BATTLE OF LEIPZIG: WARFIGHTING FUNCTIONS THROUGH WARGAME SIMULATION

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

MASTER OF MILITARY ART AND SCIENCE
Wargame Design

by

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Fort Leavenworth, Kansas
2018

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. REPORT DATE *(DD-MM-YYYY)*	**2. REPORT TYPE**	**3. DATES COVERED** *(From - To)*
15-06-2018	Master's Thesis	AUG 2017 – JUN 2018

4. Title And Subtitle

Battle of Leipzig: Warfighting Functions through Wargame Simulation

5a. Contract Number

5b. GRANT NUMBER

5c. PROGRAM ELEMENT NUMBER

6. AUTHOR(S)

David L. Clayton, Major, U.S. Army

5d. PROJECT NUMBER

5e. TASK NUMBER

5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
U.S. Army Command and General Staff College
ATTN: ATZL-SWD-GD
Fort Leavenworth, KS 66027-2301

8. PERFORMING ORG REPORT NUMBER

9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)

10. SPONSOR/MONITOR'S ACRONYM(S)

11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION / AVAILABILITY STATEMENT
Approved for Public Release; Distribution is Unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT

The purpose of the *Battle of Leipzig's* game design is to simulate a tactical combat scenario that employs the implementation of the warfighting functions to facilitate learning. The U.S. Army's Mission Command Training Program *Key Observations* publication specified valid concerns of multiple challenges that army staffs have with implementing and integrating the warfighting functions in a near-peer fight. The game design system simplifies the understanding of the warfighting functions through the historical context of the Battle of Leipzig. The end objective is a tactical wargame that simulates warfighting functions in a decision-making environment in an effort to facilitate tactical knowledge and skill development through conceptual learning.

15. SUBJECT TERMS

Warfighting Functions, Simulation, Wargame, Tactics, Tactical, Napoleon

16. SECURITY CLASSIFICATION OF:			**17. LIMITATION OF ABSTRACT**	**18. NUMBER OF PAGES**	**19a. NAME OF RESPONSIBLE PERSON**
a. REPORT	**b. ABSTRACT**	**c. THIS PAGE**			**19b. PHONE NUMBER** *(include area code)*
(U)	(U)	(U)	(U)	113	

Standard Form 298 (Rev. 8-98)
Prescribed by ANSI Std. Z39.18

MASTER OF MILITARY ART AND SCIENCE

THESIS APPROVAL PAGE

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

ABSTRACT

BATTLE OF LEIPZIG: WARFIGHTING FUNCTIONS THROUGH WARGAME SIMULATION, by Major David L. Clayton, 113 pages.

The purpose of the *Battle of Leipzig's* game design is to simulate a tactical combat scenario that employs the implementation of the warfighting functions to facilitate learning. The U.S. Army's Mission Command Training Program *Key Observations* publication specified valid concerns of multiple challenges that army staffs have with implementing and integrating the warfighting functions in a near-peer fight. The game design system simplifies the understanding of the warfighting functions through the historical context of the Battle of Leipzig. The end objective is a tactical wargame that simulates warfighting functions in a decision-making environment in an effort to facilitate tactical knowledge and skill development through conceptual learning.

ACKNOWLEDGMENTS

This journey was a deliberate effort to develop a new effective training system to progress military leaders' tactical proficiencies. I sincerely thank my thesis committee of Mr. Michael Dunn, Dr. Mark Gerges, and Dr. Dale Spurlin. They provided guidance and shaped my intellectual motivation throughout my time at the Fort Leavenworth Command and Staff College.

I appreciate the unique warfare simulation training I received from Dr. James Sterrett and Mr. Dunn. It opened avenues for professional development and introduced new concepts of effective training approaches. Dr. Spurlin and Lieutenant Colonel Tim Measner provided professional mentorship. They made a continuous effort to guide me, ensuring I stayed on the course to academic achievement.

Most importantly, enormous appreciation to my wife, Donna, and son, Caleb, for their support and understanding through this process. They are and will always be the foundation that balances my life.

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ACRONYMS

ADRP	Army Doctrine Reference Publication
BCT	Brigade Combat Team
CAC	Combined Arms Center
CCIR	Commander's Critical Information Requirement
COA	Course of Action
DP	Decision Point
DSA	Division Support Area
FM	Field Manual
HQ	Headquarters
IBCT	Infantry Brigade Combat Team
I/SBCT	Infantry and Stryker Brigade Combat Team
IPB	Intelligence Preparation of the Battlefield
MA	Mission Analysis
MCTP	Mission Command Training Program
MDMP	Military Decision Making Process
SBCT	Stryker Brigade Combat Team
U.S.	United States

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CHAPTER 1

INTRODUCTION

> The most important function of wargames is to convey a vicarious understanding of some of the strategic and tactical dynamics associated with real military operations. Besides learning about the force, space, and time relationships in the specific battle or campaign being simulated, players soon acquire an intuitive feel for more generic interactive dynamics associated with warfare as a whole.
>
> —Philip Sabin, *Simulating War, Studying Conflict through Simulation Games*

Overview

The purpose of the *Battle of Leipzig* game design notes is to make the design aspects and aesthetics to the game system comprehensible. The *Battle of Leipzig* game design system simulates warfighting functions in a decision-making environment in an effort to facilitate tactical knowledge and skill development through conceptual learning. "The warfighting functions—a group of tasks and systems united by a common purpose that commanders use to accomplish missions and training objectives."[1] Through repetitive positive and negative reinforcement in a simulated design scenario, users develop a conceptual understanding of employing the warfighting functions: mission command, movement and maneuver, intelligence, fires, sustainment, and protection. The

[1] Headquarters, Department of the Army (HQDA), Army Doctrine Reference Publication (ADRP) 1-02, *Terms and Military Symbols* (Washington, DC: Government Printing Office, 2015), 1-91.

design system creates cognitive stimuli to enhance the information learning process.[2] The simulated model of the game design is Emperor Napoleon Bonaparte's Battle of Leipzig. The simulation scenario represents a dynamic model of a real situation and the "mimic process" of employing warfighting functions to stimulate cognitive recognition to improve the conceptualization of the battlefield.[3]

Terms

A few uncommon terms are frequently used in this paper. The term "mechanic" is used to describe a singular simulation technique. For example, a mechanic is a design to simulate artillery fire in the game system. The game system is the combination of multiple mechanics and their interaction between each other. The game model is the simulation of the scenario. For this paper, the game model is the Battle of Leipzig. Zone of control is used to describe the area that a game piece or pieces manage within the model.

The last two military terms are "close" and "deep fight." A close fight describes the immediate engagement between two opposing forces. The deep fight refers to the area beyond the initial engagement area.

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[2] Willie C. Kriz, "Creating Effective Learning Environments and Learning Organizations through Gaming Simulation Design," *Simulation & Gaming* 34, no. 4 (2003): 505.

[3] Ibid., 496.

Problem Statement

The challenge for the *Battle of Leipzig* is developing a game design that can potentially facilitate warfighting training to army tactical staffs through conceptual learning. “Fifteen years of continuous counterinsurgency operations combined with recent reduced and unpredictable budgets has created a gap in our proficiency to conduct combined arms operations against enemy conventional or hybrid forces, resulting in an Army today that is less than ready to fight and win against emerging threats.”[4] While the U.S. Army fought against insurgent forces for over a decade, adversaries have studied U.S. capabilities and vulnerabilities. In response, the U.S. Army has made a concerted effort to transition its training to a near-peer fight. In February 2018, Lieutenant General Michael Lundy, commanding general of the Combined Arms Center (CAC), said, “we made some of this shift and transition in looking at large scale combat operations at the combat training centers over the last couple years.”[5] Mission Command Training Program (MCTP) is a subordinate organization to CAC and is considered the Army’s capstone military training program. MCTP conducts five multi-echelon advance digital warfighter training simulations each year. The warfighter consists of two to three divisions in a digital simulated tactical fight with a near-peer adversary.

[4] U.S. Congress, House, Department of Defense Appropriations Bill, 2017, H. 114, 114th Cong., 2d sess. *Congressional Record* 98, no. 532, daily ed., 2 May 2016.

[5] Bill Ackerly, “CAC Commander Discusses Large-Scale Combat Operations at Army Leader Exchange,” TRADOC Newscenter, 6 February 2018, accessed May 7, 2018, http://tradocnews.org/cac-commander-discusses-large-scale-combat-operations-at-army-leader-exchange/.

Each year, MCTP develops a *Fiscal Year (FY) Key Observations* publication through the Center for Army Lessons Learned. Through recent warfighters, MCTP identified common salient points acquired through the observation and analysis of multi-echelon units during simulated decisive engagements. The publication raises valid concerns with common warfighting challenges to tactical staffs in a near-peer fight.

Assumptions

The MCTP Fiscal Year 2016 *Key Observations* report identifies fifty-one warfighting challenges within the six warfighting functions. It was assumed a game system to facilitate the training of all reported challenges would be unmanageable. In the end, the game design system only simulated a quarter of the stated deficiencies.

Limitations and Delimitations

Analog wargames provide unique limitations. The *Battle of Leipzig* is limited by the number of players that can to play during a session. The game system needs four players, but a digital system can provide artificial opponents or network to multiple players. The intricacies of the rules have to be simplified in an analog system. If the rules are too complicated, it is difficult for players to understand the game system. The *Battle of Leipzig* provides less rigid rules in order to facilitate decision-making during play.

The game system sacrificed accuracy for simplicity. The focus of the game system is on tactical ground combat. It strips away air, maritime, and cyber capabilities from modern warfare. Modern conflicts provide too many complexities, so it was scaled to a simpler form of combat to focus on warfighting skills.

The warfighting function of sustainment was problematic to simulate. A sustainment mechanic could be integrated, but the simulation is so complex it would detract from game play and overshadow the other five warfighting functions.

Lastly, using a historical battle limits the game to the framework of historical context. The model effectively establishes the start state conditions and selected aspects of the real conflict to influence players' decisions to align with actual historical engagements. Significant deviations from historic contexts were implemented in order to facilitate dynamic decision-making instead of maintaining a linear narrative.

Summary

The goal of the *Battle of Leipzig* was to create a game design that develops particular conceptual tactical warfighting skills. The game design improves an individual's cognitive ability to deliberately implement and synchronize the warfighting functions to achieve their military objective. Research into the historical scenario and effective game mechanics led to a realistic decision-making tactical environment with multiple conflict dynamics.

CHAPTER 2

REVIEW OF LITERATURE

> Military simulation games are made up of . . . fundamental components. The first is an underlying mathematical model of reality, which seeks to simulate the terrain of the battle area, the deployment and capabilities of the military forces, and the passage of time during the engagement, thereby providing a synthetic experimental environment that mirrors in certain key respects the real range of potential courses and outcomes associated with the armed conflict.
>
> —Philip Sabin, *Simulating War Studying Conflict through Simulation Games*

Overview

Developing a wargame system is not as simple as creating units that fight on a map board. A great deal of research was needed to develop a design system that simulates warfighting functions to facilitate conceptual learning. This game design research focused on the purpose of the design, historical information for the model and dynamics, and simulation references to develop multiple mechanics for the game system.

Purpose

Researching the purpose focused on the data and analysis conducted by the MCTP during warfighters in FY 2015 and 2016. After each FY, MCTP identifies and analyzes common tactical warfighting deficiencies performed by units. This data is captured into an annual publication of observations. The game design used the data and analysis from the *Key Observations* publications to form the basis of the purpose of the game design system.

MCTP *Key Observations* were used to develop a better understanding of common challenges across the force. There are approximately a hundred stated challenges between the two publications, and not all challenges were simulated into the game system. Common themes and critical challenges were primarily utilized for the game system.

The key observations recognized by MCTP during the warfighting exercises are categorized by the six warfighting functions.

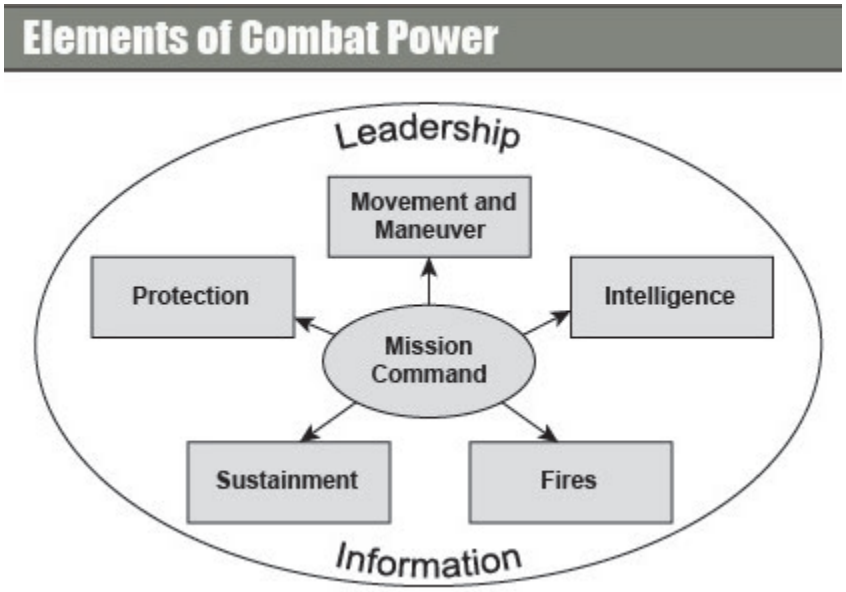

Figure 1. Warfighting Functions as Elements of Combat Power

Source: Headquarters, Department of the Army, Army Doctrine Reference Publication 3-0, *Unified Land Operations* (Washington, DC: Government Printing Office, 2012), 3-1.

Mission Command

Two mission command deficiencies were recognized during the warfighters and applied to the game system. First,

> units fail to identify appropriate decisions points (DPs) as starting points for commander's critical information requirements (CCIR) and collection planning. When staffs develop Course of Actions (COAs), identification of DPs is a specified task which allows for the focus of collection and shaping efforts to understand conditions in anticipation of a decision point. CCIR should support commanders' decision making.[6]

Army leaders need to anticipate decision points and establish indicators to recognize the need for a decision point to be acted upon. "Flexible plans help units adapt quickly to changing circumstances. Commanders and planners build opportunities for initiative into plans by anticipating events. . . . Identifying decision points and designing branches ahead of time—combined with a clear commander's intent—help create flexible plans."[7]

The game design permits players with ample time to make an initial assessment of the multiple adversarial COAs. From their analysis, they can list key information requirements needed to make a predictive analysis. To achieve the ability to simulate decision points, the model creates concealment of units. Players are unaware of their opponents' posturing, capabilities, and COAs. Additional capabilities will be provided in the simulation to allow for development of their adversaries' intentions. Once an adversary's intention is understood, players have the ability to leverage flexibility to modify their plans based upon their decision points.

The second critical deficiency is "units often task organize resources and capabilities to subordinates, which degrades their ability to conduct . . . operations in support of offensive and defensive activities. Units struggle with assigning sufficient

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[6] U.S. Army, Mission Command Training Program (MCTP), *FY 15 Mission Command Training in Unified Land Operations Key Observations* (Fort Leavenworth, KS: Center for Army Lessons Learned, 4 April 2016), 8.

[7] HQDA, ADRP 5-0, 2-23.

resources to accomplish the tasks, particularly deep and security operations in the support areas."[8] Leaders need to distinguish each unit's assigned task and enable them with the appropriate capabilities.

The game design system permits the decision-makers to task organize their limited capabilities in order to achieve different mission sets. Players are provided a variety of capabilities, but they are limited. Providing players with scarce capabilities encourages task organizing their capabilities at critical moments to achieve successful results.

Intelligence

The critical deficiency with intelligence is that many units do not appropriately define the battlefield. There is "insufficient effort or collaboration during intelligence preparation of the battlefield (IPB) and mission analysis (MA)."[9] Units tend to rely solely on the intelligence officers to define the battlefield, creating a less efficient product for predictive analysis. While staffs may create the initial IPB, their "failure to update intelligence during execution often fails to identify threats or opportunities that will impact operations[,] . . . specifically they fail to identify significant changes to the IPB that may impact planning."[10] The initial IPB and MA will have multiple intelligence gaps. Units must continually collect information to refine their initial IPB and define the

[8] U.S. Army, Mission Command Training Program (MCTP), *FY 16 Mission Command Training in Unified Land Operations Key Observations* (Fort Leavenworth, KS; Center for Amy Lessons Learned, February 2017), 2.

[9] MCTP, *FY 15 Mission Command,* 33.

[10] MCTP, *FY 16 Mission Command*, 16.

enemy in order to develop a predictive analysis. “Intelligence supports the commander’s tasks with IPB products to identify probable threat objectives and various approaches; patterns of threat operations; the threat’s vulnerability to counterattack.”[11] As stated in mission command, the game model will have an element of concealment. Players will conduct an initial analysis of their adversaries. Players are provided simulated intelligence capabilities that will help them define their adversary’s posture and intent.

During operations, units are challenged by balancing critical collection assets to define the enemy in close and deep areas. “Corps and divisions often neglect to use maneuver assets to conduct reconnaissance and security operations.”[12] Units tend to allocate collection assets that can define deep operations to a close area. The game system limits the capability for long-range collection assets. The players must prioritize their collection needs in order to maintain the ability to define the enemy and contribute to predictive analysis.

Movement Maneuver

Leaders are challenged by coordinating maneuver units with different capabilities to conduct combined arms attacks.

> The disparity of off-road mobility between tracked and wheeled vehicles; . . . the range disparity of associated weapon systems compared to the capabilities of a mechanized. These factors do not negate the utility of the infantry and stryker brigade combat teams (I/SBCT) in the attack, but adequately

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

[12] MCTP, *FY 15 Mission Command*, 24.

> accounting for their differences during planning will allow units to properly enable I/SBCT attacks with and against armored units.[13]

The game design system challenges players to account for the different capabilities of their maneuver units. Synchronizing their efforts may be challenging, but appropriately planning the synchronizations of these capabilities will achieve a positive outcome.

One of the most difficult maneuver challenges is a coordinated wet gap crossing. "Orchestrating a deliberate wet gap crossing requires a complex breakdown of terrain and responsibilities and must integrate and synchronize all warfighting functions, multiple BCTs, division and corps enablers and sometimes joint operations."[14] The game design provides simulated bridge crossing capability and the terrain compels a deliberate crossing. Players will not be able to just choose a point along a river to cross, but they must realize their vulnerabilities and their adversaries' strengths to develop a plan for a complex river crossing. The game design is limited in its inability to simulate the complex command structure and air support during a wet-gap crossing.

Fires

Units are deficient in shaping the battlefield with fires. Ineffective targeting processes and inability to appropriately disseminate fires capabilities have led to inadequate shaping operations.

> Without a consistent targeting effort tied . . . division joint fires coordination often becomes de-synchronized from the higher headquarters' own joint fires shaping efforts; the division is then unable to transition efforts to its

[13] MCTP, *FY 15 Mission Command*, 23.

[14] Ibid., 28.

> brigade combat teams (BCTs). The result is often a consistently reactive joint fires execution focused more on enabling the BCTs' immediate fight.[15]

The game design system permits players to prioritize their targets and plan their fires to their scheme of maneuver. "Fires planning and coordination is central to the effectiveness of fires. It requires continually coordinating plans and managing the fires assets that are available to a supported force."[16] Simulation fires must support maneuver units in the close fight and players must use their limited long-range capability to shape the deep fight. A critical factor will be planning fires with limited assets to ensure they support the ground combat. The targeting cycle has to be integrated into the simulation by permitting the synchronization of intelligence collection assets with fires capabilities to achieve favorable shaping of the battlefield.

Protection

Protection are "tasks and systems that preserve the force, so the commander can apply maximum combat power to accomplish the mission."[17]

> Consistent failure of units to integrate protection function tasks into the military decision making process (MDMP) adversely affects current and future operations. Synchronizes protection within the elements of combat power. Units struggle to incorporate these responsibilities into the planning process, resulting in an incomplete understanding of threats, hazards, and mission requirements for the commander.[18]

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[15] MCTP, *FY 15 Mission Command*, 38.

[16] Headquarters, Department of the Army (HQDA), Army Doctrine Reference Publication (ADRP) 3-09, *Fires* (Washington, DC: Government Printing Office, 2015), 3-5.

[17] HQDA, ADRP 1-02, 1-69.

[18] MCTP, *FY 16 Mission Command Training*, 39.

"The preservation of combat power often requires . . . critical skills and capabilities. All mission-capable personnel contribute to combat power in operations, but certain skills and capabilities can turn the tide of a battle or an engagement . . . ."[19] The game design system must permit the decision-maker to task their units to appropriately protect their critical assets, flanks, and rear area. A player assumes risk by not assigning protection tasks to their units. In the game system, each army is given critical capabilities, and if destroyed, it will have a significant negative impact. Players must make a deliberate decision to protect their critical capabilities in order to preserve combat power.

Sustainment

Leaders become so focused on the close fight that they do not appropriately task security of the division support area (DSA). "Units fail to delineate roles and responsibilities for integrating and executing security and protection within the DSA."[20] In the game design, the logistical base is a critical capability with limited defense. It is significant that players appropriately posture the logistical base in a secure environment. "Hostile actions and environmental conditions can disrupt the flow of logistics and significantly degrade forces' ability to conduct and sustain operations."

The primary delimitation of the game design is inability to simulate sustainment operations. MCTP recognized the inability for units to appropriately forecast sustainment, which led to degraded operations. The complexity of the sustainment simulation

[19] Headquarters, Department of the Army (HQDA), Army Doctrine Reference Publication 3-37, *Protection* (Washington, DC: Government Printing Office, 2012), 4-2.

