

FROM BLACK POWDER TO THE IVORY TOWER: PATTERNS OF ADAPTIVE REUSE
AND PRESERVATION OF CONFEDERATE ARMORIES AND ARSENALS ON THREE
GEORGIA UNIVERSITY CAMPUSES.

by

CHASE DIXON KLUGH

(Under the Direction of Scott Nesbit)

ABSTRACT

Currently, three Confederate armories and arsenals are located on Georgia university property. How and why these extant structures remain comprise the major research question of this work. Research rooted in themes and patterns of post-Civil War adaptive reuse and preservation revealed the answers. The discussed adaptive reuse patterns bring contemporary information to Civil War literature. Additionally, conclusions drawn from this thesis initiate a discussion centered on the origins of the preservation movement and the role that postwar adaptive reuse plays in this narrative.

INDEX WORDS: Armory, Arsenal; Iron Works; Ordnance; Confederate Ordnance Department; Confederate Georgia; Augusta; Athens; Columbus; University of Georgia; Augusta University; Columbus State University; Adaptive Reuse; Preservation

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DEDICATION

In Memory of Brad Klugh.

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CHAPTER 1

INTRODUCTION

Collective ideals in the post-Civil War South hinged on progress, industry, and work. Veterans and citizens alike participated in revamping and actively progressing the war-torn landscape. Following the war, this collective group well understood that industrial expansion, combined with a slight separation from king cotton, would be key in restoring the South. The adaptive reuse and subsequent preservation of Civil War Era buildings and others used throughout the war played a major role in this transformation. In Georgia, three currently extant Confederate armories and arsenals highlight themes of adaptive reuse and preservation common among Civil War Era structures. A postwar southern society initiated movements centered on adapting and reusing wartime buildings. In Macon, Georgia, the Confederate States Central Laboratory and Confederate States Armory laid incomplete throughout the latter decades of the nineteenth century. As early as 1866, citizenry calls for adaptive reuse reflected sentiments focused on restoring Georgia's major cities. A *Georgia Weekly Telegraph* editor noted, "Attention should now be turned to those superb but incomplete structures, the Confederate Armory and Laboratory. If we are insensible to their adaptation and value, we hope some shrewd Yankee with a long purse may come along and give us a practical illustration of his wisdom and enterprise."¹ These postwar beliefs, rooted in adaptive reuse and preservation, were not a product of nostalgia, but a mirroring of the collective spirit for progression within the New South. The

¹ *Georgia Weekly Telegraph* (Macon, Georgia), January 15, 1866.

three currently extant structures, all owned by Georgia universities, epitomize postwar attitudes concerning adaptive reuse and preservation. Additionally, the postwar findings in this thesis initiate a discussion centered around the origins of historic preservation in the United States.

In keeping with Max Page's *Giving Preservation a History*, conclusions reached throughout this study connect to the overarching history surrounding the preservation movement. As one of the broadest and longest-lasting land-use reform efforts in the United States, the field of historic preservation lacks a full understanding of its history. Preservationists will undoubtedly single out Pamela Ann Cunningham and Mount Vernon in 1860 or the failure to save New York's Pennsylvania Station in 1963 as points of reference for the beginnings of the entire movement.² Although these events remain essential to the historical narrative of preservation, this thesis highlights additional patterns and themes that should be considered alongside the foundational stories. The patterns of adaptive reuse and preservation within Georgia's Confederate cities occurred contemporarily with what took place at Mount Vernon. The successes experienced at Mount Vernon in 1860 did not occur within a vacuum. In the latter half of the same decade, patterns of adaptive reuse and preservation of Civil War Era structures added another facet to the beginnings of the preservation movement. This facet included adaptive reuse and forward-looking progression as the catalysts for preservation rather than nostalgic memories and commemoration. This thesis aims to highlight, through the research of three extant Confederate armories and arsenals, that looking at the history of preservation through the lens of post-Civil War adaptive reuse adds a key component for the beginnings of preservation on a larger scale. In no way does this thesis aim to debunk or provide an entirely new history of the

² Max Page and Randall Mason, *Giving Preservation a History: Histories of Historic Preservation in the United States* (New York: Routledge, 2004) 1-4.

preservation movement. Rather, intentions center around the inclusion of adaptive reuse and postwar progressive New South ideals as equals with nostalgia and commemoration for the origins of historic preservation.

Research Question

The primary research objective of this thesis is to answer how Confederate armories and arsenals were adaptively reused following the Civil War, specifically, how and why these structures were acquired and utilized by Georgia universities and colleges. The conclusions drawn from this research prompted a discussion concerning the overall origins of the preservation movement. This discussion hinges on the fact that adaptive reuse and ideas of postwar progression should be included in the overall historic narrative of the historic preservation movement.

Methodology

The methodological approach for this thesis began with establishing a broad understanding of weapons manufacturing during the Civil War. This approach encompassed researching related facets of wartime materials production. This research relied on general histories of the Civil War, with a specific focus on arms manufacturing. Research provided baseline information concerning the different Civil War ordnance operations and the purpose and function of each. Specifically, the roles and utilization of armories, arsenals, iron works, powder works, armory halls, and railroad depots outlined key initial information. This broad level research looked at the different ordnance operations for both Union and Confederate forces. This all-encompassing approach formulated definitions and provided information intended for use at

the broadest level. Overall, this initial research process produced key findings that are essential to the core of this thesis and utilized throughout. The remainder of completed research had a concentrated focus on Confederate ordnance operations and the state of Georgia.

Within this broad framework, the methodology for research shifted to focus on Confederate ordnance operations. This approach also employed assessing a broad level narrative of arms manufacturing in the Confederacy throughout the Civil War and the establishment of centers for necessary production. This narrative illuminated the desperate shortage of Confederate arms at the beginning of and during the Civil War. This subject is covered extensively in Chapter One. Initial research assisted in limiting the scope for other areas of research pertaining to Confederate wartime production only. Research centered around understanding and interpreting the functionality and role of Confederate armories, arsenals, iron works, and powder works.

This assessment provided information about the Confederate Ordnance Department and Confederate Chief of Ordnance, Josiah Gorgas. Information from this research signaled additional areas for investigation including the major ordnance operations and their locations within the Confederacy. These highlighted ordnance centers included Tredegar Iron Works in Richmond, Virginia, Fayetteville Arsenal in Fayetteville, North Carolina, Confederate Powder Works in Augusta, Georgia, and Richmond Armory in Richmond, Virginia. These locations exemplified their respective roles for the Confederate Ordnance Department. Understanding the overall aspects associated with these examples further solidified the broader framework of ordnance operations across the Confederacy. Not only function and purpose but also size, volume of production, and associated buildings and architecture highlighted similarities and differences between the various ordnance centers. The question, research, answer method

comprised the remainder of completed research. The remaining research was dedicated to the state of Georgia.

Research concerning Confederate Georgia had a straightforward methodological approach. With the broad framework in place, research became increasingly concentrated on one subject: Georgia's Confederate armories and arsenals. The methodology resulted in several lists that became more refined following examination and additional questioning. Initial research attempts focused on defining the overarching role that Georgia played throughout the Civil War. This historical overview provided general information about ordnance centers in Georgia including when, where, and why they were established. James B. Whisker's *U.S. and Confederate Arms and Armories During the American Civil War* generated a statewide list of ordnance operations. This resource provided a concise survey of the arms, armories, arsenals, and ordnance centers in the Confederate States. Additionally, this secondary work highlighted ordnance operations contracted or owned by the Confederate Government within Georgia's borders. This process produced a list of key Confederate ordnance locations in Georgia including, Macon Arsenal, Macon Armory, and Macon Laboratory in Macon, Georgia, Atlanta Arsenal and Atlanta Naval Ordnance in Atlanta, Georgia, Augusta Arsenal and Confederate Powder Works in Augusta, Georgia, Columbus Arsenal, Columbus Iron Works/Confederate States Naval Iron Works in Columbus, Georgia, Cook and Brother Armory in Athens, Georgia, Georgia, Savannah Arsenal in Savannah, Georgia, and Milledgeville Arsenal and Georgia State Armory in Milledgeville, Georgia.

Research on each location produced general histories and assessments of similarities and differences regarding functionality and purpose comparative to previous research. This step added to and complemented the established baseline of information concerning Civil War era

ordnance operations. Discovering which ordnance centers survived the Civil War narrowed the list to six locations. Those not destroyed by Sherman's March or dismantled by Confederate forces included, Augusta Arsenal, Confederate Powder Works in partial, Columbus Iron Works, Columbus Arsenal, Cook and Brother Armory, and Macon Armory. Research on these locations revealed how each location was reused following the Civil War. This information further revealed connections that are an important component of this thesis and discussed in every chapter.

The methodology for this section hinged on a combination of historic, map, and deed research. Research revealed that only three, Augusta Arsenal, Cook and Brother Armory, Columbus Iron Works/Columbus Arsenal, remain intact and extant. An assessment of alterations and significant post-Civil War events comprised the remainder of completed research. The entire history of each Confederate ordnance center, with special attention to post-war adaptive reuse, forms the content of three main chapters of this thesis. A balanced combination of primary and secondary research provided information essential for formulating complete narratives for each chapter. Although pre-Civil War histories and wartime involvement are important, this thesis focuses on post-war patterns of adaptive reuse for the three extant armories and arsenals.

The next step included determining connections of reuse between the three currently extant armories and arsenals, a main research objective of this thesis. Research of this subject area utilized historic newspapers, Sanborn maps, primary and secondary sources, National Register nomination forms, and deed information to uncover connections and patterns of post-war reuse. The methodology for this research pieced together complete narratives for each of the three extant armories and arsenals. These narratives provided information about not only how locations were reused, but also reasons for why they were. Interpreting and understanding why

these three remain is a crucial aspect for answering preservation related questions about Civil War era armories and arsenals. This step in research led to the discovery that all three remaining ordnance centers are located on Georgia university and college property. The connection between adaptive reuse patterns and contemporary situations highlight answers for the preservation related questions of how and why these structures remain.

The sixth and final chapter presents information related to aspects that make Confederate armories and arsenals in Georgia suitable for adaptive reuse and preservation. Research produced clear connections between the reuse of these three locations on campus properties. Additionally, research highlighted why the physical structures themselves are preserved and characteristics that make them suitable for preservation. This chapter ties the entire thesis back to themes of preservation and building reuse. Chapter six utilizes research-driven answers to build an analysis section of overall findings.

Answering broad questions narrowed research objectives and created a baseline for general information connected with the Civil War and ordnance operations. As questions became more focused, results provided clarity and essential information. The methodology for this thesis is rooted in surveying Confederate ordnance operations in Georgia and its extant armories and arsenals. Historical resources provided a large percentage of utilized information and asking questions produced research-driven answers. The overarching methodological approach resulted in a thesis focused on three armories and arsenals currently being reused on Georgia university and college property.

Organization

The first chapter of this thesis serves as an introduction to the content covered throughout as well as the methods, organization and review of literature. This introductory material is crucial for understanding the overall thesis. This initial chapter provides a framework for what to expect in the remaining chapters and the main research objectives that they attempt to discuss and answer. Chapter one provides information that is relevant and useful for the second chapter of this thesis.

Chapter two operates like a narrative in that it tells the history of Confederate ordnance operations, specifically in Georgia. This chapter focuses on Confederate arms manufacturing centers during the Civil War and what this scene looked like across Georgia. Chapter two encompasses the major Confederate armories, arsenals, iron works, powder works, and naval works operating in wartime Georgia. Additionally, it analyzes ordnance centers that no longer remain and what happened to them during or after the Civil War. The information in this chapter provides the reader with an understanding of weapons manufacturing during the Civil War as well as Georgia specific operations and postwar histories. The conclusion of chapter two highlights that only three Confederate armories and arsenals remain, foreshadowing the content covered in the three major chapters. Moving in chronological order, the next three chapters tell the histories of each extant armory or arsenal in Georgia.

The oldest, Augusta Arsenal, is covered in chapter three. Through mostly narrative format, this chapter covers the history of the Augusta Arsenal before, during, and after the Civil War. The stages of wartime and postwar use are covered more extensively, as they are in the successive two chapters. How the Augusta Arsenal was reused until its purchase by the Junior College of Augusta is also covered. The arsenal's transition to college property is intertwined

with information about the history of the college. This aspect is also included for the other two chapters. Chapter three concludes with a picture of its contemporary functions and purposes.

