " " " " repeating rifles	x 2
Firing unit is mounted	x 0.5
Target unit is in skirmish order and in the open	x 0.2
" " " skirmish order and in any type of cover	x 0.1
" " " limbered artillery, or unlimbered artillery on a compressed front	No change
" " " unlimbered artillery not on a compressed front	x 0.5
Target is formed (or is unlimbered artillery) in superheavy cover	x 0.2
" " " " " in heavy cover	x 0.33
" " " " " in medium cover	x 0.5
" " " " " in light cover	x 0.9

Note: If more than one modifier applies to a situation, then all appropriate modifiers are used.

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Figure 4

The first edition of STARS*N*BARS used a record keeping system to track casualties in units. The wargamer, in lieu of removing casualties recorded points for each unit that represented the loss of unit effectiveness. STARS*N*BARS III, to increase playability represents casualties by removing individual figures. When a unit suffers a hit from small arms fire, the unit's effectiveness is reduced by one casting. The casting casualty does not represent 40 men killed in the unit. It represents a loss in effectiveness roughly equal to 40 men. Using the system used in the first edition of "Stars and Bars" and Paddy Griffith's firefight model in Battle in the Civil War (page 39) each infantry or cavalry casting casualty represents approximately 2 dead and 18 wounded. The remaining 20 men are stragglers and skulkers not actively participating in the battle. Casualties against artillery figures represent approximately .5 dead and 4 wounded.

The Firefight and Close Action Resolution Table (Figure 5) is used to simulate the intense combat that occurred when units closed to within 200 yards of each other. Firefights occur whenever opposing units are between 2.1"(80 yards) and 5" (200 yards). This represents the intense exchange of fire conducted at close ranges. Firefight combat is resolved using the following procedures:

1. Determine the morale grade of each side.

2. Cross index the morale values on the table. The attacker is side A.

3. Apply the appropriate modifiers.

4. Side A rolls percentage dice, needing the number indicated or less to win the firefight combat. The victor then rolls on the Firefight Results Chart. (Figure 6)

FIREFIGHT AND CLOSE ACTION RESOLUTION TABLE

AVERAGE ELITENESS OF SIDE 'B' IS:	6 CRACK	5.5	5 ELITE	4.5	4 V.R.	3.5	3 REGULAR	2.5	2 GREEN	1.5	1 MILITIA
AVERAGE ELITENESS OF SIDE 'A' IS:											
6 CRACK	50	55	60	65	70	75	80	85	90	95	99
5.5	45	50	55	60	65	70	75	80	85	90	95
5 ELITE	40	45	50	55	60	65	70	75	80	85	90
4.5	35	40	45	50	55	60	65	70	75	80	85
4 VET. REG.	30	35	40	45	50	55	60	65	70	75	80
3.5	25	30	35	40	45	50	55	60	65	70	75
3 REGULAR	20	25	30	35	40	45	50	55	60	65	70
2.5	15	20	25	30	35	40	45	50	55	60	65
2 GREEN	10	15	20	25	30	35	40	45	50	55	60
1.5	5	10	15	20	25	30	35	40	45	50	55
1 MILITIA	1	5	10	15	20	25	30	35	40	45	50

MODIFIERS FOR BOTH FIREFIGHT AND CLOSE ACTION RESOLUTION

Casualties/losses this tactical impulse for units under consideration; compare casting casualties/losses for both sides, and the side with the fewest, receives a bonus of 10 per casting advantage. ..... +10 per casting advantage

SITUATION*	YOU	OPPONENT
Disordered	-30	+30
Bad Morale	-80	+80
COVER*		
Light	+ 5	- 5
Medium	+10	-10
Heavy	+15	-15
Super Heavy	+20	-20
FATIGUE*		
Each fatigue point	- 5	+ 5
FORMATION**		
Skirmisher or artillery	-50	+50

** = Modifier applicable only to Close Action Resolution

LEADERSHIP	ATTACHED ME LEVEL YOU	ATTACHED ME LEVEL OPP.	ATTACHED UNIT LEVEL YOU	ATTACHED UNIT LEVEL OPP.
Charismatic	+20	-20	+40	-40
Inspirational	+10	-10	+20	-20
Impersonal	NE	NE	+ 5	- 5
Uninspiring	- 5	+ 5	-10	+10

APPROACH**	YOU	OPPONENT
Partial enfilade# ...	+20	-20
Full enfilade#	+40	-40
From flank	+60	-60
From rear	+80	-80

* = These modifiers are pro-rated. For example, multiply the modifier by the number of units so affected, then divide that by the total number of units involved. The result is the net modifier.

= The total frontage of all units involved is compared. Enfilades are not applicable to approaches from flank or rear.

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Figure 5

FIREFIGHT RESULTS CHART

The "winner" of the firefight rolls and consults the following results. If the chance to win the firefight was 01 to 100, roll and consult below:

MODIFIED DIE ROLL	RESULT	DESCRIPTION
40 or less	Draw	Both sides stand their ground.
41 - 90	Minor Defeat	Loser retreats 12½" (10") in good morale status facing enemy and loses one total additional casting casualty from all units involved.
91 and up	Defeat	Loser breaks morale retreats 12½"(10") in bad morale status and loses two total additional casting casualties from all units involved.

If the chance to win the firefight was over 100, roll and consult below:

20 or less	Draw	Same as 40 or less results shown above.
21 - 50	Minor Defeat	Same as 41-90 results shown above.
51 - 80	Defeat	Same as 91 and up results shown above.
81 and up	Major Defeat	Loser routs - bad morale - units involved on losing side dissolve and are lost for the remainder of the day

MODIFIERS

+20 if any units involved in the Firefight were within 6"(5") of each other during the last tactical impulse

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Figure 6

Close action combat is the term used to describe the intense fire and sometimes hand to hand combat that occurs if units close to within 2" (80 yards) of each other. The same procedure is used as with firefight resolution, except that the results are determined on the close action results chart (Figure 7).

CLOSE ACTION RESULTS CHART

The "winner" of the close action combat rolls and consults the following results. If the chance to win the close action combat was 01 to 100, roll and consult below:

MODIFIED DIE ROLL	RESULT	
20 or less	Minor Defeat	Loser retreats 12½"(10") in disordered status, facing towards enemy. Loser also loses 1 casting casualty per 2 units involved. Winner may occupy space vacated by loser, but may not advance beyond that point.
21 - 90	Defeat	Loser breaks morale and retreats at tactical charge speed, facing away from nearest enemy, and loses one casting casualty from each unit involved. Winner may occupy vacated space, and then may take a breakthrough move of 3"(2") for infantry/dismounted cavalry and 6"(5") for mounted units.
91 and up	Major Defeat	Loser routs - bad morale - units involved on losing side dissolve and retreat at tactical charge speed after losing two casting casualties per unit involved. After their mandatory retreat, these units are lost for the remainder of the day. Winner may occupy vacated space, and then may take a breakthrough move of 6"(5") for infantry/dismounted cavalry and 12½"(10") for mounted units.

If the chance to win the close action combat was over 100, roll and consult below:

5 or less	Minor Defeat	Same as "Minor Defeat" above.
6 - 40	Defeat	Same as "Defeat" above.
41 and up	Major Defeat	Same as "Major Defeat" above.

MODIFIERS

Chance to win was over 200	+30	Cavalry/mounted infantry defeat unit(s) on foot	+10
Winner armed with shotguns	+20	Winner is cavalry/mounted infantry on a 'sabre charge'	+20
Loser armed with shotguns	-20		
Winner is skirmisher or artillery	-50		

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Figure 7

Historical Overview

The Rifle. The rifled musket was the basic infantry weapon of the American Civil War. Several armies had adopted the rifled musket prior to the Civil War. Both the French and British had used large numbers of the weapon in the Crimean War (1853-1856). However, the American Civil War was the first major war where both antagonists fought predominantly with rifled muskets.[61]

Before the adoption of the rifled musket in the mid 1850s, the rifle had been a specialized weapon for specialized troops. Rifles were slow and difficult to load. Riflemen had to load tight fitting lead balls by forcing them down the barrel with a small mallet. In the mid 1850s, Captain Claude-Etienne Minie, of the French Army, invented a pointed bullet with a tapered hollow in the base. He fitted the hollow with a small iron cap. In principle, the explosion of the rifle charge would drive the iron cap into the base of the bullet. The resulting expansion of the bullet would then grip the rifling grooves of the weapon.[62]

Both the British and the American armies immediately adopted the Minie system. The Americans also adopted a program to rifle out some of their old, .69 caliber, smoothbore muskets. Many units used these substandard rifles during the early stages of the war.[63]

The most common rifles used during the war were the Union's .58 caliber Springfield rifle and the South's .577 caliber Enfield rifle. However, there were many other substandard rifles (2nd class weapons) and specialized rifles used during the war. These included the muzzle-loading Brunswick, Lancaster, Jacobs and Whitworth rifles, and the breech-loading Sharps rifle. There were also several repeating rifles and carbines used mostly by mounted units. They will be discussed in chapter four.[64]

The Brunswick rifle had two spiral grooves in the barrel and fired a belted ball. The belts on the ball fit

into the grooves in the barrel. With prolonged firing the weapon quickly became fouled making it very difficult to load. The belted ball also tended to be very erratic in flight. As more Springfields and Enfields became available the Brunswicks were quickly passed down to home guard and militia units.[65]

The Jacob rifle, except for having four grooves instead of two, was similar to the Brunswick. The Lancaster rifle had no grooves. Instead, it used an oval bore and bullet. Both the Jacob and Lancaster rifles had drawbacks similar to those of the Brunswick rifle. Interestingly many of the Jacob bullets were manufactured with hollow points and filled with explosive charges.[66].

The most common specialized rifles were the Whitworth and the Sharps rifle. The English Whitworth rifle used a twisted hexagonal bore and fired a six-sided bullet. Whitworth also manufactured a long range cannon using the same principle. Despite difficulty in loading, its superior accuracy made it very popular with many sharpshooter units. Major General Cleburne's units used the Whitworth very effectively in the early stages of the Chickamauga campaign.[67]

> I had no ammunition to spare and did not reply to the continual fire of the enemy except with five Whitworth rifles, which appeared to do good service. Mounted men were struck at distances ranging from 700 to 1,300 yards.[68]

The Sharps breech-loading, .52 caliber rifle also was very popular with some sharpshooter units. Berdan's

United States Sharpshooters used this weapon. Berdan's men were expert shots and well known for their skill at dropping a man at 700 yards or more.[69] The key advantages of the breech-loading rifle were its rate of fire: three times that of a muzzle-loading rifle; and the capability of being loaded while prone.[70]

The rifled musket was best loaded while standing. The soldier tore the paper cartridge with his teeth and poured the powder down the barrel. He then pressed the bullet into the barrel and drove it home with a ramrod. After the weapon was cocked a percussion cap was placed over the nipple. The weapon was then ready to be fired. A trained infantryman could fire three rounds per minute.[71] However, black powder causes extensive fouling of the barrel and seriously reduces the rate of fire. Modern experiments have shown it is rare for muzzle-loaders to achieve thirteen aimed rounds in thirty minutes.[72]

The basic weapon of the Union infantry was the Springfield rifle. This .58 caliber musket was 55.75 inches long and weighed 8.88 lbs. It was simple to construct and had a maximum range of 1000 yards. Although it had a published effective range of 500 yards, the actual effective range was closer to 200 yards. Federal armories manufactured over 800,000 Springfields during the war and contracted 670,000 more from private industry.[73]

The Confederate infantry's primary firearm was the English M-1858 Enfield rifle. This weapon was essentially an improved copy of the Springfield. The North and South combined purchased more than 800,000 Enfields.[74]

The third most common infantry arm was the .69 caliber smoothbore musket (M1842). The Federal government had 140,000 on-hand at the beginning of the war.[75]

Another interesting feature of the Civil War was that many units went into battle with several different weapons within their ranks. The 1st Minnesota, at the battle of Gettysburg, had a mixture of .69 caliber smoothbores and rifles, .58 caliber Springfields, and some .52 caliber Sharps rifles. About 90 Union regiments at Gettysburg (36% of the total present) were armed with more than one type of weapon. It is easily conceivable that many Confederate regiments had equally diverse mixtures of weapons.[76]

Another example of mixed weaponry was provided in the Army of Tennessee in June of 1864. A mixture of Halls rifles, Belgian rifles, Spencer repeaters and an odd assortment of shotguns and squirrel guns accounted for less than 3% of the Army's total armament. These weapons were individually scattered throughout the Army's total of 49,303 armed men. The majority of regiments were armed with one type of weapon. Fifty-six percent used either Springfields or Enfields. Thirty percent used Mississippi rifles. Only twelve percent used .69 caliber smoothbores.[77]

Weapons Effectiveness. The rifled musket officially replaced the smoothbore in the American Army in the late 1850s. However, smoothbore muskets were still used in large numbers. The 18th Tennessee, in 1862, was armed with flint-lock muskets.[78] Confederate soldiers fought more with .69 caliber smoothbore muskets than rifles in the first year of the war. The Army of Tennessee still had 36% of its soldiers armed with smoothbores in 1863. Even the Union had difficulty completing the transition to rifles. Ten percent of the Union soldiers at Gettysburg went into battle with smoothbores.[79]

At 50 yards, the musket was almost as accurate as the rifle. Most shooters could place their shots in an 18-inch circle. The common practice of using buck and ball ammo gave the firer a good chance of hitting a man-size target at 100 yards. A buck and ball was a cartridge of one .69 ball with three small buck shots on top. This shotgun type round made the smoothbore more deadly than the rifle at close ranges. The accuracy of the smoothbore decreased rapidly when firing at anything past 100 yards. It was virtually impossible to hit a target at 200 yards.[80]

Much has been written about the range and accuracy of the Civil War rifle. Today, even with marksmanship training and high powered rifles, most soldiers require extenxive training to hit a man-size target at 300 yards. Our M-16 rifle qualification ranges are conducted with most of the targets at 175 meters (191 yards) or less. The

black-powder rifle of the Civil war was anything but a high powered weapon.[81]

The Springfield and Enfield rifles were deadly accurate as far out as two hundred yards. At 500 yards, there was a 50% chance of hitting a man-sized target under ideal conditions. Special sniper rifles, such as the Whitworth, could be depended upon to hit targets at 1000 yards.[82] The low velocity and corresponding high trajectory of the bullet was what made hitting a target so difficult with black powder weapons. Ranges had to be correctly estimated and the sights accurately adjusted to hit anything beyond 50 yards. Jack Coggins provides an excellent diagram and description of Civil War rifle fire in his book, Arms and Equipment.

> A bullet fired by a kneeling man at the belt buckle on a man running toward him at an estimated range of 300 yards would just pass over the head of a man 100 to 250 yards away. Thus if the shooter had overestimated the range by as little as 50 yards he would have missed.[83]

Because of this, Civil War commanders tended to reserve their fire until the enemy had closed to within 200 yards. Bell Wiley, in The Life of Billy Yank recorded a common command, "Hold your fire until the Rebels are in easy range, then aim low and fire deliberately".[84] Paddy Griffith, in his "Battle Tactics" provided the results of an extensive study of 113 firefights in the Civil War. He concluded that, before 1863, the soldiers usually did not

engage in serious rifle fire until the enemy had closed to within 130 yards. With an increased percentage of rifles being available after 1863, this range extended to 141 yards. The results of the rifle fire was far less than what would be expected given the capabilities of the weapons. Griffith's research indicates that, in 1862, a 400 man regiment could expect to achieve 1.5 to 1.8 hits per minute of firing. The same 400 man unit would only achieve .7 to .9 hits per minute of firing in the fall of 1864. The reduced casualties were caused by the tendency to fire over longer ranges and by both sides making better use of available cover.[85]

One important aspect of the rifle not yet discussed is the use of the bayonet. Many historians have maligned the effectiveness of the bayonet. McWhiney and Jamieson cite the small number of bayonet wounds treated during the war as a testimony to its uselessness as a weapon.[86] Jack Coggins states, " It was used as an entrenching tool, can opener, roasting spit, and for a great many other purposes, but seldom as a weapon." He also discusses the low number of bayonet wounds treated and closes his discussion with, "The day of the bayonet was over."[87]

One must, however, give some credit to the bayonet as a psychological weapon of shock. The purpose of the bayonet charge was not necessarily to kill the enemy but to cause disorder and chase him away. The order to "Fix Bayonets" signified a determination to overrun the enemy.[88]

> Close steadily on the enemy and when you get within charge distance, rush on him with the bayonet. If you do this, we are sure to win.[89]

There are several examples of successful bayonet charges in the Civil War. These include John B. Hood's attack at Gaine's Mill and Chamberlain's famous charge at Gettysburg. The bayonet charge, when used by well led, determined troops could still achieve decisive results.[90]

However, most times the bayonet charge failed. The defender's rifle fire usually stopped the attacking force. Once stopped, the tendency was to engage in prolonged musketry duels. The duel would continue until one side decided it could take no more and fell back.[91]

Ammunition Shortages. Individual soldiers were issued 40 to 80 cartridges. Theoretically, a soldier could expend his basic load of ammunition in less than one hour of continuous firing. Most Civil War diarists were not specific in how many rounds they fired in a battle. Private Hampton of the 18th Tennessee claimed in his memoirs to have fired thirty-four cartridges in a single charge at Murfreesboro.[92] However, he wrote his memoirs twenty-seven years after the battle. The Confederate Ordnance Department estimated the average southern soldier fired 25 to 26 rounds in the Gettysburg Campaign (3 June-July 14, 1863). The Northern counterpart fired an average of 40 rounds during the same campaign. Using these estimations, it should have

been rare for a unit to expend all its ammo in one days fighting.[93]

However, there are several documented cases of units running out of ammunition. Some Confederate units, at the Second Manassas, threw rocks when they exhausted their ammunition supply.[94] At the battle of Chickamauga, Clayton's Confederate brigade withdrew from the fight because of a lack of ammunition. Clayton then resupplied and moved his unit back into the fight.[95]

Field Fortifications. One result of the lethality of Civil War small arms fire was the increased reliance on battlefield entrenchments. Field fortifications were not present on all Civil War battlefields. Grant built no fortifications at Shiloh and Lee, although given ample opportunity did not entrench at Antietam.[96]

Common sense did eventually prevail with the American fightingman. Entrenching became part of almost all subsequent battles. In 1863, entrenchments had significant impacts on the battles of Chancellorville, Gettysburg, Vicksburg and Chickamauga. By 1864, extensive and sophisticated field entrenchments appeared in most major battles.[97]

When on the defense, a common practice was for a regiment to keep the front rank in the line of battle. The second rank gathered logs, brush and rocks to build hasty breastworks. These "hasty" breastworks could be constructed in less than an hour. An offensive tactic used in the

latter part of the war was for a heavy skirmish line to advance to within 200 yards of the enemy. The men would then lie down, and dig shallow pits, and wait for night. During the hours of darkness, the shallow pits would be expanded into a continuous trench line. Most units could complete a trench line in 6 to 8 hours.[98]

Analysis

The Rifle. The "Stars and Bars" infantry fire model is based on the standard infantry rifles, either the Springfield or the Enfield. Modifications for better weapons (breech loading and repeating rifles) and less effective weapons (smoothbore muskets) are applied against the base factors for standard rifles.

"Stars and Bars" allows individual units to be armed with a mixture of weapons. However, the rules clearly imply through examples that, for ease of play, units should be armed with only one type of weapon. This simplification of history is easily justifiable. Out of the 90 Union regiments using mixed armaments at Gettysburg, only 38 required different ammunitions. Most units had a mixture of .58 Springfields and .577 Enfields. Both weapons used the same cartridge and had similar characteristics. Units requiring two different ammunitions were usually armed with smoothbores or 2nd rate rifles. The flank companies, comprising only 1/10 to 2/10 of the unit, were sometimes armed with Springfields or Enfields for skirmishing. The small number

of soldiers firing better rifles could not be accurately represented when dealing with a scale of 1 to 40.[99]

Bowden also neglected to allow for the use of sub-standard or 2nd class rifles (any infantry rifle other than the Springfield or Enfield). Paul Stevenson, in his book, Wargaming History recommends that any Civil War simulation should recognize two grades of rifled muskets. First and second class rifles had similar capabilities out to 200 yards. On the other hand, the 2nd class rifles had greatly reduced capabilities at longer ranges. Bowden's generalization of classing all rifles together would, therefore, cause historical inaccuracies in simulating long range fire. However, because the simulation produces only random casualties in long range fire, as was also the result in history, historical accuracy is not significantly affected. Additionally, by the second year of the war, few units other than home guard units were even using the 2nd rate rifles.[100]

Weapons Effectiveness. "Stars and Bars" provides for only four types of infantry weapons: rifled muskets, smoothbores, breech-loading rifles and repeating rifles. Bowden's range categories appear to provide an accurate reflection of the capabilities of most Civil War infantry weapons. However there are some minor exceptions. Bowden's infantry fire model has smoothbores being 25% less effective than rifles at close range. This doesn't allow for the historical data showing that muskets were as effective as rifles out to 50 yards. I believe the simulation would

become more accurate by eliminating the requirement for the 25% reduction in smoothbore effectiveness when firing within a 50 yard range.[101]

No provisions are made for rifle fire beyond 480 yards. Therefore, the tactical simulation of long range sniper fire is not represented. Although occasionally effective, as with the wounding of Major General Warren and the killing of Brigadier General Weed at Little Round Top, most times sniper fire was more of a nuisance and had little affect on the battle. Because of the grand tactical scale used in the simulation, the lack of sniper fire should have minimal effect on historical accuracy.

The firefight resolution seems to simulate very well the indecisiveness of most Civil War infantry fights. The ability to win a firefight is primarily influenced by the number of casualties inflicted. Normally, the side that inflicts the most casualties will win the firefight. However, winning the firefight usually accomplishes very little. There is a 40% chance that both sides will simply stand their ground and continue with the firefight in the next turn. There is a 50% chance that the loser will fall back. However, if the loser has a supporting line nearby, the winner has accomplished very little. The winner of the firefight only has a 10% chance of breaking the losing unit. Overall, the firefight resolution appears to be historically accurate in simulating the prolonged infantry duels. Significant casualties can be inflicted. Yet, decisive tacti-

cal results will rarely be achieved. The reenactment of New Market will allow the opportunity to compare historical firefights to those of the simulation.

The close action results procedure represents combat at a very close range. It is interesting to note that the traditional concept of wargaming represents close action combat with opposing units that are in direct contact with each other. Only those movement stands within the regiment which are actually touching enemy stands take part in the combat resolution. However, in "Stars and Bars", movement stands are not required to be touching the enemy. Any unit within 2"(80 yards) of the enemy is automatically designated to be participating in close action combat. Close combat was usually a contest of wills rather than actual bayonet fighting.

Another interesting feature of the close combat in "Stars and Bars" is that there is no differentiation made between rifles and smoothbores. The equality of the two weapons in the close combat procedure helps to compensate for the historical inaccuracy already mentioned in not recognizing the close range capabilities of the smoothbore.

The close action results determination is much more decisive than the firefight resolution. Historically, this close-in fighting was very intense. Because of this, few units could continue the fight for very long. One side or the other would usually break and run from the fight.[102] The simulation will always result in one retreating. There

is at least a 70% chance that the retreat will deteriorate into a rout.