[20] MCTP, *FY 15 Mission Command*, 47.

detracted from other warfighting functions. To create simplicity in the game system, sustainment was assumed to be automatic as long as the logistical support line remained unobstructed.

Conclusion

MCTP *Key Observations* report provided data and analysis on current deficiency gaps during a near-peer fight. These critical warfighting challenges had to be designed into mechanics that mimic their realistic functions. Once a set of simulation mechanics were decided upon, they were assimilated into a game model that represented the Battle of Leipzig.

The History

The next step of research was choosing a historical framework to assimilate the game mechanics. The game system required a historical battle that isolated the warfighting functions to ground combat. A post-World War I battle offered too many complexities of a modern day operational environment. The first two chosen historical scenarios were the Battle of Cannae and the Battle of Waterloo. The Battle of Cannae provided a near-peer fight but was too limited in military capabilities to simulate all warfighting functions. The Battle of Waterloo provided needed aspects to simulate a near-peer fight with all warfighting functions, but there are over twenty tactical wargames on the Battle of Waterloo, providing little uniqueness to the game model. Staying within the Napoleonic era, the chosen historical context was the Battle of Leipzig in October 1813. It provided all the capabilities and operational variables for the game system.

Prelude

The Battle of Leipzig was the framework for the game design. It provided a near-peer battle that features all of the warfighting functions in a simplified ground warfare framework. The history focused on the Battle of Leipzig from 16 through 19 October 1813, when half a million soldiers from European states engaged in the largest Battle of the Napoleonic era.

In 1812, Emperor Napoleon was at the height of his power in Europe. He ruled over mainland Europe and only Britain challenged his rule.[21]

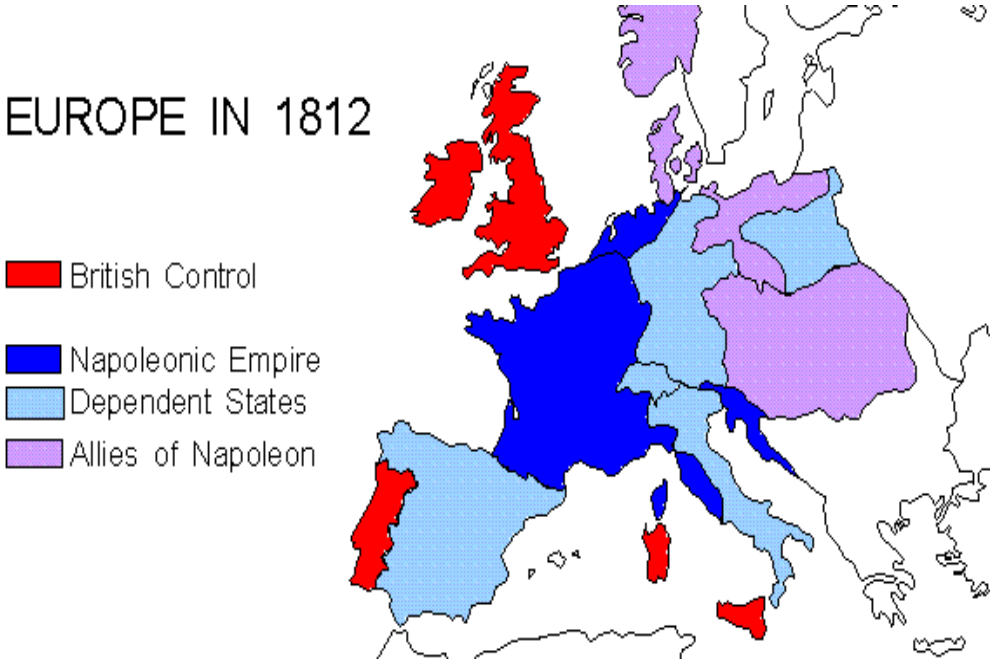

Figure 2. Napoleon's European Empire, 1812

Source: History of War, "Napoleonic Wars: Europe in 1812," accessed 24 April 2018, http://www.historyofwar.org/Maps/maps_napoleonic.html.

[21] Charles River, *The Battle of Leipzig, The History and Legacy of the Biggest Battle of the Napoleonic Wars* (Lexington, KY: Charles Rivers Editors, 2011), 1-2.

Britain had destroyed the French maritime fleet, and France did not possess the capability to invade them. Napoleon's plan was to economically hurt England through an embargo. In 1810, Tsar Alexander of Russia publicly broke the embargo and trade with Britain.[22]

In June of 1812, Napoleon took the largest army in European history into Russia. Napoleon's Grande Armèe consisted of four hundred thousand soldiers and fifty thousand horses. Poor logistical lines[23], extreme weather conditions and disease made Napoleon's Russian campaign a disaster.[24] "The destruction of Napoleon's Grande Armèe of 1812 in Russia, which had been until then the largest force of arms ever assembled, was a blow that would have finished most mortals. For Napoleon it proved merely a temporary set-back."[25]

Appreciating a moment of weakness from Napoleon, Prussia and Russia went on the offensive and formed the Sixth Coalition. The Coalition became an alliance between Russia, Austria, Prussia, Sweden, and Britain against the French Empire.

French Empire

Napoleon came to power through his military competency and feared a subordinate would take the same path to overthrow him. The French promotion system

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[22] George Blond, *La Grande Armee* (London: Arms and Armour, 1997), 298.

[23] Ibid., 299.

[24] Ibid., 347-378.

[25] Peter Hofschröer, *Campaign Series: Leipzig 1813* (Westport, CT: Praeger Illustrated Military History Series, 2005), 6.

was more dependent on loyalty over merit, and it had a significant impact on the 1813 campaign. "Napoleon's great advantage over the allies, at periods when he began to find himself with inferior numbers, consisted in the absolute unity of his command. The final decision always rested with him alone. The disadvantage of his system is depriving him of men trained to semi-independent command."[26]

The leadership dynamics of Napoleon and his generals was a common theme in Digby Smith's book, *1813 Leipzig, Napoleon and the Battle of the Nations.* The dynamic was modeled into the simulation by giving Napoleon greater influence over his forces. The Napoleon playing piece becomes the ultimate force multiplier, and a player would be hard pressed not to use him in their main effort. In contrast, his generals are overmatched by the Coalition commanders. The mechanic creates significant player decisions on how they should appropriately exercise their mission command.

To fill the rank of the troops, Napoleon recruited seventy-five thousand conscripts to active service. He stripped the French Navy to replenish his artillery regiments. He recruited German, Polish, Italian, and Bavarian units to the new Grande Armèe.[27] In a few months, Napoleon was able to field an army of approximately 450,000 soldiers.[28] "Its chief advantage was its size, which was out of all proportions to what the Allies

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[26] Albert A. Nofi, *NAPOLEON AT WAR: Selected Writings of F. Loraine Petre* (New York: Hippocrene Books Inc.), 119.

[27] Digby Smith, *1813 Leipzig, Napoleon and the Battle of the Nations* (London: Greenhill Books, 2001), 28-32.

[28] Hofschröer, *Campaign Series: Leipzig 1813,* 11.

anticipated. Its chief disadvantages were its fragility, lack of cavalry, and overall lack of endurance."[29]

The French Army was immense in size, but the foreign forces were not loyal to the emperor of France. Prior to the Battle of Leipzig, twenty-five thousand Bavarian soldiers switched sides to the allies. On the battlefield at Leipzig, thousands of Saxon soldiers shifted allegiance to the Coalition.[30] The bulk of the training for the new Grande Armèe was conducted on the march as they headed east.[31] It was a fragile army that did not have the same cohesion as Napoleon's battle-tested army that he took into Russia.

In the game model the French Army has equivalent capabilities to the Coalition forces. The Battle of Leipzig was chosen as the historical framework for the game design because it provides two forces that were near-peer competitors. The game model reflects the lack of French cavalry and the shifting allegiance of the Saxon soldiers. Peter Hofschröer's book, *Leipzig 1813: The Battle of Nations,* provided the order of battle of the French forces at Leipzig.[32] The order of battle was captured for the game system and modified into block game units.

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[29] John T. Kuehn, *Napoleonic Warfare: The Operational Art of the Great Campaigns* (Santa Barbara, CA: Praeger, 2015), 179.

[30] Hofschröer, *Campaign Series: Leipzig 1813,* 11.

[31] Nofi, *Napoleon at War, Selected Writings of F. Loraine Petr,* 106-107.

[32] Hofschröer, *Campaign Series: Leipzig 1813,* 28-30.

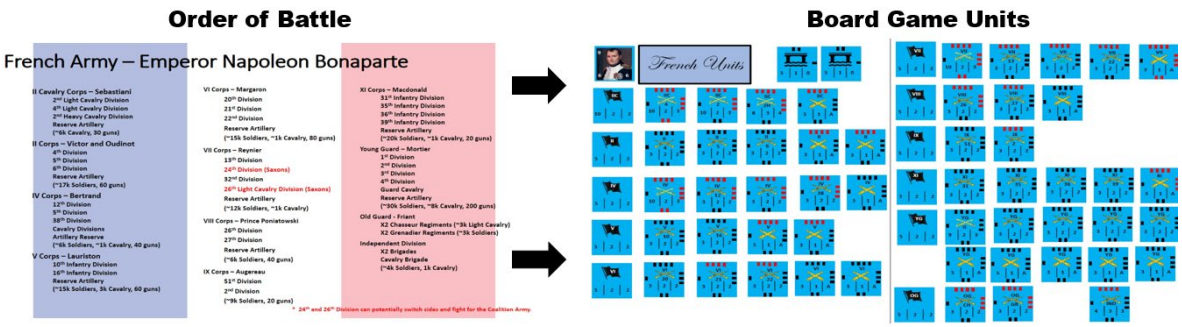

Figure 3. French Order of Battle

Source: Created by author.

Sixth Coalition

The Supreme Commander of the Coalition forces, Tsar Alexander, was a very intelligent, competent tactician that consistently superseded his field commanders. Russia lost a couple hundred thousand soldiers during the Russian campaign of 1812. They could only field an army of 170,000 soldiers with the majority of their forces going to an eastern blockade. The majority of Russian officers were uneducated, but they were augmented with competent German officers. [33]

The Prussians were embarrassed by Napoleon's 1806 victory and implemented immediate military reforms. They purged the old military thinking and replaced it with modern training. The King of Prussia, Frederick William II, established a new form of German nationalism. Napoleon's sanctions on Prussia prevented the nation from having a large active force. To circumvent it, they rotated reserve forces in order to ensure the appropriate training was achieved. An effective training system with a new sense of

[33] Smith, *1813 Leipzig, Napoleon and the Battle of the Nations,* 38-39.

nationalism allowed them to build an army of 161,000 soldiers.[34] Prussia was fighting for survival, and its existence depended upon the defeat of Napoleon. This attitude was reflected in their leadership and aggressive fighting.

Sweden feared the defeat of Napoleon would lead to a power vacuum in Europe. They wanted expansion and a seat at the negotiation table.[35] The Swedish Army could only field twenty-four thousand soldiers. [36] The new crown prince would provide great insight into Napoleonic warfare. Prince Charles, who was born as Jean Bernadotte, was a former French marshal to Napoleon. Bernadotte was an effective military leader and was elected as the heir to Sweden. Napoleon did not oppose Bernadotte's rise to power but requested that he not take arms against him. Bernadotte refused and eventually became commander of the Army of the North.[37]

The Austrians were ruled by Emperor Francis II. Austrians suffered multiple losses to Napoleon but negotiated a treaty between the two kingdoms. Austria had much to risk by joining the allies, so they hesitated until they perceived ensured victory.[38] "The Austrians lacked the enthusiasm of the Prussians and the determination of the Russians, which is understandable given that it was not until shortly before commencement of

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[34] Smith, *1813 Leipzig, Napoleon and the Battle of the Nations,* 35-37.

[35] Kuehn, *Napoleonic Warfare: The Operational Art of the Great Campaigns,* 189.

[36] Hofschröer, *Campaign Series: Leipzig 1813,* 23-26.

[37] River, *The Battle of Leipzig, The History and Legacy of the Biggest Battle of the Napoleonic Wars,* 9-10.

[38] Smith, *1813 Leipzig, Napoleon and the Battle of the Nations,* 32-34.

hostilities that they knew on whose side they were going to fight."[39] The Austrians were able to field a poorly trained army of 194,000 soldiers.[40]

Hofschröer's book provided the order of battle of the Coalition forces at Leipzig.[41] The order of battle was captured for the game system and modified into block game units. The game design also captures the motivations of each nation by developing additional game mechanisms to influence a player's decision-making.

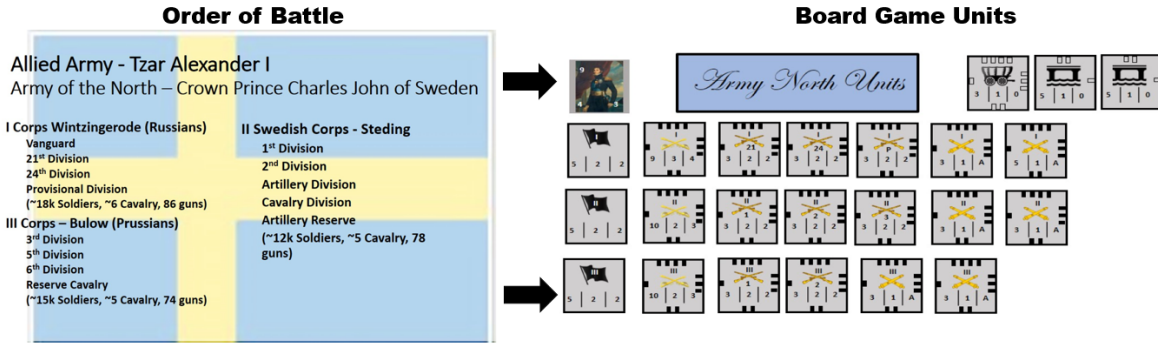

Figure 4. Army of the North Order of Battle

Source: Created by author.

The Plans

John T. Kuehn's *Napoleon Warfare: The Operational Art of the Great Campaign* and Albert Nofi's *Napoleon at War: Selected Writings of F. Loraine Petre* added great

[39] Hofschröer, *Campaign Series: Leipzig 1813,* 22.

[40] Ibid., 21.

[41] Ibid., 32-36.

depth of the framework of the game design with a comprehensive insight of the tactical, operational, and strategic decision-making process of Napoleon and the allied commanders. The contribution was understanding the complexity of the decision-making process and the struggle between the multiple, challenging decisions they were presented. The same decision-making intricacies were integrated into the game design system in order to expose players to the same rigorous choices.

The allies' plan called for three massive armies. The Army of Bohemia led by the Austrian Prince Schwarzenberg. In the east, the Army of Silesia was commanded by Prussian Field Marshal Gebbard Leberecht von Blücher. The Army of the North was led by Prince Charles.[42] This complex multination command relationship, with Prince Schwarzenberg as their commanding officer, was complicated by the presence of the Tsar, and the Austrian Emperor and King of Prussia in the headquarters.[43]

Besides maneuvering, the allied forces needed a strategy in order to gain favorable conditions. The Trachenberg-Reichenbach Plan dictated:

> in order to create an opportunity, the French army must be weakened by marches and minor actions. This can be facilitated by assembling our armies in three masses . . . but will only succeed if we adhere to the iron law that the army which is being attacked by Napoleon withdraws, and the other two armies quickly assault him in the flank and rear thus drawing him away from the first[44]

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[42] Kuehn, *Napoleonic Warfare, The Operational Art of the Great Campaigns,* 187-193.

[43] River, *The Battle of Leipzig, The History and Legacy of the Biggest Battle of the Napoleonic Wars,* 23.

[44] Smith, *1813 Leipzig, Napoleon and the Battle of the Nations,* 15.

The game design permits the same type of strategic meeting to be conducted by the Coalition players prior to the start of the game. This meeting allows the players to analyze current conditions and develop a military plan prior to the first turn. Players are influenced to maintain a similar type of strategy because they realize the Napoleon playing piece is formidable.

Napoleon's strategy was to fix two of the armies and decisively engage the other. He believed a defeat of the Army of Bohemia would destroy the alliance but feared the Army of Silesia would be the aggressive force. He perceived the Army of the North and Bohemia as being passive and could be fixed with minimal engagement.[45] In the game design, the French forces do not have the combat strength to decisively engage two of the Coalition armies simultaneously. The French player must decide on a similar strategy but has to choose which Coalition force to decisively engage.

The Road to Leipzig

In Spring 1813, Napoleon did not perceive the Army of Bohemia as a threat. He tasked Marshal Nicolas Oudinot to block Prince Charles' army in the north, while Napoleon led the Army of Bober to decisively engage the Army of Silesia.[46] Blücher, following the Trachenberg-Reichenbach Plan, withdrew and the Army of Bohemia advanced to threaten Dresden.[47] Marshal Macdonald took over the command of the Army

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[45] Smith, *1813 Leipzig, Napoleon and the Battle of the Nations,* 61-63.

[46] Hofschröer, *Leipzig 1813 The Battle of Nations,* 39-41.

[47] Kuehn, *Napoleonic Warfare, The Operational Art of the Great Campaigns,* 196.

of Bober, and Napoleon went south to attack the Army of Bohemia. In Dresden, Napoleon's tactical genius was on full display. He decisively defeated the Army of Bohemia in a few days. Once Prince Schwarzenberg realized he was fighting Napoleon, he withdrew his forces.[48] The Trachenberg plan did not permit Napoleon to decisively engage one of three Coalition armies. While Napoleon's attention was focused on disengaged armies, his generals were being overwhelmed by advancing Coalition forces.

With Napoleon in the south, the Army of Silesia advanced to the Katzbach. The Army of Bober, with raw recruits, was ordered to block the Army of Silesia to the east, but Marshal Macdonald decided to attack. With the river at his army's rear and his forces being canalized, the Army of Bober lost thirty thousand soldiers.[49] In response, Napoleon rushed back north to engage Blücher and the Army of Silesia. In response, Blücher withdrew to the east, and Napoleon realized the strategy of the allies.

In the south, the French forces, now under the command of Marshal Dominque Vandamme, were in pursuit of the Army of Bohemia. The Army of Bohemia established a defense in a canalizing valley, so a much smaller force was able to fix the French forces, while a flanking force attacked Vandamme's rear units. The French lost approximately fifteen thousand soldiers and the Army of Bohemia transitioned back to the offense.[50]

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[48] Hofschröer, *Leipzig 1813 The Battle of Nations,* 41-49.

[49] Ibid., 51-54.

[50] Blond, *La Grande Armée,* 407.

Napoleon advanced back to the south to protect Dresden. With Napoleon to the south, the Army of Silesia and the Army of North crossed the Elbe River. On 3 October, the Army of Silesia established pontoon bridges and fought their way across the river, taking heavy losses, but in position to attack Napoleon's logistical lines.[51] Napoleon, realizing the strategy of the allied forces, consolidated his forces at Leipzig.

Leipzig provided Napoleon with unique terrain features. The multiple rivers around the city of Leipzig separated and isolated the attacking allied armies. The terrain for the game model provides similar complexities. The illustration map for the game model was derived from multiple sources, with the primary objective of capturing the critical terrain features. Once completed, it was transferred into a hexagonal grid map board and refined to remove ambiguity. The uniqueness of the terrain limits the Coalition armies' maneuverability and forces the players to rely on their pontoon units to converge onto Leipzig.

Battle of Leipzig

At Leipzig, Napoleon's forces consisted of approximately 190,000 soldiers and 690 artillery guns compared to the allies' 280,000 soldiers and 1,300 artillery guns.[52] In addition, the allies had a significant advantage in cavalry, logistics, and reinforcements. The allies had the combat power, but they were on the offense, and Napoleon was in a defense with terrain that was conducive to his plan.

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[51] Hofschröer, *Leipzig 1813 The Battle of Nations,* 61-62.

[52] Ibid., 71.

On 16 October 1813 the Army of Bohemia attacked Leipzig from the south and the Army of Silesia from the northwest. Schwarzenberg was the overall commander of the allied attack but was unable to effectively communicate with Blücher.[53] In response, Napoleon used a small force commanded by Marmont to protect the northern flank while Napoleon led a larger force in the south. Napoleon's plan was to penetrate the Army of Bohemia's line and threaten their communications with his Young Guard. Tsar Alexander, viewing the battle from a hill in the south, spotted Napoleon's main effort and ordered cavalry reserves to block the penetration. [54]

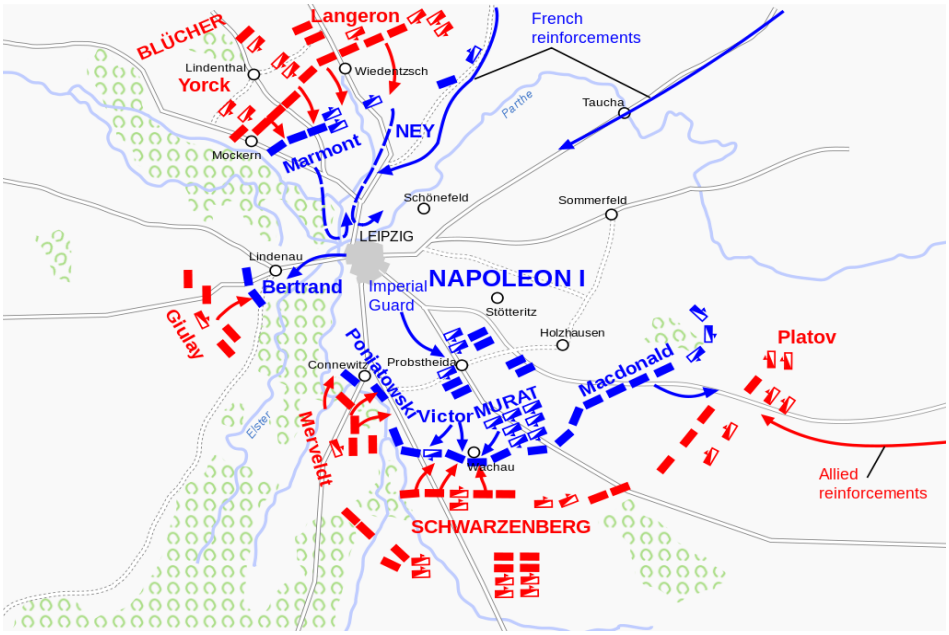

Figure 5. Battle of Leipzig, 16 October 1813

Source: Wikipedia, "Battle of Leipzig," accessed 24 June 2018, https://en.wikipedia.org/wiki/Battle_of_Leipzig.