Chapter four focuses on Cook and Brother Armory now owned by the University of Georgia. This chapter provides some information about the history of the University of Georgia, but it mainly focuses on the armories' wartime involvement and postwar adaptive reuse. The reuse of Cook and Brother Armory as a textiles manufacturing center highlights a common pattern among many ordnance centers that survived the Civil War. Athens area newspapers also added the publicly expressed opinions of nineteenth century citizens concerning options for repurposing Civil War structures. This combined information creates a chapter covering the adaptive reuse of the famed Cook and Brother Armory.

Chapter five covers the Columbus Iron Works and Arsenal located in Columbus, Georgia. The interesting pre-Civil War history is included as well as the role it played for the Confederacy. The building's life after war and current use are also discussed at length. Currently owned by Columbus State University, this chapter analyzes the history of this institution and how and why it owns a Confederate arsenal.

These three main chapters offer a narrative of the three extant ordnance centers and the histories of the institutions that currently own and operate them. These chapters act as a survey but provide key information concerning themes of adaptive reuse and preservation. These themes are analyzed throughout the sixth and final chapter. Patterns and connections of postwar adaptive reuse and characteristics of preservation are covered in chapter six. This chapter attempts to capture all the findings and link them to broader themes within preservation. Essentially, this concluding chapter displays ideas for why the three centers are preserved, why Georgia universities and colleges are reusing them, and why it is more than a coincidence that they

remain where they are. This section combines this analysis and begins a discussion focused on the narrative of historic preservation and the role of postwar adaptive reuse and ideals of progression.

Literature Review

The American Civil War has remained a focal point for researchers across all disciplines and genres. Varying topics, themes, events, and associated figures have been covered extensively since the late-nineteenth century. Literature about Gettysburg and President Abraham Lincoln fill hundreds of bibliographical pages. General Civil War histories of even the smallest towns in the deep South have been completed. However, gaps in Civil War literature do exist. Although secondary resources about the Civil War are abundant, a majority are limited in their coverage of contemporary situations. Often, these resources revert to displaying a general history or narrative of events and facts that occurred in the past without extending coverage to present day. This thesis aims to utilize these sources, filled with quotes, figures, and facts, and engage in determining present conditions of three extant Confederate armories and arsenals in Georgia. This section highlights not only the main resources that were utilized throughout, but also spotlights gaps in literature and what this thesis adds to fill them in terms of historic preservation and Civil War history.

The historiography dedicated to the Civil War is wide-ranging, but this characteristic also allows for narrowly focused studies of distinct facets of wartime activities. Secondary sources referenced throughout this thesis covered general and specific aspects of Confederate ordnance operations. Secondary literature proved to be an important resource for gathering general information about overarching ordnance operations and Civil War Georgia. James

Whisker's, *U.S. and Confederate Arms and Armories During the Civil War* and Frank Vandiver's, *Ploughshares Into Swords: Josiah Gorgas and Confederate Ordnance* were foundational sources for understanding the intricacies of Confederate wartime production. These two sources provided the majority of the general information concerning Confederate arms making, wartime ordnance operations, and Chief of Ordnance Josiah Gorgas. Specifically, Whisker's four volumes dedicated to this subject, were utilized to construct the lists of important Confederate armories and arsenals in the South and Georgia. This resource centered around the wartime involvement of Confederate armories and arsenals and separated them based on importance and available information. A well-researched piece, Whisker's *U.S. and Confederate Arms and Armories During the Civil War* was used heavily throughout this thesis for general information, and more importantly, for discovering the specific locations of armories and arsenals in Georgia. This resource provided a gateway for focused research on Georgia ordnance operations.

Other secondary sources crucial for understanding Confederate wartime manufacturing included works focused on specific Confederate arms and production. *Confederate Odyssey*, a detailed photographic account of Confederate rifles, pistols, and swords, pairs specific weapons with information about the armory or arsenal they were manufactured at during the Civil War. This account provided information that was key for understanding the functionality of Civil War era weapons and how they were manufactured throughout the different stages of production. Additionally, this source included information and detailed photographs of a remaining rifle made at Cook and Brother Armory. Likewise, William A. Albaugh III's *Confederate Arms*, provided a more in depth study of specific Confederate weapons and where they were manufactured within the Confederacy. Claud E. Fuller and Richard D. Stuart's *Firearms of the*

Confederacy provided a wealth of information concerning the various weapons used by Confederate soldiers. This source also included information that was utilized in gaining a better understanding of Confederate armories and arsenals and specific arms, albeit rifles, muskets, or pistols, produced within them. *Firearms of the Confederacy* also provide primary information. It included Confederate Ordnance Department correspondence as well as a postwar interview about Confederate ordnance by Josiah Gorgas. Although information in these sources about specific armories and arsenals was general and introductory, their comprehensive accounts of individual weapons provided useful information.

Several contributing secondary sources analyzed the state of Georgia during the Civil War as well as individual city and county activities from 1861-1865. This subject-area of secondary Civil War literature is common and usually includes names, dates, locations of major players, and events that occurred within the limits of cities and counties. The most cited and recognized publications from Augusta, Columbus, and Athens provided a wealth of general and specific information about the overall impact of the war and the armories and arsenals operating within their borders. This area of research used Thomas Bryan's *Confederate Georgia* as a starting point for understanding wartime Georgia. This historical work recounted the traditional and well-known Civil War events that occurred across the state as well as biographical information about key figures. Additionally, *Confederate Georgia* included useful information concerning the various ordnance operations in Georgia's major cities. This information was cross-referenced with James Whisker's *U.S. and Confederate Arms and Armories During the Civil War*. This step solidified the locations of different wartime armories and arsenals, and provided additional information about location and production. Following this research process,

secondary accounts of Georgia cities during the Civil War became essential for more refined information about Georgia's Confederate armories and arsenals.

Secondary sources about influential wartime Georgia cities were selected based on the locations of the currently extant Confederate armories and arsenals. This selection included Augusta, Columbus, and Athens. *Confederate City Augusta, Georgia 1860-1865* provided specific information about wartime Augusta and the manufacturing centers of Augusta Arsenal and Confederate Powder Works. Similarly, Nancy Telfair's *A History of Columbus, Georgia 1828-1928* and William Standard's *Columbus, Georgia, In the Confederacy* added information about the Columbus Iron Works/Columbus Arsenal and public involvement at home. Kenneth Coleman's *Confederate Athens* contributed information concerning the Cook and Brother Armory and Athens as a major manufacturer of war-related materials. Overall, this group of secondary sources pieced together narratives of wartime involvement in Augusta, Columbus, and Athens and their respective ordnance centers. More focused research concerning the three main armories and arsenals and their positions on campuses included shorter pieces such as detailed articles, National Register nominations, and primary sources.

The three main chapters and corresponding extant armories and arsenals relied heavily on primary sources for detailed content. Historic newspapers comprised a main facet of primary research. Nineteenth and early twentieth century digitized newspapers from Augusta, Columbus, and Athens were utilized to gain an understanding about the public perception of Confederate ordnance operations. Additionally, newspapers also highlighted information about production, jobs, and local engagement as well as facts concerning construction, key Confederate figures, and manufactured weapons. Historic newspapers from cities such as Atlanta, Savannah, and Macon were also used to interpret activities at other Georgia ordnance centers. Recent twentieth

century newspapers were used to piece together patterns of adaptive reuse and the transition of ordnance centers to university and college property. Additional primary sources included official Confederate Ordnance papers, the writings of Chief of Ordnance Josiah Gorgas, deed research, historic photographs, Historic American Building Survey documents and photographs, and other personal accounts.

Overall, secondary Civil War literature provides a wealth of general and specific information concerning Confederate ordnance operations. This group of secondary works also lends insight into the narratives of Confederate armories and arsenals that operated across Georgia. However, no single work has been dedicated to determining the current condition of extant Confederate armories and arsenals and postwar trends of adaptive reuse. This thesis attempts to fill a void in Civil War literature through surveying the contemporary situations of the Augusta Arsenal, Columbus Iron Works/Arsenal, and Cook and Brother Armory and interpreting their acquisition by Georgia universities and colleges. Researching the combination of adaptive reuse and physical preservation also adds an element not covered significantly in related secondary resources. The theme of adaptive reuse was covered in two articles that were used as a point of reference. However, these sources focused on the adaptive reuse of armory halls. Although the armory hall is not analyzed in this thesis, these National Trust for Historic Preservation articles highlighted trends of adaptive reuse for similar structures. Local Civil War histories provide the necessary in depth information about Confederate operations in Georgia towns and cities, but often do not assess postwar conditions or current situations. Although local histories and various secondary works center around content referenced and used throughout, this thesis aims to cohesively weave together strands of preservation, adaptive reuse, and Civil War history. Additionally, it provides definitions of key Civil War terms, historic and current

photographs, and a survey of Confederate armories and arsenals in Georgia. This thesis is a study of material that has been individually researched over time but never combined into a single and cohesive analysis and interpreted in the contemporary arena.

CHAPTER 2
THE NINETEENTH CENTURY PROCESS, CONFEDERATE ARMS MANUFACTURING,
AND CONFEDERATE GEORGIA

Following a second war against its former colonizer, a young United States witnessed a historic expansion in industrial growth. By the dawn of the Civil War, however, a majority of this growth had taken place across the Northern landscape. Seceded states of the established Confederate States of America (C.S.A.) had not experienced the same expansion of mechanized industry. With a “cotton is king” mentality, the newly formulated C.S.A. found itself with large amounts of textiles and other cash crops but little to no large manufacturing centers equipped for the production of war-related materials. This predicament became increasingly apparent following secession. A desperate shortage of raw materials, required equipment and machinery, manpower, and money plagued the Confederacy’s wartime production throughout the Civil War. The establishment of a Confederate Ordnance Department, coupled with armament experts joining the Confederate ranks, aimed to combat this shortage if not resolve it completely. Although never fully realized, arms manufacturing across the Confederacy slowly met ordnance demands through various avenues. Capturing and securing Federal arsenals in the deep South, blockade running English weapon imports, building and contracting with armories and arsenals, and scavenging weapons from the battlefield comprised the Confederate approach for supplying weapons and other armaments. From construction to destruction, the narrative of Confederate

armories and arsenals, particularly in Georgia, illustrate the task of weapons manufacturing and the different facets associated with success and failure.

In the 1790s, the United States Congress established two armories for the defense of the new nation: one at Springfield, Massachusetts, and the other at Harpers Ferry, Virginia. The armories became engines of the Industrial Revolution in America, mass-producing weapons and providing a model for all domestic arms production.³ In the early 1800s, individual guns were uniquely created by craftsman who made and fitted each part by hand. As early as 1798, the United States Army Ordnance Department began issuing contracts that encouraged the use of interchangeable parts for arms. This encouragement created innovation within the private sector. Maine-born gunsmith John H. Hall represented this innovation through his experimental efforts at Harpers Ferry. By 1827, Hall had achieved serious progress concerning specialized machinery for functional parts interchangeability in arms manufacturing. Another two decades passed before the first interchangeable arm, the U.S. Model 1842 musket, was mass-produced at both national armories. However, it was not until 1857 that a new generation of rifles and rifle-muskets were fully interchangeable.⁴ On the eve of the Civil War, arms manufacturing looked radically different compared to the outset of the century. Weapons produced by the United States armories would not be used against a common foe but against neighbors. The guns of the Industrial Revolution would fundamentally shape the outcome of the Civil War. However, aside from Harpers Ferry, no such other factories existed in the South. Land, slaves, and cotton left little incentive for industrial development.⁵ The South would have to rely on other means for arming its rank and file until it could establish a stable ordnance system.

³ Gordon L. Jones, *Confederate Odyssey: The George W. Wray Jr. Civil War Collection at the Atlanta History Center* (Athens, Georgia: University of Georgia Press, 2014), (introduction)

⁴ *Ibid.*, 9-11.

⁵ *Ibid.*

Throughout the Civil War, the Confederate States implemented non-traditional measures for securing weapons. Early in the war, the South appointed Caleb Huse to purchase arms abroad and represent the Confederacy's interests especially in England. This practice took place throughout the Confederate States. Independently contracted and Confederate armories and arsenals requested and purchased heavy machinery for armament production abroad. The principle problem in securing the arms came not in their location or purchase, but in their transport to the Confederacy. This problem hindered the ability of the South to rely on the non-traditional method of imported weapons. Although English and Spanish colonial ports in Bermuda, Nassau, and Cuba provided safe havens for blockade runners, the voyage to various Southern ports often resulted in intercepted weapons and machinery. Because the Confederacy offered cotton and other agricultural goods for payment, importing weapons continued throughout the Civil War.⁶ In fact, by mid-1863, imported arms supplied nearly half of Confederate weapons on-hand.⁷ Although the Confederacy achieved success with importing armaments throughout the first and second years of war, this practice never wholly rectified the desperate need for guns in the South. Another early practice for supplying foot soldiers hinged on the ability of the soldiers to scavenge weapons from the battlefield. This tactic, although effective, proved fruitless when compared to the war machine of the Union.