The close action results procedure simulates those rare instances when units closed to very close range. However, it doesn't properly recognize that most charges were stopped by the defender's firepower before decisive results could be achieved. Once stopped, the charge transformed into a firefight. This could possibly be a significant flaw in the simulation and will require further examination in chapter six.

Ammunition Shortages. "Stars and Bars" also makes no provision for infantry units to run out of ammunition. Paddy Griffith makes the case that not all documented cases of units running out of ammunition should be accepted at face value. He suggests many may have used "ammunition shortages" as an excuse for not being able to hold or take a difficult position. Whether or not Griffith is correct, Bowden does handle ammunition shortages in an abstract manner. Units accumulate fatigue points for each hour of combat; thus, units that remain in the fight for several hours become less effective. Shortage of ammunition would have been one of the reasons for reduced effectiveness. Units can reduce fatigue points by resting. As well as simulating the unit catching its breath, filling canteens and tending to wounds, the fatigue factor could allow for the replenishment of ammunition from the unit trains.[103]

Field Fortifications. The simulation does allow for the construction of field fortifications. Light field works consisting of felled logs and brush can be constructed in one hourly round. Medium field works consisting of shallow and hasty trenches take 5 to 7 hours to complete. Elaborate trenches require the assistance of engineers and take more than 8 hours to complete. Bowden's simulation of engineering tasks portrays realistic time requirements and construction capabilities. One possible way to enhance the historical accuracy would have been to make it more difficult to construct entrenchments prior to 1863. This would better simulate the absence of field entrenchments on early battlefields.[104]

Summary

The following chart summarizes the analysis of infantry combat in the "Stars and Bars" simulation.

YES -"Stars and Bars" provides the means for a historically accurate simulation.

NO -"Stars and Bars" is not historically accurate in this area.

? -Further analysis required, determination of historical accuracy will be examined in the simulations of New Market and Cedar Mountain.

The Infantry

Unit Organization	
The Regiment	YES
Bde, Div, and Corps	Yes
Maneuver	
Formations/Frontage	YES
Tactics	YES
Grand Tactical Movement	YES
Tactical Movement	?
Fire Power	
Types of Weapons	YES
Weapons Effectiveness	?
Small Arms Fire	?
Firefight Resolution	?
Close Action Resolution	?
Ammunition Shortages	?
Field Fortifications	YES

Chart 1

CHAPTER 3

NOTES

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(17)Ibid.

(18)Bowden, STARS*N*BARS III, appendix B.

(19)Bowden, STARS*N*BARS III, VII/1-2,VIII/12.

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CHAPTER 4

THE SUPPORTING ARMS

> The fact is that we have no general who has shown himself able to handle infantry, artillery and cavalry so as to make them co-operate together.
>
> Artillery Captain
> Army of the Potomac[1]

Today's Armor Branch (descendent of the horse cavalry) is the Combat Arm of Decision while Artillery is the King of Battle. Both branches served primarily in supporting roles during the Civil War. Many Civil War soldiers belittled the capabilities of the cavalry with jeering remarks such as, "who ever saw a dead cavalryman?" Others thought that the role of the artillery on the battlefield had become obsolete with the introduction of the rifled-musket. This chapter will examine the roles cavalry and artillery played on the battlefield and how accurately those roles are simulated in "Stars and Bars". The examination will proceed in the same format as used in the previous chapter, looking at the cavalry first.

THE CAVALRY

> The road was soon, and for several miles, thickly dotted with the wounded and slain a number of whom had been cut down by the sabers of the untrained but heavy- handed Confederates.
>
> Nathan Bedford Forrest
> December 28, 1861[2]

Unit Organization

The Simulation

In "Stars and Bars", the cavalry organization is very similar to that of the infantry in almost every respect. Each cavalry figure represents 40 men. The wargame can mount figures either singly or two per stand. Although large units can break down into independent battle groups, the regiment remains the basic maneuver unit (Figure 8). Cavalry regiments with 10 to 14 figures can separate into two battle groups. Units with more than 15 figures can divide into three battle groups.[3]

Dismounted cavalry troopers are mounted in the same way as are infantrymen. Three dismounted cavalry figures are required for each four mounted figures. The absence of the fourth man represents the horse holders.[4] The simulation, as with the infantry, places no importance upon individual cavalry companies. However, individual stands, mounted or dismounted, can be taken from the regiment and used as separate skirmish units.

Historical Overview

The Regiment. The primary building block for cavalry organizations was the regiment. Before the war, the Army organized cavalry according to the 1841 regulation. Volunteer regiments (North and South) and Regular Army units were composed of five squadrons of two companies each. Each company had a strength of 80 men.[5] A colonel, assisted by a lieutenant colonel and two majors, commanded the regiment. The regimental staff was similar to that of the infantry. Regimental strength, including the staff, was usually around 800 men.[6]

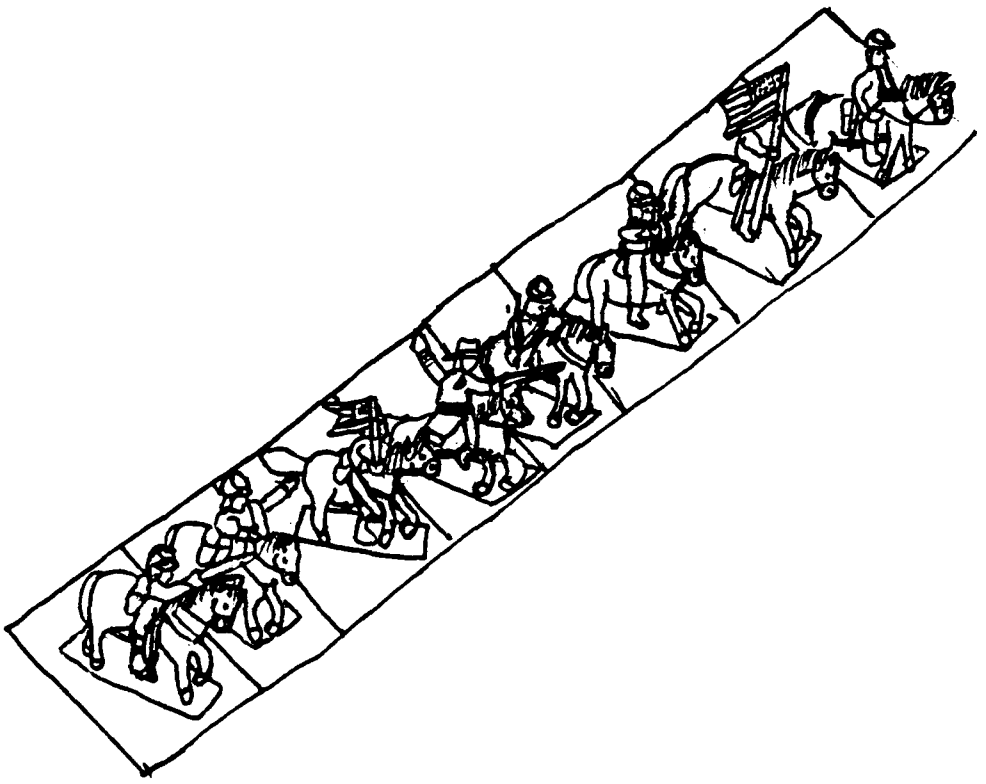

Figure 8
A 320 Man Cavalry Regiment

In May of 1861, the Union cavalry adopted a 12 company organization divided into 3 battalions of 2 squad-

rons each. Confederate regiments retained the 10 company organization. The new Federal organization had an authorized strength of close to 1200 men.[7] Cavalry regiments were usually under strength. In the Union Army as unit strength decreased, the battalion replaced the squadron as a tactical organization. Confederate regiments retained the squadron structure but reduced the number of squadrons in the regiment. Cavalry regiments in both armies averaged 500 men in 1862 and 450 in 1863. In 1864, Union units usually fielded about 250 men, while most Rebel units were down to about 200 men.[8]

Brigades, Divisions and Corps. Early in the war no cavalry organization existed above the regimental level. As the war progressed, however, both sides grouped cavalry units together into higher tactical organizations. Two to six regiments were grouped to form a cavalry brigade. Both North and South grouped 2 to 6 brigades into cavalry divisions as well. Eventually the Union Army also formed cavalry corps consisting of multiple divisions. An example is General Wilson's force consisting of 15,000 troopers for the 1865 Selma campaign.[9]

Analysis

The already provided analysis for infantry organizations also applies to the cavalry. Once again, the wargamer should consult existing books on the war to determine orders

of battle. The single and double figure stands allow a great deal of flexibility in constructing historical cavalry units. The cavalry battle groups represent the common practice of operating in Union battalions and Confederate squadrons. Overall, the simulation provides a good mechanism for representing historical organizations.

Maneuver

The Simulation

Cavalry uses the same types of movement and formations as previously discussed in chapter 3. Terrain and formations have the same type of effect on movement capabilities. Figures 2 and 3 show that mounted soldiers are capable of moving farther than infantry in grand tactical and tactical movements.

Cavalry has two, additional special movement capabilities. First, they can expand or contract formation width during movement. The simulation refers to this as "doubling". This allows units using a road column formation to move into a field column or line formation during movement (Figure 9).[10] Cavalry units also may execute an "opportunity charge" during the opponent's movement turn. The gamer may a cavalry unit opportunity charge against any enemy unit that moves within 8" (320 scale yards) of the friendly cavalry unit.[11]

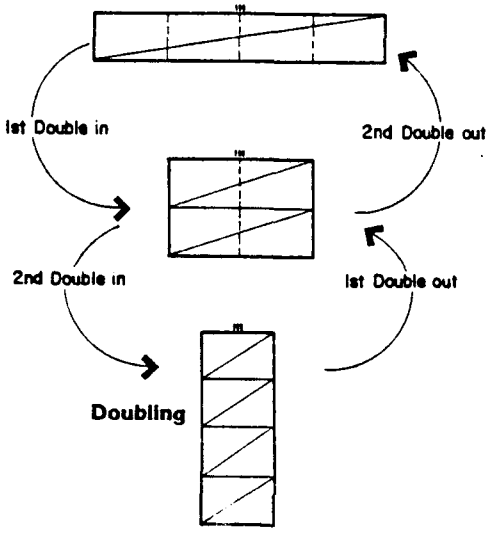

Figure 9
Cavalry Maneuvers

Historical Overview

Doctrine. At the time of the Civil War, cavalry doctrine was almost non-existent in the American armies. The cavalry officers of the 1830s had learned tactical doctrine through practical experience on the frontier. Eventually, the War Department recognized the need of official training doctrine. Winfield Scott adopted a British manual in 1834. Captain Cooper updated the manual in 1836. In 1841, J.R. Poinsett, Secretary of War, authorized the

publication of the "41 Tactics" or "Poinsett Tactics". He Translated the '41 Tactics from the most current French cavalry manual. Although they were effective for teaching drill, they offered little useful guidance for the development of American cavalry doctrine.[12]

Europeans based their doctrine on the traditions of massed cavalry charges. Countless brigades and divisions of cavalry had charged across the battlefields of Europe. However, cavalry traditions were much different in America. There was no established cavalry organization above regiment in America. In fact, units rarely even operated as complete regiments. Cavalry normally operated in company size units as part of the frontier police force. When operating with a field army, they performed scout, reconnaissance and screen duties.[13]

Colonel Philip Cocke, recognized as the foremost authority in American Cavalry, published a new cavalry manual in 1861. His manual too was almost a direct copy of the newest French manual. Just as the '41 Tactics, it stressed the use of battle cavalry and massed cavalry charges. Major General Wheeler used the same French Manual to develop a tactics manual for the South. Both armies officially adopted their respective manuals.[14] American cavalrymen used Poinsett's, Cooke's and Wheeler's manuals to teach drill. Because the manuals stressed European type tactics, cavalry leaders would rely upon wartime experience to develop an American cavalry doctrine and tactics.[15]

Formations. The drill manuals dictated that cavalry march in column and fight in line. This was the common practice in Europe. A regiment, sometimes consisting of a 1000 or more men, would maneuver in column and then deploy into a line for the charge. However, the manuals acknowledged that it took two or more years to effectively train a cavalry unit. American cavalry units were mobilized and sent into combat in a matter of months. Not until late in the war could they match the training and discipline of European cavalry.[16]

Poinsett's Tactics required a double rank formation. Each squadron had to form its two companies one behind the other. A regiment on line had five companies in the first line and five in the second. Cooke's Tactics dropped the two rank requirement and adopted the battalion as the primary maneuver element. Wheeler's Tactics also dropped the two rank requirement.[17]

A regiment normally approached the battle in column of fours. In battle, each squadron formed a line and moved into a column of squadrons. If the terrain permitted, the battalion could form with squadrons abreast.[18] As the war continued, more often than not, cavalry fought dismounted. The tactical situation usually dictated how to deploy dismounted troops. The most widely used formation consisted of four parts. Six to Eight companies dismounted and formed a line of battle. One or two additional dismounted companies

formed a skirmish line 300 to 500 yards to the front. The regiment retained a mounted reserve of one or two companies positioned on each flank. The horse holders made up the fourth part of the formation. One out of every four men acted as horse holders. Cavalry brigades used the same formation with entire regiments assuming the positions of the companies.[19]

Tactics. At the beginning of the war, the Federal cavalry in the eastern theater was untrained, poorly organized and lacked basic horsemanship skills. Their horsemanship skills were so poor, many units had to remain road bound. Sometimes, troopers even had to be tied to their horses. They suffered many humiliating defeats from Rebel horsemen. However, this generally deplorable situation did contribute to the development of American cavalry tactics.[20] At first, the Union did not concentrate cavalry units together. McClellan had 14 regiments of cavalry during the Peninsula Campaign. Needing only a few regiments for reconnaissance, he allowed the remainder to be parceled out for courier, picket and escort duties.[21] The Fifth U.S. Cavalry did conduct one saber charge at Gaines' Mill. It was a small affair with only 250 Union cavalrymen charging a Confederate division. The attack was a total failure with a 20% casualty rate among the charging cavalrymen.[22] Pope, commander of the "Federal Army of Virginia", concentrated his cavalry into brigades. One of those brigades fought partially dismounted during a rear guard action. The en-

gagement successfully delayed a Confederate cavalry force and initiated the development of a new cavalry doctrine.[23]

The battle of Gettysburg prompted the birth of American Cavalry doctrine. On the first day of the battle, Federal cavalrymen endured four hours of fighting against vastly superior numbers and still held. From that day forward Federal cavalry doctrine emphasized dismounted tactics. On rare occasions, when faced in the open by enemy cavalry, they remained mounted in battle. However, they fought dismounted in almost all other circumstances.[24] Soon after Gettysburg, the Confederate cavalry also adopted dismounted tactics.[25]

Rebel cavalry began the war in the western campaign operating as mounted infantry units. As time went by, they perfected the same basic skills the Union was building in the West. Federal cavalry in the West followed the same evolutionary process as their compatriots in the east.[26]

Grand Tactical and Tactical Movement. The Cavalry's greatest advantage over the infantry was its mobility. On a long march, a column of cavalry, alternating between walk and trot, could average over six miles in an hour. A normal day's march was around 35 miles. This pace could be maintained for several days without undue strain on the men or horses.[27] There were several cases of much longer marches. Stuart's command marched 80 miles in 27 hours during the 1862 Chambersburg raid. Morgan's men once covered 90 miles

in 35 hours. However, these difficult marches severely fatigued both men and horses.[28] The normal maneuver speed on the battlefield was about 8 MPH. If the tactical situation required it, they could maneuver at 12 MPH in a gallop and charge at 16 MPH.[29]

Analysis

Formations. The simulation accurately portrays Civil War cavalry formations. The two figure stand represents 40 horsemen deployed on line with another 40 deployed behind them. This was the basic cavalry company formation. All historical formations, except the column of fours, can be formed from this basic cavalry formation. When using single figures, the stand still represents a double line but with 20 men each rather than 40. However, since the column of fours was only used for road marches and not in combat, it should not affect the tactical simulation. All other historical tactical formations are possible in the simulation. The wargamer can form the Poinsett double line by forming a double row of figures. Cooke and Wheeler's single line can be formed by putting all figures in a single line.

The doubling technique allows the wargamer to execute historical cavalry movement. One can simulate a unit's deployment from a road column to squadrons in column all in one turn.

The same simulation mechanics that govern infantry skirmishers also apply to the cavalry. Cavalry troops can

deploy mounted or dismounted skirmishers. This allows the simulator to accurately portray the standard, four part, dismounted formation.

Craighill's Army Officers Pocket Companion states that a double rank of 80 cavalrymen would occupy 53 yards.[30] "Stars and Bars" has the same formation occupying 60 yards. Craighill based his frontage on the space needed for disciplined cavalrymen maintaining proper formation with horses close enough to be almost touching each other. More than likely, American formations were actually less dense than this. Nevertheless, the seven yard difference should not have a significant bearing on the historical accuracy of the simulation.

Tactics. The simulation mechanics governing formations and movement allow the wargamer to execute historical cavalry tactics. The cavalry can fight mounted or dismounted. However, there is no mechanism to account for the poor horsemanship of Federal Cavalry early in the war. This is odd as the first edition of "Stars and Bars" did contain such a rule for horsemanship. In STARS*N*BARS I all Union cavalry raised in the eastern states and used in battles set during 1861 and 1862 had to comply with special restrictions. Their movement rates were reduced by 25%. They could only cross walls and fences at very slow speeds. Mounting and dismounting consumed an entire turn. These special restrictions helped to simulate the superiority of the Confederate cavalry early in the war. Bowden probably

deleted the special cavalry rules in the third edition in favor of playability against accuracy and additional complexity.

Grand Tactical and Tactical Movement. The grand tactical movement allowance for cavalry (Figure 2) does not appear accurately portray the outstanding mobility capabilities of mounted units. Historically, mounted units could average six miles an hour on a large march. However, the movement table only allows for 1.6 MPH. Most Civil War battles took place in a relatively small area. The Union line at Gettysburg was less than 8 miles long. The distortion of cavalry movement may not be noticeable over such a small area. However, it will require further examination in chapter 6.

Tactical movement for cavalry is also questionable. Cavalry should be able to maneuver at three times the rate of infantry. However, the tactical movement table (Figure 3) only allows for a little less than twice the infantry rate. Cavalry tactical movement will also require further examination.

Fire Power

The Simulation

The cavalry in "Stars and Bars" uses a fire model almost the same as the one already discussed for the infan-

try. The only difference is the range categories to account for the shorter ranges of cavalry carbines (Figure 10).

SMALL ARMS TABLE
for Carbines, Breechloading Carbines, and Repeating Carbines

RANGE:	0 - 4"(3") FIRE TABLE I "CLOSE RANGE"	4.1 - 6"(5") FIRE TABLE II "MEDIUM RANGE"	6.1 - 10"(8") FIRE TABLE III "LONG RANGE"
Morale Class (below), showing % per casting firing:			
CRACK	22	14	4
ELITE	20	12	3
VETERAN REG	18	10	2
REGULAR	14	8	2
GREEN	12	6	1
MILITIA	8	4	1

MODIFIERS

Firing on the flank of any unit other than skirmishers	x 2
" " a formed unit in column formation	x 1.5
" " a mounted unit other than artillery	x 1.5
Firing unit is issuing "Unsurpressed Fire"	x 2
" " " "Disordered"	x 0.5
" " armed entirely with smoothbore carbines	x 0.75
" " " " " breechloading carbines (includes the Colt Revolving Rifles)	x 1.5
" " " " " repeating carbines	x 2
" " is mounted	x 0.5
Target unit is in skirmish order and in the open	x 0.2
" " " " " " " any type of cover	x 0.1
" " " limbered artillery, or unlimbered artillery on a compressed front	No change
" " " unlimbered artillery, not on a compressed front	x 0.5
Target is formed (or is unlimbered artillery) in superheavy cover	x 0.2
" " " " " " " heavy cover	x 0.33
" " " " " " " medium cover	x 0.5
" " " " " " " light cover	x 0.9

Note: If more than one modifier applies to a situation, then all appropriate modifiers are used

Figure 10

The cavalry uses the same basic procedure for conducting small arms firing as does the infantry. There are two notable exceptions. First, mounted units fire with a 50% reduction in effectiveness. Second, fire against mounted units is increased by 50%.

The firefight resolution is the same as for infantry. Close combat resolutions are basically the same. However, the cavalry does have the option of declaring a saber charge. This simulates an attempt by the cavalry to gallop into the enemy with sabers and pistols. The saber

charge does not enhance the opportunity to close with the enemy, but does increase the damage inflicted if they do close successfully.