[53] River, *The Battle of Leipzig, The History and Legacy of the Biggest Battle of the Napoleonic Wars,* 36-41.

[54] Smith, *1813 Leipzig, Napoleon and the Battle of the Nations,* 68-72.

The fight to the south was very bloody, with both sides receiving immense casualties. Napoleon believed he needed one last push to penetrate the southern lines, so he ordered reinforcements be sent from the north. Marmont was being threatened by Blücher and was incapable to send forces south.[55] By the end of day, both forces had significant losses, but the allies received vast reinforcements with the arrival of the Army of the North that evening. [56]

The game design map creates start state zones of control for each of the Coalition armies. The start states will influence the players to take similar historical movements. Historically the Army of the North arrived in the afternoon of 16 October, but the game system allows for the Army of the North to start maneuvering that morning. In the model, the Army of North is the last player to conduct movement and is influenced to be less aggressive.

By 17 October 1813, Napoleon realized he no longer had the initiative and requested an armistice with the allies. The allies refused and positioned themselves for the final attack.[57] By 18 October, the allies had the city of Leipzig surrounded with the Army of Silesia in the northwest, the Army of Bohemia in the south, and the Army of the North in the northeast. They conducted assaults on all sides. Napoleon maintained his

[55] Hofschröer, *Leipzig 1813 The Battle of Nations,* 74.

[56] Smith, *1813 Leipzig, Napoleon and the Battle of the Nations,* 160-162.

[57] Blond, *La Grande Armée,* 408-409.

defense, but the casualties on both sides were high, and the French forces were slowly pushed back.[58]

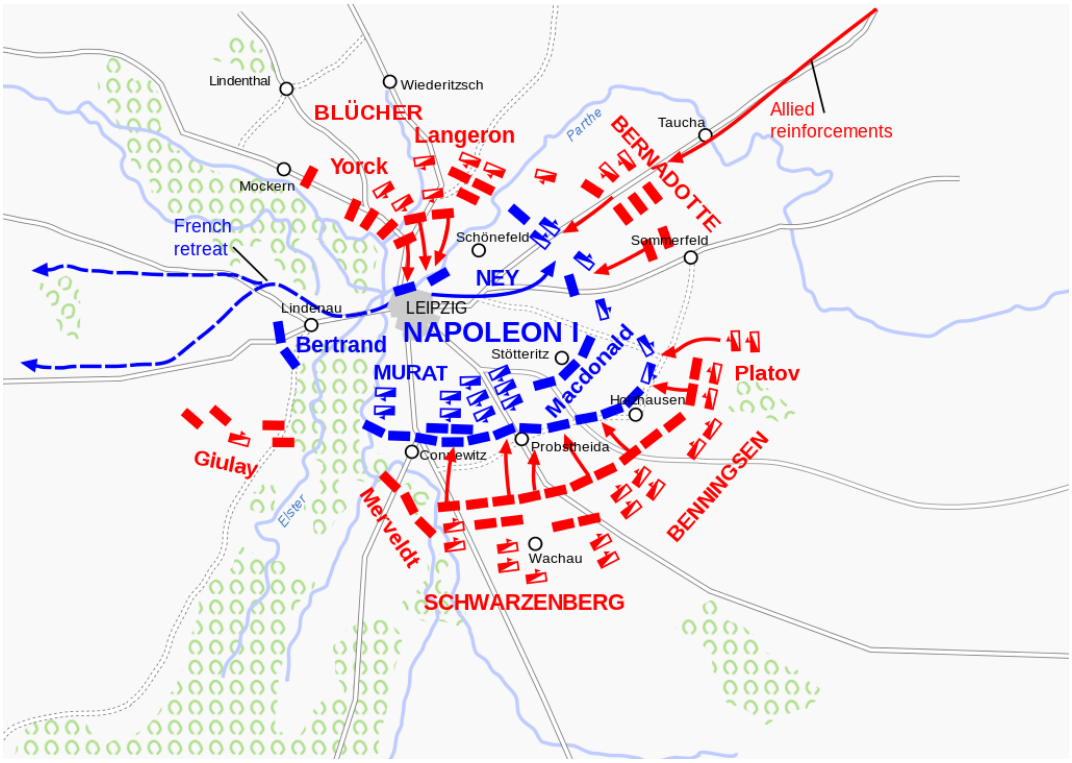

Figure 6. Battle of Leipzig, 18 October 1813

Source: Wikipedia.com, "Battle of Leipzig," accessed 24 June 2018, https://en.wikipedia.org/wiki/Battle_of_Leipzig.

The evening of 18 October, Napoleon promoted Poniatowski to marshal, and tasked him with guarding the retreat. In the middle of the night, the French initiated their retreat across the Elster River. It was not until the early morning of 19 October that the allies realized the French retreated. The allies made a massive assault against the French

[58] Smith, *1813 Leipzig, Napoleon and the Battle of the Nations,* 182-183.

guard. Due to lack of leadership and poor communication, the French prematurely destroyed the Elster bridge, trapping fifty-seven thousand French soldiers on the wrong side of the river.[59] The French guard collapsed, and many French soldiers drowned attempting to swim the river, to include Poniatowski.

By the conclusion of Leipzig, Napoleon escaped, but lost over seventy thousand soldiers. The allies lost a total of fifty-two thousand soldiers, but for the first time, Napoleon was decisively defeated.[60]

Napoleon's retreat and the destruction of the bridge are built into the game design. The actual outcome of the game is not linear to the historical storyline. The start state of the forces and their initial posture is historically accurate, but the game system is meant to be a decision-making environment, and those decisions will lead to different conclusions. Overall, the framework simplified the training objectives of the game system, while providing a permissive decision-making environment.

Simulations

The game design research assisted in the development of multiple simulation mechanisms that were eventually merged to form the entire game design system. The challenge simulated the historical framework of the Battle of Leipzig, and continually introduces new warfighter mechanics into the game system. The goal was to introduce

[59] River, *The Battle of Leipzig, The History and Legacy of the Biggest Battle of the Napoleonic Wars,* 43.

[60] Smith, *1813 Leipzig, Napoleon and the Battle of the Nations,* 297-300.

new mechanics without making the system too complex, providing a less rigid structure in order to elicit planning, decision making, and predictability.[61]

Peter Perla's book, *The Art of War Gaming*, he discusses a wargame model that used the initial outline to develop the game system. The model provides four main categories: introduction, game system, game in play, and overall evaluation.[62] This model was used through the introductory build of the game system. The introduction phase assisted in the focus of the game and developing the initial system. The second phase of developing the game system became extremely complex. Perla's model was not sufficient to create new mechanisms to be introduced into the initial game system.

Philip Sabin's book, *Simulating War Studying Conflict Through Simulation Games*, provided techniques and examples to build wargame mechanics. Sabin's first principle was to focus on the geographic environment. The initial map for the game system was a point-to-point map, similar to the Richard Sivel's Friedrich game board. The map facilitated an operational level environment, but restricted movement and decision-making for a tactical fight. The map was not conductive to the primary focus of this game design, simulating the warfighting functions. The map was switched from a point-to-point to a hexagonal map. The hexagonal map provided freedom of maneuver to the units and effortlessly integrated new warfighting mechanics.

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[61] Gary Brewer and Martin Shubik, *The War Game* (Cambridge, MA: Harvard University Press, 1979), 329.

[62] Peter P. Perla, *The Art of War Gaming* (Annapolis, MD: Naval Institute Press, 1990), 265.

Sabin's second and third principles are to develop the order of battle with their generic capabilities. This initial model was already developed through Perla's model. Peter Hofschröer's order of battle for the French and Coalition forces was converted into block units with specific capabilities. Initially the block units' lowest echelon was corps, but the new map permitted division and artillery block units.

The final and most significant principle is creating a decision-making environment.[63] This key aspect includes developing mechanics for fog of war, intelligence, and modeling command relationships. The decision-making aspects were introduced into the game system to aid the development of the warfighting mechanics.

The game model and design system provided effective game play, but the system required predictability. "A key difference between wargames and chess is, of course, the presence of a random element alongside the variation produced by player decisions."[64] The initial combat result system was based on force ratios and a dice format. Force ratios were calculated, and a set of dice were presented to represent the force ratio. During the test trials, it was observed that in too many instances, the smaller force achieved victory due to random outcomes of the dice results. A combat results table was introduced into the game to provide predictable outcomes. Gary Brewer and Martin Shubik's book, *The War Game*, and Philip Sabin provided complex mathematical equations for combat predictability. These mathematical systems are too complex, but provide principles to

[63] Philip Sabin, *Simulating War: Studying Conflict through Simulation Games* (London: Bloomsbury, 2016), 47-58.

[64] Ibid., 269.

boost probabilities. In the end, the combat results table was emulated from Frank Chadwick's *Battle for Moscow* game system.

Die Roll	Odds					
	1:1	2:1	3:1	4:1	5:1	6:1
1	DR	DR	DR	DR	DR	DRL
2	EX	DR	DR	DR	DRL	DRL
3	EX	EX	DR	EX	DRL	DE
4	NE	EX	EX	DRL	DRL	DE
5	NE	NE	EX	DRL	DE	DE
6	AL	NE	DRL	DE	DE	DE

Combat Results Explanations:

AL: 1 attacking unit loses 1 step.
DR: Defender retreats.
DRL: Defender takes one loss and retreats.
DE: Defender eliminated.
NE: No effect.
EX: Exchange. Defender takes one loss and retreats; attacker loses at least the same amount of strength. (If the defender is unable to retreat, the attacker only has to match the first loss.)

Figure 7. Combat Results Table

Source: Frank Chadwick, *The Battle for Moscow* (Hanford, CA: GMT Games, 2009).

The *Battle of Leipzig* game system is still evolving. It currently meets its short-term learning objectives by providing realistic tactical wargame that simulates warfighting functions. In future versions, the game system will introduce new mechanics to simulate sustainment, provide a greater assortment of combat unit and leadership capabilities. The methodology used to develop the current mechanics in the game system can be applied to future game mechanics.

CHAPTER 3

METHODOLOGY

The Army problem-solving process was applied as the methodology to develop and analyze possible solutions to develop the *Battle of Leipzig's* game design system. It offers a simplified framework with a repetitive process. The process allows for the conversion of the MCTP warfighting challenges into mechanics and their continual integration into the game model to test their utility. The Army problem solving process involves the following steps: gather information, identify the problem, develop criteria, generate possible solutions, analyze possible solutions, compare possible solutions, and make and implement the decision.[65]

The initial step was to gather the information for the initial game development. This step was conducted with the research specified in chapter 2. Each new warfighting challenge mechanic introduced into the game system had to be first applied against the research for accurate simulations. Principally, developing a warfighting mechanic that is conducive to the context of the Battle of Leipzig.

The next step was to identify the problem. The MCTP warfighter *FY Key Observations* publications provided the training deficiencies. The problem was not identifying deficiencies, but how to properly simulate the deficiencies into the game model. The game model would not accept multiple new mechanic at one time, so warfighting functions mechanics were gradually introduced into the game system. New

[65] Headquarters, Department of the Army (HQDA), Field Manual (FM) 6-0, *Commander and Staff Organization and Operations* (Washington, DC: Government Printing Office, 2016), 4-6.

challenges were introduced into the game system by developing them through the problem-solving cycle.

The next step was to gather the information for the initial game development. This step was conducted with the research specified in chapter 2. Each new warfighting challenge mechanic introduced into the game system had to be first applied against the research for accurate simulations. Principally, developing a warfighting mechanic that is conducive to the context of the Battle of Leipzig.

The third step was establishing the initial criteria. New mechanics or model aspects are compared against the following criteria: theme integration, predictability, complexity, originality, and player interaction with theme integration and complexity weighted heavier than the other criteria. Theme integration ensured the mechanism was being produced with the focus on the warfighting functions or the historical aspects of the Battle of Leipzig. A low complexity favored positive player interaction. Predictability contributed to the decision-making environment. Originality was the most difficult criteria to achieve but contributed to the play factor. The criteria were applied and analyzed during the game system test trials.

The next steps were generating and analyzing possible solutions. New mechanics were developed to try to balance the warfighting functions in the game system. Very rarely was a solution developed through original thought. Mechanics were derived from simulation research through books, website forums, and other game systems. A warfighting deficiency may have multiple mechanics as a possible solution, so they were plugged into the model and their interaction with the game system was observed. Sustainment became challenging because it is usually not integrated as a minor mechanic

into a larger tactical wargame system, similar to Jaro Andruszkiewicz and Waldek Gumienny's *1944: Race to the Rhine*.

The last steps were done through test trials. Once suitable solutions are plugged into the system they were tested by outside players. The players were a mix of individuals who previously played the game system, new players, and experienced gamers. The testers analyzed the entire play system but focused on analyzing the new mechanics against the established criteria. The tester also received insightful feedback from the game players. Once complete, the simulation solution may yet to be fully implemented into the system. Another similar mechanic may be test trialed through the same game play and compared. After comparison the most suitable mechanic was fully integrated into the game system.

Generating multiple possible solutions of game mechanics led to the overall *Battle of Leipzig* game system design. The methodology needed a simple framework that permitted a continual cycle allowing the introduction of multiple mechanics. The army problem solving process provided this framework and permitted the overall game system to keep evolving. As new challenges to current warfare are identified, they can be simulated into the game system through the same problem-solving cycle.

CHAPTER 4

GAME DESIGN

> War games, developed in antiquity, are equally important in modern settings that are too complex to understand or too terrifying to be tested realistically.
>
> —Gary Brewer and Martin Shubik, *The War Game*

Introduction

The purpose of the *Battle of Leipzig's* game design is to simulate warfighting functions in a tactical combat scenario to facilitate learning. "Games are powerful tools for good - - they rewire people's brains, just like books and movies and music."[66] This chapter explains the mechanics and design aspects of the game system. It also discusses the challenges, limitations, and future mechanics of the *Battle of Leipzig.*

The Model

The model is the game design that mimics the tactical scenario of the Battle of Leipzig. It is the design that provides the map board, time and space qualities, and the conflict dynamics of the battle. The game model is a vessel for the game system to operate.

Geographic Model

Napoleon chose to fight at Leipzig due to the complexity of the terrain. The large body of rivers that flow around Leipzig support a defense. Units are naturally canalized

[66] Ralph Koster, *A Theory of Fun for Game Design* (Sebastopool, CA: O'Reilly Media, 2014.) 205.

as they fight across the river. In addition, Leipzig was the primary logistical hub for the French Army and had multiple roads going to the city. As stated previously, the initial map was a point-to-point table top. This map limited units' ability to move, it made rivers obsolete, was not conducive to fires, and it provided the player with limited decisions. The solution was removing the point overlay from the graphical representation and overlaying a hexagonal grid. The hexagonal grid's strength was that it "provided a consistent yardstick for measuring movement distances, troop densities, and weapon ranges."[67] The hexagonal map brought many ambiguities. The terrain did not naturally line-up with the hexagonal grids. The terrain had to be modified into the grid pattern. The new hexagonal geographical map was favorable for a tactical battle scenario.

[67] Sabin, *Simulating War Studying Conflict through Simulation Games,* 71.

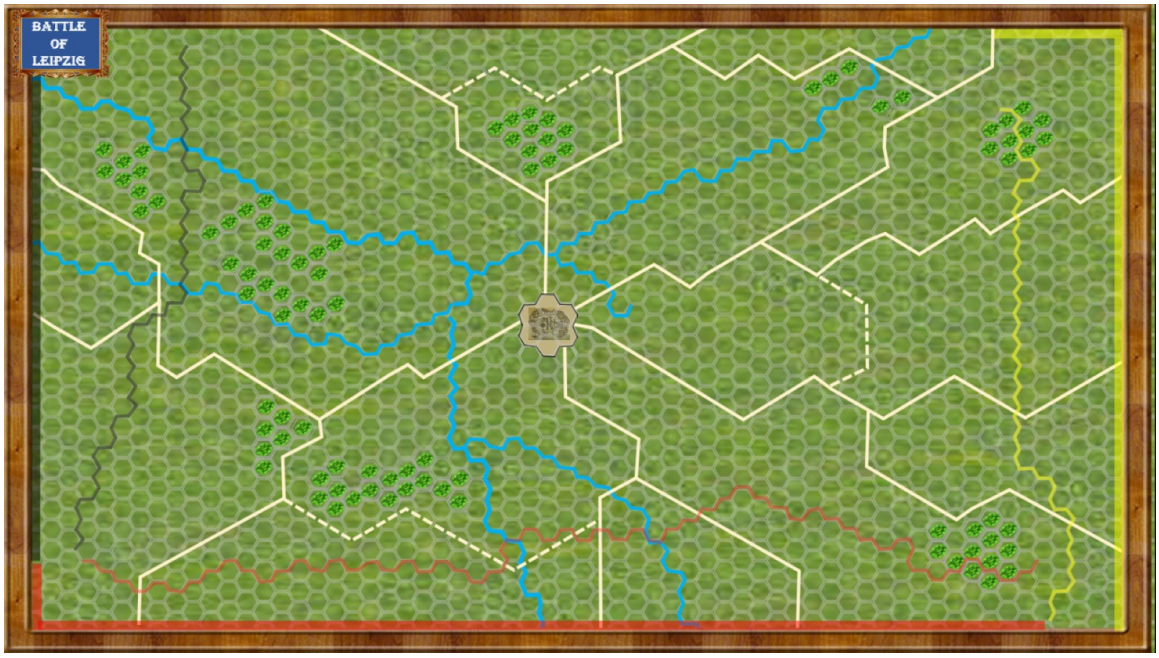


Figure 8. Hexagonal Map Board

Source: Created by author.

To influence the players to take a start state position similar to the Battle of Leipzig on the 16 October 1813, zones of controls were established. Each player starts their armies within their zone of control. The initial zone of control for the Army of Silesia was in the north, but through test play it was realized the French and Silesia forces could not be concealed from each other. The Silesia zone of control was modified to the west in order to maintain the fog of war.

Time and Space

The *Battle of Leipzig* runs from 16 to 19 October 1813. Each day has four turns, representing five hours per a turn. The missing four hours represent a rest period for the soldiers. There are three turns during the day and one turn at night. Since battle did not

occur at night in Leipzig, neither does it occur in the model. At night, units have decrease visibility and it provides a time period for units to maneuver under concealment.

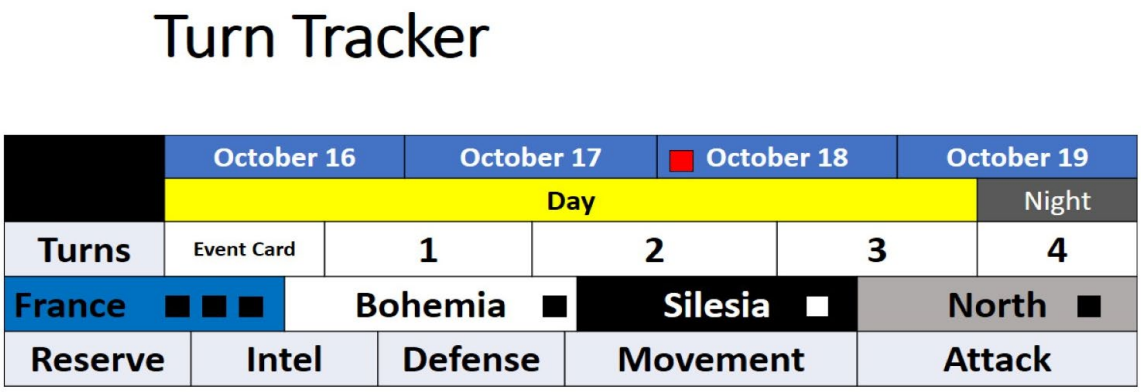


Figure 9. Turn Tracker

Source: Created by author.

A turn tracker was produced to provide a sequence of action. The order of movement is the French Army, follow by the Army of Bohemia, Army of Silesia, and Army of the North. This is in sequence with the historical participation in the battle. The order of a turn is reserve, intelligence, defense, movement, and attack. These will be discussed below in their warfighting function sections. With the hexagonal map and time sequence units' mobility can be applied. The infantry divisions can march approximately three kilometers every five hours and the cavalry divisions nine kilometers per every five hours, but units are impacted by the geographical terrain.

The terrain is very limited and difficult to maneuver. There are rivers that block units, dense vegetation that impede movement, and trails that will aid advancement. A skilled player will have to set the conditions by appropriately using the terrain to

complement their scheme of maneuver. A player needs to choose their terrain wisely. Event cards can add additional variables to terrain. For example, rain can impede a unit's mobility along trails and roads. A terrain chart was produced for quick guidance to assist players.