Following his resignation from commanding Philadelphia's revolutionary Frankford Arsenal, Josiah Gorgas made his way to Richmond, Virginia to head the Confederate Ordnance Department as Chief of Ordnance with the rank of Major. Gorgas' post in Richmond positioned him with the task of building an armaments industry almost from scratch. Chief of Ordnance

⁶ James B. Whisker, *U.S. and Confederate Arms and Armories During the American Civil War: Confederate Arms and Armories Volume 4* (Lewiston: The Edwin Mellen Press, 2003), i.

⁷ Claud E. Fuller and Richard D. Steuart, *Firearms of the Confederacy* (Huntington, West Virginia: Standard Publications, 1944), 125.

Gorgas realized that, “Not a gun, not a gun carriage, and except during the Mexican War, scarcely a round of ammunition had, for 50 years, been prepared in the Confederate States. There were consequently no workmen, or very few of them, skilled in these arts.”⁸ Even President Jefferson Davis later lamented, “It soon became evident to all that the South had gone to war without counting the cost. Our chief difficulty was the want of arms and munitions of war.”⁹ Gorgas’ task of supplying Confederate soldiers with arms relied on a piecemeal strategy of the aforementioned imports as well as taking them from battlefields and previously established Federal arsenals in the deep South. Still gearing up for war, damaged arms could be repaired more quickly than new arms could be manufactured in the South. Josiah Gorgas noted, “A great part of the work of our armories consisted in repairing arms brought in from the battlefields or sent in from the armies in too damaged condition to be effectually repaired at the [smaller] arsenals. In this way only could we utilize all the gleanings of the battlefields.”¹⁰ Gorgas also noted that the Confederacy obtained 10,000 stands of arms from the fields of Bull Run, and another 25,000 excellent arms from Richmond battlefields in 1862.¹¹ Within the first and second years of battle, Confederate troops had picked an estimated 150,000 arms from the battlefield. However, the Confederate army itself lost an estimated 100,000.¹² The combined importing and looting supported the Confederate search for arms until early in 1863. Gorgas understood the importance of a successfully established and operating ordnance system powered by Confederate

⁸ Gordon L. Jones, *Confederate Odyssey: The George W. Wray Jr. Civil War Collection at the Atlanta History Center* (Athens, Georgia: University of Georgia Press, 2014),

⁹ Claud E. Fuller and Richard D. Steuart, *Firearms of the Confederacy* (Huntington, West Virginia: Standard Publications, 1944), 137.

¹⁰ James B. Whisker, *U.S. and Confederate Arms and Armories During the American Civil War: Confederate Arms and Armories Volume 4* (Lewiston: The Edwin Mellen Press, 2003), 7.

¹¹ *Ibid.*

¹² Claud E. Fuller and Richard D. Steuart, *Firearms of the Confederacy* (Huntington, West Virginia: Standard Publications, 1944), 125.

manufacturing. If complete secession represented the end-goal, it hinged on the ability of the Confederate Ordnance Department to produce armaments through manufacturing rather than importing and looting.

At the beginning of the war, the Confederacy assumed control of six Federal arsenals storing arms within the newly created nation. These arsenals included, Richmond Arsenal, Fayetteville Arsenal, Charleston Arsenal, Augusta Arsenal, Mt. Vernon Arsenal in Alabama, and Baton Rouge Arsenal. This act of treason became the subject of newspaper articles and satirical drawings across the United States. The takings garnered the Confederacy 15,000 rifles and 120,000 muskets for rank and file troops, not nearly enough to supply an army capable of overthrowing the Union. Overall, the original stock of arms available to Josiah Gorgas consisted of an assortment of 150,000 serviceable smoothbore muskets, altered from flint to percussion, .54 caliber Mississippi rifles, and other irregular arms like Hall's rifles and carbines and even old flintlock muskets.¹³ Chief of Ordnance Gorgas used the adjectives "worthless" and "damaged" when describing the early state of Confederate caches of weapons.¹⁴

The two-hundred-year-old flintlock process of spark to gunpowder to ignition inside the barrel required remedy for the popular .69 caliber smoothbore musket. The transition to the percussion ignition system relied on a small charge of fulminate of mercury in a disposable copper percussion cap. The new waterproof system fired when a pulled trigger initiated the striking of a hammer onto a percussion cap that created a spark, eventually propelling the bullet. The Confederacy's seized arsenal weapons included the 1841 model .54 caliber Mississippi rifles, the first arm that employed the percussion system. In the mid-1850s, the new long-range

¹³ James B. Whisker, *U.S. and Confederate Arms and Armories During the American Civil War: Confederate Arms and Armories Volume 4* (Lewiston: The Edwin Mellen Press, 2003), 6.

¹⁴ *Ibid*, 7.

and quick-loading minié ball made these weapons obsolete. The Mississippi rifles required further upgrading to meet modern armament technologies. It was not until 1854, that Harpers Ferry gunsmiths outfitted Mississippi rifles with adjustments for firing the new minié ball. By 1861 and 1862, other upgrades to the Model 1841 rifle resulted in at least twenty different variations of the arm. Additionally, the cheaper and faster loading musket reigned in popularity over the unperfected rifle. The slow-firing but accurate rifle was used by specially trained marksmen supporting infantry formations armed with the faster-firing but inaccurate muskets.¹⁵ Although ordnance operations had been set in motion, throughout 1861 Gorgas and Confederate troops relied on the combined strategies of rehabilitating damaged arms, scavenging from the battlefield, and updating antiquated muskets and rifles abandoned to Federal arsenals.

Throughout the remaining wartime years, the Confederacy struggled with supplying its army with nearly all war-related materials. Josiah Gorgas' Confederate Ordnance Department, although never fully realized, ensured that armaments were available throughout the war. Although the only arms manufacturers within Confederate borders included Tredegar Iron Works, Richmond Arsenal, Fayetteville Arsenal, and the captured Harpers Ferry, Gorgas' West Point ingenuity earned the C.S.A. a combination of contracted and newly constructed armories, arsenals, iron works, powder works, and railroad depots. Large production centers were established across the Confederate landscape. At the beginning and half-way through the Civil War, Georgia offered a haven against the looming threat of Union penetration into the deep South. The history of Georgia's ordnance establishments exemplifies the pinnacle of Josiah Gorgas' wartime strategies: the utilization of industry to build an ordnance department capable of arming the entire Confederate Army. A narrative of the main Confederate ordnance locations

¹⁵ Gordon L. Jones, *Confederate Odyssey: The George W. Wray Jr. Civil War Collection at the Atlanta History Center* (Athens, Georgia: University of Georgia Press, 2014), 14.

across the South and in Georgia not only provides an understanding of arms manufacturing, but also highlights aspects of postwar adaptive reuse and preservation.

D.H. Strother's depicted sketch of Federal troops abandoning the enflamed Harpers Ferry arsenal captured the monumental beginning of the Confederate Ordnance Department. Anticipating eventual secession, former Virginia governor Henry Wise urged Governor John Letcher to capture Harpers Ferry and its large store of arms. However, on April 18, 1861, one day after the state of Virginia voted to leave the Union, 1st Lieutenant Roger Jones and his men set fire to the arsenal buildings and fled to Carlisle, Pennsylvania. Although Harpers Ferry laid in ruin, Virginia militia Colonel Thomas J. "Stonewall" Jackson received command of the arsenal and salvaged machinery, tools, and weapons. Jackson recovered a total of 300 machines, 57,000 tools and rifle stocks, and a variety of rifles and muskets. The Confederate haul was shipped to Richmond and eventually dispersed throughout the deep South.¹⁶ The captured machinery signaled the establishment of actual Confederate ordnance operations. Early arms manufacturing efforts in Richmond, Virginia and Fayetteville, North Carolina relied on the takings at Harpers Ferry for sustained production and development. The war machine of the Confederacy was slowly starting.

The infamous history behind Harpers Ferry propelled Confederate ordnance to an initial level of operation. Although the state of ordnance operations at Josiah Gorgas' start on April 8, 1861 forecasted a bleak outcome, Gorgas understood the role that the captured Harpers Ferry would play in the beginnings of production. With Richmond Armory and Fayetteville Arsenal as the only prospective resources at home, Gorgas noted, "With additional workmen and some

¹⁶ J. A. Noyalas, "Harpers Ferry during the Civil War," *Encyclopedia Virginia*, October 27, 2014. http://www.EncyclopediaVirginia.org/Harpers_Ferry_During_the_Civil_War.

extension of the machinery, much larger results could be obtained.”¹⁷ The sets of machines produced the rifle-musket model 1855 altered to utilize the minié ball and sword bayonet. Although production never reached the level Gorgas had hoped for due to the lack of skilled workmen, this machinery comprised the Confederacy’s first attempts at arms manufacturing. An understanding of the short history of Richmond Armory and Fayetteville Arsenal during the Civil War highlights what Confederate arms production resembled throughout wartime.

Initially, the state of Virginia planned on retaining all the machinery captured at Harpers Ferry. Because the Richmond Armory housed previous machinery and Fayetteville presented an opportunity, the state consented to lease the machines, upon the request that they be returned at the end of the war.¹⁸ Regarded as the most important small arms manufacturing facility in the South, the Richmond Armory began life as the Virginia Manufactory of Arms on January 23, 1798.¹⁹ During the Civil War the, “...ancient armory at Richmond under the direction of Lieutenant Colonel Burton,” was reopened and retooled for wartime production.²⁰ Early in the summer of 1861, production of arms commenced at the Richmond Armory under the state of Virginia. However, by the late fall, operation was turned over to the Confederate government. Under the Confederacy, the armory at Richmond grew into large dimensions and produced, “all the ordnance stores that an army may require.”²¹ During James H. Burton’s two-year stint at the Richmond Armory he cataloged the original buildings and subsequent placement and arrangement. Burton noted that the armory was comprised of a front range of buildings facing

¹⁷ Claud E. Fuller and Richard D. Steuart, *Firearms of the Confederacy* (Huntington, West Virginia: Standard Publications, 1944), 115.

¹⁸ *Ibid.*

¹⁹ James B. Whisker, *U.S. and Confederate Arms and Armories During the American Civil War: Confederate Arms and Armories Volume 4* (Lewiston: The Edwin Mellen Press, 2003), 51.

²⁰ Claud E. Fuller and Richard D. Steuart, *Firearms of the Confederacy* (Huntington, West Virginia: Standard Publications, 1944), 115.

²¹ *Ibid.*, 121 & 131.

the James River and Kanawha Canal with two wings at the flanks extending back, front range being 230 feet in length and two-stories high, opening into a quadrangle at the center. The two wings were also two-stories and extended for 100 feet. These buildings offered 28,000 square feet for machinery and manufacturing equipment. Additionally, a detached building to the rear was utilized as a rolling mill for gun barrels. Other buildings were erected for war-related materials production. A one-story, 6,500 square foot, space was constructed for fabricating all the metal parts of related weaponry. Another 6,400 square foot two-story building was added for storing finished products. Total, the armory boasted a grand aggregate of about 44,000 square feet for arms production.²² Over the course of the war, Richmond, as the capital of the South, produced thousands of items necessary for its army.

Throughout the first two years of the Civil War the original stands of weapons from Federal Arsenals were completely depleted. Arms manufacturing in Richmond combatted this situation until 1865. By the end of the war, the armory had produced or repaired 323,231 infantry arms, 34,067 cavalry arms, 72,413,854 small-arm cartridges, and 44,877 swords and sabers among thousands of additional war-related materials.²³ Inheriting the Harpers Ferry machinery, the Richmond Armory displayed the ability of the Confederate Ordnance Department to successfully provide sustained materials of war for its army. The architecture, size, machinery, and volume of production at Richmond exemplified the grandiose arms manufacturing centers associated with the Confederate Ordnance Department. However, like the hopes of the entire South, Richmond Armory was engulfed in flames. In September 1864, civilian employees and attending troops were summoned for fighting. February 1, 1865 marked the beginning of a

²² James B. Whisker, *U.S. and Confederate Arms and Armories During the American Civil War: Confederate Arms and Armories Volume 4* (Lewiston: The Edwin Mellen Press, 2003), 67.