Historical Overview

The Carbine. It was the carbine that revolutionized mounted warfare in North America. Over thirty different types were used in the war. Many, such as the Henry and Spencer, were outstanding weapons and contributed significantly to the development of Civil War cavalry doctrine. Others, like the Sharps and Short Enfield, were more than adequate in getting the job done. Union cavalry began the war poorly armed. Volunteer units had sabers and perhaps one carbine for every 10 men. The armaments reflected the contemporary belief that the cavalry would only perform screen and reconnaissance duties. The Confederate cavalry initially preferred pistols and shotguns. By 1863, almost all cavalry had some sort of carbine.[31]

The Sharps carbine was a cut down version of the single-shot, breech-loading rifle. Its rate of fire was twice that of a Springfield or Enfield rifle. This weapon served throughout the war with the U.S. Army Regular cavalry units. It was also very popular in the South because it used non-metallic cartridges (Southern Industry could not manufacture metallic cartridges).[32]

Most considered the Spencer Repeater the best weapon of the war. It had a seven shot, tubular magazine and was capable of firing up to 20 rounds per minute. This excel-

lent weapon was available early in the war. However, the Union Army did not issue it in large numbers until after Gettysburg. Although popular with Confederate units, they had to rely on captured metallic cartridges for resupply.[33]

The 15-shot Henry Repeater was another excellent weapon. It had a higher rate of fire than the Spencer, but was more likely to malfunction. Ironically, the North did not issue Henry carbines to its soldiers during the war. However soldiers did privately purchase over 10,000 Henries.[34]

The "Short Enfield" was not really a carbine, but rather a cut down rifle. Nathan Bedford Forest made this weapon famous as the official weapon of his unit. The Confederate cavalry could meet the Union cavalry on somewhat equal terms because the "Short Enfield" had better range and stopping power than true carbines. Early in the war, Confederate cavalry in the west used shotguns in lieu of carbines. The favorite tactic, perfected by Terry's Texas Rangers, was to load heavy gauge buck shot for close quarter fighting.[35]

> At twenty paces the Confederates gave a volley with their shot-guns, a formidable weapon at that distance, and rushed in with pistols and sabers.[36]

Other weapons common to the cavalry were sabers and pistols. The U.S. Cavalry issued sabers as an official part of their equipment throughout the war. As with the carbines, there were numerous different patterns. It doesn't appear that the saber enjoyed the same mystique that it

enjoyed in Europe. However, there were enough successful engagements with the saber, such as Winchester (1864) and Five Forks, to warrant its continued existence.[37]

> The Intrepid Devin, with his gallant brigade, burst like a storm of case shot in their midst, showering saber blows on their heads and shoulders, trampling them under his horses' feet, and routing them in droves in every direction. The brigade emerged from the fray with three stand of colors and over 300 prisoners.[38]

Many, especially in the South, preferred the pistol to the saber. Federal authorities officially listed close to 400,000 revolvers, of 14 different makes, purchased during the war. However, the Colt Company, alone, claims to have supplied 380,000 revolvers to the government and private individuals. Altogether, historians estimate that both sides combined used about one million pistols in the war. Most were Colts and Remington revolvers.[39]

Weapons Effectiveness. Carbines were excellent weapons for cavalry operations. Their shorter barrels made them handier than rifles. Because most were breech loaders, and many were repeaters, their rate of fire was very good. Accuracy and hitting power was sufficient considering that the average length was only 38" (rifles averaged 58"). The better weapons were capable of hitting targets at 500 yards. However, most carbines had an effective range of only 150 to 200 yards. The shorter range was due to the shorter

barrel and the corresponding weak loads of the cartridge. Poor hitting power was one of the major reasons the Army did not purchase the Henry Repeater. Most cavalrymen believed the rapid rate of fire more than made up for its deficiencies.[40]

The breech loaders could fire twice as fast as the standard infantry rifle. The repeaters, like the Spencer and Henry, had phenomenal rates of fire. Bragg, at Chickamauga, believed that the fire he heard coming from Wilder's Union brigade armed with Spencer carbines, was that of an entire division. However, the faster rates of fire caused difficulties with ammunition supplies. Many times cavalry units had to withdraw because they ran out of ammunition. By 1864, the Union cavalry was confident in their ability to use their rapid fire carbines to stop twice their numbers. Sheridan's valley campaign also showed that the cavalry with rapid fire carbines could sometimes attack dismounted and defeat entrenched infantry.[41]

The effectiveness of the saber must be described in two parts. First, against the infantry (or dismounted cavalry) it proved to be almost useless. The cavalry made very few charges against the infantry. Of the few, most failed. In almost every case, Infantry armed with rifles would break-up the charging cavalry long before it reached the infantry line. Sheridan, in the 1864 Valley Campaign, did make several successful mounted attacks against

infantry. However, in most cases the infantry were weak and demoralized units.[42]

In cavalry versus cavalry, the saber still proved to be an effective weapon. The Federal cavalry favored the saber over the pistol. General Custer, after a skirmish at Opequan Creek, Virginia, remarked:

> The enemy relied wholly upon the carbine and the pistol; my men preferred the saber. A short but closely contested struggle ensued, which resulted in the repulse of the enemy.[43]

By 1863, the Rebels also began to emphasize the use of sabers in cavalry versus cavalry actions. Jeb Stuart stated: "With an abiding faith in the god of battle, and a firm reliance on the saber, your success will continue."[44]

Other cavalry leaders favored the use of the pistol. Mosby stated, "The saber is of no use against gunpowder."[45] Forrest also preferred the pistol to the saber for his units.[46] Interestingly, dismounted cavalry were also quite effective in their use of the pistol. The 2nd U.S. Cavalry used pistols in a dismounted attack to drive the enemy from their entrenchments.[47] Forrest's men also used pistols while dismounted. His tactics were to close in quickly so that his pistols could match the firepower of the Federal's repeating carbines.[48]

Analysis

The Carbine. The fire model is based on single-shot, muzzle-loading, rifled carbines. As with the infantry

fire model, modifications for better weapons and less effective weapons are applied against the base factors. At first, this seems strange because the cavalry used so few single-shot, muzzle-loading, rifled carbines during the war. As stated earlier, the "Short Enfield" was a rifle, not a carbine. Bowden probably based his methodology for carbine fire on playability. By using the same basic fire model as the infantry, the wargamer only has to familiarize himself with one set of modifiers.

The small arms table does not account for pistols and shotguns. This is because they were primarily melee weapons for close combat. They did play a significant role in the close action resolution that will be discussed later.

Weapons Effectiveness. The fire table accounts for four types of cavalry carbines: rifled muzzle-loading; smoothbore; breech-loading; and repeating. The range categories accurately reflect that carbines were only effective out to a maximum range of 200 yards.

Although the Sharps carbine had a rate of fire three times as fast as a standard infantry rifle, the fire model only provides for a 50% increase. The Spencer had six times the rate of fire of a standard rifle. However, the fire model only doubles the rate. Bowden probably based the reduced rates on several factors. First, the rapid fire weapons had the potential of running out of ammunition very quickly. Spencer armed cavalrymen only carried 75 rounds. As a result, most cavalry officers encouraged their men to

fire slowly and conserve ammunition.[49] Second, the early repeaters had many technical teething problems. Individual weapon stoppages and failures greatly reduced the total volume of fire. In one intense firefight, the 1st Pennsylvania cavalry fired an average of 12-18 rounds per man per hour. The Spencer carbine should have been able to fire 12-18 rounds per minute.[50]

Overall the fire model appears to be somewhat inaccurate in its representation of the capabilities of breech-loading and repeating carbines. One brigade of Union cavalry with breech-loading carbines did fight at Cedar Mountain. A subsequent examination of their performance should offer more insight into the historical accuracy of carbine fire in "Stars and Bars".

Mounted cavalry can declare a saber charge or charge using carbine fire. However, in most cases the cavalry has a very poor chance of closing with rifle armed defenders. The rifle armed infantry will almost always inflict significant casualties on the cavalry before it can close. This infantry success is attributed to two historically accurate reasons. First, the infantry had almost four times as many men concentrated on the same frontage as the cavalry. More men firing causes more casualties. Second, on the small arms fire model, rifle fire inflicts 50% more casualties on mounted targets than on dismounted targets. Mounted cavalrymen are obviously much better targets because of their height. The low velocity ballistics of the blackpowder

weapon had a better chance of hitting the man or his horse than an infantryman.

Cavalry units have a better chance of closing when charging against disordered infantry or against an open flank. If the mounted unit does manage to complete its charge, the results can be devastating to the defending infantrymen. By comparing the modifiers on the close action results chart (Figure 7), one sees that a cavalry unit completing a saber charge will automatically defeat the defending infantry. The Confederate cavalry armed with shotguns also have a devastating effect if they are allowed to close with the enemy.

The chances of the two, charging, mounted units closing with each other is very good. When both sides have equal numbers, the advantage will go to the side with the higher eliteness rating (explained in chapter 5).

The Artillery

> Repeatedly the rebels attempted infantry charges in front of us, from the point of the forest, but our artillery, playing over our regiment with grape and canister, cut them down as a mower cuts grass.
>
> Frederic Denison
> 1st Rhode Island Cavalry[51]

Unit Organization

The Simulation

The "Stars and Bars" artillery organization is much different than its infantry and cavalry organization. Each

gunner figure, instead of representing 40 men, signifies the number of crewmen needed to operate two guns. Each model gun represents two guns. Each movement stand has one model gun and two gunner figures representing an artillery section with two guns and the crew members to man the guns. The simulation groups two or three stands adjacently to represent a four or six gun battery (Figure 11). There is no requirement for the battery to have one standard type of gun. The simulation encourages the wargamer to use historical battery organizations and allows up to 3 different types of guns in the same battery.[52]

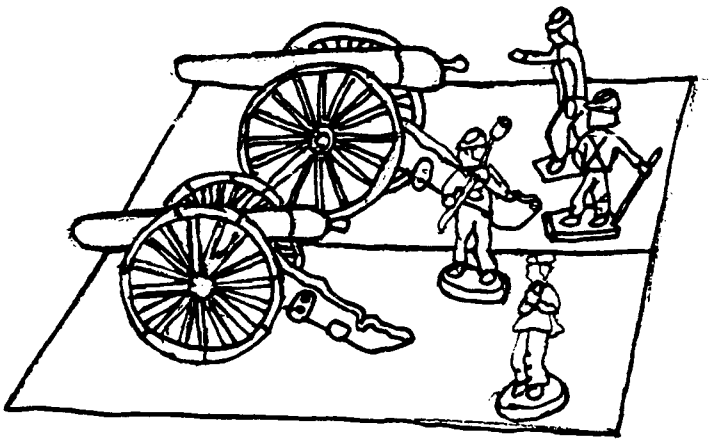

Figure 11
A Four Gun Battery

Historical Overview

The Battery. Army regulations divided Civil War artillery into two branches, Foot Artillery and Field Artil-

lery. Foot Artillery contained heavy artillery and performed siege and sea coast defense operations. Their functions are outside the scope of this study and will not be examined.[53]

Field Artillery maneuvered with and supported the troops in the field. The Field Artillery was divided into two sub-parts: horse artillery, generally supporting the cavalry; and mounted artillery providing support to the infantry.[54]

Horse and mounted artillery are organized very similarly with one major difference. Regulations authorized horse artillery to have additional horses for the gunners to ride. In mounted artillery, the gunners either walked beside or rode on their caissons. The artillery regiment was strictly an administrative headquarters. Each regiment was composed of 12 batteries. These batteries served as the basic tactical organization in the war. Before the war, six to eight was considered the ideal number of guns for a battery. Early combat experience soon proved the best organization to be four or six.[55]

Numerous types of guns and howitzers were common before the war. At that time, U.S. Army Regulations specified a six gun battery would contain four guns and two howitzers. A four gun battery had three guns and one howitzers.[56] Union batteries eventually standardized by allotting six guns of the same type to each battery.[57]

The Confederate artillery had no official organization. Batteries could consists of as few as two guns or as many as eight guns. The Rebels, because of the blockade and a limited industrial base used whatever guns they could acquire. Many times this resulted in batteries of four guns containing as many as three different calibers.[58]

The Union six gun battery had an authorized strength of five officers and 150 men. A captain commanded the battery. A lieutenant commanded each two gun section. A sergeant commanded each gun platoon consisting of 15 gunners and drivers and the gun with its limber and caisson. All totaled the mounted artillery battery contained 155 men and 110 horses. The horse artillery had an additional 12 men and 72 horses.[59] Confederate four gun batteries contained about 90 men and 90 horses.[60]

Battalions and Brigades. At the start of the war, artillery batteries were attached directly to infantry brigades. However, experience soon demonstrated that the artillery was more effective when concentrated for massed fires. Both sides grouped artillery batteries into larger tactical organizations. The Federals grouped three batteries into an artillery brigade. The Rebels grouped four batteries into an artillery battalion.[61]

Analysis

The scale of one model gun representing two actual guns permits the wargamer to form most historical organizations. For example, the typical prewar battery had (4) six

pound (6pdr) smoothbore guns and two twelve pound (12pdr) howitzers. The wargamer would represent this battery with three stands. Each stand would have two gunner figures. Two stands would have a model 6pdr gun and the third stand would have a model 12pdr.howitzer. It is important to remember that the six crew figures represent six functioning guns and their crews (approximately 155 men) not 240 men.

Maneuver

The Simulation

Artillery has two types of formation and movement. The guns are either in a limbered formation for movement or a unlimbered formation for firing. In a limbered status, artillery has movement capabilities similar to those of infantry and cavalry.[62]

The grand tactical movement allowances for foot artillery are the same as for infantry. Horse artillery movement factors match those of cavalry (see Figure 2). The tactical movement allowances for artillery are also very similar to the infantry and cavalry.[63] However, the limitations for restricted terrain are much more severe (see Figure 3). Artillery also has limited capability of movement while in an unlimbered status. The gunners either pulled the guns with ropes or pushed them by hand.

Historical Overview

Doctrine. After the First Bull Run, both sides attempted to develop more effective artillery organizations. Major William Barry, Chief of Artillery for the Army of the Potomac, devised a set of principles meant to overcome previous deficiencies in artillery organization. Barry concentrated individual batteries into artillery brigades and created an artillery reserve for both the corps and army. Divisions usually had four batteries, one U.S. Army Regular battery and three volunteer batteries. The corps then designated part of the divisional artillery as the Corps Reserve Artillery.[64]

The Confederate Army also reorganized their artillery to obtain more centralized control. However, only for special tactical considerations did they concentrate guns above the corps level. This was probably because the South had fewer guns and had a more pressing need to provide direct fire support to the infantry.

Formations. Civil War artillery had two basic formations, limbered and unlimbered. In the limbered formation, the guns are attached to the caissons for movement. The batteries normally moved in a column and then deployed their guns on line. A well trained crew could unlimber and fire a round in 30 seconds. Regulations required the battery to deploy with 14 yards between guns. Each gun occupied 2 yards. Therefore, a six-gun battery had a frontage of 82 yards. A four-gun battery had a frontage of 50 yards.

The depth of the formation was also extensive and required the battery to take up a significant amount of room. Including guns, limbers, and caissons, a six-gun battery required a rectangle 82 yards by 47 yards to deploy.[65]

Tactics. The American experience in the Mexican American war had shown that artillery could be effective in both the offense and the defense. However, early experiences in the Civil War seemed to suggest that artillery could not be employed in the offense. Craighill's Pocket Companion advised that artillery should not approach closer than 300 yards to the enemy.[66]

At the First Bull Run, two Union batteries moved forward close to the Confederate lines. Thinking they were the promised infantry support, the batteries mistakenly allowed a Confederate regiment to close within 70 yards. One close range volley from the infantry hit 40 gunners and 75 horses effectively putting two batteries out of action. At Malvern Hill, the Confederates also tried to use artillery in the offense. Longstreet wanted to mass 60 guns to prepare for the infantry assault. However, because the Rebel moved the guns forward in a piecemeal fashion, the defending Union artillery fire was able to destroy them. Because of these experiences and others, many Civil War commanders discounted the offensive capability of artillery.[67]

One reason for the vulnerability of artillery was the nature of its formation. The large frontage and depth of the artillery battery made a very good target for enemy rifle fire and counter-battery fire. The gunners were well dispersed within the formation and usually did not suffer terrible casualties. However, the horses were concentrated on the limbers and caissons and sometimes suffered grievous casualties. Lieutenant Metcalf of Battery C, 5th U.S. Artillery, provided a description of his unit's experience when fighting at close range.

> Every horse was killed, 7 of the men were killed outright, 16 wounded; the gun carriages were so cut with bullets as to be of no further service, 27 balls passed through the lid of the limber chest while the number six was getting out ammunition. the sponge bucket on my gun had 39 hoes in it being perforated like a sieve.[68]

Metcalf's casualties of about 15 percent were unusually high for artillery. Normally, a battery could expect to lose 5 to 10 percent or no more than two men per gun. Even on those rare occasions when casualties were more severe, most batteries managed to stay in the fight. One Union battery at Chancellorsville lost 46 out of 120 men. Another battery at Spotsylvannia lost 50 percent of its men. However, both batteries withdrew only after they had expended all their ammunition.[69]

Grand Tactical and Tactical Movement. Craighill's "Pocket Companion" provides no specific guidance for calculating the march capabilities of artillery. His guidance

is that field artillery should march with the infantry and the horse artillery with the cavalry. The theoretical speed of field or horse artillery was the same as for the cavalry. Artillery marched at a walk, maneuvered on the battlefield at a trot and could gallop in emergencies.[70] However, rough terrain had a greater degradation on artillery movement than with the other arms. The artillery often could not keep up with their respective branches in difficult terrain. The 1861 Artillery regulation devotes several pages to marches. It provides instructions on how to cross rough terrain and how to negotiate hills. Normally, on steep hills the gunners doubled the teams. They would then push and pull the guns to the top.[71]

The gunners also could move unlimbered guns a short distance. They could push the guns by hand. This method was usually used to adjust firing positions or for moving in light woods.[72] The gunners could retire the guns by prolong (a long rope) when fighting rear guard actions. They would attach the gun to the limber with the prolong. The horses would then pull the guns slowly to the rear. The gunners could load the guns while they were moving only stopping long enough to aim and fire.[73]

Analysis

Formations. In order to maintain historical accuracy in spacing, the simulation sacrifices visual appeal by not having horses or limbers. Each artillery movement stand has 3/4" frontage and 1 1/4' depth. The 3/4" frontage

provides a reasonable representation of the regulation frontage. The simulation has a six-gun battery occupy 90 yards frontage in comparison to the historical 82 yards. The simulation frontage is partially dictated by the minimum 3/4" physical space required for a 15mm model artillery piece. Nevertheless, this small deviation should not have a major impact on the historical accuracy of the simulation. The 1 1/4" depth (50 yards) represents the limber and caisson as well as the gun and crew. The regulations required a 47 yard depth. Considering the scale of the simulation, the 3 yard deviation should not present a problem.

Tactics. The fire models for both infantry and artillery show that artillerymen were less vulnerable to enemy fire than formed infantry (see Figures 4 and 10). The simulation also allows the defender to fire first in almost all circumstances. Therefore, the artillery would, probably be more effective on the defense than the offense. However, this area cannot be fully examined in this portion of the paper. Both the battles of New Market and Cedar Mountain have significant amounts of artillery. Artillery tactics will be examined in the analysis of the two simulations.

Grand Tactical and Tactical Movement. The analysis of both types of movement is very similar to what has already been provided for the cavalry. With the artillery, there is the added need to look at unlimbered movement of the guns. The column for prolong movement (see Figures 2

and 3) refers to both retiring by prolong and the act of pushing the guns by hand. This area will also require additional analysis during the wargame simulation.

Fire Power

The Simulation

The "Stars and Bars" simulation divides artillery into two fire class groups. All U.S. Army regular batteries and all Union volunteer batteries above the "green" morale classification are class I artillery. "Elite" and "crack" Confederate batteries are also included in this class. All other batteries are class II artillery.[74]

The simulation further categorizes artillery as rifles or smoothbores, and then divides the guns into four different calibers: light; medium; heavy; and siege.[75] For the most part, the simulation follows the 1861 regulations for determining weapon caliber. Weapon caliber will be explained in the historical overview of this section. The artillery fire model (see Figure 12) is very similar to the infantry fire model and is probably best understood through an example.

> A Confederate infantry regiment moves up to within range "B" of a Union artillery company of six medium smoothbores. When the infantry finishes its movement, the artillery issues opportunity fire. Class I medium smoothbores have a 75% chance per gun to inflict a casualty at this range. The battery of six guns has a 450% chance to inflict a casualty.[76]

ARTILLERY FIRE TABLE

	FIRE TABLE / RANGE	"A" 0 - 3"(2")		"B" 3.1 - 6"(5")		"C" 6.1 - 12½"(10")		"D" 12.51 - 20"(16")		"E" over 20"(16")	
		INF		INF		INF		INF		INF	
	TARGET IS	CAV	ART	CAV	ART	CAV	ART	CAV	ART	CAV	ART
	CALIBER										
Class I Smoothbores	Siege	150	60	125	40	60	20	30	10	12	5
	Heavy	100	45	80	30	45	15	20	8	10	4
	Medium	70	30	50	20	25	10	12	5	6	3
	Light	40	15	25	10	15	8	10	4	4	2
Class II Smoothbores	Siege	130	45	100	30	45	15	20	8	10	4
	Heavy	80	35	60	20	30	12	15	6	8	3
	Medium	60	20	40	15	20	8	10	4	5	2
	Light	30	12	20	8	12	5	8	3	3	2
Class I Rifles	Siege	100	40	75	25	60	20	40	16	20	10
	Heavy	60	25	50	15	45	15	30	10	16	8
	Medium	40	15	30	10	25	10	20	8	10	6
	Light	20	12	15	8	15	8	12	6	8	4
Class II Rifles	Siege	80	30	65	20	45	15	30	14	16	8
	Heavy	50	20	40	12	30	12	25	10	12	6
	Medium	30	12	24	8	20	8	16	6	8	4
	Light	15	8	12	6	12	5	10	4	6	3

Firing on the flank of any unit other than skirmishers ..... x 2
" " a formed unit in column formation ..... x 1.5
Firing unit is issuing "Unsurpressed Fire" ..... x 2
Artillery unit is in 'Disordered' status ..... No fire allowed

Target unit is in skirmish order and in the open ..... x 0.2
" " " " " " in any type of cover ..... x 0.1
Target is limbered artillery, or *unlimbered* artillery on a normal frontage ..... Use art column
Target is unlimbered artillery on a compressed frontage ..... Use inf column
Target is formed (or is unlimbered artillery) in superheavy cover ..... x 0.2
" " " " " " " in heavy cover ..... x 0.33
" " " " " " " in medium cover ..... x 0.5
" " " " " " " in light cover ..... x 0.9

Note: If more than one modifier applies to a situation, then all appropriate modifiers are used.

ARTILLERY FIRE SITUATION CHART

VS. INFANTRY		VS. CAVALRY
A	Defense of Battery	A
B	Fire and Retire	B
C	Follow up fire and Defense of battery	D
D	Follow up fire and retire	E

Below are some explanations of terms used on the chart.