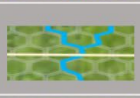
Terrain	Map	Mobility	Defense	Offense
		Effects		
Flat Terrain		Maintain Mobility	Maintain Defense	Maintain Offense
Forrest		Mobility Cost 2 (Cav Mob Cost 4)	Increase Defense +2	Decrease Offense +1 Each Corps
River		Cannot Cross without Bridge	N/A	
Bridge		Mobility Cost 2 (Entire Turn)	If defending against an attacker crossing a river, +4 to defender. If attacking an opponent with a river to their rear, +3 to attacker.	
Road		Mobility Cost 1/2	Maintain Defense	Maintain Offense
Trail		Mobility Cost 1/2	Maintain Defense	Maintain Offense
Urban		Mobility Cost 2	Increase Defense +3	Maintain Offense

Figure 10. Terrain Chart

Source: Created by author.

Dynamic Conflict

Three different armies partner for one main objective, with each commander having their own motivation. This dynamic was simulated into the game system. The players must draw an objective card at the beginning, which becomes a secondary goal for their commander. A player's additional objective is unknown to its allies, playing into the element of fog of war. The objective can be to maintain a specific combat power by

the end of the game or to allow Napoleon's escape. The hidden objectives do not just contribute to the element of uncertainty, but it also influences the behavior of the players. Historically the Army of the North was hesitant to fight and the Army of Silesia was very aggressive, so the additional objectives influence this behavior. For example, the Army of the North objectives is to preserve combat power or to let Napoleon escape. Where the Army of Silesia wants to capture Leipzig and Napoleon. The intention is to influence the players to maintain historical accuracy. The Coalition players pull their objective cards at the very beginning of the game, prior to developing a strategic plan to defeat Napoleon.

The Coalition players will meet prior to start of the game, but after they have already seen Napoleon's defense and have drawn their objective cards. This meeting represents the historical Trachtenberg Plan. It also acts as a condense version of MDMP. "MDMP helps leaders apply thoroughness, clarity, sound judgment, logic, and professional knowledge to understand situations, develop options to solve problems, and reach decisions."[68] The players know their objectives, capabilities, and can analyze the enemy and the terrain. During the meeting the Coalition players will develop a tactical plan to defeat the French. Historically, Prince Schwarzenberg had difficulty communicating to the other armies due to tempo and distance. In the model, the players are no longer allowed to converse about their tactical movement with their partners after the meeting.

Napoleon led a multi-nation army and many of the non-French nationalities were disloyal. Historically at Leipzig, a Saxon unit switched sides from the French to the

[68] HQDA, ADRP 5-0, 2-11.

Coalition forces. One of the Coalition event cards allows for the 24th and the 26th Saxon divisions to join whichever ally army pulled the card. The Napoleon player is aware of the Saxon units' loyalty but is unaware of the army that pulled the card.

The French's early destruction of the Elster bridge was a disaster. An event card was injected into the model to simulate this significant event. It is a Coalition event card and they are only allowed to destroy the bridge after the 18 October. It creates another dynamic decision for both sides. The Coalition player must determine Napoleon's avenue of withdraw and Napoleon must account for the potential of his route being destroyed.

The *Battle of Leipzig* model was developed to mimic the historical battle and to incorporate the game system. The game system is comprised of multiple mechanics that simulate the warfighting functions.

The Attack

As stated previously, predictive analysis is built into combat. The objective is to set the conditions to achieve success in combat. Players set the conditions through ensuring they have advantage of terrain, acceptable intelligence, mass combat power, and the appropriate enablers in place to support the attack. An analog table calculates the force ratios of the attacker and defender. Once calculated, the attacker roles a dice and follows the combat results table to determine the outcome of the attack.

Unit	Count Brigades	Combine Arms	Event Card	Terrain	Artillery	Defense
Attacking Unit	Point for Each Brigade in Attack.	If use Cav, Inf, and FA add +2	Use Event Card	Terrain Points	+1 pts for each 10 Guns	N/A
Defensive Unit						Add 3pts if in Defense
France add additional points for Napoleon if within 6 hexes (6 pts for offense or defense) – If used must identify Napoleon.						
Corp HQ adjacent +2; if with 4 hexes of Army Commander Bohemia Army +1, Silesia Army +2, Army of the North +3 offense or defense. If used must identify Army Commander or Corp HQ Commander.						
Calculate Force Ratios						
Roll Dice and consult Force Ratio Table						
If victorious, attacker moves into defender hex. If defender is victorious, will maintain in place.						
Withdraw or Continue Fighting				Withdrawal	If attacker or defender must withdrawal, they will remove a brigade by each hex which is needed to move. If they cannot move due to too many adjacent units they will be removed from the board.	
				Continue Fight	Recalculate force ratios and continue fighting.	

Dice Roll Attacker	1:3	1:2	1:1	3:2	2:1	3:1	4:1	5:1	6:1+
1	ALB	ALB	ALB	ALB	ALB	AFB	EX	EX	EX
2	ALB	ALB	AFB	AFB	AFB	EX	EX	EX	DFB
3	ALB	AFB	AFB	EX	EX	EX	DFB	DFB	DLB
4	AFB	AFB	AFB	EX	DFB	DFB	DFB	DLB	DLB
5	AFB	EX	DFB	DFB	DLB	DLB	DLB	DLB	DLB
6	DFB	DFB	DLB	DLB	DLB	DLB	DLB	DLB	DLB

- Ratio for the attacker is always rounded down. Example force ratio 22:5 will be 4:1.

ALB – Attacker Loses Brigade AFB – Attacker Falls Back EX – Exchange Brigade Losses
DLB – Defender Loses Brigade DFB – Defender Falls Back

Figure 11. Battle Tracker and Combat Results

Source: Created by author.

The combat results table was emulated from Frank Chadwick's *Battle for Moscow* game system. It provides predictability by removing a lot of the randomness from the dice results. Players must set the conditions for an attack by establishing favorable force ratios and imposing their will on their opponents.

Warfighting Function Mechanics

After completion of the initial game model, the warfighting mechanics were gradually introduced into the model and analyzed. The mechanics were developed from the warfighting deficiencies identified in the MCTP *Key Observations* publication. The objective was achieving balance between the warfighting mechanics while maintaining simplicity in the overall game system.

Simulating Mission Command

Each army has a command headquarters and multiple subordinate corps headquarters. Mission command is exercised through the subordinate corps. "Mission command encourages the greatest possible freedom of action from subordinates."[69] Corps have the ability to act as independent units with their only dependency being the logistical support line. Army commanders can assist the corps by task organizing additional capabilities to the units, giving them the ability to meet their intent. For example, if a unit needs to cross a river a player may want to give them additional artillery and bridging assets. The task organizing mechanic is to facilitate the resolution of the mission command warfighting challenges stated in chapter 2.

In addition, army commanders and headquarters have the ability to influence their tactical units to simulate lines of communication and the significance of operational reach. The shorter the distance, the more effective the fighting unit. In addition, the mechanic influences players to put their commanders with their main efforts. To simulate

[69] Headquarters, Department of the Army (HQDA), Army Doctrine Reference Publication (ADRP) 3-0, *Unified Land Operations* (Washington, DC: Government Printing Office, 2017), 3-2.

historical accuracy, Napoleon has the greatest influence to increase his units combat power.

If an army commander is defeated on the battlefield, the army is defeated. The army commander becomes a critical asset. This applies to every army, except the Army of Silesia. The Army of Silesia is commanded by Prussian Field Marshal Gebhard Leberecht von Blücher, and if lost, there is a succession of command. If a corps headquarters is defeated, the subordinate divisions become degraded until they can reconsolidate under a new command.

The decision-making environment with the concealment of forces fosters the use of decision points mentioned in chapter 2. During the initial meeting, the Coalition forces have predicated the French's COA. This can only be validated through the French movement and the use of intelligence assets. If the initial assessment is incorrect, the game system provides the flexibility for an army to change its current COA.

Simulating Intelligence

> The intelligence warfighting function executes the intelligence process by employing intelligence capabilities . . . the building blocks by which the intelligence warfighting function facilitates situational understanding and supports decision making.[70]

There is a large element of fog of war in the game system; plans are unknown, agendas are hidden, and units are concealed from their adversaries and allies. *Battle of Leipzig* incorporates short-range and long-range intelligence collection assets so players can analyze the battlefield. The short-range collection assets are the cavalry units. They

[70] HQDA, ADRP 2-0, 4-1.

simulate the reconnaissance that has been underused in modern warfare, as mentioned in chapter 2. If the cavalry is used efficiently, it can define the enemy in the close fight and identify vulnerable points. The French has limited cavalry, but has the ability to task organize their corps to either spread or concentrate that capability.

Long-range intelligence collection is simulated through spies. There is not research specifying the use of spies during the Battle of Leipzig, but the design deviated from history in order to simulate modern long-range aerial collection capability. Similar to modern long-range collection assets, they are limited. The French have three spies per a day, and the Coalition units have a spy each per a day. The spy is placed on a specific adversarial unit, which identifies that unit for the duration of the day.

Spies and cavalry are employed during the intelligence phase of a turn. They can be used to answer critical information requirements and support predictive analysis.

Simulating Movement and Maneuver

There are three different types of maneuver units: infantry, cavalry, and bridging units. The infantry units have minimal mobility but can provide a strong defense and reinforce an attack. The infantry can go into a hasty defense to build combat power. Cavalry has greater mobility, which allows them to envelop or penetrate an enemy. Cavalry can be used to shape the battlefield through ground reconnaissance and provide flexibility with their tactical mobility. The bridging units allow each army the capability to conduct a deliberate river crossing. Bridging units have weak combat strength and take time to emplace a bridge. As specified in chapter 2, trying to synchronize all of these different capabilities into one unified COA is challenging. The key focus on designing

the maneuver elements ensures the appropriate spatial relationship is achieved, so that the direct fire and close combat units are inherent in the maneuver.[71]

The terrain and bridging units simulate a deliberate river crossing. The French player will be motivated to attack their adversary as they conduct a river crossing at their most vulnerable point. To preserve combat power, players conducting a river crossing have to properly plan and resource.

Massing combat power through combined arms is simulated by bringing in aspects of infantry, cavalry, and artillery. Players must effectively maneuver their forces to mass combat fire to set the conditions for success. A unit's combined combat power significantly increases during a battle if it can integrate all fire systems on an opponent.

Simulating Fires

Artillery is the king of the battlefield. Artillery units cannot directly attack units, but can dramatically increase a unit's combat power when they reinforce a unit. Historically, the 12-pound guns in 1813 had a maximum range of 1,800 meters.[72] Each hex on the playing board represents a kilometer, so in the simulation the artillery range is increased to two kilometers for game play. Due to this limitation, the artillery units' position has to be immediately behind the unit they are supporting. Players have the ability to evenly spread their cannons across the battlefield, but it will not leverage combat power. "The purpose of mass is to concentrate the effects of combat power at the

[71] HQDA, ADRP 3-0, 3-3.

[72] Napoleon Guide, "Artillery Ranges," accessed 216 May 2018, http://www.napoleonguide.com/artillery_ranges.htm.

most advantageous place and time to produce decisive results"[73] The fires' warfighting function in the simulation, as in real warfare, must support the maneuver plan. A player can mass 120-160 guns on a single division. This was a common tactic of Napoleon's. He maneuvered his cannons to mass fires on specific units at a particular time in the battle.[74] Massing fires will set the conditions for success in the game system.

Artillery has limited mobility capabilities. This limitation is significant to the players. A player must decide to conduct deliberate movements that is supported by his fires, or they can sacrifice combat power for speed and outrun their cannons. It is a decision for the players based upon a calculated risk.

To simulate deep fires, British rocket units were presented into the game system. Initially, the game system only provided medium range artillery assets, even though the *Key Observations* publication identified challenges with ineffective targeting and deep shaping operations. Further research was conducted, and it was discovered that a small element of British rocket forces was present at the Battle of Leipzig. These forces were specifically under the command of the Army of the North, but in the simulation, they can be commanded by any of the Coalition armies. During the Coalition initial meeting, they must decide how to apportion the rocket units. Historically, the rockets had a range of approximately two kilometers, and they were less effective than standard artillery. The goal was to give the rockets a range that can effectively out range standard artillery, but also be a threat to corps headquarters. In the simulation, the range of the rockets were

[73] Napoleonic Guide, 1-9.

[74] Nofi, *Napoleon at War, Selected Writings of F. Loraine Petre,* 56.

increased to four kilometers. The rockets are not very effective in the close fight, but they can cause damage to the French forces if they target specific critical assets beyond the close engagement area.

Non-lethal targeting is simulated through event cards. Several of the event cards give players the ability to use spies to influence a force by decreasing their morale, which decreases their combat power. The mechanism simulates psychological operations by providing non-lethal effects.

Simulating Protection

Units have multiple critical assets: command headquarters, logistics, bridging assets, artillery, and logistical lines.

> Initial protection planning requires various assessments to support protection prioritization; namely, threat, hazard, vulnerability, criticality, and capability. These assessments are used to determine which assets can be protected given no constraints (critical assets) and which assets can be protected with available resources (defended assets).[75]

Players must plan to defend their critical assets that are vital for success of the mission. Players have limited combat units and will need to task them to protect their flanks and rear areas. If a unit penetrates an army, they can exploit and cause major harm to the opposing force's critical capabilities.

Units have the ability to transition into a hasty defense to build up their combat power. A unit in a hasty defense has the ability to block enemies in their zone of control, but they cannot maneuver from their hex until ordered out of the defense. The mechanic provides players with the additional capability to strengthen their ability of protection.

[75] HQDA, ADRP 3-37, 2-1.

Simulating Sustainment

Sustainment warfighting function was the most challenging to simulate. The forecasting of supply rates was too complex to introduce into the game system. The game system does simulate a logistical unit with each army, but the supply trains to the forward units are automatic. A forward unit will always receive their sustainment unless an opposing force obstructs the logistical line of a corps headquarters. A severed logistical line can dramatically degrade all the divisions within that opposing corps. If the logistical base is destroyed, the army no longer has the ability to resupply and is defeated.

Reserves are simulated in the game system. Each army has a set schedule of arriving reserves, which start in the army's rear area. They can be used to replenish loss forces or to reinforce a defense.

Conclusion

The *Battle of Leipzig* game design is continually progressing. The game model is flexible enough to have additional mechanics introduced. Capabilities can be modified, terrain features can be added, and forces can be restructured. These changes will not affect the basic tenets of the warfighting integration of the game design. The *Battle of Leipzig* is an effective game design that can facilitate the learning of tactical warfare.

CHAPTER 5

CONCLUSIONS

> The primary objective of this type of operational game should be to widen the range of possible problem-solving methods that can be considered individually and compared with other methods of analysis, to increase analytical flexibility, and to shake up existing procedural patterns and routines.
>
> —Gary Brewer and Martin Shubik, *The War Game, A Critique of Military Problem Solving*

Introduction

War games are a training tool to facilitate learning and improve predictive analysis. Prior to World War I, games like von Reisswitz's Kriegspiel were used by major military powers as a way to train and develop military leaders. Today, we have moved away from analog games to digital simulation. While striving for the realism of virtual reality, we may have overlooked the significance of wargame training utility. A board game is "an advanced form of active learning, as opposed to the passive absorption of information transmitted by a teacher."[76] This entire process was to develop a game design system that facilitated in the learning of the warfighting functions; particularly warfighting training deficiencies observed by MCTP.

Training Utility

Ideally, the game could be played by all individuals at the appropriate age level. In order to maximize the educational value of the game design, the principle audience is army leaders. The design is strictly focused on tactical ground warfare. It was built based

[76] Sabin, *Simulating War Studying Conflict through Simulation Games,* 36.

upon research from MCTP, which focused on gathering the warfighting challenges to current U.S. Army divisions and corps.

The *Battle of Leipzig* game design does not resolve the warfighting deficiencies facing military leaders. It should be applied as a supplementary training tool: a system to improve the cognitive patterns and conceptualization of employing warfighting functions. Integrated with other training tools, it should further close that training deficiency gap.

The game system supports self-direction in a decision-making environment. The player becomes the chief principle of the educational experience.[77] Through several iterations of the game, a player should have a better understanding of the warfighting mechanics and an appreciation for their purpose.

Observations during test trial of *Battle of Leipzig* revealed a controlled competitiveness and team building experiences. Players aligned around shared goals and built effective relationships through problem solving. The game design system has the secondary potential to act as a means to small group team building.

The *Battle of Leipzig* gives players a chance to put their warfighting knowledge into practice through a simplified tactical scenario. It allows players to learn through mistakes by removing the atrocious realities of warfare and simplifying the warfighting functions through mechanics.[78] Practicing in a minimal risk environment allows players to continuously experiment with tactical decisions to improve their conceptualization of the battlefield.

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[77] Perla, *The Art of Wargaming,* 8-9.

[78] Sabin, *Simulating War Studying Conflict through Simulation Games,* 13.

Battle of Leipzig Games

After completion of the *Battle of Leipzig*, it was compared against other versions with similar models. A lot of game systems incorporate the Battle of Leipzig into larger game model, but it brings the overall game system to an operational level and not comparable to this game system.

There is one tactical version of the Battle of Leipzig with over twenty thousand copies sold. Kevin Zucker's *Napoleon at Leipzig, the Battle of Nations 13-19 October 1813* (fifth edition) is a very popular game system that shares many of the same features. This version of the 1813 campaign incorporates the Battle of Liebertwolkwitz, Wachau-Möckern, Leipzig, and Hanau. It incorporates the prelude and post battles around Leipzig by creating additional maps. The game model uses similar hexagon map, force ratios, and combat results chart, but incorporates additional combat results charts for cavalry and artillery. Zucker's version has units to the battalion level but permits stacking of units into a single hex. If you played both games side-by-side, it would be assumed this newer game system was an earlier version of Zucker's game. The greatest difference between the two game systems is details and complexity. Zucker's version is made for wargame enthusiasts. This newer game system scales back the complexity, facilitating it as a training tool. In addition, the newer game system focuses on the warfighting mechanics developed through MCTP *Key Observations*.

Expectation and Progression

Due to limited game play, there are two primary weaknesses to the current game system: validity and consistency. Due to the short duration of game testing, a baseline has not been established to validate all the mechanics. The same issue arises with

consistency. With limited game play it is difficult to measure consistency in game resolutions; analyzing to see if the consistent leveraging of the warfighting mechanisms results in similar outcomes. If the warfighting mechanics do not consistently provide favorable conditions, it will not meet the training expectations. With limited sample play, its forecasted outlook is promising.

The expectation to the game system was to have a balance in warfighting mechanics. As stated previously, this version lacks a reliable mechanic for forecasting sustainment. All detailed sustainment simulations were too complex and created an imbalance with the other five warfighting functions.

The *Battle of Leipzig* game model is flexible enough to integrate refinements to resolve future issues. MCTP in FY 2018 has reformatted their entire digital warfighting scenario. When the new *Key Observations* is published, it should provide new challenges. The flexible system allows for easy modifications in order to meet future warfighting deficiencies. The game design does not have to be modified by the designer. Any individual can use the army problem-solving process to produce a new warfighting mechanic to introduce into the model.

Summary

The *Battle of Leipzig* was developed to facilitate the learning of the warfighting functions by creating a new conceptual tool to aid the learning process. The goal was to provide players with a risk free decision-making environment to develop their cognitive warfighting skills without the negative aspects of real war. The initial game system was built based upon the warfighting observations conducted by MCTP, but can effortlessly be modified to meet future needs.

APPENDIX A

BATTLE OF LEIPZIG RULEBOOK

Figure 12. Battle of Leipzig Painting

Source: Alexander Sauerweid, "Russian, Austrian, and Prussian Troops in Leipzig," accessed 5 May 2018, http://www.art-catalog.ru/picture.php?id_picture=8484.

Version One

Designer David L. Clayton

Battle of Leipzig

Table of Contents

1. Introduction

1.1. Number of Players.

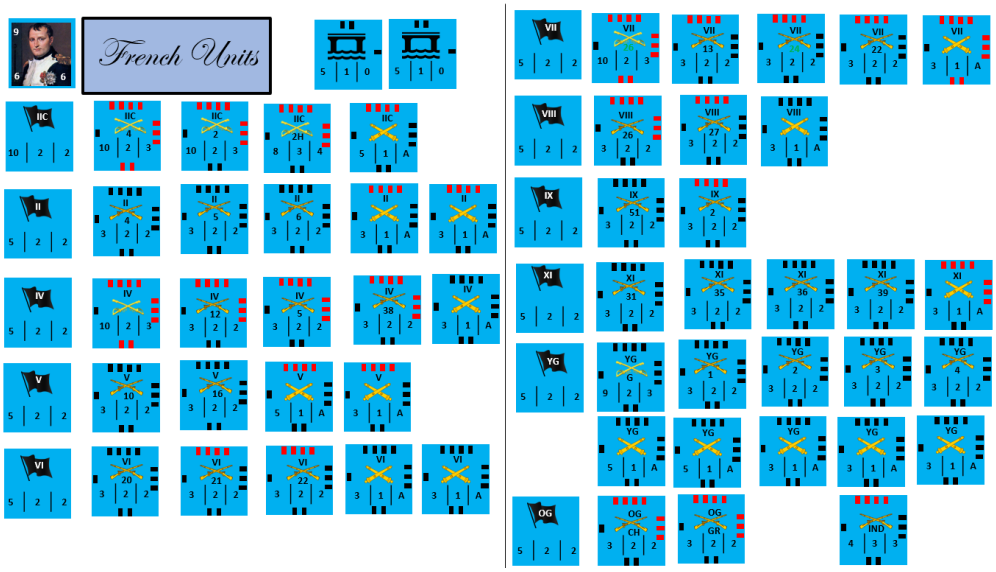
1.1.1. 4 Player Game
1.1.2. Recommended age level is 12+ years old

1.2. **Game Length.** The standard game length is approximately 4 hours with an additional 30 minutes for set-up.