²³ Claud E. Fuller and Richard D. Steuart, *Firearms of the Confederacy* (Huntington, West Virginia: Standard Publications, 1944), 122.

dismantling project at the armory. All the machinery, stored materials, and buildings that had not been moved were destroyed by fire on April 3, 1865.²⁴ The other departed Harpers Ferry machinery, destined for Fayetteville, North Carolina, proved that the Confederate Ordnance Department needed to increase its presence and role if the Confederacy wanted to win a war.

Fayetteville Arsenal was located on what was known as Hay Mount overlooking the city of Fayetteville, North Carolina. The United States Government had maintained its largest Southern arsenal for decades following its started construction in 1838. The architecture, the work of architect William Bell, resembled the Richmond Armory and that of the traditional early American arsenal or armory. High brick octagonal and stone towers were located at the four corners of an enclosed quadrangle with heavy iron railing surrounding the premises. Several two-story buildings served as barracks for enlisted men and officers. In the center, rear and on both sides, were buildings for storage of arms, commissary, and the quartermaster. The center also included a gun-carriage and machine shops. The rear housed a rifle factory which utilized the Harpers Ferry machinery. 100 yards away from the rifle factory were two large brick magazines for storage of gunpowder and ammunition.²⁵ Because the Fayetteville Arsenal had good steam power, Confederate Chief of Ordnance Gorgas decided that the Harpers Ferry machinery adapted to make the .54 caliber Mississippi rifle be sent there. Failures of the North Carolina state militia and arsenal workmen resulted in an extremely slow start. The arsenal did not begin production until the spring of 1862.²⁶

²⁴ Ibid, 131.

²⁵ James B. Whisker, *U.S. and Confederate Arms and Armories During the American Civil War: Confederate Arms and Armories Volume 4* (Lewiston: The Edwin Mellen Press, 2003), 79.

²⁶ Claud E. Fuller and Richard D. Steuart, *Firearms of the Confederacy* (Huntington, West Virginia: Standard Publications, 1944), 135.

Shortly after production began, Josiah Gorgas pressured North Carolina into yielding control of the Fayetteville Arsenal to the Confederacy. Following this transfer of power, the arsenal's production increased only slightly. Although a Confederate presence initiated production, the high hopes for Fayetteville Arsenal all but disappeared. Gorgas had outfitted the arsenal for an anticipated 10,000 stands of arms annually, but maximum output ranged from 400-600 per month due to shortcomings in labor and organization. Harpers Ferry machinery and Virginian mechanics, artisans, and armorers completely supported arms production at Fayetteville throughout the war. Although production results did not meet expectations, the arsenal played an important role in supplying the Confederacy with arms and other items. Like Richmond Armory, Fayetteville Arsenal exemplified the armories and arsenals of the South. Operations halted in March 1865 with the Sherman line approaching. Fayetteville machinery was dispersed throughout the Confederacy and was rumored to have been sent to an abandoned mine in Egypt. Two months later Sherman arrived, noting, "Every building was knocked down and burned, and every piece of machinery utterly broken up and ruined by the First Regiment Michigan Engineers..."²⁷ The Harpers Ferry machinery, starting and supporting two Confederate arms manufacturers, eventually laid in ruin.

Josiah Gorgas realized that two production centers would never sustain the Confederate need for armaments due to an inability in the sheer volume of needed arms. Throughout the war, Gorgas appointed, contracted, and constructed Confederate ordnance operations across the South. The state of Georgia presented a landscape protected from Union invasion and ready for industrial growth. Additionally, the 1850s represented an era of industrial expansion for Georgia. Between 1850 and 1860 the number of industrial establishments had increased from 1,522 to

²⁷ Ibid, 135-137.

1,890.²⁸ This expansion positioned Georgia as the Confederacy's possible last effort to win the war. The fifth state to secede experienced a radical transition from a mostly agrarian culture to an essential industrial center for the Confederacy. Most locations were destroyed, but several remain today. A narrative of the Confederate ventures in Georgia highlights where ordnance centers were located, how the buildings were constructed and/or adapted and utilized, and how they operated for the Confederacy. This narrative provides an overview of the main Confederate ordnance operations within Georgia and their postwar stories. Understanding this narrative aids in interpreting the contemporary situations of those currently extant.

In Georgia, the beginning of the Civil War seemed distant and isolated. But by mid-1862 through 1863 fighting and manufacturing for war were virtually everywhere. Local shop owners contracted with the Confederate Ordnance Department to produce even the smallest amounts of war-related items. Men unfit for battle ensured that the home-front supplied Confederate troops with various needs. Enslavers put enslaved peoples to work, forcing them to toil in the large Confederate arsenals, armories, powder works, and iron works. Across the state, voluntary and forced labor in the major manufacturing hubs of Athens, Atlanta, Augusta, Columbus, Macon, Milledgeville, and Savannah increased the production of war-related materials. With Josiah Gorgas at the helm, Confederate ordnance operations expanded within Georgia's borders. Industrial manufacturing and production in Georgia exceedingly increased the amounts of arms, artillery, powder, iron, and naval equipment for the Confederate Army. By the close of the war, the state of Georgia, aside from Richmond, had become the Confederacy's most valuable asset for the continuation of fighting. Operations in Atlanta, Augusta, Macon, Milledgeville, and Savannah assisted the war effort until eventual destruction or abandonment.

²⁸ T. Conn. Bryan, *Confederate Georgia*. (Athens, Georgia: The University of Georgia Press, 1953), 101.

The following operations are no longer extant, but three did experience postwar use. The Macon Arsenal, Confederate States Central Laboratory in Macon, and Augusta Confederate Powder Works will be discussed separately following the narratives of the many Georgia ordnance centers that were destroyed. Although these locations met a similar fate, the history connected to their utilization highlight the importance of Georgia during the Civil War.

Modern aspects of Civil War era warfare radically altered American society and its built environment. Although the earliest human settlements were created for protection, American cities and towns developed as economic and political centers. Ironically, this development pattern invited attack. Throughout the Civil War, Union and Confederate strategists believed that capturing major cities was the key to victory. The Union armies' major campaigns focused on taking the South's productive and most important locations including nodes of transportation. This strategy converted many of the South's cities and large towns into piles of rubble and fire. Over the course of the war, Charleston, Richmond, and Atlanta lost more than one-third of their buildings. A host of smaller cities and larger towns shared this fate. The destruction of city architecture including warehouses, churches, armories, arsenals, and government buildings radically altered the urban Confederate landscape. However, this acquisition of real estate was not about killing people but about staking political, economic, and psychological blows against the enemy. All Americans, including Civil War generals, assumed that the fall of Washington D.C. or Richmond would spell victory for one side.²⁹ This assumption combined with a heightened Union presence in the deep South pushed Confederate ordnance operations to Georgia. Although Georgian cities and towns provided safe havens for continued ordnance production, the state would soon experience the urban ruins of war.

²⁹ Megan Kate Nelson, *Ruin Nation Destruction and the American Civil War* (Athens, Georgia: University of Georgia Press, 2012), 10-12.

Atlanta, Georgia's eventual largest city and capital, only served as a transportation hub for most of the Civil War. The convergence of four important railroad lines connected Atlanta with neighboring Southern states. The Western and Atlantic Railroad connected the city with Chattanooga, Tennessee. The Georgia Railway connected Atlanta and Augusta, a crucial Confederate linkage. The Macon and Western line connected Atlanta with Macon and Savannah to its South but on opposite sides of the state. Lastly, the Atlanta and West Point Railroad linked Atlanta to West Point, Georgia, where a line of the Western Railway of Alabama connected Atlanta with Montgomery, Alabama. Although wartime population remained small, Atlanta quickly became a point of contention for Union forces. Atlanta's transportation attracted industry for wartime manufacturing, and the city experienced increased economic growth and overall growth of importance. By the end of the war, Atlanta was viewed as an industrial center throughout the South. Scofield and Markham's Rolling Mill operated as one of two in the South, producing rails. Government contracted shops turned out swords, buttons, cartridge boxes, saddles, and other items. A government shoe factory produced 500 pairs daily, and women seamed together thousands of wool jackets, pants, and cotton shirts.³⁰ This success ultimately situated Atlanta as a main target for the Union.

On December 23, 1861, a fire of unknown origin consumed the Nashville Arsenal in Tennessee. Superintendent Moses Hannibal Wright failed in his efforts to rebuild the arsenal until February 1862. At this point, Federal pressure resulted in the movement of the entire arsenal including machinery and men to Atlanta. The newly established Atlanta Arsenal evolved

³⁰ Stephen Davis, "Civil War: Atlanta Home Front," *New Georgia Encyclopedia*. 01 August 2017. Web. 10 August 2017. <http://www.georgiaencyclopedia.org/articles/history-archaeology/civil-war-atlanta-home-front>

into a primary ammunition facility for the Confederate Ordnance Department.³¹ By August of 1862, it produced as many as 75,000 rounds per day.³² This massive ordnance organization produced almost every size of ammunition and type of accoutrement, including small arms ammunition, percussion caps, and artillery. Annually, the arsenal produced four million rounds of ammunition and nearly 25 million percussion caps. Additionally, it employed more than 450 people and had a budget of \$1,500,000 per year.³³ Although uncertain, the arsenal could have included up to thirteen buildings. Writing on March 18, 1863, Moses Wright noted, "I have on hand here about 2,071 flint-muskets, 2,086 percussion muskets, 123 rifle muskets, and 1,217 assorted arms."³⁴ Another Confederate ordnance center, the Atlanta Naval Ordnance, also operated in the city.

After it became apparent that New Orleans would quickly fall to the Union Navy, Confederate naval establishments were hastily moved to Atlanta. Under David P. McCorkle, the transfer of naval ordnance stores was operational by the summer of 1862. Equipment from the New Orleans move combined with the Scofield and Markham Rolling Mill produced plating for Confederate ironclad gunboats.³⁵ A casemate ironclad ram, the *CSS Tennessee* utilized plates

³¹ James B. Whisker, *U.S. and Confederate Arms and Armories During the American Civil War: Confederate Arms and Armories Volume 4* (Lewiston: The Edwin Mellen Press, 2003), 100.

³² Stephen Davins, "Civil War: Atlanta Home Front," *New Georgia Encyclopedia*. 01 August 2017. Web. 10 August 2017. <http://www.georgiaencyclopedia.org/articles/history-archaeology/civil-war-atlanta-home-front>

³³ James B. Whisker, *U.S. and Confederate Arms and Armories During the American Civil War: Confederate Arms and Armories Volume 4* (Lewiston: The Edwin Mellen Press, 2003), 101.

³⁴ Claud E. Fuller and Richard D. Steuart, *Firearms of the Confederacy* (Huntington, West Virginia: Standard Publications, 1944), 311.

³⁵ James B. Whisker, *U.S. and Confederate Arms and Armories During the American Civil War: Confederate Arms and Armories Volume 4* (Lewiston: The Edwin Mellen Press, 2003), 101.

manufactured in Atlanta.³⁶ Because the Confederate Navy never produced the number of ships already present in the Union Navy, it achieved limited success during the war.

Like the entirety of Atlanta, the Atlanta Arsenal and Atlanta Naval Ordnance experienced chaotic periods between 1864-1865. The fear of Sherman's raid into Georgia, especially Atlanta, resulted in both ordnance centers closing their faculties and moving machinery and goods deeper into Georgia. The once mighty Atlanta Arsenal transferred machinery to Macon Arsenal and Columbus Arsenal. By June 1864, the machinery of the Atlanta Naval Ordnance was packed for removal to Augusta and eventually Fayetteville, North Carolina. It was subsequently destroyed there in 1865.³⁷ In August 1864, General Sherman's forces left behind a wake of ruination. The Atlanta Arsenal and Atlanta Naval Ordnance and associated buildings were destroyed and do not remain today. Confederate ordnance operations in Macon, Georgia mirrored those in Atlanta in importance and scale. However, only one of the three major Macon establishments met the same fate as those in Atlanta.