Follow up **means that the enemy have already been involved in close action combat resolution earlier this same tactical impulse.**

Defense of battery **means that the artillerists are firing and remaining with their pieces to defend the battery from a charging enemy.**

Fire and retire **means that the artillerists are firing and then are retiring to a formed friendly infantry unit's protection or a building structure which is within 1¼" (1") of the artillery.**

IX/20

Figure 12

Historical Overview

The Guns. A wide variety of different guns and howitzers saw service during the war. Guns had long, heavy barrels and fired along a flat trajectory. Howitzers were

much lighter and shorter. They could fire a heavy shell and usually fired along a high trajectory. Guns could either be rifles or smoothbores. All howitzers were smoothbores. Before the war, the 6 pdr smoothbore was the most common gun. By the start of the Civil War, the 12 pdr smoothbore gun, called the Napoleon, had replaced the 6 pdr in most regular army units. Eventually, the Napoleon became one of the most popular guns in the war. Its popularity was due to its ability to function as either a gun or a howitzer.[77]

The caliber of the gun was designated by the weight of the solid shot or by the diameter of the bore in inches. Light caliber guns included 6 pdr's, 10 pdr Parrotts, 3" Rodman rifles, and 12 pdr howitzers. Medium calibers included 12 pdr Napoleons, 12 pdr rifles, and 20 pdr Parrots. Heavy caliber guns included 24 pdr and 32 pdr guns and howitzers.[78]

The Union Army standardized their artillery and primarily used the 3" Rodmans, 10 pdr Parrots and 12 pdr Napoleons.[79] The South favored the 3" Rodmans and Napoleons. However, because of supply problems, they also had a variety of other weapons. The most common weapons were the 12 pdr howitzer, 6 pdr rifle and smoothbore, and the 10 pdr Parrott. Whenever possible, the Confederate used captured Union guns. One Confederate soldier captured at the battle of Antietam paused to read the "U.S." markings on a Union gun and remarked, "You-all has got as many of these US guns as we'uns has".[80]

Weapons Effectiveness. The gunners of the Civil War had two schools of thought concerning the merits of smoothbores and rifles. The smoothbore was a better weapon for defending against infantry attack. Because of its wider bore, the smoothbore could fire a larger anti-personnel round. Rifled guns had better accuracy and longer ranges. Therefore, the rifles were more effective against long range targets and especially suited for firing against enemy artillery.[81] The 12 pdr Napoleon had a maximum range of 1680 yards. The 3" Rodman and 10 pdr Parrott could fire out to almost 3000 yards. The effectiveness of artillery fire was primarily based on the type of ammunition fired. There were four main types of ammunition used during the war: canister; shell; case; and shot. Smoothbores fired spherical ammunition and rifles fired a cylinder type round that closely resembled a modern-day artillery shell.[82]

The artillery's most lethal load was the canister round. Canister was a light tin can filled with several cast iron shots, about the size of golf ball. Canister acted much like a large shotgun. A Napoleon canister contained 27 balls, while a rifled canister had only 18 balls. A trained crew could fire three rounds per minute. The canister round was effective out to about 400 yards. It was also common for the gunners to load double of triple canister rounds in desperate situations. Double canister was only effective out to 200 yards.[83]

Shell was a hollow cast sphere or cylinder filled with explosives. Smoothbores used a time-fuse, while rifles used either a time fuse or impact fuse. When the shell exploded it would burst into about seven large chunks. Gunners normally fired shell at massed targets from 500 yard out to 1500 yards.[84] Case shot was similar to shell except that the hollow cast was filled with small iron balls. The gunners tried to time the fuses so as to burst overhead the target. Normally, the artillery fired case at targets between 500 to 1,500 yards.[85] Shot was solid metal balls or cylinders used for knocking down fortifications or buildings. It also could also be used in lieu of shell or case when the time was not available to cut the fuses.[86]

A well trained crew could fire 38 rounds against a infantry regiment advancing from 1500 yards out. In the first 10 minutes they would fire 20 aimed rounds of case or shell against the infantry. During the 10 minute interval the infantry would advance to within 650 yards of the battery. At that time the infantry would switch to a quick step march for the next 300 yards, which could be covered in about 3.5 minutes. The gun crew would then switch to solid shot and fire 7 rounds. The ammunition switch would be made because it was to difficult to adjust the fuses for the rapidly advancing infantry. At 350 yards the infantry would increase their pace to a double-quick march and then charge the final 100 yards, all of which could be covered in less

than 4 minutes. During that time period, the gun would fire 9 rounds of single case and 2 rounds of double case.[87]

The lack of available technology created many problems with the artillery ammunition and guns. The uncertain fuses caused many shells (and case) to fail to explode or to burst prematurely in the air. Even when they did explode, the shells were far less destructive than modern day artillery. Other than canister fire, most artillery fire had more of a psychological affect rather than causing casualties.[88]

The Rebel gunners were equal to their Yankee counterparts. However, because of the lack of good equipment, the Confederates were never able to compete on even terms with the Union Artillery.[89] D.H. Hill, a Rebel General, complained:

> There must be something very rotten in the Ordnance Department. Our shells burst at the mouth of the gun or do not burst at all. The metal of which the new guns are made is of most flimsy and brittle character, and the casting is very bad.[90]

In the South poor manufacturing capabilities resulted in unreliable guns and ammunition. Confederate fuses rarely worked properly and poorly cast guns were sometimes woefully inaccurate. Many of their problems were also due to a poor quality of powder. Confederate batteries also had difficulty obtaining proper battery support equipment and the right type of ammunition. Shot was commonly used in lieu of shell and case. There were even instances of Rebel

artillery firing chunks of railroad iron. The gunners also manufactured their own canister rounds using chains, nails and glass.[91]

Analysis

The Guns. The artillery fire model represents all the major types of weapons used in the war. The caliber determination is the same as listed in the historical overview with only one exception. In "Stars and Bars" the 12 pdr howitzer is only considered a light gun when firing beyond 5" (200 yards). The howitzer fired the same canister round as the Napoleon, therefore, at close range, they were equivalent weapons. The procedure of combining all the different guns into only four calibers is primarily to balance the simulation between playability and historical accuracy. Nevertheless, many of the guns fired the same ammunition and had virtually the same characteristics. The 3" Rodman and 10 pdr Parrott fired the same ammunition. Most 12 pdr guns and howitzers also fired the same ammunition.

Weapons Effectiveness. The ranges shown on the fire chart closely correspond to the effective ranges of Civil War artillery. Triple canister could only be fired out to 100 yards. Double canister was fired out to 200 yards. Normal canister was effective to 400 yards. Each of the above ranges corresponds closely to fire tables A, B, and C on the artillery fire model. These are also the ranges on

the fire model within which artillery is most effective. Beyond 400 yards the probability of causing casualties is significantly reduced.

The division of artillery into class I and II does not represent crew quality. Instead, it is used to represent a difference in the quality of equipment and ammunition, and the efficiency of the supply system. Overall, this provides an effective system of portraying the marked superiority of Union Artillery while still allowing the Confederate Artillery to have high morale ratings for the crews. The simulations of New Market and Cedar Mountain will be used to determine the Historical accuracy of the artillery fire model.

Summary

The following chart summarizes the analysis of the supporting arms in the "Stars and Bars" simulation.

YES -"Stars and Bars" provides the means for a historically accurate simulation.

NO -"Stars and Bars" is not historically accurate in this area.

? -Further analysis required, determination of historical accuracy will be examined in the simulations of New Market and Cedar Mountain

The Supporting Arms

	Cavalry	Artillery
Unit Organization		
The Regiment/Battery	YES	YES
Bde, Div, and Corps	YES	YES
Maneuver		
Formations/Frontage	YES	YES
Tactics	YES	YES
Grand Tactical Movement	?	?
Tactical Movement	?	?
Fire Power		
Types of Weapons	YES	YES
Weapons Effectiveness	?	?
Fire Resolution	?	?
Firefight Resolution	?	?
Close Action Resolution	?	?
Ammunition Shortages	?	?

Chart 2

CHAPTER 4

NOTES

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CHAPTER 5

BATTLEFIELD COMMAND

> My plans are perfect and when I start to carry them out, may God have mercy on General Lee, for I will have none.[1]
>
> Joseph Hooker
> Chancellorsville Campaign

The ability of a commander to control his units plays a key role in the outcome of a battle. Today's commanders have no more guarantee that their orders will be carried out than did Civil War commanders. There are many factors which assist or hinder the execution of orders. These include the professional abilities of the commander and his staff. One must also consider the morale of the unit receiving a given order.

The Simulation.

Command and Control. Empire Games' intent is to provide a simulation that stresses the exercise of proper command and control in the application of a realistic battle plan.[2] The simulation attempts to portray the impact that army, corps, division, and brigade commanders had on their units during Civil War combat.

In "Stars and Bars", the wargamer plays the role of a commander and his staff. Bowden specifically designed the simulation for the wargamer to assume the role of a corps commander. However, the simulation works equally well for small battles when the wargamer assumes the role of a division or even a brigade commander. Single figures are used to represent brigade and division commanders. Two figures, usually a horse mounted command figure and a dismounted staff officer, represent the corps commander and his staff.

Before beginning the simulation the wargames participants assign each division commander and above a rating for professional skill. Professional skill is the commander and his staff's ability to issue and execute orders.[3] The simulation provides for six different levels of professional skill: Superior; Excellent; Good; Mediocre; Poor; and Despicable. The wargamer has two methods that he can use for assigning professional skill. In the first method the wargamer must research the commander and make a subjective decision on how well the commander controlled his unit. Appendix A provides the order of battle for the New Market reenactment. Included in the order of battle is a brief discussion on how and why ratings are assigned. The second method uses existing wargame scenarios. Wargames periodicals many times contain simulation scenarios were other gamers have already done the research. Also boardgames can be adapted into simulation scenarios. Appendix C is the order of battle for the Cedar Mountain scenario. The sce-

nario was adapted from the boardgame Cedar Mountain by Simulations Publications. The appendix also provides a brief discussion on how the boardgame was converted into a miniature game.

Each commander must, at the beginning of each hourly round, issue orders to his units. Possible orders are: Attack; Defend; Maneuver: Withdraw; and Redeploy. Specific criteria govern each order. Several samples are shown in the following paragraph. A corps with an attack order must move its divisions within engagement range of the enemy. A division with a defend order may not move its brigades toward the enemy more than 13"(620 yards). A brigade with a maneuver order may never voluntarily come closer than 17" (680 yards) to the enemy.

The issuance of an order is no guarantee that it will be carried out. All orders must be activated before they can be executed. The commander's professional skill and his location influence the ability to activate an order. A superior division commander can control units up to 28"(1120 yards) from his position (a command radius) and has an 80% chance of activating his orders. A despicable division commander has a command radius of only 13"(520 yards) and a 30% chance of activating his orders. The other skill ratings range between these two extremes. Corps and army commanders have the same measures of chance for activating orders, but with much wider command radiuses. A superior commander has a 50" (2000 yards) command radius and a des-

picable leader only a 28" (1120 yards) radius. The issue and activation process is best understood by reviewing an example provided in "Stars and Bars".

> Major General McClellan, who is rated mediocre, decides to change the orders of II Corps from DEFEND to ATTACK. On hourly round five, he writes the ATTACK order and dispatches it to Major General Sumner, the corps commander. Sumner is within McClellan's command radius of 40" (1600 yards). As a mediocre leader, McCellan has only a 50% chance to transmit the order. Percentile dice are rolled with the result of "67", the orders are not received and Sumner cannot go over to the attack. On round six the orders are rolled again at the same 50% chance, they need not be reissued. On the sixth hour McClellan rolls a "36" and Sumner receives his new orders. Sumner may then issue new orders to his divisions. He issues ATTACK orders to his subordinates. If the orders are transmitted successfully, the division commanders may issue orders to their Brigades, which may act upon them immediately.[4]

Leaders also run the risk of becoming casualties when they lead units in combat. The procedure for determining this risk is based upon how many casualties the commander's unit suffers. The higher the casualties, the higher the chance the commander has of being wounded or killed. When a leader is incapacitated, his units must continue with their previous orders for one more turn. At that time, a subordinate takes command of the unit.[5]

Morale. Unit Morale plays a key role in the "Stars and Bars" simulation. At the beginning of the simulation, the wargamer assigns each regiment and battery a morale level, referred to as the unit eliteness rating. The Morale

table (Figure 13) provides for six different eliteness levels. The Morale table also offers basic guidelines on which morale level to assign to units and brigades. Wargamers use the same two methods already discussed for assigning commander ratings to determine unit morale. Basically, the gamer must make a subjective decision on each unit's effectiveness.

MORALE TABLE

UNIT ELITENESS RATING	BASIC % TO FAIL MORALE	FEDERAL	CONFEDERATE
Crack	-5	Only very selected units, such as those of the Iron Brigade, etc.	Selected brigades such as the the Stonewall and Texas brigades, etc.
Elite	0	Selected units, such as those of the Irish brigade and U.S. Infantry units.	Many selected brigades and units.
Veteran Regular	5	Many brigades and regts.	Vast majority of brigades which were not Crack or Elite status.
Regulars	8	Many of the North's combat-tested units and brigades.	A few of the South's less tested units and brigades.
Green	12	Many units and brigades of questionable combat worthiness; units and brigades of volunteers not yet battle tested or battle worthy.	A few units of newly raised or of questionable combat worthiness; majority of Southern militia.
Militia	20	Selected units and brigades which were completely raw or despicable volunteer formations of note.	Selected Southern militia of completely raw and/or untrained status.

MODIFIERS

SITUATION

Formed troops or artillery firing on your flank or rear within 10" (8")	+20
Unit testing has lost 10% effectives, but not yet 25%	+ 5
Unit testing has lost 25% effectives, but not yet 50%	+10
Unit testing has lost 50% effectives, but not yet 75%	+30
Unit testing has lost 75% effectives, or more	+50
Unit testing is in 'Disordered' status, or has had friendly formed troops in bad morale status move into or through its ranks this tactical impulse	+10
Unit testing was fired on by a 'Hidden Battery' this tactical impulse	+20

COVER

Unit testing is in light cover	- 5	Unit testing is in heavy cover	-15
Unit testing is in medium cover	-10	Unit testing is in superheavy cover	-20

LEADERSHIP

Inspirational Impact of the leader	Leader attached at the brigade level	Leader attached at the unit level
Charismatic	-10	-20
Inspirational	- 5	-10
Impersonal	0	- 5*
Uninspiring	+ 5	+10

*Use this bonus whenever a brigade leader is attached at the unit level. Note that there is no bonus for brigade leaders attached at the brigade level

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Figure 13

The eliteness rating interfaces with three different procedures in the simulation: small arms fire, morale checks, and firefight and close combat situations.[6] In the small arms firing procedure, the first step is to determine the morale classification of the firing unit (see Figure 4.). The importance of the eliteness rating should be apparent when one compares a "Crack" regiment to a "Militia" regiment. The "Crack" regiment, at close range, generates three times the firepower of the "Militia" unit. At medium range, the "Crack" regiment continues to fire at three times the level of the "Militia" unit. Basically, the higher the morale class the firing unit has, the better its chances become of inflicting casualties on the enemy.

The morale check is used to determine how a unit reacts to adverse circumstances. Each unit begins the simulation in a good morale status. It will remain in good status until it fails a morale check. Units must make a morale test in the following circumstances:

1. Whenever a unit has lost 25% of its original number of effective castings.

2. Whenever a unit takes a casualty from artillery fire.

3. Whenever a unit is fired upon by a hidden battery whether it takes casualties or not.

4. Whenever the unit's brigade, division or corps leader is killed.[7]

5. Whenever a unit is in a panic situation.

A regiment passes its morale check when the percentage die roll exceeds the base morale number adjusted by the modifiers on the morale table. One of the significant modifiers to the morale table is the inspirational impact of the leader. Each division commander and above is assigned an inspirational impact rating at the beginning of the game (see Appencies A and C). The inspirational rating reflects the commander's motivational influence on the men in combat. The simulation provides for four levels of inspirational impact: Charismatic; Inspirational; Impersonal and Uninspiring. Charismatic, Inspirational and sometimes impersonal leaders have the ability to inspire units to fight harder. Whereas, the uninspiring leader has a negative effect on the unit.[8]

Firefights and close combat situations as well, can be influenced by a leaders direct involvement in the fight (see Figure 5.). The procedure for determining the results of such encounters in the simulation is very similar to what has already been described for morale checks.

The presence of leaders in "Stars and Bars" is very important. The leader figures are key to the simulation process for command and control, and can serve as significant combat multipliers in the battle.

Historical Overview

The leadership qualities of different Civil War commanders varied greatly from individual to individual. Some had a tremendous inspirational impact on their units.

Others were well known for their lack of professional skill such as General McClellan at the battle of Antietam. Despite being greatly outnumbered, General Lee chose to accept battle at Antietam. He knew that McClellan and his staff would be incapable of coordinating the actions of their larger Union Army against his smaller Confederate Army.[9]

The Commanders. Brigadier Generals commanded Southern brigades while Colonels commanded brigades in the Union army.[10] Brigades normally deployed over a frontage of less than 500 yards. Because of this, the brigade was the highest level of command over which the commander could still see most of his troops.[11] The brigade commander led from the front. His role was to personally supervise the execution of orders and provide tactical advice to his regimental commanders. If necessary, he was to use his personal example to inspire courage in the troops. Leading from the front could be very dangerous. At the battle of Franklin, five Confederate brigade commanders fell while leading the attack.[12]

Major Generals commanded divisions in the South. Brigadier Generals commanded Federal divisions. Although the division commander was near the firing line, his personal involvement in the battle was rare and usually limited to desperate situations. His primary role was to transform the corps commander's guidance into action.[13] Once in battle his key functions were to direct the division reserves and

coordinate the activities of the division artillery.[14]

Corps commanders were the senior and supposedly most experienced generals in the army. Lieutenant Generals commanded Rebel corps while Major Generals commanded Union Army corps. They were usually positioned well behind the battle line. The expanse of the corps area of operations usually prevented the corps commander from being able to see all of his units. Most times, he had to direct the battle based on the sounds of the battle and reports from his subordinates. His role was to direct the general movements and tactics of his divisions, and coordinate the activities of the corps reserve artillery.[15]

Full Generals commanded the Southern armies while Major Generals commanded the armies in the North. Ulysses S. Grant was the only Northern commander to achieve the rank of Lieutenant General. Even he didn't receive this promotion until March of 1864.[16]

Each brigade commander or higher had his own staff. The staff was usually divided into military and administrative units. The Chief of Staff, or Adjutant General, was in charge of both groups. He was responsible for all army correspondence, movement, and personnel administration. The Chief of Staff also kept track of operations. Some were in charge of intelligence as well. His primary role was to coordinate the activities of the entire staff.[17]

The military staff usually included the Chief of Artillery, Inspector of Cavalry, Chief of Engineers, Provost

Marshall and Chief of Signal Officer. The administrative staff included the Chief Quartermaster, Chief Ordnance Officer, Commissary Officer, Chief Paymaster and the Medical Director. Usually, the Quarter Master General served as nominal head of this group and answered directly to the Chief of Staff. His role was to coordinate all aspects of supply and transportation.[18]

All commanders had Aides-de Camp (ADCs) attached to their own staff. They usually served as personal couriers. ADCs were the commander's chief means of communication with his subordinates.[19]

Staff sizes varied at the different levels of command. Many times, the heads of services could be omitted. Some officers performed double duty. The Chief of Artillery might also serve as Chief of Ordnance. In small organizations, such as brigades and divisions, the ADCs executed most staff duties. General Sherman described the ideal brigade staff as having an Adjutant, a Quartermaster Officer, a Commissary Officer, a couple of medics and a pair of ADCs. In contrast, General Meade's headquarters at the battle of Gettysburg contained 3,486 men. This did not include the staff members for Army Engineers or Artillery.[20]

Directing the Battle. Senior commanders (division commanders and above) had limited means of directing the battle in the Civil War. They would attempt to control the battle by sending orders to units already committed to

battle. At times they may even personally direct parts of the battle.[21]

The commander had four chief means of passing orders on battlefield: field telegraph; the Wig Wag; couriers; and personal intervention. Early in the war, the telegraph was primarily a strategic means of communications.[22] However, it wasn't long before field telegraphs were available for tactical use. The Federal Army excelled at connecting corps headquarters with the army headquarters. By 1864, the Army of the Potomac had field telegraphs in every division. The Confederacy, having fewer resources, was normally able to maintain telegraphs only at the army headquarters.[23]

The Wig Wag was a signal flag system. Different movements of the flags represented letters, numbers, or phrases. Torches and beacons augmented the system at night. Signal stations were set up on high points of land (like Little Round Top at Gettysburg) or on wooden towers.[24] Signal stations had the added intelligence value of being able to see the enemy lines. At the First Bull Run, Confederate signalers used the Wig Wag to warn of the Union flanking movement. Federal signalers at Antietam used it to direct long range artillery fire.[25]

Couriers were the chief means of tactical communication. They were usually young officers attached directly to the commander's staff as ADCs. Couriers were better suited than the Wig Wag to deliver long and complicated orders. As ADCs, they also had the advantage of being able to explain

the commander's intent. The courier system also had many disadvantages. Many times, couriers could not find the intended recipient of their message. The courier's only recourse was to move to his recipient's area of operation and seek directions. If the recipient commander was moving along his own battle line, the courier's task could be both difficult and dangerous.[26] Bragg's grand assault at Chickamauga failed to initiate on time because his couriers couldn't find D.H. Hill, the corps commander, who was to lead the attack.[27] The Federal counterattack at the battle of Corinth also failed because of difficulties with the couriers. The first courier carried only a oral message, which the counter attack commander, General Hamilton, refused to accept. The follow-on courier, with the written message, was killed en route.[28]

A commander could choose to direct the battle in person. Unfortunately, this would take the commander away from his own staff and signalers.[29] Couriers from key subordinates may not be able to find the commander who is leading at the front. Leading at the front also placed the commander at great personal risk. McWhiney and Jamieson state in Attack and Die, that the Confederate code of loyalty actually required officers to lead from the front. During the war 235 of the 425 Confederate generals were killed or wounded in battle. Seventy percent of those killed lost their lives while leading an assault. McWhiney and Jamieson failed to take into account that a Federal colonel was an

equivalent commander to a Rebel brigadier general. They provide no statistics on how many Union generals and colonels died in battle. Union losses were probably not much less than those of the Confederacy. Overall, the cost of commanders leading from the front was very high.[30]

Morale. In August 1861, a Southern newspaper made the comment, "One Southern man was equal to twenty Yankees." Few Southern leaders placed any credence in this statement. They did acknowledge that morale could be a major force multiplier in battle. They also believed that the morale advantage lay with the Southern armies.[31]

Most will agree that the average Rebel regiment fought better than the average Federal regiment. A basic cultural difference was not the cause. Not all "Johnny Rebs" were hardened farm boys. Neither were all "Billy Yanks" city industrial workers or shop keepers. The primary causes for the Southern supremacy in morale was their expectations to always win and their greater combat experience.[32]

Both sides went into First Bull Run with equal chances to win. The Rebel army won the day primarily because the Federals panicked first. It could have easily gone the other way. The early victories gave the Rebel soldiers confidence in themselves and in their leaders. The battles of Bull Run and Wilson's Creek, and Jackson's Valley Campaign established a trend of victories for the South. Union soldiers came to believe that the Rebels could fight

better. More importantly the Southern soldiers came to the same conclusion.[33]

Discounting the psychological value of self confidence, there are still other reasons why the Rebels may have fought better. First, because they had fewer units, they had less opportunity to rotate units out of combat. Therefore, Confederate regiments saw more action than their Union counterparts. In the Second Bull Run Campaign, Bank's Union Corps fought at Cedar Mountain against Jackson's wing of the Army of Northern Virginia. After the battle, General Pope pulled Bank's corps back for a rest leaving it unavailable for the battle of the Second Bull Run. Jackson's units participated in both battles.[34]

The South also had a more efficient replacement system in which green replacements were put in with combat veterans. The North tended to form new regiments in lieu of sending replacements to the field. The Southern system gave the recruit a better opportunity to prepare and train for combat.[35]

A third reason contributing to their greater combat readiness was that the Rebel units had a greater ratio of officers to men in their ranks. Union units normally consisted of 4 to 7 percent officers. Confederate regiments averaged 6.5 to 11 percent officers. The leader to led ratio is still accepted today as an indicator of greater combat potential.[36]

A separate study could be conducted entirely on why men fought. The war had equally countless examples of valor and cowardice. In general, it seems that the better drilled and disciplined units, when competently led, were the better fighting units. Veterans were less likely to panic or become carried away with enthusiasm. Well trained troops could usually be counted on to continue fighting under difficult circumstances. Still, there are several instances of combat veterans being overcome with panic. The vaunted Stone Wall Brigade broke and ran when threatened in the flank at Cedar Mountain. Yet again, Confederate veterans in a supposedly impregnable position at Missionary Ridge broke and ran to the rear after offering a mere token resistance.[37] Union troops fled at Brice's Cross Roads in 1864. In 1865, two veteran Federal divisions fled from the field at Cedar Creek.[38]

Unit morale played a key role in all Civil War bat tles, significantly influencing the outcome of every fight. It was a factor no successful commander could ignore.

Analysis

The Commanders. Command figures, referred to as command stands, primarily represent the commander, his chief of staff and the ADCs. Because the remaining staff members play supporting roles in the battle, they are not represented by figures on the game board. The wargamer, in his role as the commander, must still ensure that their supporting roles are carried out. In some wargame scenarios, the

quartermaster and his staff might be collectively represented by a supply train. Keeping in mind the simulation scale of 1 figure to 40 men, the one or two figures used on command stands do provide reasonable representations of commanders and their battle staff.[39]

Directing the Battle. Any evaluation of the historical capability of a Civil War commander is going to be somewhat subjective. The "Stars and Bars" command system offers a method of quantifying the capabilities of commanders into a process that can be simulated. The professional skill rating for each commander limits the capabilities of the wargamer to those of a historical counterpart. The best example is once again general McClellan at the battle of Antietam. Any simulation of Antietam that did not place constraints on McClellan's capabilities would probably result in the total destruction of the Confederate Army. This could prove to be a good game for the Union player but would not be a historical simulation of Antietam.