1.3. **Background Story: Defeating an Emperor.** Emperor Napoleon Bonaparte is at the height of his power in Europe. He has conquered mainland Europe and has invaded Russia. Napoleon's Russian campaign in 1812 was a disaster. He lost the majority of his Grande Armée. The European powers perceive a moment of weakness from Napoleon and form the Sixth Coalition. Russia has created an alliance with Austria, Prussia, and Sweden, to attack the French Empire's Eastern front. In fear of losing power at home and abroad, Napoleon recruits a new Grande Armée. Recruiting from all the nations of the French Empire and immediately deploying them to defend the Eastern front. The Alliance creates three distinct armies: Army of Bohemia, Army of Silesia, and Army of the North. To entice the Coalition into a decisive engagement Napoleon lures them into a terrain of his choosing. A terrain with natural features to divide and isolate the Coalition armies. The chosen battleground was Leipzig. Napoleon established his army into a defense around Leipzig as the three Coalition armies converged onto the city, setting the stage for the largest battle of the Napoleonic era.

1.4. The Armies.

1.4.1. The French Army commanded by Emperor Napoleon Bonaparte.
1.4.1.1 The French Grande Armée has been decimated. They have limited artillery cannons and cavalry due to losses in Russia. The new Grande Armée is comprised of many new recruits. The strength of the French army is their established defense and having one of the greatest tactical minds of all-time as their commander.
1.4.1.2 The Independent Division can move on the battlefield without having to be near a Corps headquarters.
1.4.1.3 Task Organization (see section 3.3 to interpret game pieces).



1.4.2. Army of Bohemia is commanded by Prince Schwarzenberg.

1.4.2.1 The Army of Bohemia is a massive army comprised of multiple nations. The multi-nation force made for a complex command structure under the Austrian Prince Karl Philipp of Schwarzenberg. The army was heavy on cavalry and artillery cannons.

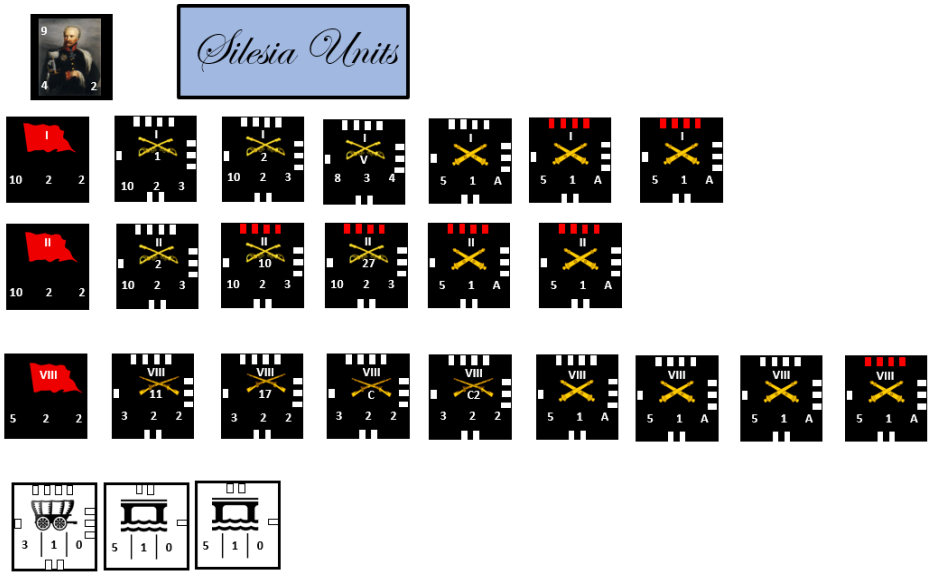
1.4.2.2 The units without corps identifiers (or with the letter “R” in place of the corps identifier) can be tasked organized to any corps. A corps headquarter cannot command more than five maneuver divisions (maneuver divisions are cavalry and infantry).

1.4.2.3 Task Organization (see section 3.3 to interpret game pieces).

1.4.3. Army of Silesia commanded by Field Marshal Gebhard Leberecht von Blücher.

1.4.3.1 The Prussian heavy army defeated Napoleon's Marshal in the north and is now converging on Leipzig. The Prussians have had a resurgence in nationalism and military training. They are at reduced numbers but still maintain a heavy cavalry presence.

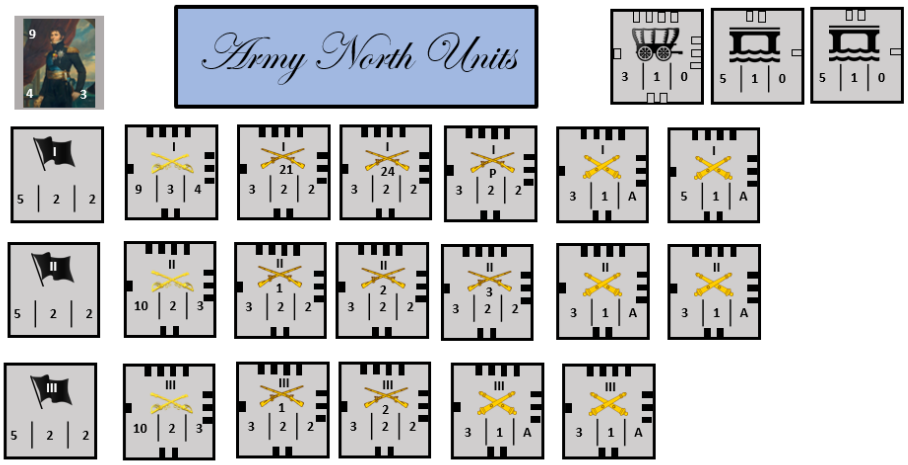
1.4.3.2 Task Organization (see section 3.3 to interpret game pieces).



1.4.3.3 Army of the North commanded by Charles John, Crown Prince of Sweden.

1.4.3.4 The multi-nation army with a heavy Swedish presence, is led by a former Napoleon marshal, Charles John, Crown Prince of Sweden (formerly Jean Bernadotte). They are the last army to Leipzig and have been reluctant to get into a decisive engagement.

1.4.3.5 Task Organization (see section 3.3 to interpret game pieces).



1.5 **Military Tactics and Strategies.**

1.5.1 Historical Plan.

1.5.1.1 Napoleon realizes he is outnumbered, but believes he is the only commander that can defeat the enemy. He concentrates his forces in a defense around Leipzig. His plan is to fix one army with a smaller force and to decisively defeat the other army with his main effort by attacking the vulnerable flanks or penetrating their rear.

1.5.1.2 After a series of defeats, the Coalition forces conduct a meeting to develop a strategy to defeat Napoleon. Napoleon's former marshal, Prince Charles of Sweden, proposes the Trachtenberg plan. The Trachtenberg plan was to avoid direct engagements with Emperor Napoleon, and instead attack his marshals and generals. At Leipzig, the Coalition forces maintained a similar mindset. Avoid direct confrontation with Napoleon and find the weakness in the French defense.

1.5.2 Strategies. Master the synchronizing of the warfighting functions used in modern warfare. The six warfighting functions:

1.5.2.1 Command and Control. Ensure you leverage the use of army commanders to increase your combat power during main engagements. Task organize your armies, so the corps have the key capabilities for success.

1.5.2.2 Intelligence. Use your spies and cavalry wisely. Define the enemy and understand their force posture. Find the weaknesses along their front and exploit it. Find and attack their commanders, logistical bases, and bridges.

1.5.2.3 Movement and Maneuver. Understand force ratios. Avoid attacking a hardened defense or across a river. Attack the enemy by massing your forces against a weaker adversary. Penetrating an enemy line will force their remaining troops to collapse their defense. Victory is out maneuvering your enemy and maintaining flexibility to adapt to a changing operational environment.

1.5.2.4 Fires. Each army has sufficient artillery cannons to spread across the battlefield. Mass your fires in order to ensure victory. Cannons will significantly increase a unit's combat power and can turn a weaker force into the victor.

1.5.2.5 Protection. Protect your flanks and protect your rear. If an army can penetrate your line expect them to attack and destroy your headquarters, logistical bases, and bridges. Without these key assets your army will be defeated.

1.5.2.6 Sustainment. Ensure your logistical bases are protected from being attacked and identified. Protect your flanks, so the opposing army does not cut off your logistical line.

2 Victory

2.1 **General terms.** The goal of the game is not to destroy each army but to defeat them. Avoid large combat losses by out maneuvering and attacking your adversary's vulnerable points. This is not a game of attrition, but instead a fight of tactical intelligence.

2.2 **Objectives.**

2.2.1 Victory for Napoleon is achieved when two armies from the Coalition are defeated. Defeat criteria:

2.2.1.1 Army of Silesia—two corps defeated or logistical base destroyed;
2.2.1.2 Army of Bohemia—four corps defeated, army commander is captured, or logistical base destroyed; and
2.2.1.3 Army of the North—two corps defeated, army commander is captured, or logistical base destroyed.
2.2.2 Draw for French forces is when Napoleon successfully withdraws through the Coalition armies and escapes. Napoleon cannot withdraw until the start of the 19 October 1813. If Napoleon cannot escape by the 19 October, he becomes captured and French forces lose.
2.2.2.1 If the French army loses eight corps headquarters or if the city of Leipzig is captured, Napoleon can initiate a withdrawal.

2.2.3 Victory for the Coalition armies—Napoleon is captured by a Coalition army. Three events can trigger Napoleon's escape:

I. Coalition captures eight French corps headquarters,
II. the city of Leipzig is captured, or
III. at the start turn one on the 19th October 1813.

If Napoleon escapes the war continues in Europe and the game is a draw.

2.2.4 Victory for Each Coalition Army—at the beginning of the game, each Coalition army will draw an objective card. The draw will be random from their army's objective card deck. The card will give an additional objective to that player. If the player meets their additional objective, they will gain the balance of power in Europe and become the overall victor.

2.2.4.1 Additional objectives for the Army of Bohemia:

2.2.4.1.1 In fear of Napoleon's reprisal, the Army of Bohemia must capture Napoleon.
2.2.4.1.2 In fear of Russian dominance, the Army of Bohemia must maintain 42 brigades.
2.2.4.1.3 In order to maintain balance of power the Army of the North must lose one corps.
2.2.4.1.4 To build national support for the Austrian Empire the Army of Bohemia must capture Napoleon.
2.2.4.1.5 To weaken the Prussian empire the Army of Silesia must lose one corps.

2.2.4.2 Additional objectives for the Army of Silesia:

2.2.4.2.1 Napoleon can retreat but to maintain high nationalism Army of Silesia must occupy Leipzig before the other Coalition armies.
2.2.4.2.2 In order to maintain balance of power the Army of Silesia must maintain 18 brigades.
2.2.4.2.3 To maintain high nationalism Army of Silesia must capture Napoleon.
2.2.4.2.4 To weaken Austria the Army of Bohemia must have less than five corps.
2.2.4.2.5 In order to maintain balance of power the Army of Silesia must maintain 22 brigades.

2.2.4.3 Additional objectives for the Army of the North:

2.2.4.3.1 In the war for power at the negotiation table; must maintain divisions at 22 brigades to hold influence.
2.2.4.3.2 Being a former Napoleon marshal, Prince Charles wants the French defeated but Napoleon to escape.
2.2.4.3.3 For more power at the negotiation table after the war must maintain divisions at 15 brigades to hold influence.
2.2.4.3.4 To prevent an expanding Prussian empire the Army of Silesia must lose a corps.
2.2.4.3.5 To improve Swedish position the Army of Bohemia must have less than five corps.

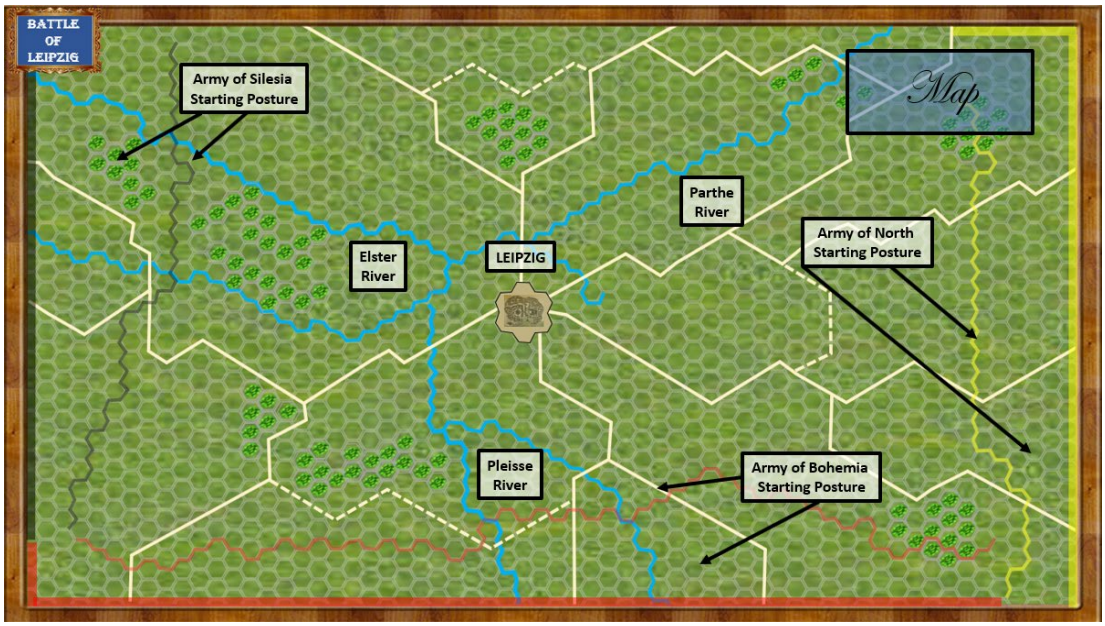
3 Game Components

3.1 Inventory of Game Components.

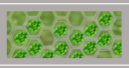
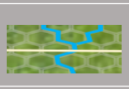
3.1.1 Map
3.1.2 Rule Book
3.1.3 Army Combat Pieces and Reserve Pieces
3.1.4 One Dice
3.1.5 Twenty Green Engineer Blocks
3.1.6 One Red Bridge Block
3.1.7 Ten Black and One White Tracking Blocks
3.1.8 Combat Results Card
3.1.9 Reserve Tracker Card
3.1.10 Turn Tracker Card
3.1.11 Battle Card
3.1.12 Terrain Card
3.1.13 Objective and Event Cards

3.2 The Map and Terrain.

3.2.1 The map of the terrain around the city of Leipzig:

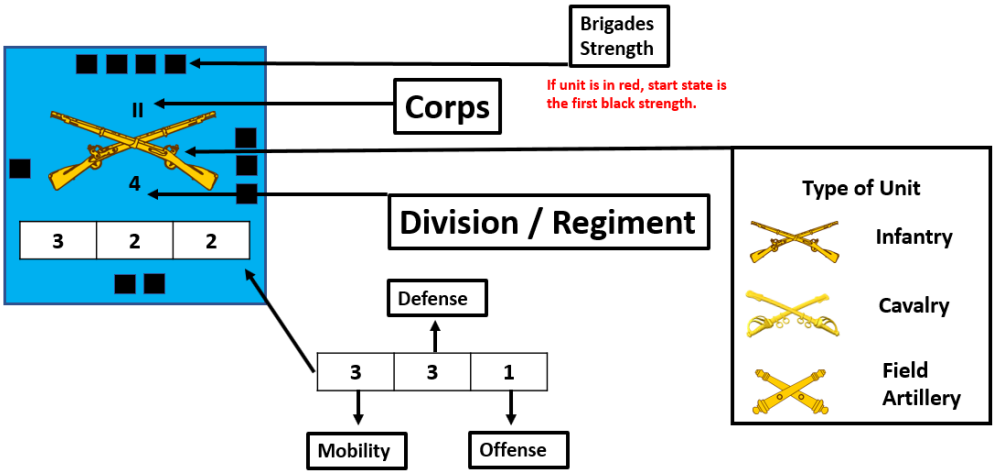


3.2.2 The map is divided in multiple hexes and each hex represents one kilometer.
3.2.3 The Coalition armies start their units and reserves behind their unit's starting posture line.
3.2.4 Leipzig is the French logistical base.
3.2.5 **The Terrain**. Terrain has effects on mobility, offense, and defense.

Terrain	Map	Mobility	Defense	Offense
		Effects		
Flat Terrain		Maintain Mobility	Maintain Defense	Maintain Offense
Forrest		Mobility Cost 2 (Cav Mob Cost 4)	Increase Defense +2	Decrease Offense +1 Each Corps
River		Cannot Cross without Bridge	N/A	
Bridge		Mobility Cost 2 (Entire Turn)	If defending against an attacker crossing a river, +4 to defender. If attacking an opponent with a river to their rear, +3 to attacker.	
Road		Mobility Cost 1/2	Maintain Defense	Maintain Offense
Trail		Mobility Cost 1/2	Maintain Defense	Maintain Offense
Urban		Mobility Cost 2	Increase Defense +3	Maintain Offense

3.3 **Combat Units / Playing Pieces**

3.3.1 Unit Indicators



3.3.2 Each playing piece represents a division and each black cube represents a brigade. If the unit has its brigades in red cubes, it indicates the start state for that unit. The unit will start with the next side of black cubes. Reserves can be added to a division, but a division cannot increase more than four brigades.

3.3.2.1 Reduction of brigades. When a unit loses a brigade from a division they rotate the block in order to reduce the black cubes on the game piece. The black cubes on the top of a game piece indicate the number of brigades remaining in that division.

3.3.3 The roman numeral indicates the corps and the number below indicates the division of the playing piece.

3.3.4 Mobility / Defense / Offense.

3.3.4.1 Mobility. The mobility number indicates the speed of the unit per a turn. The mobility will be affected by terrain (see terrain tracker).

3.3.4.2 Defense. The greater the defensive number the stronger the unit will be in the defense.

3.3.4.3 Offense. The greater the offensive number the stronger the unit will be in the attack.

3.3.5 Infantry / Cavalry / Field Artillery / Bridge Units.

3.3.5.1 Infantry. Infantry unit's mobility, defense, and offense will vary from unit-to-unit due to combat strength. An infantry unit usually has low mobility but are valuable in the defense and supporting an attack. An infantry unit can identify an adversary unit a hex from their location. If adjacent to an adversary they may attack during the attack phase of your turn. An infantry unit cannot break contact with a unit while attacking. They can only break contact when they are forced to withdraw.

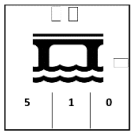
3.3.5.2 Cavalry. Cavalry has greater mobility and they have the unique ability to identify adversaries three hexes away. Cavalry units also have the ability to move in Intel turn phase to collect intelligence (see 5.2 Turn Sequence). Cavalry do not have the ability to see through opposing and friendly units. If the unit moves in the Intel phase, it can only move with its remaining mobility in the movement phase. If adjacent to an adversary, they may attack during the attack phase. A cavalry unit can break contact with an infantry unit after the initial attack by using its remaining mobility.

3.3.5.3 Field Artillery. Field artillery units are 12lbs guns with a range of two kilometer (two hexes). Artillery Units have a one defense but can add an additional one-point offense or defense to a combat unit for every ten guns (black cube = ten guns). To support a combat unit an artillery unit has to be one hex from the adversary being attacked. An artillery unit cannot support multiple units in a single turn. Artillery units cannot attack a unit without the support of a ground unit. In the defense, an artillery unit's ten guns equals to one brigade of combat power. An artillery unit cannot break contact with another attacking unit. If the combat

results table says for the defender to fall back an artillery unit must maintain contact.

3.3.5.4 British Rocket units. There are three companies of British rocket units. The units can be attached to any of the Coalition armies prior to the game start. The rocket units have the ability to attack unit four kilometers (four hexes) away, but they can only attack a unit once a turn. In the defense, a rocket unit's company equals to one brigade of combat power. A rocket unit cannot break contact with another attacking unit. If the combat results table says for the defender to fall back a rocket unit must maintain contact.

3.3.5.5 Bridge units. Bridge units have the ability to be attached to any corps and give that corps the ability to build pontoon bridges. They have a mobility of five but cannot attack. To build a bridge they need to be adjacent to a river. They can build the bridge during the defense phase of a turn. Each cube of the bridge unit equates to a brigade in the defense. A bridge unit cannot break contact with another attacking unit. If the combat results table says for the bridge unit to fall back a bridge unit must maintain contact.



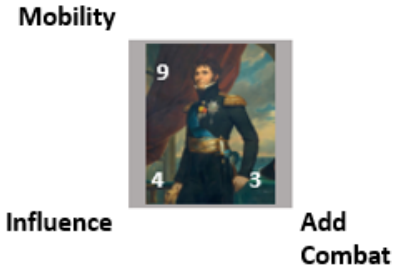
3.3.6 Task Organizing.

3.3.6.1 Like units (infantry = infantry, cavalry = cavalry, field artillery = field artillery) can exchange brigades and guns. If two like units are adjacent to each other, they can exchange brigades or guns. Subtracting from one unit and gaining in the other. This can only be done by units in the same corps. This exchange of units can only be done during the reserve phase (see 5.2 Turn Sequence).

3.3.6.2 At the corps level. The French army can reorganize divisions and guns to different corps at the start state. After the initial start turn, all armies can reorganize divisions and guns if the units' headquarters are within five hexes. This exchange of units can only be done during the reserve phase (see 5.2 Turn Sequence).

3.4 **Headquarters** and Logistics

3.4.1 Army Headquarters. All army headquarters have a mobility of nine. They can significantly increase another unit's combat power. If a unit uses an army headquarter to increase their combat power that headquarter's position must be displayed. An army headquarter has to be placed on the map board at the initial start. Influence is the number of hexes a headquarter can impact a fighting unit. The add combat power is the additional combat strength they increase the fighting unit.



3.4.1.1 French headquarters. Emperor Napoleon, French military commander, if within six hexes of a battling unit(s) it adds six points to the combat strength of a fight.