The prelude to Macon ordnance operations started in Savannah, 165 miles away on Georgia's coast. Although Savannah served as a major port and embodied the history of the state, it played a small role throughout the Civil War. The main ordnance locations in Savannah included the Savannah Arsenal and Fort Pulaski. Following the secession of South Carolina, Georgia Governor Joseph E. Brown ordered Fort Pulaski be taken over for eventual Confederate use. On April 10, 1862, Union forces demanded the surrender of Fort Pulaski. After thirty hours of rifled cannon bombardment, Colonel Charles Olmstead surrendered the stronghold. This loss

³⁶ Stephen Davis, "Civil War: Atlanta Home Front," *New Georgia Encyclopedia*. 01 August 2017. Web. 10 August 2017. <http://www.georgiaencyclopedia.org/articles/history-archaeology/civil-war-atlanta-home-front>

³⁷ James B. Whisker, *U.S. and Confederate Arms and Armories During the American Civil War: Confederate Arms and Armories Volume 4* (Lewiston: The Edwin Mellen Press, 2003), 101.

plagued the South throughout the war and prevented operations from starting at the Savannah Arsenal.³⁸ It is not clear if true production ever occurred at the Savannah Arsenal, and remaining Confederate resources did not regard it as an essential ordnance center. Information concerning its existence and the famed Captain Richard M. Cuyler relate to the removal of the Savannah Arsenal to Macon. The April 1862 capture of Fort Pulaski closed Savannah and the Savannah River from the rest of the South. Forecasting this loss, Josiah Gorgas instructed Captain Cuyler to, “organize the Depot of repairs and constructions at Macon,” and ordered the transfer of all tools, materials, and stores not needed at Savannah to Macon.³⁹ The prompted removal of the entire Savannah operation to Macon resulted in the establishment of the Confederate Macon Arsenal.

In total, three Confederate ordnance operations were established in Macon. The Macon Arsenal represented a different approach for the Confederate Ordnance Department due to the rushed exit from Savannah. Rather than constructing a new complex, Captain Cuyler fabricated the Macon Arsenal through acquiring and contracting with local businesses and buildings. As preparations for the move continued, Cuyler surveyed Macon, hurriedly searching for options under orders from Gorgas to begin operations as soon as possible. In May 1862, Cuyler rented the factor of James N. and Christopher D. Findlay of Third Street in Macon. The lease included everything in the Findlay shops. Cuyler removed the foundry and erected a building for its purpose. He also supervised the construction of a carpenter and wood machinery shop and wheelwright shop. Additionally, several miscellaneous sheds were built on the property. New

³⁸ Ralston B. Lattimore, “Battle for Fort Pulaski,” Fort Pulaski NM Historical Handbook no. 18, April 14, 2015. <https://www.nps.gov/fopu/learn/historyculture/battle-for-fort-pulaski.htm>

³⁹ Gorgas to Cuyler, Richmond, 25 April 1862, Records of Confederate Ordnance Establishments at Macon, Georgia, Box 3197, Records of the Arsenal at Macon, Georgia, Military Records Group 109, NARA, Microfilm.

forges were added following the enlargement of the Findlay's blacksmith shop.⁴⁰ Cuyler shipped the remaining ordnance supplies from Savannah including uncut cannon balls, lint, bullet molds, steel, musket balls, bass fuse plugs, gun carriage bolts, tin straps for six and twelve-pounder cannon, musket caps, pistol caps, rifled shell, ammunition boxes, and other items.⁴¹ This shipment prompted the desperate need for additional space.

With operations underway at Findlay, the Macon Arsenal rented the upper story of a harness shop owned by the firm Little, Smith and Company. Cuyler also acquired an arms repair shop from D.C. Hodgkins and Sons, purchasing machinery and tools owned but the Hodgkins firm. The Confederate Ordnance Department also rented a warehouse on Second Street from James J. Snider and yet another warehouse on Cherry Street from the Harris and Dease firm. An old Presbyterian Church and smaller facility were also rented from sword-maker, E.J. Johnston. Through petitioning the Macon Mayor and City Council, Cuyler rented a lot adjacent to Findlay's Foundry for a bombproof for proving heavy guns. The future construction of the Macon Armory and Confederate Central Laboratory were markedly different from the Macon Arsenal. No attempt was made by the Confederate Government to build a completely new Arsenal. The minor buildings constructed for the Macon Arsenal were intentionally temporary.⁴² However, the Macon Arsenal achieved phenomenal success for the Confederate cause. On May 10, 1862, headed by R.M. Cuyler, the arsenal began operations. The *Macon Daily Telegraph* reported that the Findlay Iron Works, "have been transferred to the control of the Confederate Government during the war, and will hereafter be known as the 'Macon Arsenal', Capt. R.M.

⁴⁰ Richard W. Iboist *Civil War Macon* (Macon, Georgia: Mercer University Press, 1999), 147.

⁴¹ Richard W. Iboist *Civil War Macon* (Macon, Georgia: Mercer University Press, 1999), 148.

⁴² Richard W. Iboist *Civil War Macon* (Macon, Georgia: Mercer University Press, 1999), 147-148.

Cuyler, commanding.”⁴³ By the end of the war, sustained success garnered Macon Arsenal a known reputation. A *Macon Daily Telegraph* article noted the arsenal was an, “extensive establishment in splendid condition...[with] ample machinery for the fabrication of a great many patterns of small arms, cannon, etc...”⁴⁴ However successful, the fate of Macon Arsenal mirrored that of most cities in Georgia, defeat at the hands of General Sherman.

Sherman’s occupation of Atlanta controlled what happened in Macon for the remainder of the war. Although machinery from the Atlanta Arsenal was shipped to Macon Arsenal, R.M. Cuyler subsequently placed machinery on railcars intended for safekeeping in Savannah. In October 1864, Sherman’s troops approached the city situated on the Ocmulgee River. Although troops passed through Macon, Cuyler reinstalled arsenal machinery to continue production. This action never achieved fruition. Additional scares from Sherman’s Right Wing paired with the destruction of railways rendered Macon Arsenal ineffective by early 1865.⁴⁵ Cuyler’s constructed buildings, temporary in nature, are no longer extant. Although Findlay Iron Works returned to business, postwar production was limited and never achieved levels of prewar success. Two additional ordnance operations in Macon, the Macon Armory and the Confederate States Central Laboratory, experienced postwar utilization. The State Penitentiary turned State Armory in Milledgeville, Georgia’s Civil War era capital, represented a non-traditional adaptation for the Confederate Ordnance Department. The often-overlooked Milledgeville Arsenal served in the traditional capacity. Both experienced the brunt of Sherman’s wielded force.

⁴³ *Macon Daily Telegraph* (Macon, Georgia), May 16, 1862.

⁴⁴ *Macon Daily Telegraph* (Macon, Georgia), May 19, 1865.

⁴⁵ Richard W. Iboest *Civil War Macon* (Macon, Georgia: Mercer University Press, 1999), 173-175.

On January 19, 1861, Georgia convention delegates passed the Ordinance of Secession in the State's fourth capital of Milledgeville.⁴⁶ As an important center of political activity, Milledgeville also developed an early ordnance program. A common misconception of Milledgeville's Civil War era ordnance involves the presence of two distinct operations. A Confederate Arsenal operated throughout the war producing various armaments and war related items. It was positioned on the east side of the square that encompassed the Statehouse. Another operation, Georgia's adapted State Penitentiary, served as the Georgia State Armory. Wartime correspondence, newspaper recordings, and wartime sketches support that these establishments operated separately but with close association.

Early in the war, Georgia Governor Joseph E. Brown demanded that the state's embarrassing ordnance situation be fixed. Governor Brown's attitude concerning weapons manufacturing combined with suitable existing buildings in Milledgeville situated the capital as the center of Georgia's early ordnance operations. The Milledgeville Arsenal had been established as early as 1830-1832 in the heart of the city. An ad in the May 3, 1832 *Southern Recorder* reported, "...all persons who are not members of a Volunteer Corps or Company, that have any of the arms of the State in possession, that they will deliver them forth-with at the Arsenal in Milledgeville."⁴⁷ By July 30, 1861, Governor Brown had ordered, "...out of the [Augusta] Arsenal between seven and eight thousand stand of arms which he found in it...placed in the Arsenals at Savannah and Milledgeville."⁴⁸ With 7,000 to 8,000 arms being transferred, the Milledgeville Arsenal received a significant portion of the original 22,000 seized at the Augusta Arsenal. This transfer armed local Milledgeville units and revamped the aging

⁴⁶ Robert J. Wilson, "Milledgeville," *New Georgia Encyclopedia*. 08 June 2017. Web. 14 August 2017. <http://www.georgiaencyclopedia.org/articles/counties-cities-neighborhoods/milledgeville>

⁴⁷ *Southern Recorder* (Milledgeville, Georgia), May 3, 1832.

⁴⁸ *Southern Recorder* (Milledgeville, Georgia), July 30, 1861.

Milledgeville Arsenal. An assortment of wartime items was manufactured, inspected, and stored at the Milledgeville Arsenal. Although rifles were produced, the popularized and infamous Bowie knives and pikes were made at the Milledgeville Arsenal. Although often overlooked, this arsenal supplied a wide array of products that supplemented Georgia's armies during the early stages of fighting.

Although the Milledgeville Arsenal initiated Georgia's attempt to reconcile ordnance failures, Governor Joseph Brown pushed further. On Tuesday November 11, 1862, the *Southern Recorder* reported several decisions made by Governor Brown. Invariably, the message from the Governor's report was an entitled act that established the Georgia State Armory in Milledgeville. The act appropriated \$350,000 for, "...the establishment of an Armory in the Penitentiary, and employed Mr. Peter Jones, who was long connected prominently with the Armories and manufacture of arms, for the United States, to take charge of and superintend the works."⁴⁹ The original 1817 State Penitentiary had swelled to 150 to 200 convicts by the beginning of the war and represented an annual deficit for the state. Governor Brown's adapted prison utilized forced labor, turning a \$10,000 net profit. Additionally, the prison buildings had just been completely renovated and enlarged before the start of the war.⁵⁰ The upgraded facility received additional upgrades in November when it was outfitted with machinery for arms production. Later in November 1862, *The Confederate Union* reported a formal inspection of the State Armory.

First they visited the barrel forging department, where the gun barrels are forged under powerful tilt hammers, and then bored. Then through the machine shop where the different parts of the gunlock, and gun-mountings are finished and the lockwork put together. Then through the room for finishing saber bayonets, and the store rooms where the different parts of the gun are stored ready for putting together, or as we heard one of the officers call it *assembling*... Then we went through the annealing and case hardening and *blueing* room: and the stocking and forge rooms where the hammers, tumblers,

⁴⁹ *Southern Recorder* (Milledgeville, Georgia), November 11, 1862.

⁵⁰ James C. Bonner, "The Georgia Penitentiary at Milledgeville 1817-1874," *The Georgia Historical Quarterly* 55, no. 3 (1971): 316.

ramrods are forged and stocks made, and finally into the finishing room where the gun is finished and turned off ready for use with bayonet, and everything complete.⁵¹

Throughout the war, this expansive operation produced arms like those manufactured at Milledgeville Arsenal. These included smoothbore muskets, pikes, and cutlasses. Successful wartime production paired with Milledgeville being the center of Confederate Georgia spelled defeat for the city nearly two years to the date after the Georgia State Armory was established.

On November 23, 1864, General Sherman and 30,000 Union troops successfully invaded and ransacked Milledgeville. The Milledgeville Arsenal and Penitentiary Armory were burned and laid in ruin. Union Sergeant Stephen F. Fleharty observed that the arsenal contents consisted of thousands of cutlasses, and pikes, and outmoded rifles, nothing nearing the superiority of the Union's Spencer rifles.⁵² In total, destroyed arms and war-related materials included 2,300 .69 caliber smoothbore muskets, 5,000 pikes, and 1,500 cutlasses.⁵³ General Sherman's raid halted weapons manufacturing in Milledgeville and generated a statewide zeitgeist of defeat. The *Confederate Union* reported, "A stillness almost Sabbath like pervades our business streets...and the blackened sightless walls of the Penitentiary, Arsenals, Magazine, and Depot remind us constantly of the presence of the vandal hordes of Sherman."⁵⁴ The charred remains of these Milledgeville ordnance centers were never reused, but their locations within the city created the opportunity for redevelopment. In 1889, Georgia Normal and Industrial College, later Georgia College and State University, was founded at the location of the Civil War era ordnance operations. During Reconstruction, the capital of Georgia was relocated to Atlanta.

⁵¹ *The Confederate Union* (Milledgeville, Georgia), November 18, 1862.

⁵² James C. Bonner, "Sherman at Milledgeville 1864," *The Journal of Southern History* 22, no. 3 (1956): 286.

⁵³ Claud E. Fuller and Richard D. Steuart, *Firearms of the Confederacy* (Huntington, West Virginia: Standard Publications, 1944), 246.

⁵⁴ *Confederate Union* (Milledgeville, Georgia), December 13, 1864.