The professional skill rating represents more than professional competence of the leader. McClellan was undoubtedly a highly trained professional. The skill rating also represents other leadership qualities. McClellan was a superb trainer and organizer. However, he was not willing to take risks. He also seemed unable to coordinate the maneuvers of a large military organization.

Establishing a mediocre skill rating for McClellan limits his ability to command in two ways. First, his command radius is only 19" (760 yards). It is unlikely that all his corps commanders would be within the 760 scale yards. Therefore, some corps commanders would have to wait more than one hourly round to get orders. In the meantime, their corps would be unable to contribute to the battle.

Second, mediocre commanders such as McClellan have only a 50% chance of activating orders. As a result out of those who do receive orders, probably only half will be able to activate them.

The guidelines for receiving and activating orders also limits the ability of units to take unrealistic advantage of good circumstances. An example would be the Confederate Army defending at the First Bull Run. If the Union army were to flee the field in a simulation, as historically they did, the Rebel army would have difficulty organizing an effective pursuit. The Confederates would need a minimum of one hour to change orders over from defense to the attack. Meanwhile the Union army would have ample opportunity to escape.

The simulation also provides the commander the opportunity to lead from the front. Corps and division commanders can attach themselves directly to brigades or even individual regiments. The "follow me" order allows units to execute almost any action. In this situation,

however, being away from his staff, the commander can only issue orders to the unit to which he is attached.

Overall, the command system in "Stars and Bars" is very good. However, for the command procedure to work properly the simulator must attempt to simulate history and not just play a game.

Morale. Bowden's interface of the unit eliteness rating with the small arms firing chart, and firefight and close combat situations shows the importance of good drill and training in Civil War combat. The drill manuals envisioned a firing rate of three rounds per minute. However, it is very unlikely that anyone was able to maintain this rate under combat conditions. Some would be overcome with fear and unable to return fire. Others would render their weapons inoperative by improper loading. After the battle of Gettysburg, many recovered weapons were found to be improperly loaded: 12,000 contained two charges; 6000 had from two to ten unfired cartridges; and one was loaded with 23 charges.[40]

The eliteness rating in "Stars and Bars" represents the effect of experience and training. Higher class units would have more men returning effective fire and fewer men drifting away from the firing line. Lower class units would have less effective small arms fire. Most soldiers never got a chance to fire their weapons prior to battle.[41] Because of this, the "Militia" and "Green" units were more likely to make a mistake in the loading procedure. Those

units would also be less hardened to the experience of combat. More than in other units, these men would be firing wildly, seeking cover or finding reasons to retire from the firing line.

The morale check represents the willingness of a unit to continue the fight in the face of occurring casualties. The volatile nature of units in the Civil War is well represented in the simulation. Experienced and well trained units could usually take a tremendous amount of punishment without breaking. Whereas, the mere threat of harm could cause a raw unit with little training to break.

Each unit does have a specified breaking point in the simulation. The modifiers on the morale chart represent those threatening factors that could possibly push a unit beyond its breaking point, The more casualties a unit takes the less likely it is to stand. Unexpected events, such as fire from the flank have a significant shock on units.

The morale chart also provides for external factors that enhance a unit's ability to continue the fight. Units fighting in some type of cover are more likely to continue fighting than those fighting out in the open. The presence of senior leaders also serves as a motivating influence.

The simulation also provides a mechanism for representing mass panic. Regiments must conduct a morale check whenever two other regiments within 5"(200 yards) break and run away. Brigades also take a morale check when adjacent brigades run away. However, there is no modifier on the

morale chart to represent the influence of seeing adjacent units run away, which does not seem to represent accurately the possibility of mass panic.

In general, morale plays a very important role in the simulation. Bowden's emphasis on unit eliteness ratings allows small, well trained and experienced units to overcome larger raw and untrained units. Determining the ultimate historical accuracy of the morale system will require further analysis in the simulation of New Market and Cedar Mountain.

Summary

The following chart summarizes the analysis of battlefield command in the "Stars and Bars" simulation.

Yes -"Stars and Bars" provides the means for a historically accurate simulation.

No -"Stars and Bars" is not historically accurate in this area.

? -Further analysis required, determination historical accuracy will be examined in the simulations of New Market and Cedar Mountain.

Battlefield Command

The Commanders	YES
Directing The Battle	
Command Skills	YES
Command Compliance	?
Command Casualties	?
Morale	
Experience and Training	YES
Morale Checks	?
Mass Panic	?

Chart 3

CHAPTER 5

NOTES

(1)Scotty Bowden and Rob Smith, STARS*N*BARS III (Arlington, Texas: Empire Press Games, 1985) , V/8.

(2)Bowden, STARS*N*BARSIII, vi.

(3)Bowden, STARS*N*BARS III, IV/1.

(4)Bowden, STARS*N*BARS III, VI/5.

(5)Bowden, STARS*N*BARS III, XII/1-2.

(6)Bowden, STARS*N*BARS III, IX/13-17, 27-28, 30-33.

(7)Bowden, STARS*N*BARS III, IX/27.

(8)Bowden, STARS*N*BARS III, IV/1-2.

(9)Paddy Griffith, Battle Tactics of the Civil War (London: Yale University Press, 1989) , 36.

(10)Jack Coggins, Arms and Equipment of the Civil War (New York: Doubleday and Company, 1962) , 10-12.

(11)Griffith, Battle Tactics, 55.

(12)Grady McWhiney and Perry D. Jamieson, Attack and Die: Civil War Military Tactics and the Southern Hertiage (Alabama: Alabama University Press, 1982) , 15.

(13)Griffith, Battle Tactics, 53.

(14)Paddy Griffith, Battle in the Civil War, Generalship and Tactics in America 1861-65 (Nottinghamshire: Fieldbooks, 1986), 22.

(15)Ibid.

(16)Coggins, Arms and Equipment, 10-11.

(17)William Craighill, The Army Officers Pocket Companion 1862(New York: D. Van Nostrand,1862), 45-46, 50-51.

(18)Ibid.

(19)Ibid.

(20)Ibid.

(21)Griffith, Battle Tactics, 62.

(22)Griffith, Generalship and Tactics, 10.

(23)Coggins, Arms and Equipment, 106-107.

(24)Coggins, Arms and Equipment, 107.

(25)Griffith, Battle Tactics, 71.

(26)Griffith, Generalship and Tactics, 10.

(27)The War of the Rebellion: A Complation of the Official Records of the Union and Confederate Armies (Washington D.C.:Government Printing Office, 1880-1901 , Series I. vol. 30, 140-141.

(28)Griffith, Battle Tactics, 56.

(29)Griffith, Generalship and Tactics, 56.

(30)McWhiney, Attack and Die, 15.

(31)Griffith, Battle and Tactics, 31.

(32)Ibid.

(33)Ibid., 30-32.

(34)Ibid. . 93-95.

(35)Ibid.

(36)Ibid.

(37)Bell Wiley, The Life of Johny Reb (Baton Rouge: Louisiana State University Press, 1978), 85.

(38)Bell Wiley , The Life of Billy Yank (Indianapolis: The Bobbs-Merrill Co., 1943) , 90.

(39)Bowden, STARS*N*BARS III, I/2-3.

(40)Wiley, Johnny Reb, 353.

(41)Griffith, Generalship and Tactics, 38.

CHAPTER 6

HISTORICAL SIMULATION

> Enough now of these pages of rules, charts, and measurements. Let us leave them behind and journey to another time and place. Open your mind, let fly with your imagination, and let us march into battle.[1]

The three previous chapters have dealt with the "Stars and Bars" rules mechanics. This chapter will reflect and examine observations made during the application of those rules in two historical simulations. These simulations will serve three specific functions. First, the simulations serve as a means for validating areas already deemed historically accurate. Second, they provide a tool for examining those areas that required further study. Third, the simulations offer an opportunity to justify areas of questionable accuracy.

The first simulation is a controlled reenactment in miniature of the actual battle of New Market. The participants are restricted to maneuvering their units in exact correspondence to how the historical units maneuvered with free agency to employ tactical options. The purpose of the reenactment is to determine if the rule mechanics of "Stars and Bars" will allow the simulation to yield the same results as the actual battle. The second simulation, the

battle of Cedar Mountain, is executed as a true wargame. The participants are not constrained to mimicking historically recorded actions. As a result the simulation events and outcome may not be exactly like those recorded for the actual battle. However, it does provide the opportunity to examine whether or not the results demonstrate the historical characteristics of the troops, weapons and leadership involved in the battle.

Battle of New Market

> This morning, two miles above New Market, my command met the enemy, under general Sigel, advancing up the Valley, and defeated him with heavy loss. The action has just closed at Shenandoah River. Enemy fled across North Fork of the Shenandoah, burning the bridge behind him.
>
> JNO. C. BRECKINRIDGE[2]
> Major General

Historical Overview

The fight at New Market was a relatively small battle compared with many other well known Civil War battles. Both armies combined only totaled slightly over 10,000 combatants. Nevertheless, the two small armies fought bitterly over this small town and, together, suffered almost 1400 casualties. The active participation of the Virginia Military Institute (V.M.I.) cadets also made it unique among Civil War battles and ensured the battle a lasting place in American Military History.[3]

New Market offers an excellent scenario for wargaming. Most wargamers can easily construct the small armies involved. These particular armies contained an interesting variety of different types of troops. The battle gives a good representation of the three major branches, infantry, cavalry and artillery. Many special troops were also present at the battle including mounted infantry, horse artillery and even a company of Confederate engineers. Appendix A, shows the order of battle used for the simulation. The appendix also provides the different unit eliteness and commander skill ratings used as well as a justification for those ratings.[4]

In May of 1864, Major General Sigel moved into the Shenandoah Valley with a 9,000 man Federal Army. His mission was to threaten the Confederate railhead at Stanton, Virginia. Major General Breckinridge moved from southwest Virginia with a small Confederate Army of 2500 men to stop Sigel.[5] On the 15th of May, 1864 the two armies met at the small village of New Market. Sigel, because of mismanagement of forces and several unsuccessful engagements with Confederate Cavalr now had only slightly over 6,000 men. On the morning of the battle, the Federal Army was also spread over several miles of road north of New Market.[6]

Breckinridge concentrated his army just south of New Market. Several reinforcements had joined him, including the V.M.I. cadets, bringing his army up to 5,335 men. Initially, Breckinridge planned to fight a defensive battle.

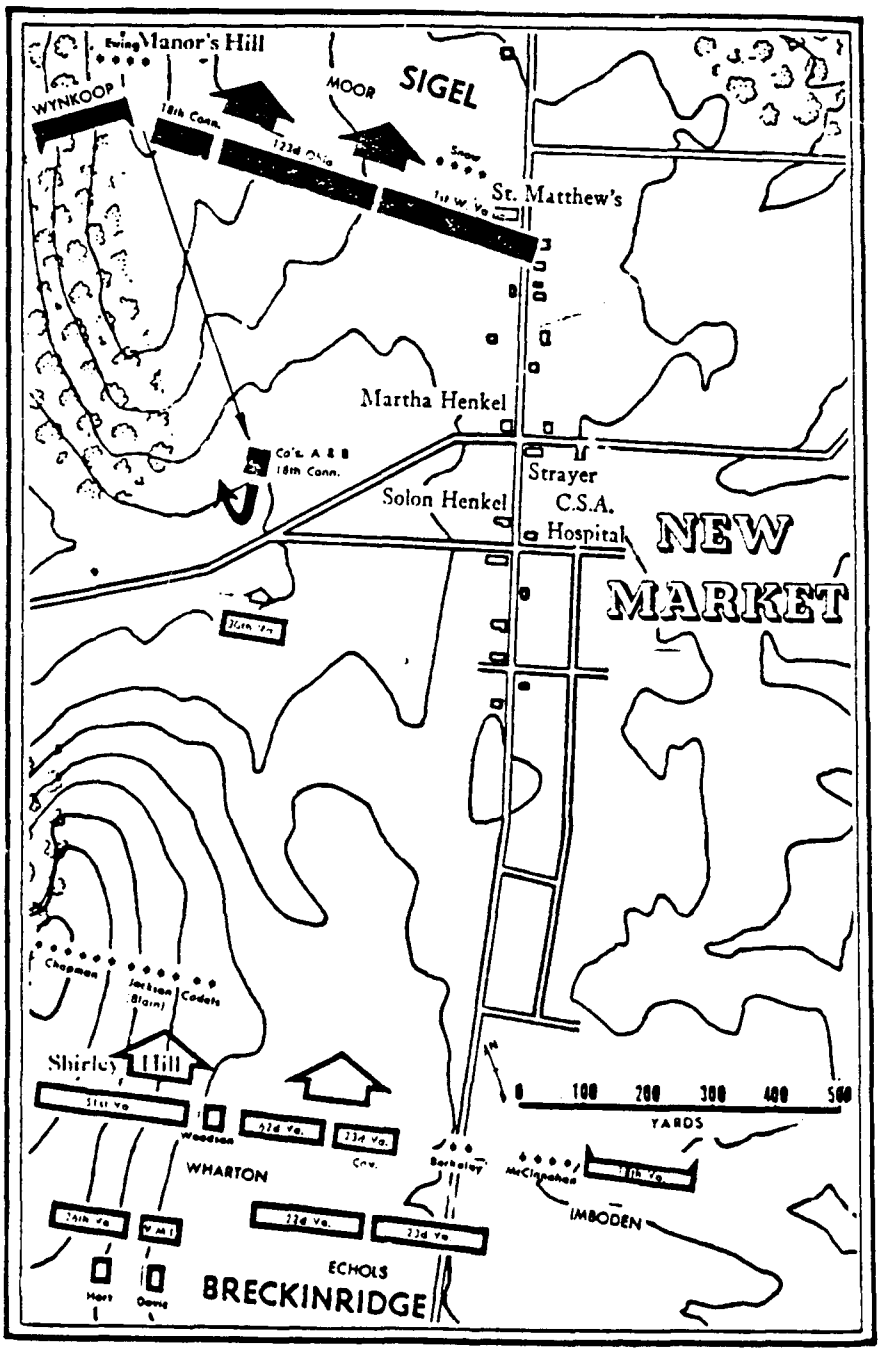
However, when the Federals refused to attack, he changed his plan and stated: "We can attack and whip them here, and I'll do it".[7]

The Wargame

The simulation narrative begins here with Breckinridge's decision to attack. Unit actions are based on four sources: the Official Records (Series 1, Vol 37, part 1); two articles in Battles and Leaders (The Battle of New Market, by John Imboden, commander of the Confederate cavalry at the battle, and Sigel in the Shenandoah Valley, by Franz Sigel); and William C. Davis' book, The Battle of New Market. The following narration represents both the historical battle and the simulation. Notation is made for comparison where the simulation differs from the actual battle. The simulation was executed in four game turns representing the four respective hours of battle at New Market. Breckinridge began his attack at 11AM and Sigel withdrew from the field at 3PM.

Game Turn One (11AM. to 12PM.). The simulation began with the units positioned as shown in figure 14. Breckinridge had his entire army concentrated and ready for battle. The advance guard was the only Union unit already to have reached New Market. The remainder of the Union Army was still several miles to the north moving towards the battlefield.[8] Most of the units shown on the map were in

line formation with artillery batteries unlimbered. The 26th Va. and the cadets, being held in reserve, were in column formation. The 18th Conn. had one stand of infantry (representing companies A and B) skirmishing to the front. The Rebels had the 30th Va. skirmishing to the front.[9]



Breckinridge's advance drives Moor back out of New Market, 11:30 A.M.

Figure 14.

Colonel Moor, commanding the Union advance guard, issued orders for all units to defend.[10] Breckinridge ordered the Confederate Army to maneuver and take up positions along the road separating Shirley Hill and Manor Hill. This would put them in a good position to assault Manor Hill within the next hour. It also allowed time for the artillery to fire preparation fires on the Union forces. Both sides successfully activated their operation orders. General Imboden described this phase of the battle:

> The battle began in earnest. Mclaughlin was working his guns for all they were worth under a tremendous fire from the other side. For a hour, perhaps, no small arms were used. Breckinridge was steadily advancing his infantry line in splendid order.[11]

Neither side suffered very many casualties in the first hour of battle. In the simulation, the long rang Union artillery fire did inflict minor casualties among the Confederates. Both the 51st Va. and the cadets suffered one casting casualty each. Historically, the Union shell fire caused most of the casualties among the cadets.[12] Confederate artillery fire remained ineffective.

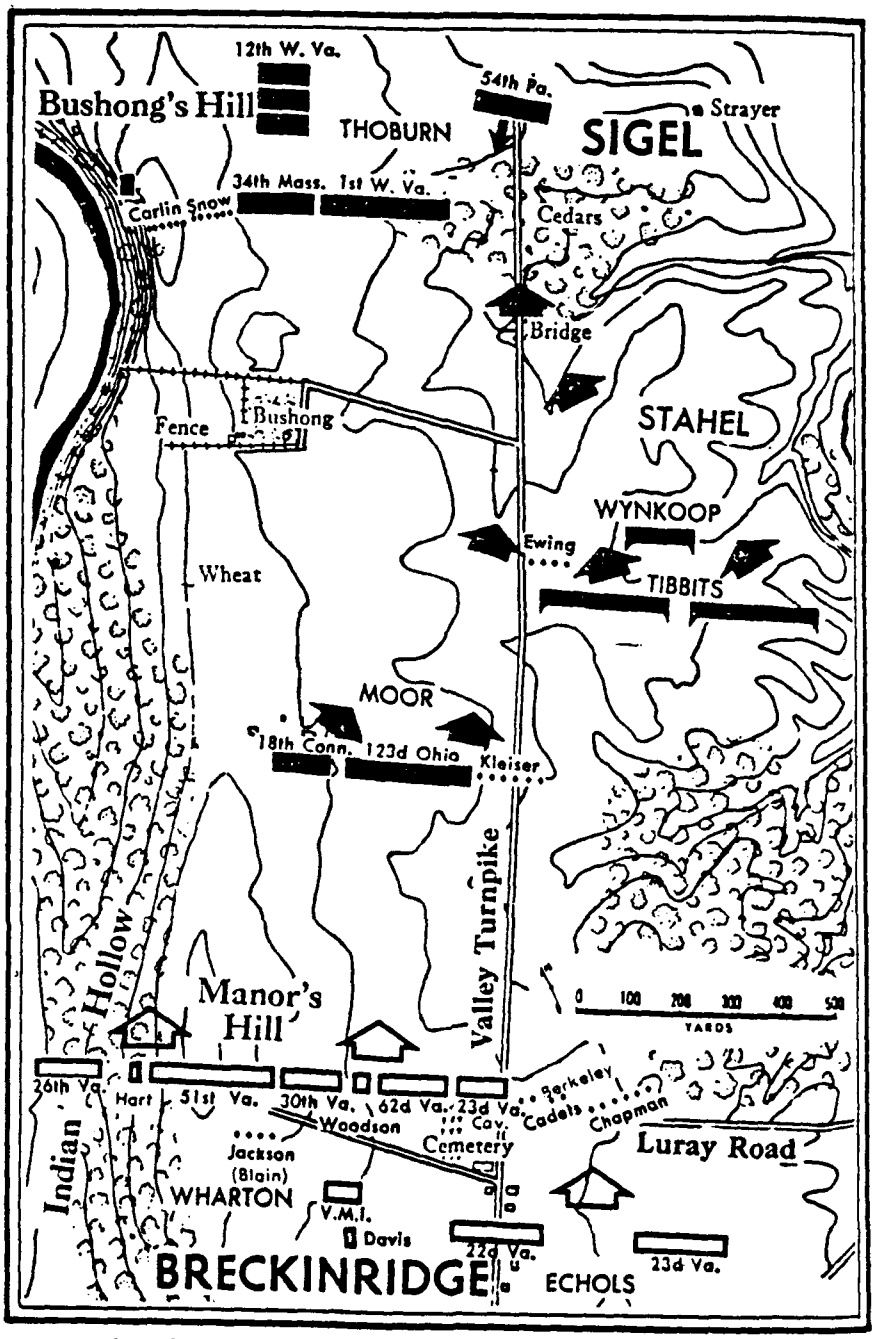
<u>Game Turn Two (12PM. to 1PM.).</u> Breckinridge changed his orders to attack and seize Manor's Hill. Sigel ordered Moor to fall back to a new position just north of New Market.[13] Once again, this game-turn contained very little fighting. Both sides successfully activated their orders. The Confederates quickly advanced up the hill and spent the

remainder of the hour repositioning to attack the new Union position. Breckinridge also dispatched General Imboden with most of the Confederate cavalry and McClanahan's horse artillery on a wide flanking maneuver to the east. Colonel Moor moved to a new position 800 yards to his rear along the valley pike.[14]

Both sides exchanged ineffective, long-range, artillery fire. Because no units closed to within 480 yards of each other, there was no small arms fire in game-turn two.

Game-Turn Three (1PM to 2PM). Figure 15 shows the major action in game-turn three. Breckinridge issued orders to attack and destroy the Union Forces. By orienting on the enemy instead of terrain, the Rebels would be able to continue the attack if the Federals fell back again. Sigel issued orders for all units to defend their position.[15]

The Confederates initiated the game-turn by concentrating the fire of 14 guns against Kleiser's 6 gun battery causing one casting casualty. At the actual battle, Kleiser did lose one gun in this artillery exchange. The Union return fire was ineffective. Meanwhile, McClanahan's Confederate battery brought in flanking fire on Wynkoop's and Tibbit's cavalry brigades. Imboden claimed, "The effect was magical. The first discharge of the gun threw his whole body of cavalry into confusion." In the simulation, the Union cavalry suffered only one casting casualty. This loss was not serious enough to force the unit to withdraw.



Breckinridge advances on Moor's advance line, 2 P.M., as Stahel withdraws under fire from Imboden (not shown) east of Smith's Creek. Sigel is setting his main line.

Figure 15

However, in keeping with the historical action the two cavalry brigades did withdraw. As in the actual situation, there was virtually no other choice. The Confederate

artillery battery was out of range of the cavalry's carbines and they could not turn to face the artillery without flanking themselves to the on-coming Rebel infantry. Their only choice was to withdraw or continue to take casualties from the artillery.[16]

The battle continued with Moor's new line retreating without becoming seriously engaged. In the simulation, both the 18th Conn. and 123rd Ohio suffered one casting casualty each from medium range skirmish fire. The Rebels suffered no losses. As with the cavalry the losses were not serious enough to force a withdrawal. However, Moor had little choice in making his decision. His two regiments, aided by only one artillery battery, were facing almost the entire Confederate Army. Any attempt to hold his position would have resulted in serious casualties and ultimately in withdrawal anyway. Game-turn three ended with the Confederate Army moving up to the vicinity of the Bushong House.[17]

Game-Turn Four (2PM. to 3PM.). The majority of tactical combat at the battle of New Market occurred in this hourly round (Figure 16). Therefore, the hour will be divided into four separate tactical phases for discussion.