3.4.1.2 Army of Bohemia headquarter. Prince Schwarzenberg, Bohemia commander, is within four hexes of a battling unit(s) it adds one point to the combat strength of a fight.

3.4.1.3 Army of the North headquarter. Crown Prince Charles John, Army of the North Commander, is within four hexes of a battling unit(s) it adds three points to the combat strength of a fight.

3.4.1.4 Army of Silesia Headquarter. Field Marshal Blücher, Army of Silesia commander, if within four hexes of a battling unit(s) it adds two points to the combat strength of a fight. The Silesia Army is the only commander that can be captured without the army being defeated. If Field Marshal Blücher is captured, the player must designate a corps headquarters to take command.

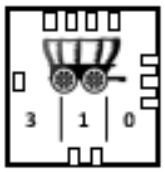
3.4.2 Corps headquarters. Divisions cannot be more than eight hex spaces from their corps headquarter. If the corps headquarter is destroyed its divisions' mobility and defense are reduced to half and the units cannot attack. Another corps may be directed to take command of the divisions. Under a new corps command the divisions return to normal mobility, defense, and offense. This can only occur when the divisions are within eight hex spaces of the new corps headquarters. Each turn that goes by without a division having a corps headquarter it loses a brigade. If it loses all brigades the division is removed from the map. If a corps headquarter is two hexes t to an attacking or defending unit it increases their combat strength of the attack or defense by two during a battle. If the headquarter unit is used to increase the combat power it must be displayed.

Influence is the number of hexes a headquarter can impact a fighting unit. The add combat power is the additional combat strength they increase the fighting unit.

3.4.3 Logistical Base. Logistical bases have three mobility, one defense, and zero offense. They have a total power of four, which equals four brigades.

They represent the logistical base of the army and must be placed on the board at the initial start.

If a logistical base is reduced by half the army will not receive reinforcements and all units' mobility, defense, and offense decreases by half for the remainder of the game. If attacked, a logistical base can withdraw if the combat results table indicates for it to fall back.



3.4.3.1 Once a logistical base is exposed by adversarial forces or spies it must remain exposed for the entire game.

3.4.3.2 If a corps headquarter straight line route to the logistical base is cut off (use straight line edge ruler), that corps' mobility, defense, and offense decreases by half until they can reestablish the logistical route. If four sequence turns go by without the line being reestablished, all units will be removed from the board (can only occur when the logistical base and corps is identified).

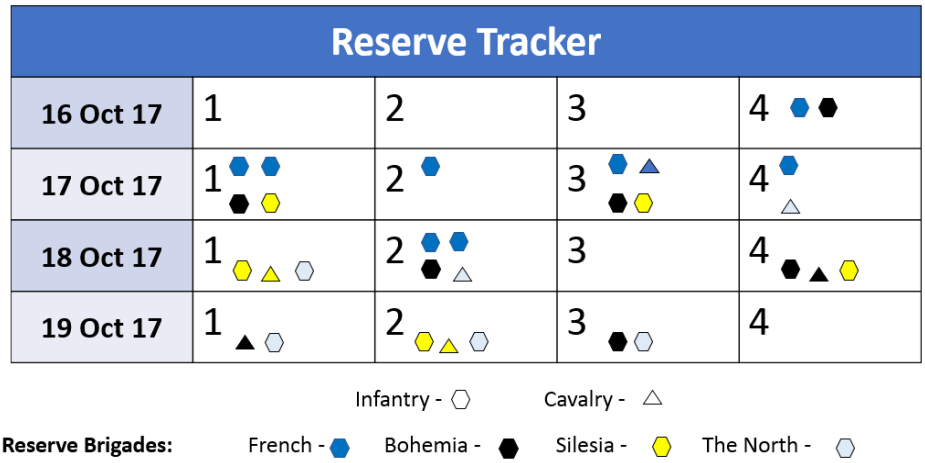
3.4.3.3 If the logistical base is destroyed the army is defeated (except for the French army).

3.4.3.4 Napoleon's logistical base is Leipzig and if seized by Coalition forces the French force's mobility, defense, and offense decreases by half. If captured, Napoleon has four sequence turns to escape. Once Leipzig is captured by the Coalition forces, it cannot be recaptured.

3.5 **Reserves.** Reserve units do not appear as divisions but represent brigades that can augment divisions. They have regular mobility points, but very low offense and defense until they join a division. Reserves are given during the reserve phase of sequence turn (see 5.2 Turn Sequence) and start behind their army's start state line. The French reserve start adjacent to Leipzig. The reserve can move during the movement phase (see 5.2 Turn Sequence). A reserve brigade can join a division that is below four brigades. This is done by moving the reserve brigade into the division or the division into the reserve brigade's hex. Infantry units cannot join cavalry divisions. If a cavalry division joins an infantry unit they become standard infantry. Once the reserve unit joins the division, the division is rotated to reflect the additional brigade.

3.5.1 Reserve Tracker maintains the sequence of reserves for each army.

Reserve Tracker



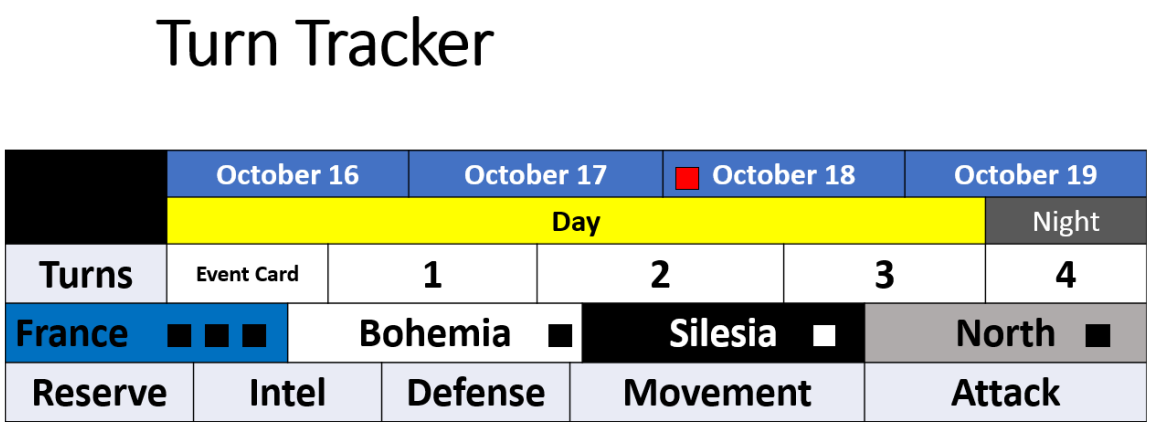
3.6 **Objective Cards.** There is a total of 15 objective cards. Each objective card has the flag for their corresponding army. Prior to developing a tactical plan, each Coalition army takes a random objective card from their corresponding army's deck. They review the additional objective but cannot inform any other player of their objective. They maintain to hold the card until the end of the game. At the end of the game, if Coalition captures Napoleon each army displays their objective card to see if it was achieved.

3.7 **Event Cards.** French has four event cards and the Coalition has 12 event cards. Event cards are drawn at the beginning of each day. The card will have a positive, negative, or a strategic impact. The card will indicate when to use the event card.

3.7.1 French Event Cards.
3.7.2 Armistice card (French)—No army unit attacks for one turn.
3.7.3 Napoleon increases the moral of the troops, increase a unit by an additional four points of offense for one turn if within six hexes of Napoleon.
3.7.4 Improve the roads in Leipzig, enhance your artillery mobility. Double artillery movement for a turn.
3.7.5 Morale is high, increase the defense of a division by three points for one battle.
3.7.6 Coalition Event Cards.
3.7.7 Saxon Units of the 24th or 26th Division have very low morale and will switch to your side when engaged.
3.7.8 When a player's division attacks the 24th or 26th division, they will immediately switch sides.
3.7.9 Rain has made your terrain very muddy. Mobility cost double this turn.
3.7.10 Morale is high in your Army. Use card to go first in turn; even ahead of the French.

3.7.11 Use the card at the start of a turn in order to be the first player of the turn.
3.7.12
3.7.13 Rain has made your roads and trails very muddy. Mobility cost triples along roads and trails for one turn.
3.7.14 Choose a bridge to destroy. Destruction of a bridge can occur at the start of the 18th October 1813. Bridge can be pontoon or permanent.
3.7.15 A player can destroy a pontoon or permanent bridge by placing the red cube on the bridge. If a permanent bridge, it becomes impassable. If a pontoon bridge, the unit is removed from the map.
3.7.16 Spies are deep within the French command. Identify any French unit.
3.7.17 A player can expose an adversarial unit for a day.
3.7.18 Inspired leadership has led a division to increase offense by two points for one turn.
3.7.19 Army receives additional Russian reserve support. Double your reserve for one turn.
3.7.20 Withdraw a division prior to dice roll. May move unit four hexes without losses.
3.7.21 To prevent an engagement a player may move their unit prior to being attacked.

3.8 **Turn Tracker.**



3.8.1 First Row. The first row indicates the days of the battle, between 16th to the 19th October 1813. The red cube on the 18th of October indicates when a Coalition army can blow a bridge. One of the Coalition event cards gives an army the opportunity to destroy a bridge from the 18th to the 19th of October 1813. The red cube is placed on the turn tracker over the red cube space. Once the player decides to destroy a bridge, they remove the red cube from the tracker and place it upon the bridge they wish to destroy.

3.8.2 Second Row. The second row indicates day and night. At night, cavalry cannot see more than a hex away (same as infantry) and units cannot attack.

3.8.3 Third Row. The third row indicates the turns in a day. The 2nd column notifies the players to take an event card from their deck prior to their first turn of the day. There are three day turns and one night turn.

3.8.4 Fourth Row. The fourth row is the sequence each army takes their turn. France will go first, followed by the Army of Bohemia, Army of Silesia, and the Army of North. The boxes in each column indicates their spies per a day. The French can use three spies a day and the Coalition armies have one spy per a day (see intelligence in turn sequence for information on spies).

3.8.5 The Fifth Row. The fifth row indicate the sequence within a turn. First in the sequence is placing reserve, using Intel, establishing defense, conducting movement, and lastly the attack (see section 5 for detail rules of sequence structure).

3.9 **Battle Tracker.**

3.9.1 The Battle Tracker is a tool for players to calculate offensive and defensive points (see section 5 attack sequence for details on conducting an attack).

<table>
<tr><th>Unit</th><th>Count Brigades</th><th>Combine Arms</th><th>Event Card</th><th>Terrain</th><th>Artillery</th><th>Defense</th></tr>
<tr><td>Attacking Unit</td><td rowspan="2">Point for Each Brigade (cube)</td><td rowspan="2">If use Cavalry, Infantry, and Artillery add +2</td><td rowspan="2">Use Event Card</td><td rowspan="2">Terrain Points</td><td rowspan="2">+1 pts for each 10 Guns</td><td>N/A</td></tr>
<tr><td>Defensive Unit</td><td>Add +3 if in Defense (green cube)</td></tr>
<tr><td colspan="7">Add +2 to offense or defense if Corps Headquarter within 2 hexes of fighting unit. If used must identify Headquarter.</td></tr>
<tr><td colspan="7">France add +6 to offense or defense if Napoleon within 6 hexes of fighting unit. If used must identify Napoleon.</td></tr>
<tr><td colspan="7">If Army Commander within 4 hexes of fighting unit add the following to offense or defense: Army of Bohemia Army +1, Army of Silesia +2, and Army of the North +3. If used must identify Army Commander.</td></tr>
<tr><td colspan="7">Calculate Force Ratios</td></tr>
<tr><td colspan="7">Roll Dice and consult Force Ratio Table</td></tr>
<tr><td colspan="7">If victorious, attacker moves into defender hex. If defender is victorious or a unit withdraws, will maintain in place.</td></tr>
<tr><td colspan="3" rowspan="2">Withdraw or Continue Fighting
(Like units cannot stop combat. Only a cavalry units fighting a less mobile unit can withdraw.)</td><td>Withdraw</td><td colspan="3">If attacker or defender must withdraw, they will move 1 hex that is not adjacent to an enemy unit. If they cannot move due to adjacent units they will lose a brigade or cube for each additional hex the unit must move.</td></tr>
<tr><td>Continue Fight</td><td colspan="3">Recalculate force ratios and continue fighting.</td></tr>
</table>

3.10 **Combat Results Chart.**

Dice Roll Attacker	1:3	1:2	1:1	3:2	2:1	3:1	4:1	5:1	6:1+
1	ALB	ALB	ALB	ALB	ALB	AFB	EX	EX	EX
2	ALB	ALB	AFB	AFB	AFB	EX	EX	EX	DFB
3	ALB	AFB	AFB	EX	EX	EX	DFB	DFB	DLB
4	AFB	AFB	AFB	EX	DFB	DFB	DFB	DLB	DLB
5	AFB	EX	DFB	DFB	DLB	DLB	DLB	DLB	DLB
6	DFB	DFB	DLB	DLB	DLB	DLB	DLB	DLB	DLB

- Ratio for the attacker is always rounded down. Example force ratio 22:5 will be 4:1.

ALB – Attacker Loses Brigade AFB – Attacker Falls Back EX – Exchange Brigade Losses
DLB – Defender Loses Brigade DFB – Defender Falls Back

3.10.1 Once force ratios are calculated and the attacker roles their dice, the combat results chart will indicate the results of the combat (see section 5 attack sequence for details on conducting an attack).

4. Set-up

4.1 French Set-up. The French forces can set-up all of their units on the map board but cannot set-up within the Coalition start state areas. Emperor Napoleon is allowed to task organize his corps at the start. A corps can have no more than five divisions of maneuver units (maneuver units are cavalry and infantry). The French forces can also put divisions in a defense (with green defensive cubes) at the start. The French forces should be positioned in a way, so to hide the identity of their units from the opposing players. Once complete the other players can come to the table

4.2 Objective Cards. Each Coalition player pulls an objective card from their army's deck, reviews and maintains it. They are not allowed to tell their alternative objective to their allies or opponents. The remainder of the objective cards are collected and stored away.

4.3 Sixth Coalition Meeting of Strategy. Similar to the allies Trachtenberg plan, the Coalition players get to review the French defense and devise a strategy. The French player leaves the board until the Coalition players are complete with their plan. They have a maximum of ten minutes to develop their plan. They can write their objectives and strategy on paper. After they complete the plan, the Coalition players are no longer allowed to discuss strategy or their movements with their allies.

4.3.1 At this time, the Coalition players task organize the British rocket companies. They can either divide them equally among the armies or mass them under one command.

4.4 Sixth Coalition Set-up. The Coalition players are now allowed to set-up their forces in their start state areas. The Coalition forces should be positioned in a way, so to hide the identity of their units from the opposing player. All forces do not need to be put on the board at the beginning, but all forces must be in their corps command structure (no initial task organizing). The army headquarters and

logistical bases have to be initially placed on the map. The remaining corps can be placed on the map at the beginning of any turn during the reserve phase.

4.5 Start**.** Once all units have established their start positions, the 16th October 1813 starts with the French forces taking their first event card. The Battle of Leipzig begins.

5. Game Structure

5.1 Days / Nights. The Battle of Leipzig goes from the 16th October to 19th October 1813. Each day has four turns: three during the day and one at night. At night, no fighting can occur and cavalry reconnaissance is reduced to a single hex.

5.2 Turn Sequence. Each turn sequence starts with France first, followed by the Army of Bohemia, Army of Silesia, and the Army of North. A Coalition army may go first for a turn if they use the event card that permits them to move ahead of the French within the sequence.

5.2.1 Event Card. At the beginning of each day, prior to the first turn, a player takes one of his event cards. The draw is random from their deck. The cards will have a positive, negative, or a strategic impact. The cards will indicate when to use the event card.

5.2.2 Reserve Phase. During the reserve phase you can conduct three primary actions.

5.2.2.1 Coalition forces can bring any corps onto the board into their start state area. Coalition forces do not need to put all of their forces on the map board at the beginning. They can leave corps off the map and bring them in at the start of their turn in the reserve phase.

5.2.2.2 Reserves. Check the reserve tracker and if your army receives reserves put them behind your initial start state line. Reserves cannot be moved until the movement phase.

5.2.2.3 Task Organize. Units can task organize units in the reserve phase. If two "like units" are adjacent to each other and under the same corps headquarters, they can subtract brigades from one division and add brigades to another division. Two adjacent artillery units can also reorganize guns (in increments of ten). Corps headquarters within five hexes of each other can reorganize divisions or artillery; as long as the corps does not have more than five maneuver divisions (maneuver is cavalry and infantry).

5.2.3 Intelligence. Two different intelligence functions can be conducted during this phase.

5.2.3.1 Spies. French army has three spies per a day and the Coalition armies have a spy each per a day. To use a spy, take your spy cube from the turn tracker and put it on the unit you want displayed. The unit will be displayed for the remainder of the day. After the day has run its course, the spy is removed and put back on the turn tracker. The unit goes back to being hidden. Logistical units that are identified will stay identified throughout the game, but the spy will return to the turn tracker.

5.2.3.1.1 Cavalry. Cavalry can move during this phase but not attack. They can view units three hexes away, but they cannot view through units. Once they identify an adversarial unit that unit is

exposed for the remainder of the day. Prior to the start of the night turn all identified pieces return to being concealed. When a cavalry unit is used to identify your opponent, that cavalry unit must be identified. If a cavalry unit does not use its total mobility during the intelligence phase it can use the remainder of its mobility during the movement phase.
At night, a cavalry unit can only view an adversarial unit a hex away.

5.2.4 Defense. Three different functions can be conducted during this phase.

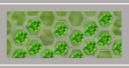
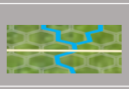
5.2.5 A player can put their divisions into a defense during this phase. Only two types of divisions can be put into a defense: cavalry and infantry. Placing a unit in a defense will increase its combat power by three points in the defense. To place a unit in the defense the player takes a green defensive cube and puts it on a unit of their choosing. Once a unit is placed in the defense, they cannot move until they are removed from the defense.

5.2.5.1 A unit can be removed from a defensive position during this phase. A unit can be removed from a defense by removing the green defensive cube. Once out of the defense the unit can move during the movement phase.

5.2.5.2 In this phase, bridge units can place and remove bridges on a river. To drop a pontoon, bridge a bridge unit must be in a hex adjacent to a river. A bridge unit is laid flat across the river during this phase. Once laid, units may cross the bridge. When a bridge is removed, the bridge unit must be placed on the near or far side of the adjacent river. A bridge unit that is laid, may still be attacked. A bridge unit may not withdraw from an attack; even if, the combat results table say to fall back. The bridge unit will not lose a unit but will remain in the battle.

5.2.6 Movement. During this phase any unit which is not in a defense can maneuver along the map. Two units cannot occupy the same hex, but units can move through allied units. Units can maneuver around an enemy unit if the enemy unit is at least a hex apart from the friendly unit.

5.2.6.1 Terrain mobility cost.

Terrain	Map	Mobility	Defense	Offense
		Effects		
Flat Terrain		Maintain Mobility	Maintain Defense	Maintain Offense
Forrest		Mobility Cost 2 (Cav Mob Cost 4)	Increase Defense +2	Decrease Offense +1 Each Corps
River		Cannot Cross without Bridge	N/A	
Bridge		Mobility Cost 2 (Entire Turn)	If defending against an attacker crossing a river, +4 to defender. If attacking an opponent with a river to their rear, +3 to attacker.	
Road		Mobility Cost 1/2	Maintain Defense	Maintain Offense
Trail		Mobility Cost 1/2	Maintain Defense	Maintain Offense
Urban		Mobility Cost 2	Increase Defense +3	Maintain Offense

5.2.7 Attack. Units can only attack if they are adjacent to an enemy unit.

5.2.7.1 If a unit is attacking an army or corps headquarters they immediately capture the unit and it is removed from the map.

5.2.7.2 Multiple friendly divisions that are adjacent to a single enemy unit can conduct a combined attack against the unit. Defensive units that are adjacent can only combine their combat power after the first dice role of the battle. If a unit has already been attacked or supported another unit in the turn that unit cannot support another adjacent unit.

5.2.7.3 Artillery units can support a defensive or offensive unit if they are one hex away from their targeted unit. If a unit has already been attacked or supported another unit in the turn that unit cannot support another adjacent unit.

5.2.7.4 Use the Battle Tracker.

Unit	Count Brigades	Combine Arms	Event Card	Terrain	Artillery	Defense
Attacking Unit	Point for Each Brigade (cube)	If use Cavalry, Infantry, and Artillery add +2	Use Event Card	Terrain Points	+1 pts for each 10 Guns	N/A
Defensive Unit						Add +3 if in Defense (green cube)
Add +2 to offense or defense if Corps Headquarter within 2 hexes of fighting unit. If used must identify Headquarter.						
France add +6 to offense or defense if Napoleon within 6 hexes of fighting unit. If used must identify Napoleon.						
If Army Commander within 4 hexes of fighting unit add the following to offense or defense: Army of Bohemia Army +1, Army of Silesia +2, and Army of the North +3. If used must identify Army Commander.						
Calculate Force Ratios						
Roll Dice and consult Force Ratio Table						
If victorious, attacker moves into defender hex. If defender is victorious or a unit withdraws, will maintain in place.						
Withdraw or Continue Fighting (Like units cannot stop combat. Only a cavalry units fighting a less mobile unit can withdraw.)				Withdraw	If attacker or defender must withdraw, they will move 1 hex that is not adjacent to an enemy unit. If they cannot move due to adjacent units they will lose a brigade or cube for each additional hex the unit must move.	
				Continue Fight	Recalculate force ratios and continue fighting.	