Milledgeville, once the center of Confederate Georgia, remained a symbol of the Old South, a lost cause.⁵⁵

The destroyed Confederate ordnance centers located in Georgia represented the state's key role for the South. General Sherman's realized goal of capturing crucial Georgia cities and towns hinged on ordnance operations located within them. Three major operations across Georgia escaped Sherman's famed March to the Sea. Two locations in Macon and one location in Augusta experienced postwar adaptive reuse. The postwar narratives of these three ordnance centers highlight patterns of adaptive reuse for Confederate armories, laboratories, and powder works following war. In turn, these patterns connect with another three that are currently extant.

Confederate Chief of Ordnance Josiah Gorgas and President Jefferson Davis well understood the importance of a vast supply of powder. Without powder, other ordnance operations would be worthless. Under the direction of President Davis, Gorgas tasked Colonel G.W. Rains with selecting a site in mid-June 1861. Colonel Rains travelled to Tennessee to supervise and systematize the operations of two small private mills, the only two in existence for the Confederacy.⁵⁶ Confederate forces possessed only enough powder to last for one month of active service. The Government Powder-mills was fixed along the Augusta Canal in Augusta, Georgia following a brief ten-day search for a potential location. Colonel Rains commented, "All in all, it was remarkable that the most favorable conditions required in the erection of an extensive Powder manufactory were all met at this location, and nowhere else attainable."⁵⁷

Construction began on September 13, 1861 and resulted in thirteen major buildings and a

⁵⁵ Robert J. Wilson, "Milledgeville," *New Georgia Encyclopedia*. 08 June 2017. Web. 14 August 2017. <http://www.georgiaencyclopedia.org/articles/counties-cities-neighborhoods/milledgeville>

⁵⁶ Claud E. Fuller and Richard D. Steuart, *Firearms of the Confederacy* (Huntington, West Virginia: Standard Publications, 1944), 114.

⁵⁷ George Washington Rains, *History of the Confederate Powder Works* (Augusta, Ga." Chronicle and Constitutionalist Print, 1882), 8.

number of lesser buildings engaged in the eight-step process of producing gunpowder for personal armaments and cannon. The three largest and most important buildings included the connected warehouse and refinery with 150-foot tall square chimney, the impressive half a million brick laboratory, and the continuous incorporating mills that stretched 300 feet along the Augusta Canal.⁵⁸ Gorgas noted, “the Norman style of architecture,” said to reflect the mastery of James Renwick’s famed Smithsonian Institution.⁵⁹ The key ingredients, charcoal, sulfur, and niter were stored at powder works and eventually refined and processed into gunpowder. In its three years of operation, the Augusta Powder Works produced 3,378,118.2 pounds of powder, with approximately 70% for artillery and 30% for small arms. The Augusta Powder Works functioned as the Confederacy’s main powder-mill and represented a success for the Confederate Ordnance Department.

Operations were halted twice throughout the tenure of the Confederate Powder Works. On November 15, 1864, Sherman’s army exited Atlanta and headed east and south into the interior of Georgia. Two corps of veteran troops headed east towards Augusta. Colonel Rains began dismantling the machinery and loaded it aboard rail cars headed for Columbia, South Carolina. When it became apparent that Augusta was not the target the machinery was returned and production resumed. Another threat of Sherman occurred in February 1865. Although Rains again called for dismantling machinery, the threat was brief and resumed within the week. Production at the Confederate Powder Works did not cease until the end of the war when Rains received word of General Joseph E. Johnston’s surrender to Sherman on April 26, 1865.⁶⁰

⁵⁸ Gordon A. Blaker, “Rebel Genius: The Confederate Powder Works at Augusta, Georgia,” *Augusta Richmond County History* 44, no. 2 (2013): 6.

⁵⁹ Claud E. Fuller and Richard D. Steuart, *Firearms of the Confederacy* (Huntington, West Virginia: Standard Publications, 1944), 116.

⁶⁰ Gordon A. Blaker, “Rebel Genius: The Confederate Powder Works at Augusta, Georgia,” *Augusta Richmond County History* 44, no. 2 (2013): 15-16.

Although many of the smaller buildings were dismantled by Confederates, several of the larger buildings remained. The surviving empty buildings served as housing for an assortment of former employees and their families, freed slaves, and African American Federal soldiers. It is not evident how long the buildings served this postwar use, but by August of 1865 deterioration had become a major factor. Roofs leaked and the various wooden structures needed a whitewash. Additionally, the Powder Works still held almost 60,000 pounds of powder, a large quantity of ammunition, and 10,000 pounds of refined niter. Conditions remained unsafe at best. A planned expansion of the Augusta Canal played a key role in determining the future of the Confederate Powder Works. The site had been acquired piece-by-piece and was sold in a like manner. On, June 28, 1868, the secretary of war ordered the transfer of 348 acres to the Freedmen's Bureau. 49 acres were reverred to the U.S. Army Ordnance Department because this area encompassed the original Federal arsenal, which was later moved. By 1869, the Freedmen's Bureau sold 220 acres to Dr. Edward W. Parker of August, leaving 128 acres. In early October 1871, the citizenry of Augusta approved of the proposed enlargement of the canal. By October 19, 1871, the city had purchased the 128-acre tract and five buildings for \$10, 700. On June 10, 1872, Congress authorized the secretary of war to sell the 49-acre old arsenal land as well. This tract included the principle buildings of the Confederate Powder Works. Augusta Mayor Charles Estes attended the auction and purchased the tract for \$32,000. This purchase made the planned canal expansion a reality.⁶¹

Colonel Rains, dedicated to preserving the architecture of the Powder Works, appeared before the Augusta City Council in hopes of petitioning them to save the buildings. Rains commented, "Should that portion of the buildings cease to be valuable for any use to which they

⁶¹ C.L. Bragg et al. *Never For Want of Powder: The Confederate Powder Works in Augusta, Georgia*. (Columbia, South Carolina: University of South Carolina Press, 2007), 236-238.

may be applied. would it be asking too much from the city that the obelisk be allowed to remain forever as a fitting monument to the dead heroes who sleep on the unnumbered battlefields of the South?”⁶² His request was denied and work on the canal and dismantling of the Powder Works began immediately. The machinery from the Powder Works was sold to Sycamore Manufacturing Company near Nashville, Tennessee and the buildings were razed. This razing made possible the construction of two new factories. The Sibley Mill, opened in 1882, resembled the Confederate Powder Works because it was constructed almost entirely from salvaged bricks. In 1884, the John P. King Mill also opened and evolved into one of the largest southern cotton mills.⁶³

Currently, only the obelisk of the Confederate Powder Works remains alongside the Augusta Canal at the site of the Sibley Manufacturing Company. Colonel Rains reminisced, “The beautiful buildings have been torn down to build drains and ditches; their ruins mark the spot where they once existed. The tall grand obelisk alone remains...”⁶⁴ The singularity of the obelisk combined with the extant Sibley Mills constructed of salvaged bricks exemplify the postwar preservation and adaptive reuse of Georgia’s Confederate ordnance locations. Most of the original structures have been razed but bits and pieces remain. The facet of adaptive reuse for manufacturing purposes was common at several of the major Confederate armories and arsenals in Georgia. This subject will be examined and explained in greater depth in the coming chapters.

Much of the Confederacy lacked adequate transportation for a region fighting a modern war. Macon, Georgia benefitted from its position at a crossroads of a vast unified state railroad

⁶² “The regular meeting of the City Council was held yesterday,” *DCS*, Tuesday November 5, 1872, 3.

⁶³ C.L. Bragg et al. *Never For Want of Powder: The Confederate Powder Works in Augusta, Georgia*. (Columbia, South Carolina: University of South Carolina Press, 2007), 238-239.

⁶⁴ George Washington Rains, “Col. Rains’ appeal for the Powder Works obelisk (n.d.),” Rains Papers, SHC-UNC.

network. This network connected Macon with the Atlantic Ocean and the Gulf of Mexico, and Tennessee and Virginia. Additionally, Macon was the main industrial center for pre-Civil War Georgia. By 1860, Macon had five companies for making machinery and eighty-three other manufactories. Macon's position within the interior of the Confederacy allowed it to supply rank and file soldiers until war's end.⁶⁵ Two major Confederate ordnance operations in Macon also escaped Union destruction. The Confederate States Central Laboratory and Macon Armory were utilized following the war. The narratives accompanying these locations center around the fact that they were never fully completed during the war. Both locations share a connection of utilization after the war with the Augusta Powder Works. This connection also includes overall patterns of adaptive reuse and preservation.

By fall 1862, both sides acknowledged that the war would last much longer than expected. For the Confederate Ordnance Department, this continuation of fighting equaled increasing arms manufacturing throughout the South. Under the direction of Chief of Ordnance Josiah Gorgas, the Confederate Ordnance Department planned the construction of two national ordnance operations in Macon in late 1862. Gorgas noted, "Among obvious necessities of a well-regulated service was one large central laboratory, where all ammunition should be made - these securing absolute uniformity where uniformity is vital."⁶⁶ He placed John Mallet in charge of this operation. Mallet's early estimations concluded, "for \$75,000, a complete and permanent establishment might be built," and Mallet agreed that, "...The advantage would be very great of having one thoroughly efficient and regular Laboratory, where a large supply of uniform and

⁶⁵ Robert Scott Davis, "A Cotton Kingdom Retooled for War: The Macon Arsenal and the Confederate Ordnance Establishment," *Georgia Historical Society* 91, no. 3 (2007): 267.

⁶⁶ Claud E. Fuller and Richard D. Steuart, *Firearms of the Confederacy* (Huntington, West Virginia: Standard Publications, 1944), 126.

standard ammunition might during the war be issued...”⁶⁷ John Mallet proceeded through the fall of 1862 with arrangements to begin the Central Laboratory complex.

Mallet’s lofty plans for the Confederate Central Laboratory included, “...a large piece of land...buildings workshops and magazines boundary wall of brick, wells, steam engines, [and] branch railroad track.”⁶⁸ In October 1862, Mallet appointed architect T.W. Fulton of Savannah to design and construct the Confederacy’s Central Laboratory. Mallet also acquired the necessary plat of land, just outside the city. He purchased 103 acres for \$1,800, with additional land bought at \$70 an acre. Following this purchase, Mallet turned his attention to securing necessary contracts for materials and negotiating with Macon’s Western Railroad for a short branch track to run alongside the enclosure of the laboratory.⁶⁹ With contracts and negotiations set, Mallet pivoted his focus to labor.

Although Confederate ordnance operations were plagued by labor shortages throughout the war, Macon provided an ample supply of enslaved peoples to meet the demands of production. Initially, Mallet hired 60 to 65 enslaved individuals to erect the buildings. Additionally, Mallet hired 26 individuals from enslaver William C. Dawson of Savannah for \$150 a year. At the same time, Mallet asked the Savannah *Republican* to advertise for 60 or 65 enslaved carpenters.⁷⁰ The Confederate States Central Laboratory was constructed using forced labor; symbolizing what had always held true, the exploitation of the African and African-American race for the advancement of the South. By late January 1863, Mallet wrote Josiah Gorgas that he anticipated the greater part of the buildings for the permanent laboratory be completed during the summer and fall of 1863. However, it was not until May 7, 1863 that the

⁶⁷ Richard W. Ibest *Civil War Macon* (Macon, Georgia: Mercer University Press, 1999), 242.

⁶⁸ Ibid.

⁶⁹ Ibid, 242-243.

⁷⁰ Ibid, 243-244.

brickyard was in full operation for molding bricks for the laboratory complex.⁷¹ The completion of the brickyard catapulted production, and significant progress was achieved throughout the summer of 1863.

The foundations of the main building were all laid, and the exterior and partition walls reached the level of the joists. Temporary buildings needed during construction, including a carpenter's shop, a lime store, and other structures were completed. Work progressed on the main building to the point that carpenters prepared the joists to support the ground floor and granite door sills were all laid. Eventually, carpenters had framed and prepared all the second-floor timbers and joists, and were working on the roof framing for the main building in the fall of 1863. A steam engine for driving the wood planer, saws, and a bolder had been installed in the main building. A chimney was also completed and a large engine well was finished and bricked up.⁷² Although initial progress was slow, the main building was nearly completed. Built in the Italianate style, the grandiose Central Laboratory symbolically conveyed the permanence of the Confederate States for many. However, insurmountable obstacles coupled with General Sherman's impending approach crippled construction efforts. The foundations of the right and left low buildings were completed with one long chimney stack laid. The branch of railroad neared full completion, only lacking railroad spikes and cross ties.⁷³ The incomplete complex awaited Sherman's push into Georgia throughout 1864. Various machinery was shipped to Savannah for safekeeping and what little production of ammunition took place ceased. In the end, John Mallet tried to produce musket caps, sheet copper, and musket balls in his partially-

⁷¹ Ibid, 248.