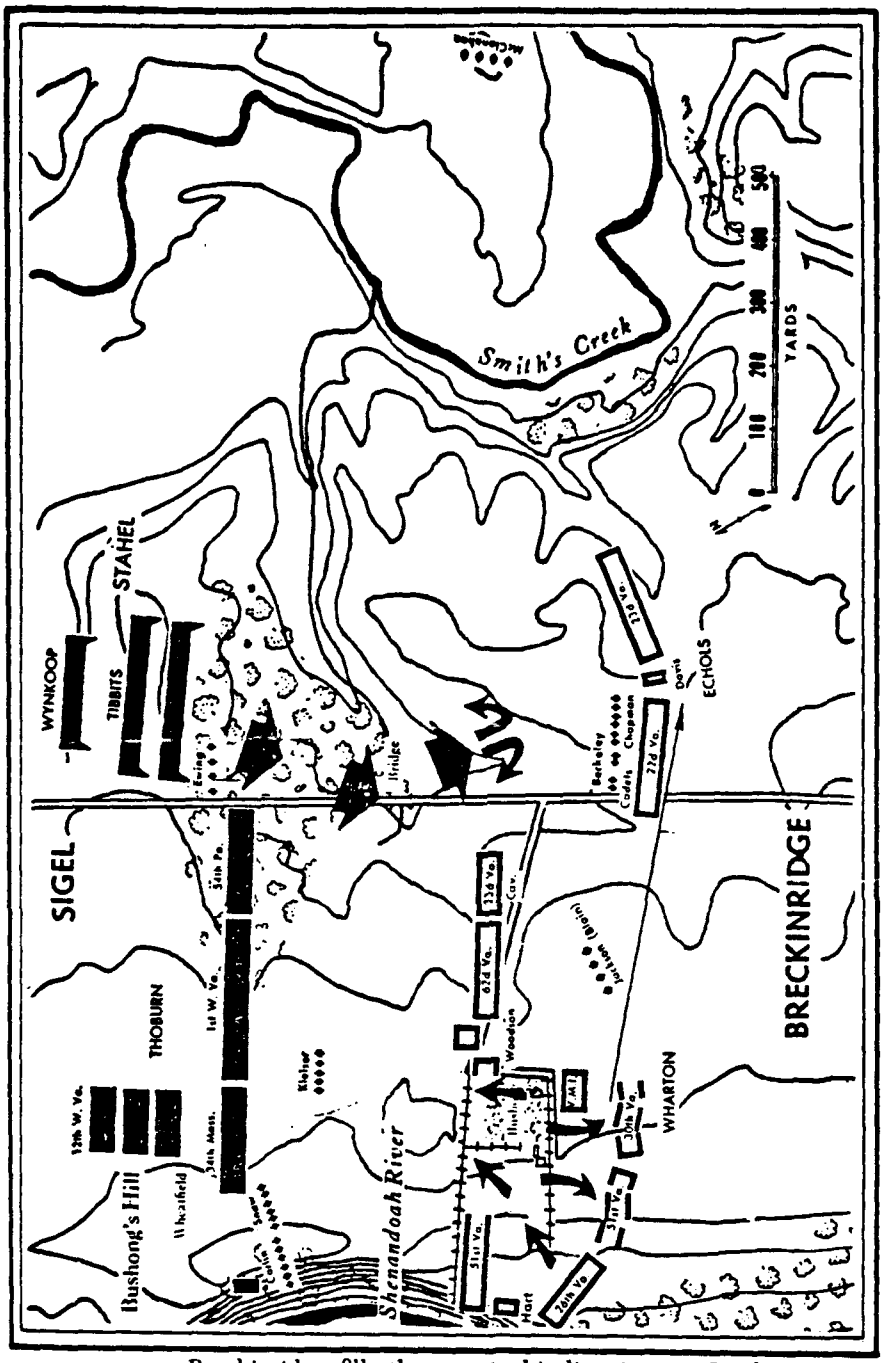
In the first phase, the Rebel left made a general assault against Sigel's right. In the simulation, as with the actual battle, close range infantry and artillery fire caused serious casualties among the attacking Rebels. Kleiser's battery of 12pdr Napoleon guns was especially destructive.[18] Both sides suffered numerous casualties,

with the Confederates suffering the greatest. Massed Union artillery fire against the Rebel center caused the 51st Va. to break and run. Historically, the fire broke both the 51st and the 30th Va. Lieutenant Colonel Shipp, commander of the V.M.I. unit, stated:

> The enemy's batteries, at 250 or 300 yards, opened upon us with canister and case-shot, and their long lines of infantry. The fire was withering. It seemed impossible that any living creature could escape; and here we sustained our heaviest loss, a great many being wounded and numbers knocked down, stunned, and temporarily disabled.[19]

In the second phase, the Union cavalry charged against the Confederate right. This charge was a total failure.[20] Interestingly, none of the Union Cavalry units gave reports of the failed charge in the Official Records. The charge wasn't even mentioned in the histories of two units whose regimental histories were available.

In the simulation, the cavalry division declared a saber charge. The rule for "doubling" allowed them to move through the cedar woods and then deploy into a line for a charge. Due to the lack of available frontage, the Union cavalry could only mass about 400 cavalrymen in the first line. These cavalrymen were charging directly into 10 guns and over 1000 steady Rebel infantry. Furthermore, the Rebels were firing McClanahan's four guns into the flank of the charge.[21]



2:45 P.M. Breckinridge fills the gap in his line just as Sigel prepares to charge. Stahel's cavalry charges the Confederate right but is repulsed with help of Imboden (not shown) and McClanahan.

Figure 16

The lead cavalry regiment suffered six casting casualties and routed to the rear. Because, the Federals had so much cavalry packed into such a small place, incoming

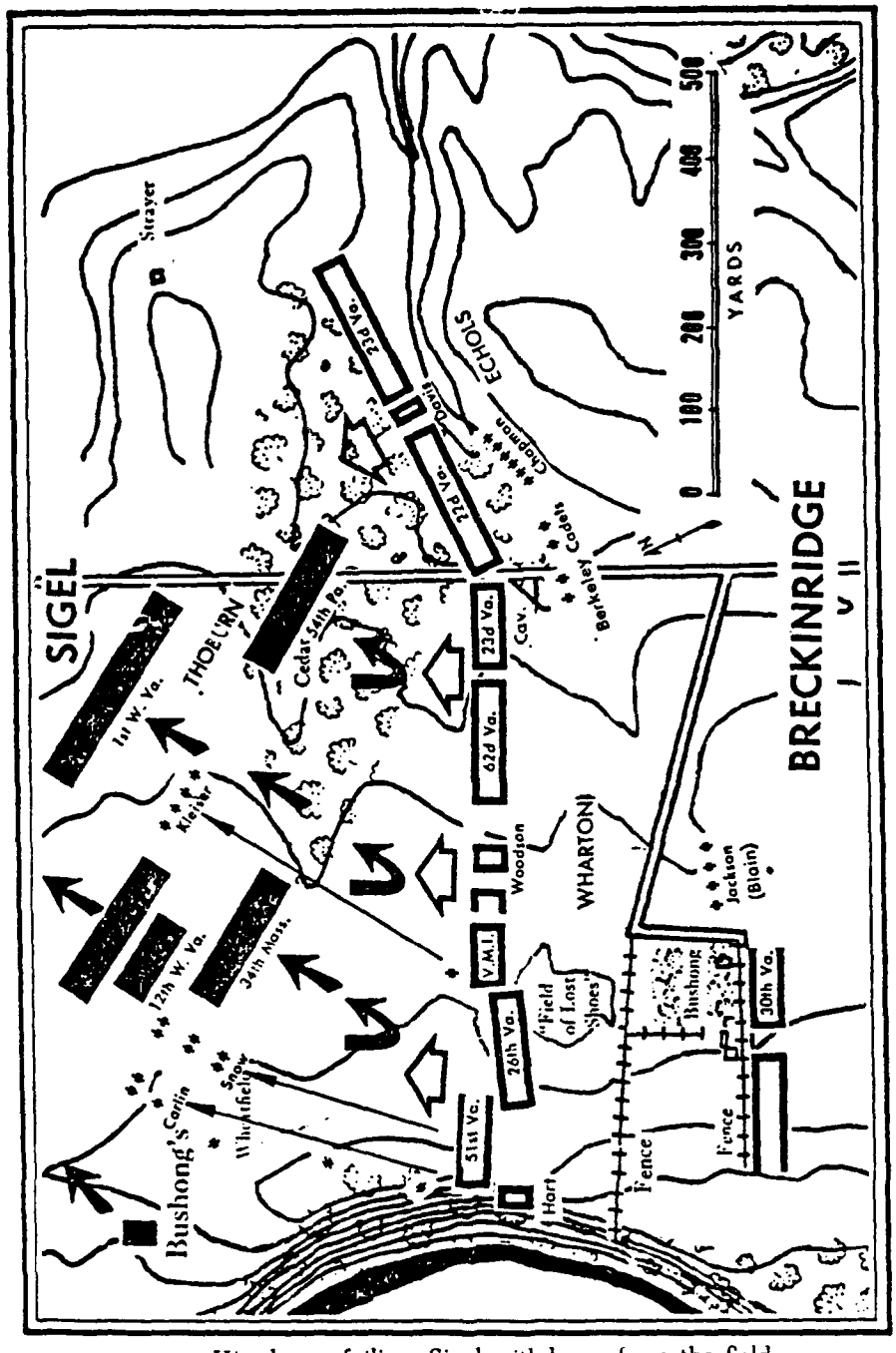
fire passed through its lead regiment and into the follow-on regiment causing three casting casualties. When the lead unit broke, its routed cavalrymen, in their haste to get away, broke through the ranks of the following unit causing that unit to also break for the rear, which ended the charge.

Phase three consisted of the Confederates pushing the 26th Va. and the cadets forward to stabilize the line.[22] Small arms fire had significantly degraded the effectiveness of the Union Artillery. The continuing firefight caused several casualties on both sides. However, each side also passed their morale and firefight checks, and held their positions.

In phase four General Sigel ordered the Union right to charge (Figure 17). By this time, the Rebel reserves had stabilized the line and were ready for the attack. Confederate fire stopped the Union advance. Two Union regiments routed to the rear. The other two were forced to fall back 400 yards. Historically, the 1st W. Va. barely even advanced before falling back. The 12th W. Va. refused to advance at all. The 34th Mass. and 54th Penn. pushed forward against overwhelming odds until forced to fall back.[23]

At this point the Union artillery, having no remaining infantry support, also abandoned the field. Because of casualties among men and horses in the simula-

tion, the gunners had to leave three guns behind. Historically, they abandoned four guns to the victorious Rebels.[24]



3 P.M. His charge failing, Sigel withdraws from the field.

Figure 17

Game Analysis

Overall, the reenactment produced results very similar to the actual battle. The mechanics of the simulation allowed the wargame to proceed with very little deviation from the actual events. The wargame validated all areas previously deemed historically accurate. Some discussion of those areas will follow in the proceeding paragraphs. However, most of the analysis will concentrate on areas identified in chapters 3, 4, and 5 as "not historically accurate" or "requiring further examination".

Formations and Frontages. Units were always able to occupy the ground in their historical formations. There were no difficulties with spacing or making units fit in the allocated area.

Tactics. Previous research already confirmed this area to be historically accurate. The simulation especially demonstrated the difficulty of coordinating a wave attack. The cavalry charge in turn 4 showed historical results for a charge against artillery and steady infantry. More importantly it demonstrated the danger of the supporting lines following too closely. Rebel defensive fire caused serious damage to the first line of attacking cavalry and several casualties in the follow on line. The corresponding rout of the first line then created a domino affect causing the entire cavalry division to retreat. These results were almost an exact duplication of the actual charge.

Grand Tactical Movement. Units were always able to move to their historical positions without difficulty. The question in chapter 4 of the cavalry grand tactical movement allocation not being great enough proved to be unfounded. In fact, Imboden's flank march with the cavalry and horse artillery on game-turn two proved the allocation to be quite sufficient. Imboden's unit made the march and was in the correct position to provide artillery fire when needed. This also provided a better understanding of the purpose of grand tactical movement. Grand tactical movement represents long marches near and on the battlefield such as flank marches and movements of reserves. It is not meant to represent operational movements, i.e. multi-day strategic marches.

Tactical Movement. The tactical movement allowance repeatedly proved adequate for each unit to mimic its historical counterpart's actions. The Rebel Army took four hours to move from the southern edge of the battlefield to the northern edge. Using the drill manual movement rates, units could have covered this distance in less than an hour. The simulation demonstrated that the tactical situation, more than a unit's own marching capability, will control the unit's ability to move. Overall, the combination of grand tactical and tactical movement provided an accurate historical simulation of troop movement in the Civil War.

Weapon Characteristics and Effectiveness. All infantry units at New Market had rifles. Interestingly, the cadets had Belgian rifles which would be considered a second rate rifle. The cadets fired their first volley at Bushong House during turn four.[25] However, when fired at medium range, as they were here, the characteristics of the Belgian rifle were the same as for Enfields and Springfields. Therefore, no deviation from historical accuracy occurred in the simulation.

The Union cavalry made very little use of their carbines at New Market. Muskets were not used at all in the battle. Subsequently, both will need special attention in the simulation of Cedar Mountain.

Close range artillery fire was devastating which accurately portrayed the effectiveness of canister fire. Long range fire caused very few casualties. This accurately portrayed the unreliability of the artillery fuses. Confederate long range fire was especially ineffective, thus demonstrating the poor quality of the Confederate ammunition and equipment.

Both firefight and close combat resolution produced results very close to the actual events. All simulation charges produced the same results as recorded in the actual event. However, in most cases, the outcome was fairly obvious due to poor execution by one side or the other. Therefore, close combat resolution will require further examination in the next simulation.

The best validation of weapon's effectiveness is demonstrated through a comparison of actual casualties to those of the simulation. Overall, the simulation casualties were remarkably similar to the actual casualties (see appendix B).

Ammunition Shortages. There are no recorded problems with ammunition supply at New Market. However, there were several major lulls in the battle. This provided ample opportunity for resupply. In the simulation, the units used these lulls to regain fatigue points representing in part a resupply of ammunition.

Command and Control. Breckinridge, an "excellent" commander, experienced no difficulty activating orders. Because his army was small and concentrated, command and control was not a problem historically or in the simulation. Interestingly, Sigel a "mediocre" commander, also had no difficulty activating orders. However, this was primarily due to the way he fought (and lost) the battle. Although he had two brigades of infantry, he fought them one at a time. In the simulation this allowed him to attach himself to his brigades, almost guaranteeing activation of orders. Much larger tactical organizations fought at cedar Mountain. This will allow a better examination of the command and control system.

Morale. The morale system worked very well in the New Market simulation. In almost all instances problems

with unit morale closely paralleled actual events. During the simulation, it seemed that units could take excessive punishment and still hold their positions. The 30th Va., only eight figures strong, lost four casting casualties in turn four. However, translating the casting casualties into killed and wounded provides a better understanding of the situation. The unit did not actually suffer 50% casualties. The four casting casualties in this 32C man unit represent only 8 dead and 72 wounded, rather than 160 killed and wounded. The 80 man difference represents those soldiers caring for the wounded, stragglers, and others simply cowering behind the rail fence and returning ineffective fire.

Battle of Cedar Mountain

> Rally brave men, and press forward! Your general will lead you. Jackson will lead you. Follow me!
>
> Thomas Jackson at the battle of Cedar Mountain

Historical Overview

The battle of Cedar Mountain was the first engagement in what would become the Second Bull Run Campaign. Pope's "Army of the Virginia" was moving south from the vicinity of Fredericksburg to support the main Union Army in the Peninsula. General Lee dispatched Jackson to strike

Pope before the Union Army could concentrate and threaten Richmond.[26]

Jackson had three divisions of infantry numbering about 24,000 men. Shortly after noon, on 9 August, 1863, the Confederates bumped into the advance guard of Pope's army at Cedar Mountain. General Banks commanded the advanced guard consisting of two infantry divisions of the Union II Corps (about 9000 men). The order of battle for both armies is provided in appendix C.[27]

Jackson's lead division, commanded by General Ewell, secured Cedar Mountain, the Confederate center and the Confederate right. Winders division then secured the left flank. The Federals deployed their right division in the open and hid their left division in the woods. Unaware of the division hidden in the woods, Jackson only anticipated action on his right. Winder positioned two of his brigades, one of which was the Stonewall Brigade, to support the Rebel right. As a result, their flank was exposed to the Union division hidden in the woods.[28]

The Confederates were slow to deploy and didn't get into position until about 3 PM. Both army commanders seriously miscalculated the strength of the opposing force. Jackson believed he faced a much larger portion of Pope's army than was actually on the field. Banks believed he faced only the advanced guard of Jackson's corps. He also believed he would receive support in his attack from the balance of Pope's army, which was only a few miles away.[29]

Banks attacked at 5 PM. Crawford's Union brigade overwhelmed and routed portions of Ronald's, Garnett's, and Taliafero's brigades. Geary's Union brigade also pushed the Confederate center back.[30] At this point, the Confederate Army was on the verge of total collapse. However, Banks had no reserves to exploit the success. Jackson desperately brought reserves forward and rallied troops to stabilize the crumbling Rebel line. A.P. Hill's division was committed brigade by brigade as fast as they could reach the battlefield. Thomas' brigade stabilized the Rebel right. Branch's brigade stopped Crawford's attack. Eventually, overwhelming Confederate numbers began to force the Union Army back.[31]

Hill then committed two more brigades and threatened the Union left. All across the battlefield, the Yankees were slowly and stubbornly falling back. At one point, Crawford's brigade was almost surrounded and trapped. The 1st Pennsylvania cavalry charged into the Rebels to buy time. All but 71 of the 164 Union cavalrymen were killed or wounded in the desperate charge.[32] Finally, sometime between 6:30PM and 7PM, the Union line collapsed and gave up the fight. Both sides had fought courageously, even if their commanders had mismanaged the battle. The Confederates had 1,276 killed and wounded. General Banks, the attacker, had 2379 casualties (almost 30 percent of his corps).[33]

The Wargame

Game Turn One (5PM to 6PM). The simulation began with the units positioned as shown in Figure 18. The initial set-up represented the historical dispositions of the armies as of 5 PM. The Confederate player could not deploy his reinforcements until their historical arrival times. Other than the historical deployment and times of arrival for the reinforcements, the wargamers were free to make their own tactical decisions.

The Union player issued attack orders for the entire corps. The Confederates elected to defend their positions until the lead elements of Hill's division were available to support an attack. The initial attack went very well for the Union Army (Figure 19). Both Crawford's and Gordan's brigades massed against the Rebel left. Dismounted skirmishers from Bayard's cavalry brigade also supported the attack. Rebel defensive fire stopped most of the Union units to their front. However, Gordan's brigade outflanked the Rebel line to the north and eventually routed most of Ronald's and Garnett's brigades.

In the center, Geary's and Prince's Union brigades moved forward and exchanged medium range fire with Early's brigade. Neither side suffered serious casualties in this exchange. In the south, Greene exchanged ineffective long range artillery fire with the Rebel units on Cedar Mountain.

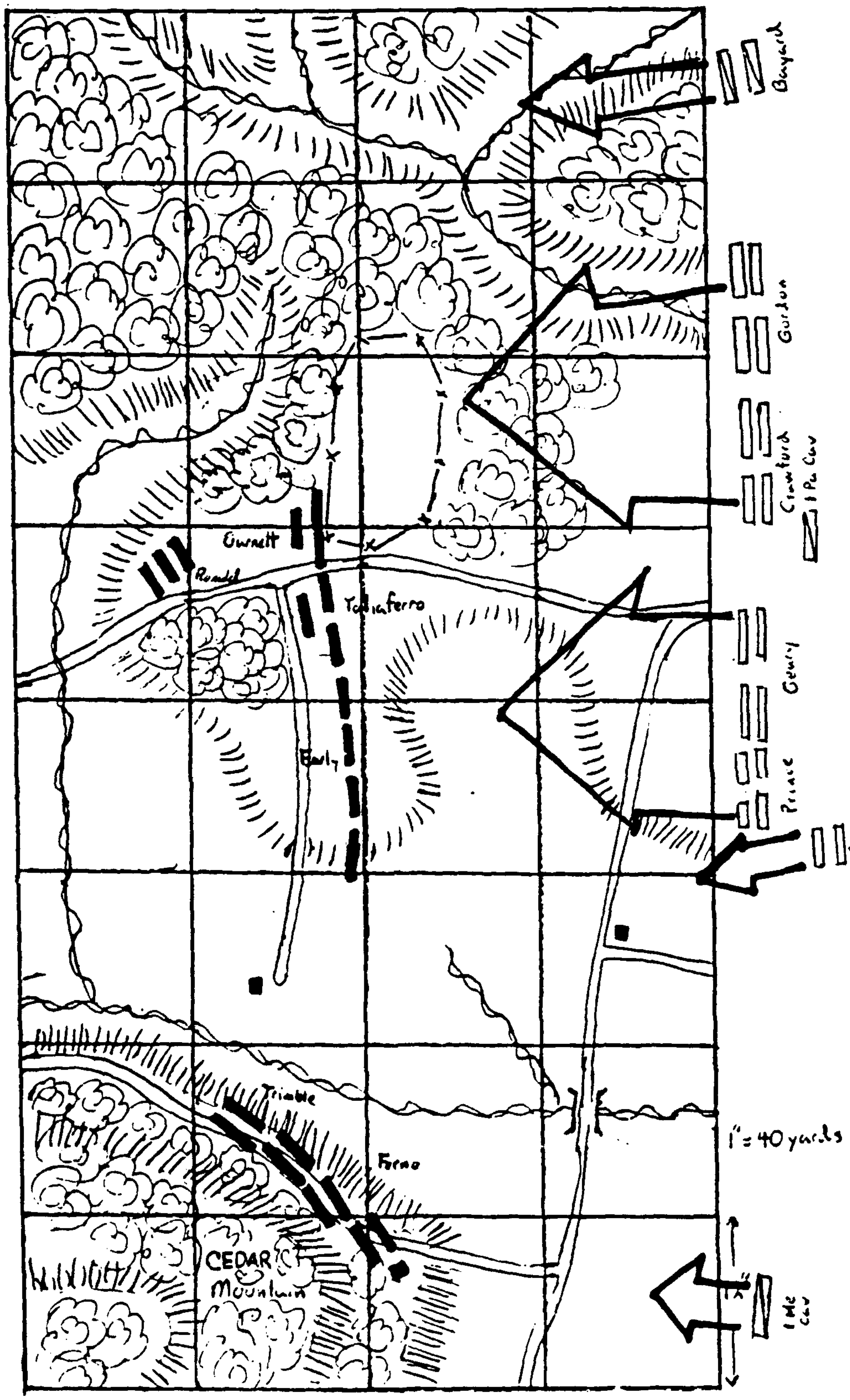

Garnett
Taliaferro
Early
Trimble
Forno
CEDAR
Mountain
1" = 40 yards
Bayard
Gordon
Crawford
Geary
Prince
Greene