5.2.7.5 Prior to unit attack, the British rocket unit(s) may attack. Each rocket unit may attack once a turn. If rocket companies combine their attack they have one attack a turn combined. The attacker chooses a target within four hexes and rolls the dice. Consult the rocket combat results chart.
5.2.7.5.1.1 Miss—no change to target status.

5.2.7.5.1.2 Disrupt - target must fall back at least two hexes. If the unit needs to fall back further than two hexes it will lose a cube for each additional hex needed to fall back. Units in a defense (green cube) cannot be disrupted.

5.2.7.5.1.3 Defeat—unit loses a cube. Unit is in a defense (green cube) will only be disrupted.

5.2.7.5.1.4 Rocket Result Chart:

Rockets	1	2	3	4	5	6
1 Battery	Miss	Miss	Miss	Miss	Disrupt	Disrupt
2 Batteries	Miss	Miss	Disrupt	Disrupt	Disrupt	Defeat
3 Batteries	Miss	Disrupt	Disrupt	Disrupt	Defeat	Defeat

Miss – No Change, Disrupt – Target must fall back x2 hexes, Defeat – Target lose x1 cube
Targeted Unit in a Defense – Disrupt = Miss; Defeat = Disrupt

5.2.7.5.1.5 The attacking player chooses the sequence of their attacks. An attacking unit or artillery unit may only attack once per a turn.

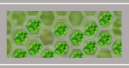
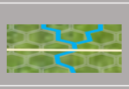
5.2.7.5.1.6 Attacking and Defensive units follow through their respective rows in order to calculate the combat power of the units fighting.

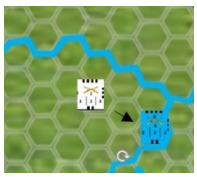
5.2.7.5.1.7 Calculate the brigades (black cubes on the playing piece) of each division attacking. If offense has multiple divisions in the fight, calculate all the brigades. Defensive units cannot add the adjacent units until after the first iteration of combat (after first dice roll). Artillery unit cubes are only being calculated as brigades if they are being directly attacked (10 guns = 1 brigade). Bridge and logistical units cubes equate to a brigade in the defense.

5.2.7.5.1.8 If a player is attacking with field artillery, cavalry, and infantry units they add two points for combined arms attack. Defense can add two points of combine arms after the first iteration if they are combining the use of artillery, cavalry, and infantry units.

5.2.7.5.1.9 If the offense or defense has an event card to use it may be applied at this time.

5.2.7.5.1.10 Offense and defense review the terrain effects chart and modify your combat power points.

Terrain	Map	Mobility	Defense	Offense
		Effects		
Flat Terrain		Maintain Mobility	Maintain Defense	Maintain Offense
Forrest		Mobility Cost 2 (Cav Mob Cost 4)	Increase Defense +2	Decrease Offense +1 Each Corps
River		Cannot Cross without Bridge	N/A	
Bridge		Mobility Cost 2 (Entire Turn)	If defending against an attacker crossing a river, +4 to defender. If attacking an opponent with a river to their rear, +3 to attacker.	
Road		Mobility Cost 1/2	Maintain Defense	Maintain Offense
Trail		Mobility Cost 1/2	Maintain Defense	Maintain Offense
Urban		Mobility Cost 2	Increase Defense +3	Maintain Offense



5.2.7.5.1.11 Fighting on a river. A unit that is defending against an attacking unit crossing a river will gain four points in combat power. A unit attacking a unit, which has the river to the defender's rear, will gain three points in combat power.

5.2.7.5.1.12 Offense and Defense add a point for every ten guns (cube on artillery unit = ten guns) supporting the fight. If you have multiple artillery units supporting the fight add all the points. Modify your combat power.

5.2.7.5.1.13 Defensive units in a defensive posture (green defensive cube) add three points to their combat power.

5.2.7.5.1.14 Add headquarter combat power. If used, must display headquarter.

5.2.7.5.1.15 Add the army headquarter combat power.

5.2.7.5.1.16 Add the corps headquarter combat power.

5.2.7.5.1.17 Calculate your entire combat power for the offense and defense.

5.2.7.5.1.18 The attacker rolls the dice and both sides consult the Combat Result Chart.

Dice Roll Attacker	1:3	1:2	1:1	3:2	2:1	3:1	4:1	5:1	6:1+
1	ALB	ALB	ALB	ALB	ALB	AFB	EX	EX	EX
2	ALB	ALB	AFB	AFB	AFB	EX	EX	EX	DFB
3	ALB	AFB	AFB	EX	EX	EX	DFB	DFB	DLB
4	AFB	AFB	AFB	EX	DFB	DFB	DFB	DLB	DLB
5	AFB	EX	DFB	DFB	DLB	DLB	DLB	DLB	DLB
6	DFB	DFB	DLB	DLB	DLB	DLB	DLB	DLB	DLB

- **Ratio for the attacker is always rounded down. Example force ratio 22:5 will be 4:1.**

ALB – Attacker Loses Brigade **AFB – Attacker Falls Back** **EX – Exchange Brigade Losses**
DLB – Defender Loses Brigade **DFB – Defender Falls Back**

5.2.7.5.2 Find the force ratios in the top row. Offense will always be rounded down while calculating the force ratios.

5.2.7.5.3 Where the dice roll and force ratio converges is your combat results for this iteration.

5.2.7.5.4 Combat Results.

5.2.7.5.5 Attacker Loses Brigade. Attacker reduces a division that is attacking by one brigade. Rotate division or artillery unit in order to reduce the black cubes. The current unit combat strength should be indicated by the black cubes on top.

5.2.7.5.6 Defender Loses Brigade. Defender reduces a division that is defending by one brigade. Rotate division or artillery unit in order to reduce the black cubes. The current unit combat strength should be indicated by the black cubes on top.

5.2.7.5.7 Attacker Falls Back. Attacker has a division withdraw from the fight (see withdraw below). If using multiple units, only one division withdraws (the remaining divisions stay engaged). The attacking player chooses the unit.

5.2.7.5.8 Defender Falls Back. Defender has a division withdraw from the fight (see withdraw below). Artillery and bridge units cannot fall back (units do not lose cube).

5.2.7.5.9 Exchange Brigade Losses. The attacker and defender lose one brigade each. Players choose their divisions to reduce by brigade. Rotate division or artillery unit in order to reduce the black cubes. The current unit combat power should be indicated by the black cubes on top.

5.2.7.5.10 Execute the combat results. If units are still engaged, conduct second iteration of the battle by recalculating combat power of the offense and defense. Defense can add combat power of adjacent unit(s) after first iteration. If withdraw see below.

5.2.8 Withdrawal.

5.2.8.1 Cavalry has the ability to withdraw from an infantry unit after the initial attack. Cavalry can only withdraw with their remaining mobility. If they do not have any mobility they must stay engaged. All other units must stay engaged in a battle, unless the combat results table has their unit fall back.

5.2.8.2 Artillery and bridges cannot withdraw. They have to maintain fighting, even if, the combat results table indicates for them to withdraw.

5.2.8.3 If the combat result chart indicates that the defender or offensive unit must withdraw, the unit must withdraw to an open hex not adjacent to an enemy unit. If the unit cannot immediately withdraw to an open hex, they will lose one brigade for each hex they have to go through in order to get to an open hex. For example, a division with three brigades which has to go through two friendly units to get to an open hex, will only have one brigade remaining. A unit that loses all of its brigades will be removed from the map.

6. **Napoleon on the Escape.** To prevent from losing and to cause a draw, Emperor Napoleon has to escape. In order to escape, Napoleon playing piece must maneuver off the map board. The French player has to wait until the 19th of October 1813 to begin Napoleon's withdrawal. There are two incidents that can trigger an early withdraw: the defeat of eight French corps headquarters or the capture of Leipzig by the Coalition forces. If either of these events occur Napoleon has four sequence turns to escape. Napoleon can only go around an enemy unit if it is more than a hex away. Once Napoleon is off the map, the game is at an end and all players came to a draw.

If Napoleon cannot maneuver off the map by the end of turn four on 19th October, he is captured.

7. Ending the Game

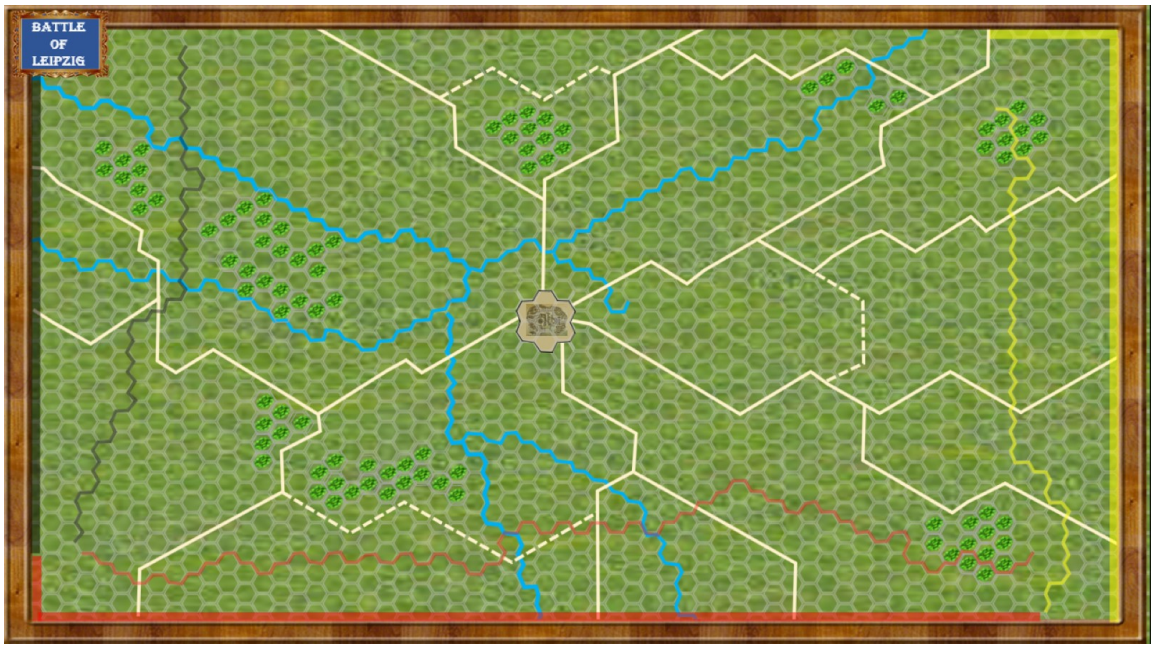
7.1 France. If Napoleon is captured, the game is over for the French player and they lost. If France defeats an army by making them combat ineffective, capturing their commander or destroying their logistical base, that army becomes inactive. At the start of the next sequence turn the army is removed from the map. Once Napoleon can defeat two armies, the game is complete and the French forces win.

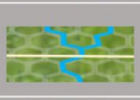
7.2 The Sixth Coalition. If Napoleon defeats two of their armies the game is over and the Coalition forces lost. If Napoleon escapes off the map board the game is a draw. If the Coalition captures Napoleon the game is almost complete. The French forces have lost, but each of the Coalition players must display their objective cards. Whichever army completed their additional objective wins the game. If multiple players achieve their additional objective, they each are considered game winners.

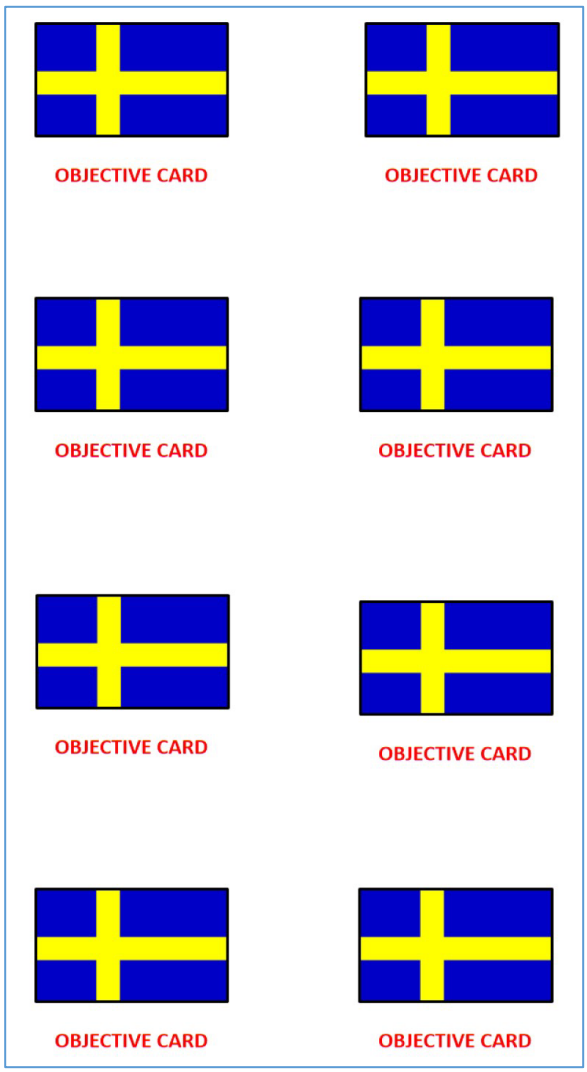
7.2.1 Letting Napoleon Escape. If the objective card for a Coalition player gives an alternative objective to let Napoleon escape and Napoleon escapes, that player is the overall winner.

APPENDIX B

BATTLE OF LEIPZIG COMPONENTS AND CHARTS



Terrain	Map	Mobility	Defense	Offense
		Effects		
Flat Terrain		Maintain Mobility	Maintain Defense	Maintain Offense
Forrest		Mobility Cost 2 (Cav Mob Cost 4)	Increase Defense +2	Decrease Offense +1 Each Corps
River		Cannot Cross without Bridge	N/A	
Bridge		Mobility Cost 2 (Entire Turn)	If defending against an attacker crossing a river, +4 to defender. If attacking an opponent with a river to their rear, +3 to attacker.	
Road		Mobility Cost 1/2	Maintain Defense	Maintain Offense
Trail		Mobility Cost 1/2	Maintain Defense	Maintain Offense
Urban		Mobility Cost 2	Increase Defense +3	Maintain Offense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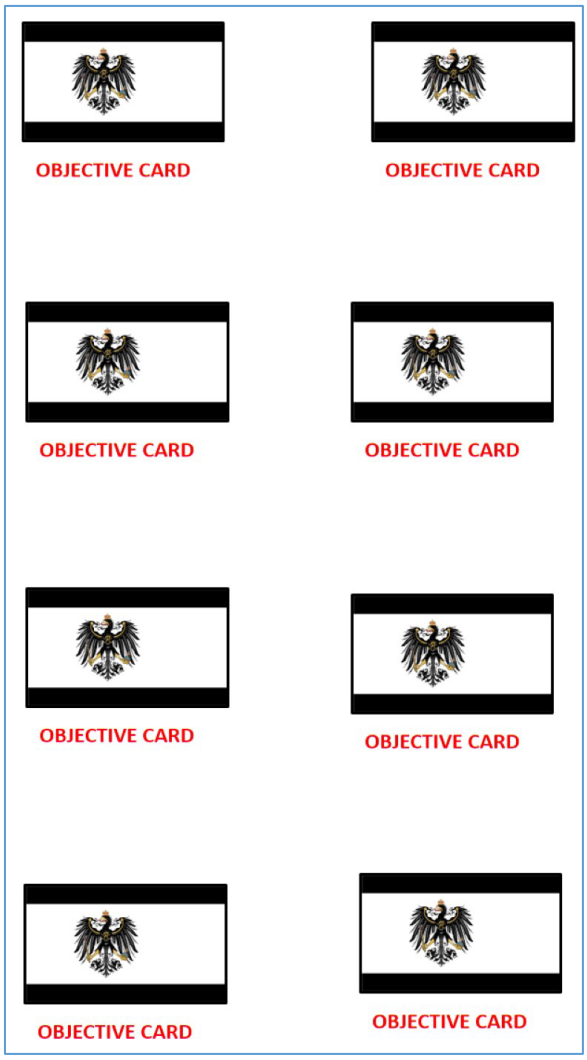
OBJECTIVE CARD

In the war for power at the negotiation table; must maintain divisions at 22 brigades to hold influence.	**Being a former Napoleon marshal, Prince Charles wants the French defeated but Napoleon to escape.**	**For more power at the negotiation table after the war must maintain divisions at 15 brigades to hold influence.**	
To prevent an expanding Prussian empire the Army of Silesia must lose a corps.	**To improve Swedish position the Army of Bohemia must have less than five corps.**		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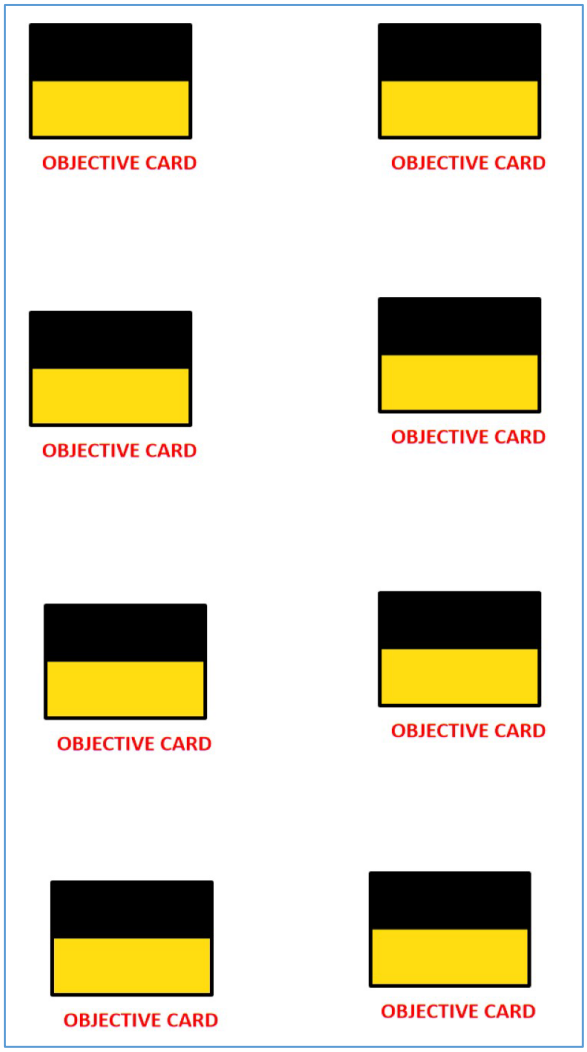
Napoleon can retreat but to maintain high nationalism Army of Silesia must occupy Leipzig before the other Coalition armies.	**In order to maintain balance of power the Army of Silesia must maintain 18 brigades.**	**To maintain high nationalism Army of Silesia must capture Napoleon.**	
To weaken Austria the Army of Bohemia must have less than five corps.	**In order to maintain balance of power the Army of Silesia must maintain 22 brigades.**		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OBJECTIVE CARD
OBJECTIVE CARD
OBJECTIVE CARD

In fear of Napoleon's reprisal, the Army of Bohemia must capture Napoleon.	In fear of Russian dominance, the Army of Bohemia must maintain 42 brigades.	In order to maintain balance of power the Army of the North must lose one corps.	
To build national support for the Austrian Empire the Army of Bohemia must capture Napoleon.	To weaken the Prussian empire the Army of Silesia must lose one corps		

French Army – Emperor Napoleon Bonaparte

II Cavalry Corps – Sebastiani
- 2nd Light Cavalry Division
- 4th Light Cavalry Division
- 2nd Heavy Cavalry Division
- Reserve Artillery
- (~6k Cavalry, 30 guns)

II Corps – Victor and Oudinot
- 4th Division
- 5th Division
- 6th Division
- Reserve Artillery
- (~17k Soldiers, 60 guns)

IV Corps – Bertrand
- 12th Division
- 5th Division
- 38th Division
- Cavalry Divisions
- Artillery Reserve
- (~6k Soldiers, ~1k Cavalry, 40 guns)

V Corps – Lauriston
- 10th Infantry Division
- 16th Infantry Division
- Reserve Artillery
- (~15k Soldiers, 3k Cavalry, 60 guns)

VI Corps – Margaron
- 20th Division
- 21st Division
- 22nd Division
- Reserve Artillery
- (~15k Soldiers, ~1k Cavalry, 80 guns)

VII Corps – Reynier
- 13th Division
- 24th Division (Saxons)
- 32nd Division
- 26th Light Cavalry Division (Saxons)
- Reserve Artillery
- (~12k Soldiers, ~1k Cavalry)

VIII Corps – Prince Poniatowski
- 26th Division
- 27th Division
- Reserve Artillery
- (~6k Soldiers, 40 guns)

IX Corps – Augereau
- 51st Division
- 2nd Division
- (~9k Soldiers, 20 guns)

XI Corps – Macdonald
- 31st Infantry Division
- 35th Infantry Division
- 36th Infantry Division
- 39th Infantry Division
- Reserve Artillery
- (~20k Soldiers, ~1k Cavalry, 20 guns)

Young Guard – Mortier
- 1st Division
- 2nd Division
- 3rd Division
- 4th Division
- Guard Cavalry
- Reserve Artillery
- (~30k Soldiers, ~8k Cavalry, 200 guns)

Old Guard - Friant
- X2 Chasseur Regiments (~3k Light Cavalry)
- X2 Grenadier Regiments (~3k Soldiers)

Independent Division
- X2 Brigades
- Cavalry Brigade
- (~4k Soldiers, 1k Cavalry)

* 24th and 26th Division can potentially switch sides and fight for the Coalition Army.