⁷² Ibid, 249-250.

⁷³ Ibid, 250.

completed laboratory.⁷⁴ The future of the Confederate States Central Laboratory, much like the Macon Armory, rested in the hands of Union Major General James H. Wilson.

James H. Burton, possibly the world's leading authority on small-arms manufacture, served in various capacities during the war. Burton's lasting appointment was his position in charge of establishing a Confederate national armory. Burton's experience at Harpers Ferry and the Royal Small Arms Factory in Enfield, England situated him as an excellent pick for the job. On May 20, 1862 Burton was ordered to Atlanta, Georgia to establish a permanent armory with removed machinery from Harpers Ferry.⁷⁵ However, ramped speculation of land prices in Atlanta forced Burton to reconsider the establishment of the armory. Leaders in Macon, Georgia learned of these problems and in June 1862 offered Burton 30 free acres of land for establishing the national armory.⁷⁶ The Confederate War Department accepted Macon as the site.

Before Burton began working on the permanent armory, he turned his energies to erecting the stocking machinery from Harpers Ferry. Burton leased an old depot from the Macon & Western Railroad with three acres of land attached for this purpose. The site, only a half mile from the donated tract, served as a temporary armory for fashioning stocks for the Richmond Armory. The boundaries of the free land for the national armory was along a line of the Macon & Western Railroad, east along Calhoun Street to Hazel Street, south to Lamar Street, and west back to the railroad.⁷⁷ Another four acres were purchased adjacent to the larger parcel for officers' living quarters. Burton hired master builder Jeremiah Fuss and master draftsman William H. Lotz as well as architect and civil engineer Augustus Schwaab. An estimated nine

⁷⁴ Ibid, 252.

⁷⁵ Matthew W. Norman, "James H. Burton and the Confederate States Armory at Macon," *The Georgia Historical Quarterly* 81, no. 4 (1997): 975.

⁷⁶ Ibid, 977.

⁷⁷ Ibid, 977.

million bricks and \$780,000 would be needed to complete the national armory. Plans called for a main building two stories high, spanning 625 feet by 40 feet wide, including: two flank towers of three stories each, a central four story bell tower, and four wings two stories high with dimensions of 162 feet by 40 feet each. Additionally, a large smith shop and barrel rolling department, a proof house, two store houses, a coal shed, and an array of living quarters were planned. The first cornerstone of the Confederate States Armory at Macon was laid on February 18, 1863.⁷⁸

The temporary armory works, the only buildings involved in actual production, turned out gun stocks and started to meet the Confederate Ordnance Department's expectations in 1863. James Burton, unable to secure or produce machinery in the South, left Macon for England in May 1863 to purchase the necessary machinery for the Confederate armory. He left Macon Arsenal Superintendent Richard M. Cuyler in charge of all operations and construction. Upon Burton's return in October 1863, he discovered the disheartening defeats at Gettysburg and Vicksburg that summer. Progress on the armory was limited in Burton's absence, and expenditures of \$600,000 were not yet visible on the Macon landscape.⁷⁹ Although production at the temporary armory continued to meet production levels, the permanent armory structures required serious work.

Like the Confederate States Central Laboratory, the Macon Armory's construction hinged on the utilization of enslaved labor. By 1863, Burton resorted to hiring enslaved workers by the year to complete the armory. Rather than returning to their enslavers, these Macon laborers were fed, clothed, and boarded on site. In 1864, the armory averaged between 150 and 250 enslaved individuals for a given month. As Sherman approached Atlanta, the Confederate

⁷⁸ Ibid, 979-981.

⁷⁹ Ibid, 981.

Government demanded that enslaved men be enlisted for the protection of the state. Burton refused to send his workforce and received severe backlash from those in Macon and throughout the South.⁸⁰ This problem, coupled with the prevention of transporting required building materials, significantly slowed the armory's progression. Stone and slate could not be imported into Georgia, prompting Burton to use wood shingles for roofing. Although the main building and the perpendicular Wing No. 3 were effectively completed, the armory had expended \$759,000 and had not produced a single Enfield rifle.⁸¹

In 1865, the armory employed 200 men for manufacturing small-arms and 100 enslaved individuals for construction purposes. Burton continued his push to complete the armory, fabricate Spiller & Burr revolvers, and furnish gunstocks for Richmond. On April 20, 1865, all work ceased. The 17th Indiana Cavalry entered Macon as part of Major General James H. Wilson's U.S. Cavalry Corps, ending wartime manufacturing across the city. James Wilson's Cavalry Corps captured an impressive complex achieved by James Burton. At the end of the war, the temporary works included three brick buildings and seven frame buildings. The permanent armory site contained the large main brick building, ten smaller buildings, four dwelling houses for foremen, and twelve buildings used as slave quarters. A total of \$2.1 million had been poured into a project now controlled by the enemy.⁸² The necessary machinery for the National Armory was marooned in Nassau and Bermuda when the Confederacy fell. Chief of Ordnance Josiah Gorgas authorized preliminary plans for establishing an armory abroad in the Caribbean rather than importing the machinery intended for the Macon Armory and Central Laboratory. Gorgas lamented,

⁸⁰ Ibid, 982.

⁸¹ Ibid, 984.

⁸² Ibid, 984.

Had the war been prolonged, we should in twelve months have been making our own arms in a foreign land, under the sanction of a private name. After the war it was proposed to transfer the entire 'plant' to the buildings which were in course of construction for it at Macon. Peace would have then found us in possession of a great armory, which I much desired.⁸³

Although the Confederate States Armory at Macon never achieved success, the magnitude of its extant buildings and its location primed it for postwar utilization. The Macon Armory and Central Laboratory, never used for their intended purposes, embodied the dedicated spirit of the Confederacy. Nineteenth century postwar use quickly evolved into a collective effort to rebuild the South. By January 1866, Macon citizens and newspapers suggested that Macon maintain its prideful position as Georgia's central manufacturing and enterprising city. A *Georgia Weekly Telegraph* noted, "Attention should now be turned to those superb but incomplete structures, the Confederate Armory and Laboratory. If we are insensible to their adaptation and value, we hope some shrewd Yankee with a long purse may come along and give us a practical illustration of his wisdom and enterprise."⁸⁴ Transforming a landscape ravaged by war and adaptively reusing involved buildings equaled a future, a new South.

Possession of the Macon Armory buildings and grounds reverted to the city of Macon, where they remained empty and untouched until 1870. In the spring of 1870, the Armory Cotton Manufacturing Corporation of New York wanted to establish a 35,000-spindle cotton factory but failed in the undertaking. In the fall and winter of 1873, the walls of the main building were torn away. This destruction left only the three towers and one story proof house. Parts of the main building furnished all the brick, timbers, door and window frames for the Second Street Public School completed in October 1874. In June and July 1874, the city auctioned the three towers,

⁸³ Claud E. Fuller and Richard D. Steuart, *Firearms of the Confederacy* (Huntington, West Virginia: Standard Publications, 1944), 124.

⁸⁴ *Georgia Weekly Telegraph* (Macon, Georgia), January 15, 1866.

the land, and remaining supplies. Between 1874 and 1879, the two side towers were razed, leaving the central bell tower and proof house. In January 1879, the bell tower was demolished. The proof house housed various operations including a knitting mill, a carpet and rug cleaning company, and schoolhouse until its destruction in 1937. The land was divided into residential lots and sold at public action in 1883. Although the land that housed the temporary armory works are still owned by the city, the Civil War era buildings were destroyed shortly after the war.⁸⁵ Although no Macon Armory buildings remain, postwar adaptive reuse patterns mirrored those throughout Georgia. The Central Laboratory buildings experienced extended utilization into the twentieth century.

In 1868, the people of Macon, under the auspices of the State Agricultural Society, held a fair at the Central Laboratory.⁸⁶ On January 18, 1870, the Central Georgia Manufacturing and Agricultural Company, owners of the Central Laboratory, voted to use the buildings and grounds for a larger fair that fall. General improvements were made for the fair including the addition of a track for racing.⁸⁷ Although, "...if you ask any old-timer what was the best fair ever held in Bibb County he will unhesitatingly say that the first fair held after the war at the laboratory building was by all odds entitled the blue ribbon," the State Fair was removed from the Laboratory grounds to the Central City Park in 1871.⁸⁸ From 1871 onward, the Central Laboratory passed through private hands, operating as a barrel factory and other operations. In the early 1910s, Major Hanson, president of the Central of Georgia Railway Company, bought it to hold in reserve for the establishment of shops. On Saturday night February 10, 1912, the Confederate

⁸⁵ Matthew W. Norman, "James H. Burton and the Confederate States Armory at Macon," *The Georgia Historical Quarterly* 81, no. 4 (1997): 985-986.

⁸⁶ *The Banner* (Athens, Georgia), February 16, 1912.

⁸⁷ *Southern Recorder* (Milledgeville, Georgia), January 18, 1870.

⁸⁸ *The Banner* (Athens, Georgia), February 16, 1912.

States Central Laboratory was engulfed in flames and destroyed.⁸⁹ The last of Macon's impressive Civil War ordnance locations was erased from the Georgian landscape. However, patterns of adaptive reuse at the Central Laboratory highlight connections with adaptive strategies employed at Augusta Powder Works and Macon Armory that remain impactful today.

An understanding of Confederate ordnance operations within Georgia illustrates several points crucial for further understanding Confederate armories, arsenals, iron works, powder works, and laboratories and the roles these locations played during and after the Civil War. Narratives attached to operations in Richmond and Fayetteville comprise the overarching foundations of the Confederate Ordnance Department. Both weapons manufacturers exemplified the purpose and function of Confederate armories and arsenals. Although destruction was commonplace in Atlanta, Macon, Milledgeville, Augusta, and Savannah, understanding how ordnance centers in these cities were established and operated highlights their impact on Georgia's role throughout the war. Also, this group of major ordnance operations illustrated the machinery, manpower, money devoted to creating a successful Confederate Ordnance Department.

Although these key ordnance centers were not used following the war, understanding their histories is central to understanding the Civil War armory or arsenal in Georgia. The Macon Armory, Central Laboratory, and Augusta Powder Works represented a small section of Confederate operations in Georgia that survived destruction. This group embodied the collective citizenry stance for adapting Civil War buildings for the use of redirecting the South's future. Ex-Confederates well understood that these massive brick buildings provided opportunities for adaptive reuse, and they were not coming down anytime soon. Manufacturing dominated as the

⁸⁹ Ibid.

logical choice for utilizing ordnance structures in the postwar era. Although these centers changed private hands frequently throughout the nineteenth century, their use and reuse kept them upright. Eventual razing and fire doomed the Macon Armory, Central Laboratory, and Augusta Powder Works. Following destruction however, bricks and other building materials from Macon Armory and Augusta Powder Works were repurposed for the construction of a mill complex and school. This pattern of reuse represented the longevity and importance of Confederate ordnance operations across Georgia. These patterns of reuse, coupled with an interest on behalf of University System of Georgia colleges and universities preserved three Confederate Ordnance Department locations. Currently, three extant Confederate armories and arsenals reside on three individual university and college campuses. The extant locations include, Augusta Arsenal at Augusta University, Columbus Ironworks and Arsenal at Columbus State University, and Cook and Brother Armory at the University of Georgia in Athens. Short narratives of these locations, combined with in depth studies of postwar adaptive reuse patterns, highlights why these buildings remain and why they will continue to be preserved in the future.

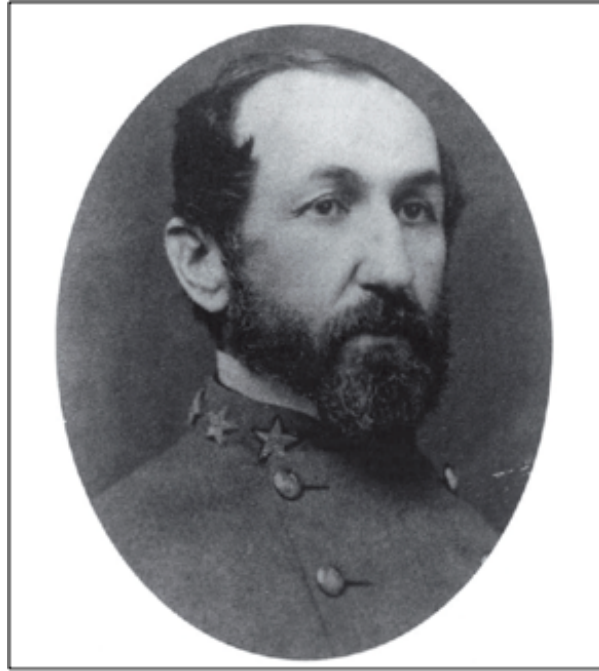


Figure 1, Civil War Era Portrait of Chief of Ordnance Josiah Gorgas.