Figure 18

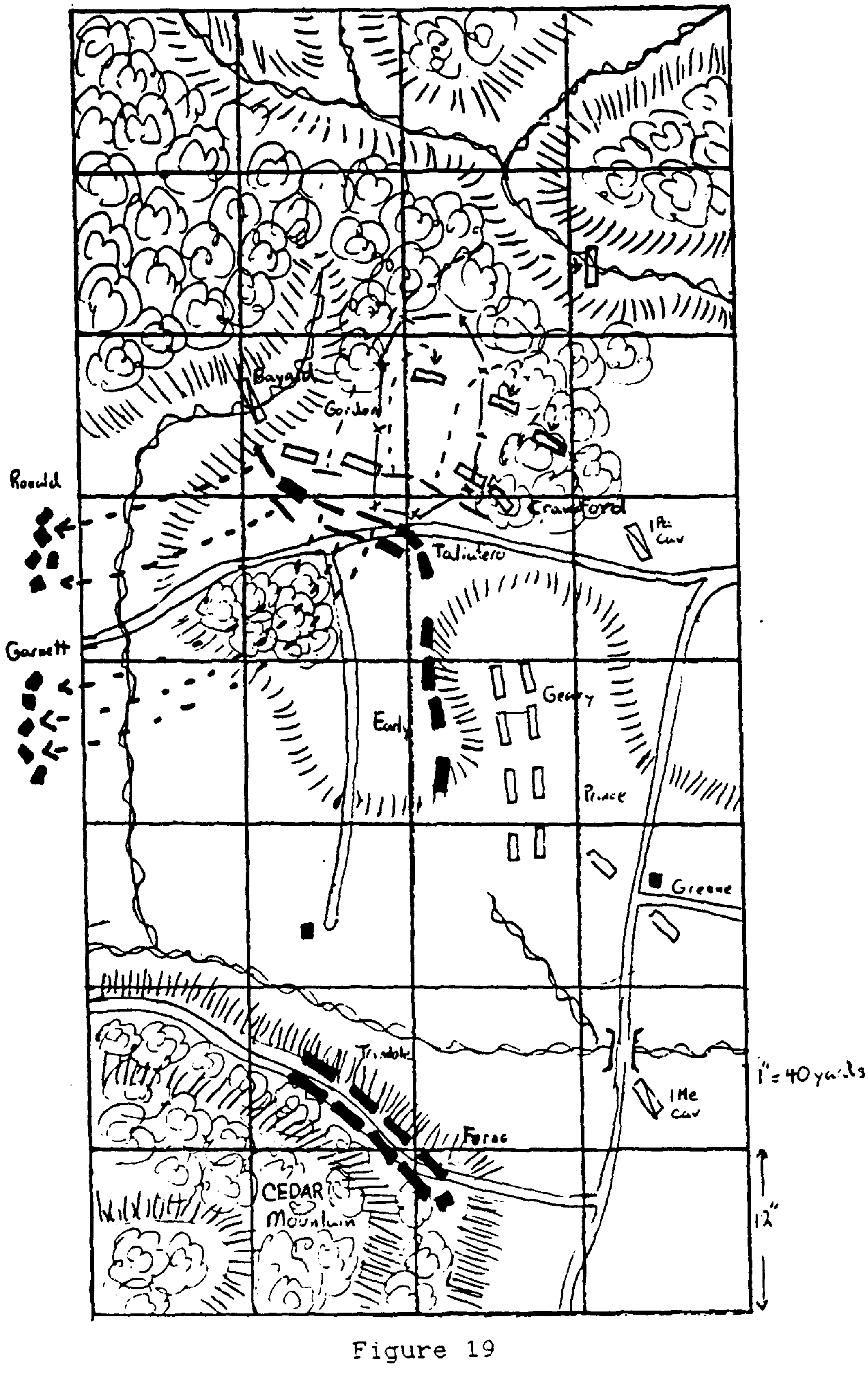

Bayard
Gordon
Crawford
Ronald
Garnett
Geary
Greene
CEDAR Mountain

Figure 19

Game Turn Two (6PM to 7PM). Figure 20 shows the action for game-turn two. Crawford's brigade exchanged close range fire with Taliafero's brigade. Crawford's units had the advantage of being sheltered behind a rail fence which enabled them to inflict more casualties than they received. Eventually, most of Taliafero's brigade withdrew from the battle because of serious losses. Gordan's and Bayard's brigades tried unsuccessfully to slow Branch's advance. However, Branch had a large numerical advantage and succeeded in overwhelming and routing Gordan's brigade. Bayard continued to fall back in face of the advancing Confederates. The increased rate of fire of the cavalry-men's carbines did allow them to inflict several casualties on Branch's lead units. Crawford then fell back to the east side of the fenced field to avoid being flanked by the Rebels.

In the center, Geary's brigade attacked twice before breaking through Early's line. Confederate defensive fire stopped the first attack. The second attack broke through routing three Rebel regiments and capturing a battery. However, Geary's units suffered numerous casualties during the two attacks and were in turn routed by Thomas's brigade advancing from the west. Prince's brigade was unable to support the Union attack because artillery fire from Cedar Mountain threatened their flank. Trimble's and Forno's Confederate brigades were unable to activate their orders and remained idle on the hill.

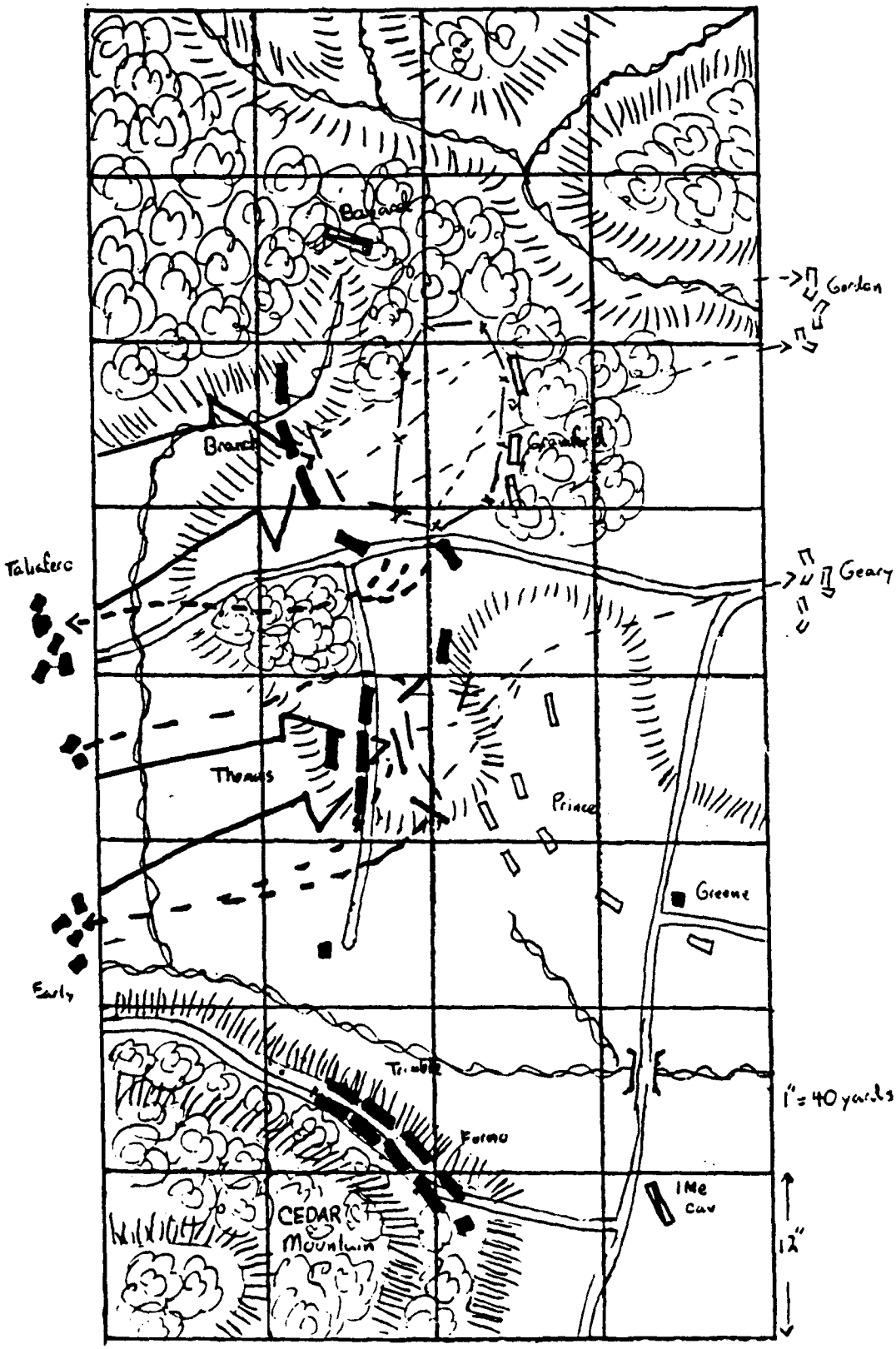

Gordon
Geary
Taliaferro
Early
Greene
1" = 40 yards
12"
CEDAR
Mountain

Figure 20

Game Turn Three (7PM to 8PM). Figure 21 shows the key events in this hour. The Confederates brought two more of Hill's brigades into the battle. Trimble and Forno were also able to activate their orders and advance down the hill. The Union player recognized the hopelessness of his situation and issued orders for all units to withdraw. In the north, Bayard slowly continued to fall back. The added firepower of breach-loading carbines allowed him to inflict several casualties on Archer's brigade. However, the small Union cavalry brigade had insufficient numbers to do any serious damage to the Confederates. Crawford made a brief stand along the rail fence. He then fell back to avoid being surrounded by Archer and Pender.

In the south, Prince's brigade quickly withdrew in the face of three Rebel brigades. The Union player massed three artillery batteries in the center to slow the Confederate advance. The guns stopped both Thomas and Branch buying time for the Union infantry to escape. The Union artillery then withdrew ending the battle at around 7:30PM.

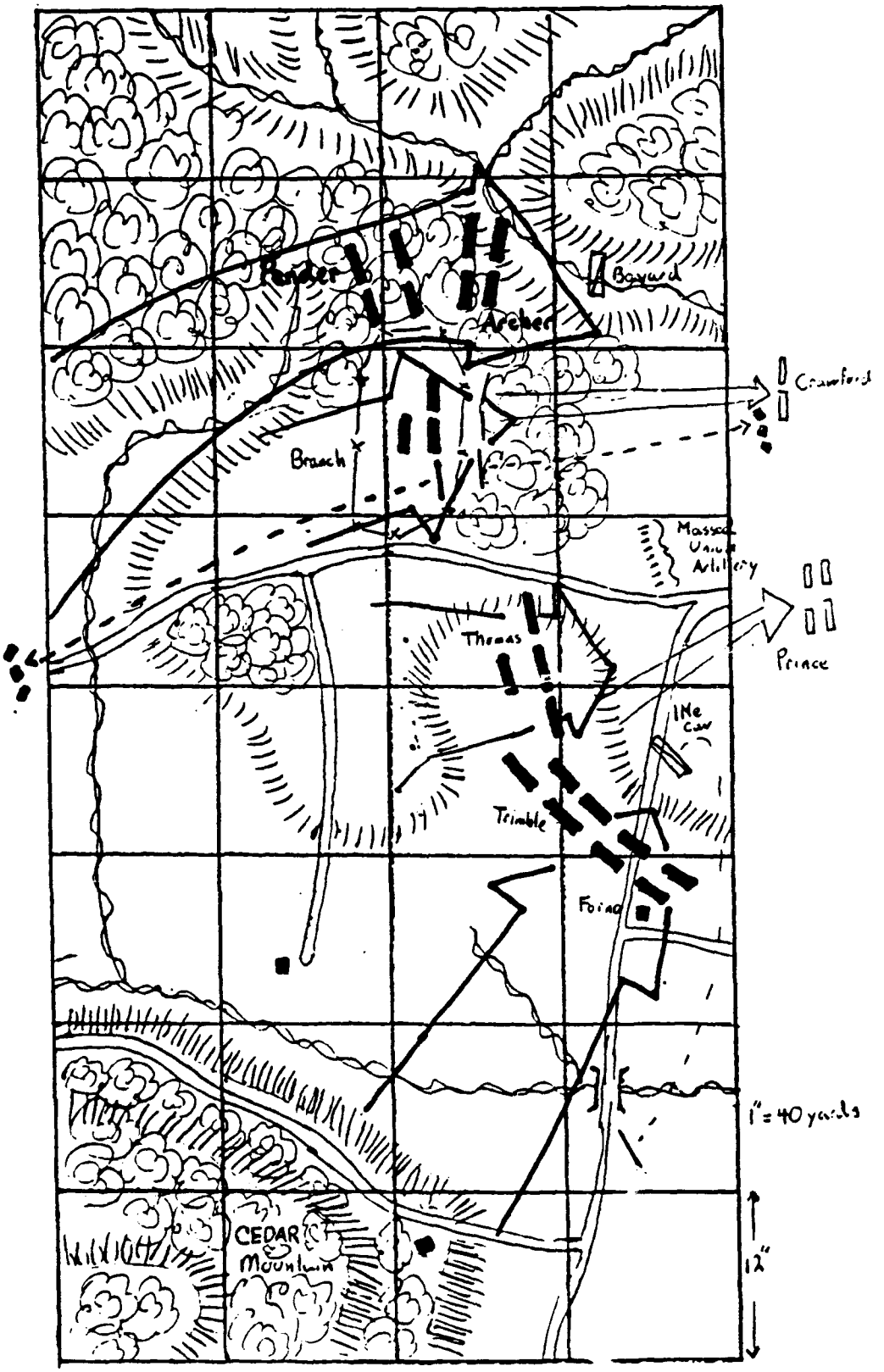

Archer
Crawford
Branch
Massed Union Artillery
Thomas
Prince
McCaw
Trimble
Forno
1" = 40 yards
CEDAR Mountain
12"

Figure 21

Game Analysis

Like the New Market reenactment, this simulation produced results very similar to the original battle. The wargamers, though not constrained to mimicking historical actions, executed the simulation in much the same manner as the actual battle. This similarity may have occurred because both gamers studied the battle and either intentionally or unintentionally followed the actions of their historical counterpart. There were two differences between the simulation and the actual battle. First, the Union player elected to commit Gordon's brigade to the initial assault. Historically, Banks had held Gordon's unit in reserve. Second, the Union player decided to switch from the offense to the defense when large numbers of Rebel reinforcements began to enter the battle. In the actual battle, the Union forces continued to attack and over extended themselves. Switching to the defense earlier in the simulation put the Union Army in better condition to resist the initial Confederate counterattack. The added strength of Union resistance was probably the main reason the simulation lasted 30 minutes longer than the actual battle.

The following analysis concentrates on those areas identified in the New Market reenactment as requiring additional analysis.

Weapon Effectiveness. Most infantry units at Cedar Mountain had rifles. Some, however had muskets. Most units

quickly closed to medium or close range to engage in fire combat. The rifle armed units had the advantage of having a higher probability of causing casualties over musket armed units. Therefore rifle armed units won almost all the firefights. In close combat situations of rifle versus the musket, the rifle again had a slight advantage as it still had a higher chance of causing casualties. However, the decisive advantage usually occurred when one unit held the better position, i.e. some type of cover or a position on the enemy's flank.

The Union cavalry had breach-loading carbines, mostly Sharps carbines. Carbine fire proved to be very effective considering the small numbers of dismounted cavalrymen involved in the fights. Because of the added benefits of breach-loading carbines, the cavalry units were, in effect, equivalent to units 50% greater in size. If the Union player had concentrated all the cavalry together they would have been much more effective. Together, they could have dismounted 22 figures, which would have been equivalent to 33 infantrymen armed with rifles. Twenty-two "veteran regular" infantry can cause 5.28 casualties at close range. The same number of cavalrymen can cause 5.94 casualties. If Bayard's men would have had repeating carbines, they could have caused 7.92 casualties. A replay of Branch's attack on Gordon's and Bayard's brigades produced interesting results when the cavalrymen were given repeaters. Unlike the original simulation, in the replay, the added firepower of the

repeaters stopped Branch and caused heavy casualties on the attacking Rebels.

Both sides were reluctant to charge into close action combat unless they believed they had a very good chance of winning the fight. The wargamers usually interpreted "a good chance" as having a major numerical advantage; the enemy side already having several casualties and therefore being very prone to a morale failure; or being on the enemy's flank. The gamers' reluctance to charge without advantage paralleled the Civil War soldiers' preference to firing over charging in with bayonets. The wargamers were just as reluctant as their historical counterparts to subject their units to the unpredictable risks of a close action combat. Instead, they relied upon the less decisive, but more predictable firefight resolution process.

In the simulation, Crawford's and Gordon's initial actions in the north were very similar to the events of the actual battle. Several flank charges and many firefights, although not executed exactly like the actual events, did produce the same results as the historical engagements. Again, the best validation of weapon's effectiveness is shown through a comparison of actual casualties to those of the simulation (see Appendix D).

It is difficult to establish an absolute qualification that the "Stars and Bars" fire models, firefight and close combat resolutions are historically accurate. However, based upon the results of both simulations, there is

justification in saying that "Stars and Bars" does provide a historically accurate simulation of fire combat in the Civil War.

Command and Control. The Union player only issued two orders in the entire simulation. He first issued attack orders to all his units. The simulation allowed a very high probability for activation of orders on the first game-turn which represented pre-battle coordination between units. All Union units activated their initial orders and continued to attack through game-turn three. At the beginning of turn three, the Union player issued orders for both divisions to withdraw. Both divisions were within Bank's command radius and successfully activated their orders.

The Confederate player had to react to Union actions for the first two game-turns. Initially, all Rebel units began the simulation with defend orders. The command and control problems started when the Confederates tried to adjust based on the Union attack. The Confederate player issued orders for Hill's two lead brigades to attack. He also ordered the remainder of Ronald's brigade and Ewell's division on Cedar Mountain to attack. Based on Jackson's "excellent" rating, each of his units had a 70% chance to activate. Hill's units activated, and Ewell's division and Ronald's brigade failed to activate. Each unit was within Jackson's command radius. The failures to activate were primarily due to chance (a poor die roll). However, the situation closely paralleled the actual battle in which

Ewell's division remained idle on the mountain during most of the battle because he received no orders to advance.

Problems with simulation command and control can be likened to many modern day command and control problems. Most units attempt to execute their pre-battle plan to the best of their abilities. However, problems can and do occur when the commander attempts to adjust the plan to meet unforeseen battle situations. The simulation models this situation by giving a high probability of activation for pre-battle orders. Units have their orders and are usually able to plan their initial actions. The changes in the plan are then subjected to chance. The better commanders have a better chance of carrying out a new plan. The commander also has the opportunity to enhance his "chance" by personally ensuring that orders are carried out. However, his personal presence and concentration on one area of the battle increases his risks in other areas of the battlefield. Very few simulations can accurately portray the "fog of battle". However, the "Stars and Bars" simulation does provide a reasonable representation of battlefield command in the Civil War.

Summary

The New Market reenactment proceeded almost exactly like the actual battle. The end results were also very similar to the historical outcome. The reenactment validat-

ed the historical accuracy of unit organizations, formations, frontages, tactics and weapon characteristics. All of which had been previously deemed historically accurate in chapters 3 and 4. The reenactment also showed that grand tactical, tactical movement, morale, and, for the most part, weapons effectiveness and ammunition shortages provided a historically accurate simulation. The reenactment did not provide sufficient data for analysis of several other areas such as musket and carbine fire, close combat, and battlefield command. Each of these areas were then emphasized in the Cedar Mountain simulation.

The Cedar Mountain simulation, executed as a free-flowing wargame, also produced results very similar to those of the actual event. Surprisingly, the conduct of the battle closely followed the historical actions. The simulation validated all areas previously deemed historically accurate. The wargame also demonstrated that carbine fire was historically accurate. The simulation also demonstrated that the historical accuracy of close range musket fire could be enhanced. Close combat and battlefield command were both difficult to quantify. However, in both simulations, these areas closely paralleled the actual events and are therefore judged as providing an accurate historical simulation of close combat and battlefield command. Overall, STARS*N*BARS III provided an accurate simulation of both battles.

Chapter 6

Notes

(1)Larry Brom, The Sword and the Flame (Dallas: Yaquinto Publications, Inc., 1979), 22.

(2)The War of the Rebellion: A Compilation of the Official Records of the Union and Confederate Armies, 70 vols. in 128 parts (Washington D.C.: Government Printing Office, 1880-1901), Series 1, vol 37, 87.

(3)John D. Imboden, "The Battle of New Market", Battles and Leaders 4 Vols. (New York: The Century Company, 1884-1887), Vol. 4, 491.

(4)William C. Davis, The Battle Of New Market (Baton Rouge: Lousiana State University Press, 1983) , 193-196.

(5)Imboden, "New Market", 481.

(6)O.R., Series 1, vol. 37, 76.

(7)Imboden, "New Market", 483, 491.

(8)Ibid., 483.

(9)Davis, New Market, 87-99.

(10)O.R., Series 1, vol. 37, 80.

(11)Imboden, "New Market", 483.

(12)Davis, New Market, 92-93.

(13)O.R., Series 1, vol. 37, 80.

(14)Imboden, "New Market", 483.

(15)Ibid., 482-483.

(16)Ibid.

(17)Ibid.

(18)Ibid.

(19)O.R., Series 1, vol. 37, 90.

(20)Imboden, "New Market", 484.

(21)Davis, New Market, 124-126.

(22)O.R., Series 1, vol 37, 91.

(23)Ibid., 84.

(24)Davis, New Market, 135-141.

(25)Davis, New Market, 120-121.

(26)O.R., Series 1, vol. 12, 178.

(27)Ibid., 136-139, 179.

(28)Ibid., 178-179.

(29)Ibid. , 178.

(30)Ibid. , 189, 201.

(31)Ibid., 214-216.

(32)Ibid. , 141.

(33)Ibid. , 179-180.