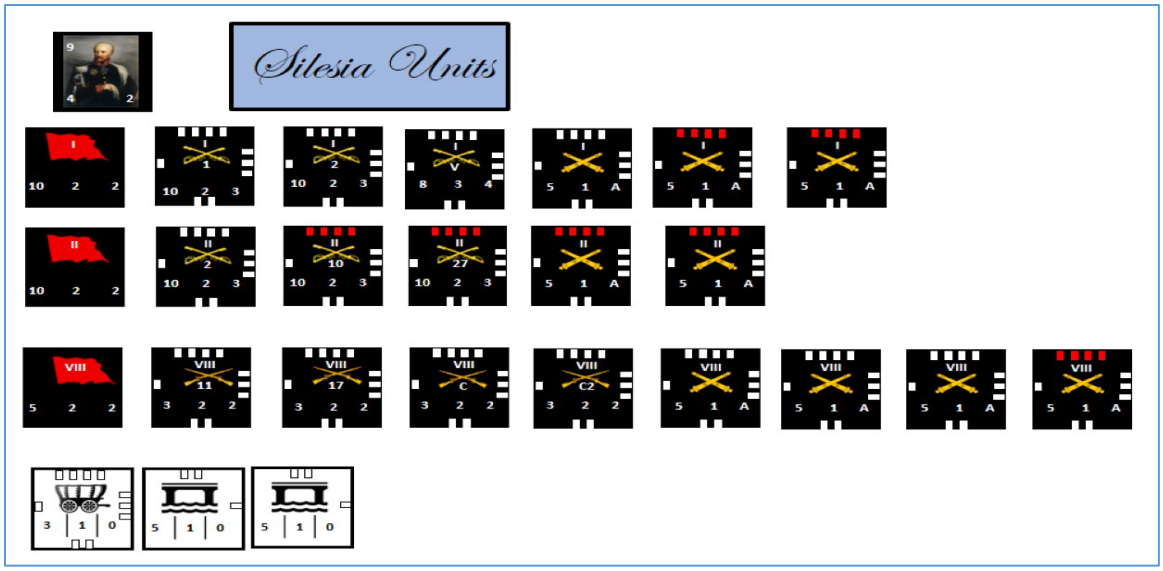
Allied Army - Tzar Alexander I

Army of the Silesia – **Gebhard Leberecht von Blucher**

I Corps – Yorck (Prussia)
- Vanguard
- Reserve Cavalry
- Reserve Artillery
- (~17k Cavalry, 104 guns)

II Corp Sacken (Russians)
- 2nd Hussar Division
- 10th Infantry Division
- 27th Infantry Division
- (~10k Cavalry, 60 guns)

VIII Corps
- 11th Division
- 17th Division
- Cossacks
- (25k Soldiers, 146 Guns)



Allied Army – Tzar Alexander I

Army of Bohemia – Prince of Schwarzenberg

Austrians
- 1st Division (~2k Soldiers, ~3k Cavalry, 12 guns)
- 2nd Division (~9k Soldiers, ~1k Cavalry, 18 guns)

I Corps - Colloredo
- Division Hardegg
- Division Wimpffen
- Division Greth
- Reserve Artillery
- (~15k Soldiers, ~5k Cavalry, 40 guns)

II Corps – Merveldt
- Division Lederer
- Division Alois
- (~6k Soldiers, ~6 Cavalry, 40 guns)

III Corps – Gyulai
- Division Crenneville
- Division Murray
- Division Prince of Hessen-Homburg
- Reserve Artillery
- (~15k Soldiers, ~4k Cavalry, 40 guns)

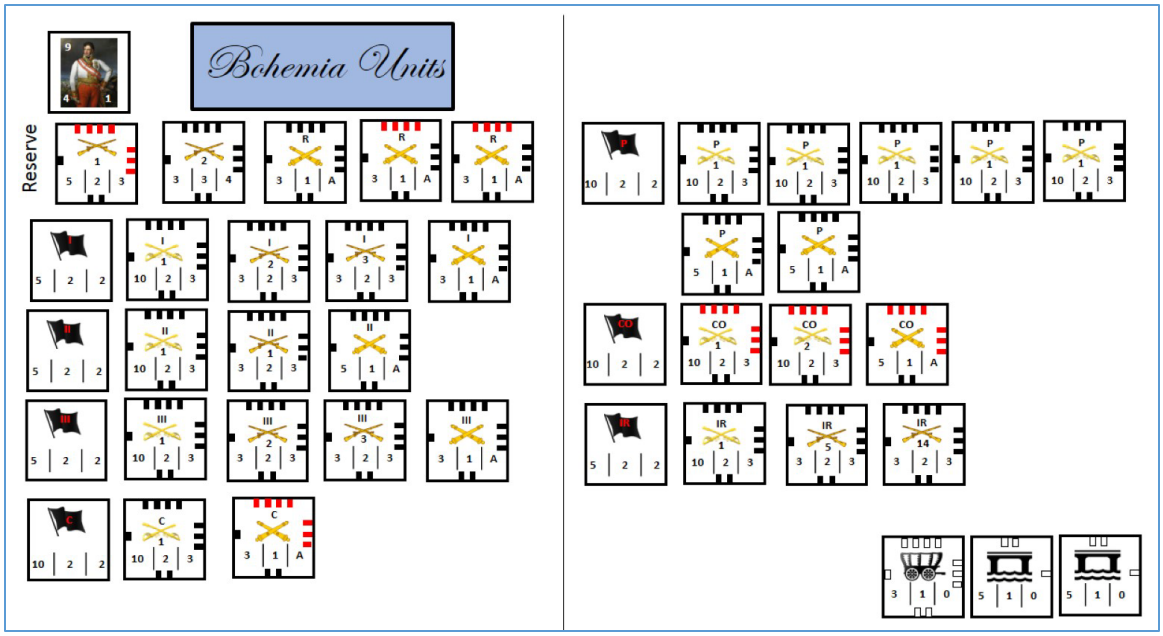
Army Reserve
- Army Artillery Reserve (100 guns)

Combined Cavalry Corps – Pahlen III
- 1st Hussar Division
- Combine Uhlan Division
- Division Illowaiski
- Corps Artillery
- (~4k Cavalry, 20 guns)

I Corps – Gortschakow
- 5th Division
- 14th Division
- (~10k Soldiers, ~5k Cavalry)

Prussian Guards (~10k Soldiers, ~25k Cavalry, 80 guns)

Cossack Corps
- 1st, 2nd, 3rd, 4th Regiment
- (~5k Cavalry, 10 guns)



Allied Army - Tzar Alexander I

Army of the North – Crown Prince Charles John of Sweden

I Corps Wintzingerode (Russians)
- Vanguard
- 21st Division
- 24th Division
- Provisional Division

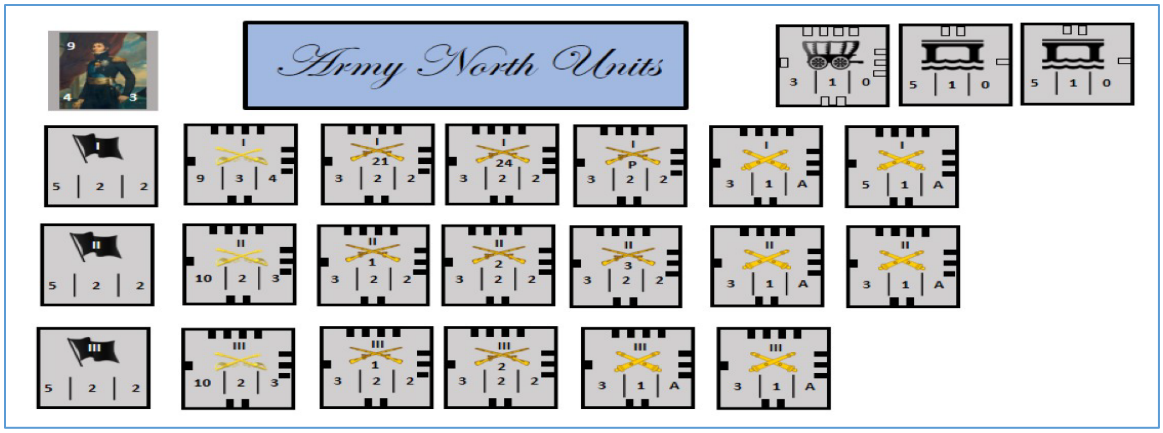
(~18k Soldiers, ~6 Cavalry, 86 guns)

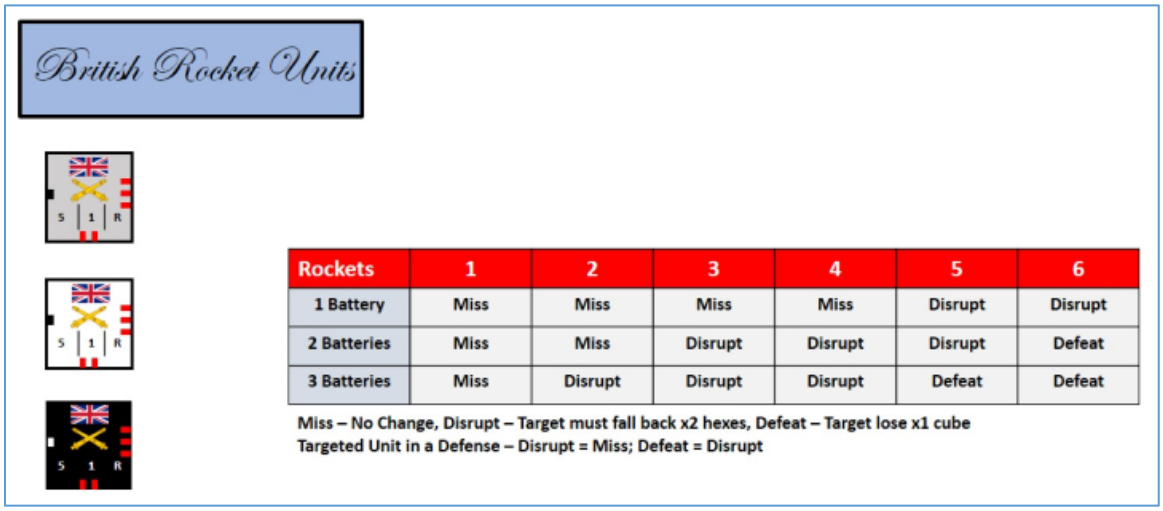
III Corps – Bulow (Prussians)
- 3rd Division
- 5th Division
- 6th Division
- Reserve Cavalry

(~15k Soldiers, ~5 Cavalry, 74 guns)

II Swedish Corps - Steding
- 1st Division
- 2nd Division
- Artillery Division
- Cavalry Division
- Artillery Reserve

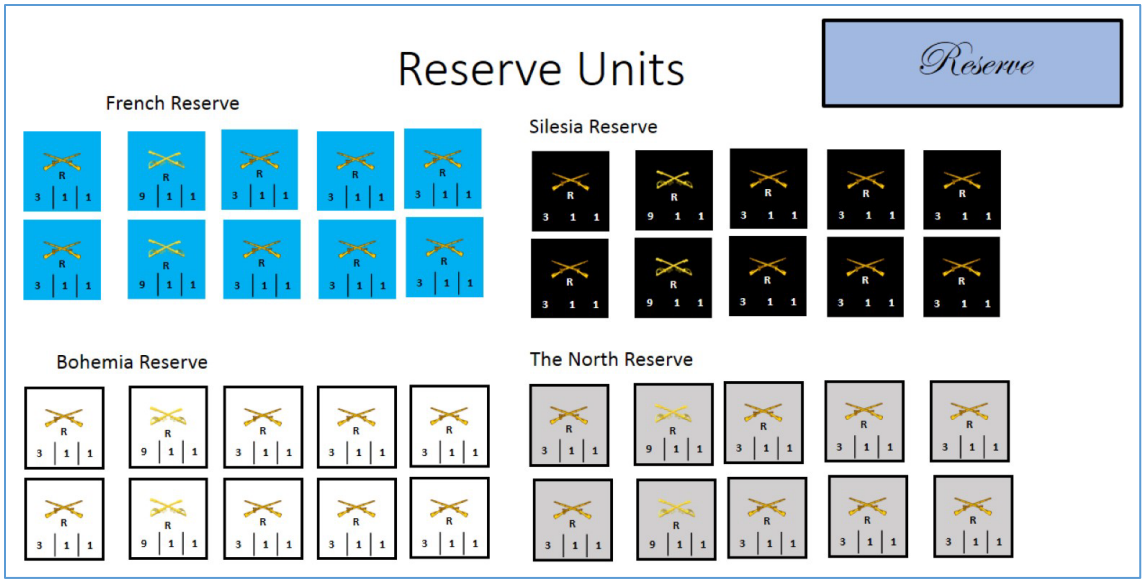
(~12k Soldiers, ~5 Cavalry, 78 guns)





Rockets	1	2	3	4	5	6
1 Battery	Miss	Miss	Miss	Miss	Disrupt	Disrupt
2 Batteries	Miss	Miss	Disrupt	Disrupt	Disrupt	Defeat
3 Batteries	Miss	Disrupt	Disrupt	Disrupt	Defeat	Defeat

Miss – No Change, Disrupt – Target must fall back x2 hexes, Defeat – Target lose x1 cube
Targeted Unit in a Defense – Disrupt = Miss; Defeat = Disrupt



Reserve Tracker

Reserve Tracker				
16 Oct 17	1	2	3	4
17 Oct 17	1	2	3	4
18 Oct 17	1	2	3	4
19 Oct 17	1	2	3	4

Infantry - ⬡ Cavalry - △

Reserve Brigades: French - ⬢ Bohemia - ⬢ Silesia - ⬡ The North - ⬡

Sequence of Action

Turn Tracker

	October 16	October 17	October 18	October 19
	Day			Night
Turns	Event Card	1	2	3	4
France ■ ■ ■	Bohemia ■	Silesia ■	North ■	
Reserve	Intel	Defense	Movement	Attack

The Battle

Unit	Count Brigades	Combine Arms	Event Card	Terrain	Artillery	Defense
Attacking Unit	Point for Each Brigade (cube)	If use Cavalry, Infantry, and Artillery add +2	Use Event Card	Terrain Points	+1 pts for each 10 Guns	N/A
Defensive Unit						Add +3 if in Defense (green cube)
Add +2 to offense or defense if Corps Headquarter within 2 hexes of fighting unit. If used must identify Headquarter.						
France add +6 to offense or defense if Napoleon within 6 hexes of fighting unit. If used must identify Napoleon.						
If Army Commander within 4 hexes of fighting unit add the following to offense or defense: Army of Bohemia Army +1, Army of Silesia +2, and Army of the North +3. If used must identify Army Commander.						
Calculate Force Ratios						
Roll Dice and consult Force Ratio Table						
If victorious, attacker moves into defender hex. If defender is victorious or a unit withdraws, will maintain in place.						
Withdraw or Continue Fighting (Like units cannot stop combat. Only a cavalry units fighting a less mobile unit can withdraw.)				Withdraw	If attacker or defender must withdraw, they will move 1 hex that is not adjacent to an enemy unit. If they cannot move due to adjacent units they will lose a brigade or cube for each additional hex the unit must move.	
				Continue Fight	Recalculate force ratios and continue fighting.	

Combat Results

Dice Roll Attacker	1:3	1:2	1:1	3:2	2:1	3:1	4:1	5:1	6:1+
1	ALB	ALB	ALB	ALB	ALB	AFB	EX	EX	EX
2	ALB	ALB	AFB	AFB	AFB	EX	EX	EX	DFB
3	ALB	AFB	AFB	EX	EX	EX	DFB	DFB	DLB
4	AFB	AFB	AFB	EX	DFB	DFB	DFB	DLB	DLB
5	AFB	EX	DFB	DFB	DLB	DLB	DLB	DLB	DLB
6	DFB	DFB	DLB	DLB	DLB	DLB	DLB	DLB	DLB

- Ratio for the attacker is always rounded down. Example force ratio 22:5 will be 4:1.

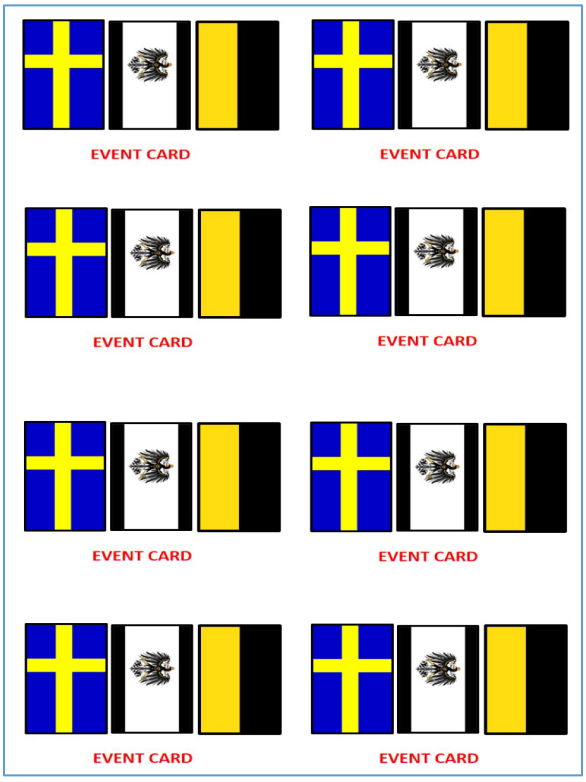
ALB – Attacker Loses Brigade AFB – Attacker Falls Back EX – Exchange Brigade Losses DLB – Defender Loses Brigade DFB – Defender Falls Back

Rockets	1	2	3	4	5	6
1 Battery	Miss	Miss	Miss	Miss	Disrupt	Disrupt
2 Batteries	Miss	Miss	Disrupt	Disrupt	Disrupt	Defeat
3 Batteries	Miss	Disrupt	Disrupt	Disrupt	Defeat	Defeat

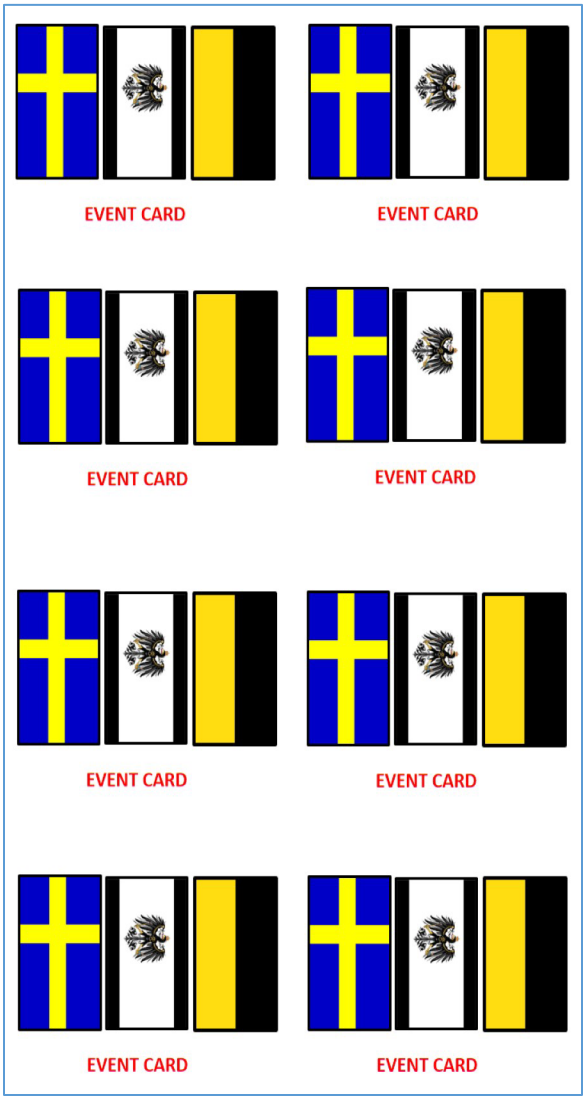
Miss – No Change, Disrupt – Target must fall back x2 hexes, Defeat – Target lose x1 cube
Targeted Unit in a Defense – Disrupt = Miss; Defeat = Disrupt

 EVENT CARD	 EVENT CARD
 EVENT CARD	 EVENT CARD
 EVENT CARD	 EVENT CARD
 EVENT CARD	 EVENT CARD

Armistice Card (French) – No army unit attacks for one turn (use at your choosing).	Napoleon increases the morale of the troops, increase a unit by an additional four points of offense for one turn if within six hexes of Napoleon (use at your choosing).	Improve the roads in Leipzig; enhance your artillery mobility. Double artillery movement for a turn (use at your choosing).	
Morale is high, increase the defense of a division by three points for one battle (use at your choosing).			



Saxon Units of the 24th or 26th Division have very low morale and will switch to your side when engaged.	Rain has made your terrain very muddy. Mobility cost double this turn (use card on turn one of the current day).	Morale is high in your army. Use card to go first in turn, even ahead of the French (use at your choosing).	
Rain has made your roads and trails very muddy. Mobility cost triples along roads and trails for one turn (use card on turn one of current day).	Choose a bridge to destroy. Destruction of a bridge can occur at the start of the 18th October 1813. Bridge can be pontoon or permanent (Place red cube on destroyed bridge. If you destroy a pontoon bridge, the bridging unit is removed from the map).	Spies are deep within the French command. Identify any French unit. (use at your choosing and French unit will be identified for the entire day).	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Inspired leadership has led a division to increase offense by two points for one turn (use card at your choosing).	Morale is high in your army. Use card to go first in turn; even ahead of the French (use at your choosing).	Army received additional Russian reserve support. Double your reserve for one turn (use at your choosing).	
Inspired leadership has led a division to increase defense by two points for one turn (use card at your choosing).	Withdraw a division prior to dice roll. May move unit four hexes without losses (use at your choosing).	Spies used to decrease morale of a division. Division mobility, defense, and offense decreased by half (use at your choosing).	

Source: All figures created by author.

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