CHAPTER 7

CONCLUSIONS

> It (History) provides us the opportunity to profit by the stumbles and tumbles of our forerunners.
>
> B. H. Liddel Hart
> Why Don't We Learn From History

By studying history, we become observers and analysts of historical events and trends. In 1971 the Army Chief of Staff, General William C. Westmoreland, established an ad hoc committee to determine if there was a need for the Army to study military history. The committee, under the chairmanship of Colonel Thomas E. Griers, United States Military Academy, concluded that a study of military history would help "... to contribute to broadened perspective, sharpened judgment, increased perceptivity, and professional expertise."[1] The committee asserted that the study of history provides a foundation in military problem solving and also helps to compensate for deficiencies in individual experiences.[2]

The Army's study of history took a major step forward with the reinstatement of the "Staff Ride" program in

the early 1970s. The "Staff Ride" became part of the Command and General Staff College curriculum in 1982. The CGSC "Staff Ride" concentrates on the battle of Chickamauga from the American Civil War. The theme of the Chickamauga "Staff Ride" establishes that only a detailed study of the campaign and battle can reveal why events occurred as they did. However, even with the "Staff Ride", which encourages active student participation and group discussion, the student can only remain an observer of history.[3]

The wargame provides the additional opportunity for a student to actually participate in an experience of history.[4] Perhaps the wargame can serve as one of the "imaginative training aids"[5] encouraged in the Army's pamphlet, The Staff Ride. Many Threat instructors use hundreds of small model vehicles to portray Soviet Army formations. Similarly, history instructors could use tabletop battlefields to replicate historical battles. The wargamer has the opportunity to gain a better understanding of the problems associated with battlefield command. An historically accurate simulation, using the formations, tactics, and weapons of a particular period, provides the wargame participant with a glimpse of the military thinking of the time.[6] The wargamer is not limited to analyzing Nathan Bedford Forrest's actions at the battle of Brice's Cross Roads or Joshua Lawrence Chamberlain's defense of Little Round Top at the battle of Gettysburg. Instead, the wargamer is placed in a situation where he is able to exercise a practical understanding of

how to conduct war in the chosen period. The wargamer must consider the ranges of his weapons and the size and capability of his force and then decide where to defend and how to attack. In short, the wargamer faces many of the same decisions his historical counterpart faced.[7]

The intent of this thesis was to examine miniature wargaming as a valid medium of study for the American Civil War. Specifically, the study analyzed Scotty Bowden's miniature wargame rules, STARS*N*BARS III, to determine if the rules provided a historically accurate simulation of Civil War combat. The study first examined the mechanics or rules of the simulation to determine if they were historically sound. Chapters three and four looked at the infantry and the supporting arms: cavalry and the artillery. These chapters provided an overview of many different areas under the broad headings of organization, maneuver and firepower. Chapter five then examined the aspects of battlefield command concentrating on three areas: the commanders; directing the battle; and morale.

In some areas, the historical accuracy was easily quantified as in the following example. Historically, an infantry regiment of 480 men in line formation occupied a frontage of about 160 yards. The simulation also requires a regiment of 480 men to occupy 160 scale yards. Therefore, in this sub-area of maneuver, the simulation is historically accurate. In other areas, such as with the resolution of close action combat (a sub-area of firepower) the study

could not establish a position on historical accuracy strictly based on an examination of the simulation mechanics. The wargaming of two Civil War battles was used to determine the historical accuracy of the area in question. The following chart provides an overview of the different areas examined and how the study proceeded.

Unfortunately, there is a price to be paid for historical accuracy. One of the key tasks of a wargame designer is to balance accuracy and playability in a simulation. In most simulations accuracy equates to complexity. The wargame designer strives to achieve enough detail within the simulation to ensure the wargame portrays the period accurately. However, he does not want the wargame participant to be bogged down by complex rule interpretations.

RESEARCH METHODOLOGY

YES- "Stars and Bars" provides the means for a historically accurate simulation.

NO- "Stars and Bars is not historically accurate in this area.

?- Further analysis required, determination of historical accuracy will be examined in the simulations of New Market and Cedar mountain.

V- Simulation validates area previously deemed historically accurate

	Mechanics of the Rules				The Simulations		Conclusions
	Ch.3 (Inft.)	Ch.4 (Cav.)	(Arty.)	Ch.5 (Battlefield Command)	Ch.6 (New Market)	(Cedar Mountain)	Ch.7
Unit Organization							
Regt./ Battery	YES	YES	YES	-	V	V	YES
Bde, Div Corps	YES	YES	YES	-	V	V	YES
Maneuver							
Formations/ Frontage	YES	YES	YES	-	V	V	YES
Tactics	YES	YES	YES	-	V	V	YES
Grand Tactical Movement	YES	?	?	-	YES	V	YES
Tactical Movement	?	?	?	-	YES	V	YES
Fire Power							
Weapons	YES	YES	YES	-	V	V	YES
Weapons Effectieness							
firing	?	?	?	-	?	YES	YES
firefight	?	?	?	-	?	YES	YES
close action	?	?	?	-	?	YES	YES
Ammunition Shortages	?	?	?	-	YES	V	YES
The Cmdrs.	-	-	-	YES	V	V	YES
Directing the Battle							
Cmd. Skills	-	-	-	YES	V	V	YES
Cmd. Compliance	-	-	-	?	?	YES	YES
Morale							
Experience and Training	-	-	-	?	?	YES	YES
Morale Checks	-	-	-	?	?	YES	YES

Chart 4

The Avolon Hill Game Company rates their games with a four step complexity scale: low; medium; high; and very high. On the same scale, "Stars and Bars" would receive a rating of "very high". This does not mean that Scotty Bowden has failed to balance accuracy and playability. Bowden did achieve his goal of providing a realistic simulation of history. He also provided the wargaming community with a playable simulation. One can interpret the term playable in varying degrees. The card game "Old Maids" is playable even to a young child. While the game of "Bridge" may not be playable to the same young child, members of Bridge clubs all over the world most definitely consider the game "playable". Skill levels and experience are the differentiating factors. The "Stars and Bars" simulation is meant for the experienced wargamer. The mechanics of the simulation are detailed, somewhat complex, and require extensive study to be mastered. Most wargamers cannot master the system in only one or two games.

Because of the complexity, the wargamer must invest a substantial amount of time to complete a historical simulation. Even with experienced wargamers, both the New Market and Cedar Mountain simulations, required more than four hours each to complete. The "Stars and Bars" simulation generally requires one hour of game time to complete one hour of historical battle. A simulation of the battle of Chickamauga would require at least two full days of gaming.

Despite its complexity, the "Stars and Bars" simulation can still be adapted to the classroom situation. It is not necessary for each wargame participant to have a full understanding of the rules. A common practice in wargaming is the use of an umpire. The umpire controls the application of rules in the simulation. This frees the wargame participants to concentrate on their command responsibilities in the simulation. The wargamer decides what his units will do and the umpire determines the outcome of the action. In the classroom, the instructor could fulfill the role of the umpire.

The question of available time also requires a compromise in classroom wargaming. Very few classes could devote several hours to wargaming. Obviously, class time would not be sufficient to permit the 20 hours of wargaming during the Staff Ride study phase. However, the New Market reenactment offers a plausible alternative. Even though the battle lasted for several hours, the key segment of the battle occurred between 2PM and 3PM. A simulation of this part of the battle would only require one hourly round or one hour of game-time.

Similarly, instead of gaming the entire battle of Chickamauga, a wargame could be structured around key segments of the battle. The wargamers/students could place all units in their historical positions. Then, instead of wargaming, they could discuss the actions of their units. During the discussions, the students would move these units

to demonstrate their historical actions. At select times during the battle, key actions could be wargamed to provide more insight into why events occurred as they did.

Another option for classroom study would be to use a less complicated simulation system. The recent PBS documentary on the American Civil War has spurred the development of a plethora of new wargame simulations. Even though this study has dealt specifically with the "Stars and Bars" system, the same methodology could be applied against other simulation systems. Wargaming has come a long way since H.G. Wells published Little Wars. Simulation designers are continually developing more playable systems without sacrificing historical accuracy. More than likely, STARS*N*BARS III, will be superseded by a newer and better simulation.

The overall conclusion of this study is that STARS*N*BARS III, does accurately simulate battle in the American Civil War. Wargaming can be used to study history, either in the classroom or by small groups of hobbyists and historians. In the historical simulation, gaming and history cannot be separated. One complements the other in building a more complete understanding the period.

Chapter 7

Notes

(1)John E. Jessup and Robert W. Coakley, eds. A Guide to the Study and Use of Military History (Washington: Center of Military History, 1979), ix.

(2)Jessup. A Guide to the Study and Use of Military History, ix, xi, 14-32.

(3)William E. Roberston.The Staff Ride (Washington: Center of Military History,1987), 3-5, 12-13, 22.

(4)Paddy Griffith, A Book of Sandhurst Wargames (New York: Coward, Mccann and Geoghegan, 1982) , 9.

(5)Roberston, The Staff Ride, 22.

(6)Donald Featherstone. Featerstones' Complete Wargaming (Newton, England: David and Charles, 1988) , v.

(7)J. F. Grossman, The Complete Brigadier, Introduction to Miniature Wargaming(St. Paul, Minnesota: Adventure Games, Inc., 1982), 1-3.

APPENDICES

APPENDIX A

ORDER OF BATTLE AT THE BATTLE OF NEW MARKET

Union Army[1]
Maj. Gen. Franz Sigel
(Inspirational/Mediocre)[2]

1st (Infantry Division)

1st Brigade- Col. August Moor

18th Conn. (350)-veteran regular[3]
123rd Ohio (700)-regular

2nd Brigade- Col Joseph Thoburn

1st W. Va. (700)-regular
12th W. Va. (929)-regular
34th Mass. (500)-regular

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1. The field reports from the battle of New Market never made it into the Official Records. William Davis' book on the battle does provide a comprehensive order of battle (page 193). He based the Union order of battle on a official Federal report published in the New York Tribune on 27 May 1864. He built the Confederate order of battle from many different diary entries of participants in the battle.

2. Inspirational- Before the battle of New Market. Sigel was respected and admired by the common soldier. Sigel was a brave man and could generally inspire the troops to carry out his orders. Mediocre-Sigel was a political general. He had a large following of loyal German-American supporters. Because of this, he quickly obtained high rank in the Union Army.

3. All the infantry eliteness ratings are based on the morale chart provided in "Stars and Bars". Most of the North's combat tested units are rated as "regular". The 18th Conn. and 34th Mass. performed better than most Union units at the battle. They are therefore given a slightly higher rating.

54th Pa. (566)-regular

1st (Cavalry Division)
Maj. Gen. Julius Stahel
(Impersonal/Mediocre)[1]

1st Brigade- Col Wm. Tibbetts
1st Veteran NY. (500)-regular[2]
1st Lincoln NY. (550)-regular
21st NY. (500)-regular

2nd Brigade- Col. John Wynkoop

15th NY. (130)-regular
20th Penn. (170)-regular

Artillery[3]

B, Maryland light Artillery -Capt Snow: six 3" Rodmans-veteran regular
30th New York Battery-Capt Kleiser: six 12pdr. Napoleons-veteran regular
D, 1st W. Va. Artillery-Capt Carlin: six 3" Rodmans-veteran regular
G, 1st W. Va. Artillery-Capt Ewing: four 3" Rodmans-veteran regulars

---

1. Stahel performed very poorly at the battle. His division responded slowly to his commands and he was unable to inspire his men during the cavalry charge or rally the units after the charge.

2. Rating justification same as for the infantry.

3. Overall the Union artillery performed much better than the infantry at the battle. Therefore they were given a slightly higher eliteness rating.

Confederate Army

Maj. Gen. John C. Breckinridge
(Charismatic/Excellent)

Infantry Division

1st Brigade-Brig. Gen. John Echols[1]

22nd Va. (580)-veteran regular
23rd Va. (579)-veteran regular

2nd Brigade-Brig. Gen. Gabriel Wharton[2]

30th Va. (347)-elite
51st Va. (700)-elite
62nd Va. Mtd. (448)-elite
23rd Va. Cav(dstmd) (315)-elite
A, 1st Mo. Cav (62)-elite

Reserve

V.M.I. (226)-regular[3]
26th Va. (425)-veteran regular
Hart's Engineers (37)-elite[4]

Cavalry, Valley District- Brig. Gen. John Imboden

18th Va. Cav (615)-elite
2nd Ma. Bn. (40)-elite
McNeil's Partisans (60)-elite
Mosby's Raiders (20)-elite

---

1. The morale chart in "Stars and Bars" assigns "veteran regular" as the standard rating for Confederate units. Units that performed significantly above average would receive higher ratings.

2. Wharton was an outstanding brigade commander and would be recommended for promotion after the battle. His unit was highly respected and fought extremely well at the battle.

3. The cadets were highly trained but untested in battle. Therefore their eliteness rating is one step below standard Confederate infantry.

4. The small specialty units were usually highly trained and better equipped.

Artillery

Chapman's battery: four 12pdr. howitzers and two 3" Rodmans - veteran regular

Blain's battery: three 12pdr. Napoleons and one 10pdr Parrott-veteran regular

McClanahan's battery: four 3" Rodmans and two 12pdr howitzers-veteran regular

V.M.I. section: two 3" Rodmans-regular

Appendix B

CASUALTIES IN THE BATTLE OF NEW MARKET

	Historical			Simulation		
	Killed	Wounded	Total[1]	Killed	Wounded	Total
Federal Army						
Infantry Division						
18th Conn.	1	31	56	2	18	40
123rd Ohio.	5	33	75	2	18	40
1st W.Va.	4	54	76	12	108	240
12th W.Va.	1	27	40	2	18	40
34th Mass.	30	131	215	10	90	200
54th PA.	32	180	254	8	72	160
Infantry Total	73	456	716	36	324	720

1. Total casualties includes stragglers, prisoners and missing.

	Killed	Wounded	Total	Killed	Wounded	Total
Cavalry Division						
1st NY.(Veteran)	12	26	76	10	90	100
21st NY.	2	12	14	4	36	40
14th Penn.	0	6	8	2	18	20
15th NY.	2	3	16	2	18	20
20th Penn.	1	5	21	2	18	20
Cavalry Total	17	52	107	20	180	200
Artillery						
B. Md Light	0	4	4	0	0	0
30th NY	1	4	5	2	12	14
D. 1st W. Va.	4	3	7	1	8	9
G. 1st W. Va.	1	1	2	1	8	9
Artillery Total	6	12	18	4	24	28
Army Total	96	520	841	60	528	948

Confederate Army

Infantry Division						
22d Va.	4	29	33	2	18	20
23d Va.	2	75	79	2	18	20

	Killed	Wounded	Total	Killed	Wounded	Total
26th Va.	3	21	24	2	18	20
30th Va.	1	45	46	8	72	80
51st Va.	2	90	103	14	126	140
62d Va. Mtd	11	81	92	8	72	80
Co. A 1st Mo.	5	35	40	2	18	20
Hart's Engineers	0	10	10	0	0	0
23d Va. Cav. (dstmd)	4	36	41	0	0	0
V.M.I.	10	45	55	4	36	40
Infantry Total	42	467	523	42	378	504
Artillery						
Chapman's	1	4	5	1	4	5
Blain's	0	1	1	0	0	0
McClanahan's	0	0	0	0	0	0
V.M.I.	0	2	2	0	0	0
Artillery Total	1	7	8	1	4	5
Army Total	43	474	531	43	382	509

APPENDIX C

ORDER OF BATTLE AT THE BATTLE OF CEDAR MOUNTAIN

Chapter two of this thesis reviewed the "Great Battles of the American Civil War" series. One of the games provided by the series is the battle of Cedar Mountain. The "Great Battles" series is highly respected in the wargaming community as providing historically accurate orders of battle. The series, because of the great amount of detail is easily convertible into a miniature wargame scenario.

Leaders. All brigade commanders and above are represented by individual counters. Each leader has a command radius and a rally rating printed on the counter. The command radius reflects the ability of the leader to control his units. Superior leaders have a wider radius than poor leaders. The "Great Battles" series provides for a command radius range of 3 to 8 hexes. The system easily converts to the "Stars and Bars" system (superior, excellent, good, mediocre, poor and despicable). A leader with a command radius of 5 in the "Great Battles" system would be a excellent leader in the "Stars and Bars" system.

Each leader counter also has a rally rating which represent the number of units a leader may rally in a given turn. The "Great Battles" series provides for a rally rating of 1 through 4. Once again, the system can be easily converted to the "Stars and Bars" system (charismatic, inspirational, impersonal, and uninspiring). A rally rating of 1 would represent an "uninspiring" leader and a 4 would be a charismatic leader. An example of the leader conversion is shown below:

"Great Battles"	"Stars and Bars"
A.P. Hill	
command radius (8) rally rating (3)	Superior/inspirational
Christopher Augur	
command radius (5) rally rating (1)	Mediocre/unaspiring

Unit Strength and Weapons Type. The counters in the "Great Battles" series represent individual regiments or batteries. The counter shows the unit's strength and their type of weapon. R4 represents 400 men armed with rifles. 3M would be 300 men with muskets. The wargamer converts the unit strength to the 1 to 40 scale of "Stars and Bars". The unit strengths provided in the "Great Battles" Cedar Mountain game were checked against the Official Records (O.R., series 1, vol. 12, part 2). All the unit strengths in the boardgame were validated by the Official Records (pages 140-170 for the Union Army and pages 188-238 for the Confederate Army).

Morale. Each unit counter in "Great Battles"has a unit morale printed on the counter. The series use a moral rating of 1 to 6 with 6 being the highest morale. "Stars and Bars" also has a six level morale system (crack, elite, veteran regular, regular, green and militia). Therefore a "Great Battles" morale rating of 4 becomes a "veteran regular" in the "Stars and Bars" simulation.

Union Army
Maj. Gen. Nathaniel Banks
(Inspirational/Good)

II Corps, Army of Virginia

1st Division - Brig. Gen. Alpheus Williams
(inspirational/excellent)

1st Brigade - Brig. Gen. Samuel Crawford

28th NY. (335) - veteran regular
5th Conn. (424) - veteran regular
46th Penn. (481) - veteran regular
10 Me. (435) - veteran regular

3rd Brigade - Brig. Gen. - George Gordon

Penn. Zouaves (200) - regular
27th Ind. (600) - regular
3rd Wisc. (600) - green
2nd Mass. (474) - veteran regular

2nd Division - Brig. Gen. Christopher Augur
(uninspiring/mediocre)

1st Brigade - Brig. Gen. John Geary

7th Ohio (307) - veteran regular
5th Ohio (300) - veteran regular

29th Ohio (189) - veteran regular
66th Ohio (250) - veteran regular

2nd Brigade - Brig. Gen. Henry Prince

102nd NY. (300) - green
3rd Md. (300) - regular
8th & 12th U.S. Inft. (200) - regular
111th Penn. (300) - green
109th Penn. (300) - green

3rd Brigade - Brig. Gen. George Greene

1st DC Bn. (200) - regular
78th NY. (457) - regular

Army Artillery

M, 1st NY. Artillery: six 10pdr Parrotts - veteran regular
L, 2nd NY. Artillery: six 3" Rodmans - veteran regular
4th Me. Artillery: six 3" Rodmans - regular
6th Me. Artillery: six 3" Rodmans - regular
E, Penn. Artillery: six 10pdr Parrotts - veteran regular
F. 4th U.S. Artillery: six 12pdr Napoleons - Crack

Confederate Army
Gen. Thomas Jackson
(Inspirational/Excellent)

Left Wing, Army of Northern Virginia

1st Division - Brig. Gen. Winder (uninspiring/mediocre)

1st (Stonewall) Brigade - Col. Charles Ronald

27th Va. (130) - veteran regular
5th Va. (300) - veteran regular
2nd Va. (200) - veteran regular
4th Va. (200) - veteran regular
33rd Va. (150) - veteran regular

2nd Brigade - Lt. Col Thomas Garnett

42nd Va. (200) - veteran regular
1st Va. (100) - veteran regular
21st Va. (200) - veteran regular
48th Va. (200) - veteran regular

3rd Brigade - Brig. Gen Taliaferro

37th Va. (300) - veteran regular
48th Al. (300) "muskets" - veteran regulars
10th Va. (200) "muskets" - veteran regulars
23rd Va. (200) - verteran regulars
47th Al. (300) "muskets" - veteran regulars

Division Artillery

Alleghany Artillery: four 12pdr Napoleons - veteran regular
Rockbridge Artillery: four 10pdr Parrotts - veteran regular
Hampden Artillery: four 3" Rodmans - veteran regular
La. Guard Artillery: four 12pdr Napoleons - veteran regular

3rd Division - Maj. Gen. Ewell (inspirational/excellent)

1st Louisiana Brigade - Col Henry Forno

5th La. (400) "muskets" - veteran regular
14th La. (600) "muskets" - veteran regular
7th La. (600) "muskets" - veteran regular
8th La. (600) "muskets" - veteran regular
6th La. (500) "muskets" - veteran regular

4th Brigade - Brig. Gen. Jubal Early

13th Va. (400) - elite
52nd Va. (120) "muskets" - elite
58th Va. (300) "muskets" - elite
12th Ga. (400) - elite
25th Va. (200) "muskets" - veteran regular
31st Va. (200) "muskets" - veteran regular

7th Brigade - Brig. Gen. Issac Trimble

21st Ga. (600) "muskets" - veteran regular
15th Al. (700) - veteran regular
21st N.C. (700) "muskets" - veteran regular

Division Artillery

1st Md. Artillery: four 12pdr Napoleons - veteran regular
4th Md. Artillery: four 6pdr rifles - veteran regular
Courtney Artillery: four 3" Rodmans - veteran regular
Bedford Artillery: four 12pdr Napoleons - veteran regular

Light Division - Maj. Gen. A.P. Hill (inspirational/superior)

1st & 2nd brigades - detached

3rd Brigade - Col Edward Thomas

14th Ga. (500) - elite
35th Ga. (500) - elite
45th Ga. (500) "muskets" - elite
49th Ga. (500) "muskets" - elite

4th Brigade - Brig. Gen. O.B. Branch

37th N.C. (400) "muskets" - veteran regular
33rd N.C. (400) "muskets" - veteran regular
28th N.C. (400) "muskets" - veteran regular
18th N.C. (400) "muskets" - veteran regular
7th N.C. (400) - veteran regular

5th Brigade - Brig. Gen. James Archer

1st Tenn. (500) - veteran regular
7th Tenn. (400) "muskets" - veteran regular
14th Tenn. (400) "muskets" - veteran regular
14th Ga. (500) "muskets" - veteran regular
5th Al. (200) - veteran regular

6th Brigade - Brig. Gen William Pender

38th N.C. (500) "muskets" - veteran regular
34th N.C. (500) "muskets" - veteran regular
22nd N.C. (500) "muskets" - veteran regular
16th N.C. (500) "muskets" - veteran regular

Division Artillery

Purcell Artillery: two 10pdr Parrotts - veteran regular
Middlesex Artillery: two 10pdr Parrotts - veteran regular

APPENDIX D

CASUALTIES IN THE BATTLE OF CEDAR MOUNTAIN

	Historical			Simulation		
	Killed	Wounded	Total[1]	Killed	Wounded	Total
Federal Army						
Bank's Escort	5	5	16	0	0	0
1st Div						
Crawford's Bde	97	397	867	56	504	840
Gordon's Bde	74	191	344	22	198	330
2nd Div						
Geary's Bde	61	384	465	26	234	390
Prince's Bde	58	311	452	30	270	450
Greene's Bde		3	5	2	18	30
Army Artillery	7	27	40	1	4	30
Bayard's Cavalry Bde	12	45	61	4	36	60
Army Total	314	1365	2277	141	1264	2130

	Historical			Simulation		
	Killed	Wounded	Total	Killed	Wounded	Total[1]
Confederate Army						
Winder's Division						
Ronald' Bde	10	48	58	8	72	80
Garrnett's Bde	91	210	301	28	252	280
Taliafero's Bde	45	265	310	32	288	320
Ewell's Division						
Early's Bde	11	182	193	22	198	220
Trimble's Bde	7	38	45	4	36	40
Forno's Bde	6	28	34	4	36	40
A.P. Hill's Division						
Branch's Bde	13	83	96	10	90	100
Archer's Bde	12	89	101	10	90	100
Thomas's Bde	24	133	157	8	36	80
Pender's Bde	7	6	13	4	32	36
Army Artillery	2	18	20	3	20	23
Army Total	229	1047	1276	133	1186	1319

1. Confederates did not report missing in action. Total does not include missing or prisoners.

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