Figure 2, U.S. Model 1841 rifle made at the U.S. Armory at Harpers Ferry and altered the U.S. Armory at Springfield.



Figure 3, U.S. Model 1841 rifle made at the U.S. Armory at Harpers Ferry and altered the U.S. Armory at Springfield.



Figure 4, U.S. Model 1841 rifle made at the U.S. Armory at Harpers Ferry and altered the U.S. Armory at Springfield.

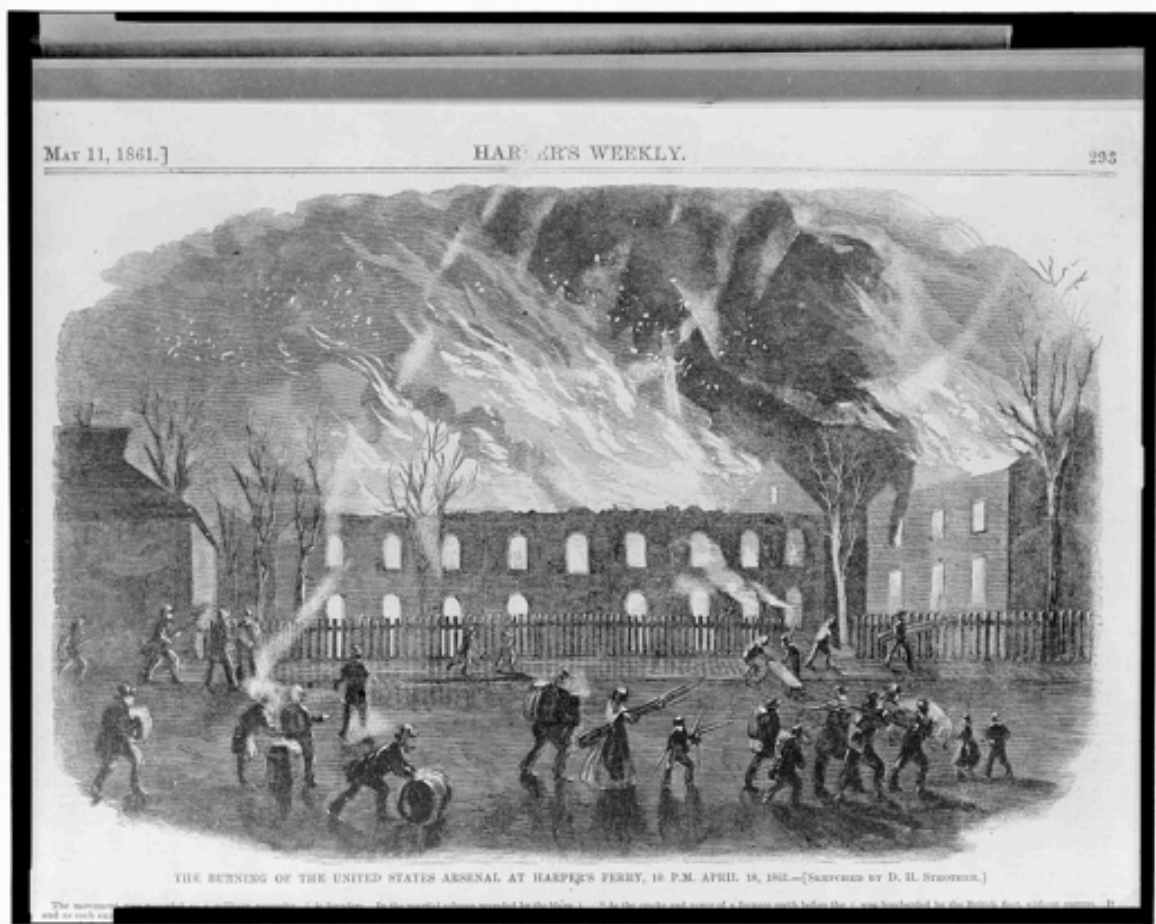


Figure 5, Burning of Harpers Ferry in Harper's Weekly, May 11, 1861.



Figure 6, Main Richmond Armory Building in Ruin, 1865.



Figure 7, Ruins of Richmond Armory, 1865.



Figure 8, Ruins of Richmond Armory, 1865.



Figure 9, View overlooking the ruins of Richmond Armory, 1865.



Figure 10, Fayetteville Arsenal.

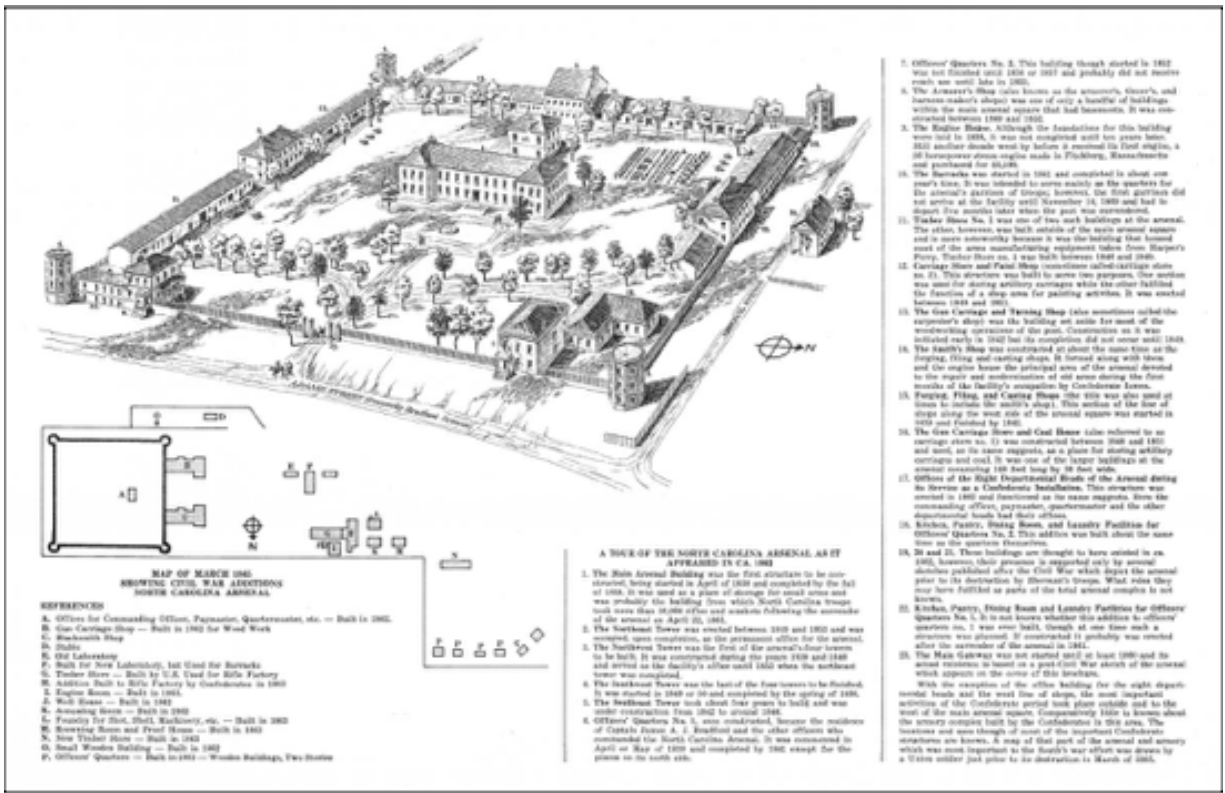


Figure 11, Map of Fayetteville Arsenal during Civil War.



Figure 12, Burning of Georgia State Armory in Milledgeville, 1864.



Figure 13, Rifle made at Georgia State Armory.

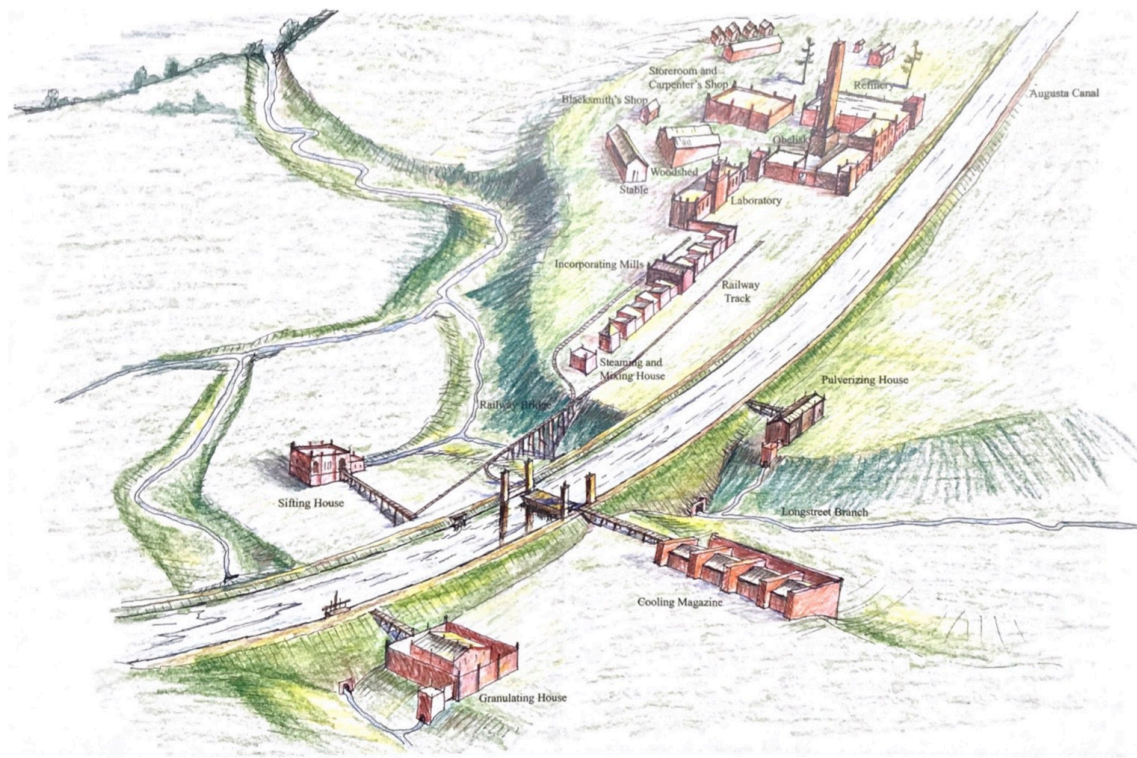


Figure 14, Map of Confederate Powder Works in Augusta, Georgia.

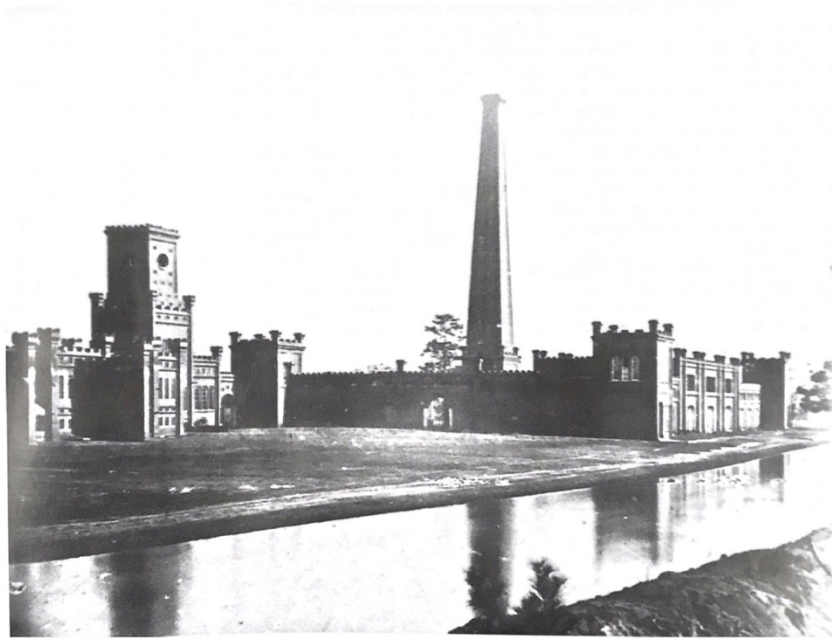


Figure 15, Stereoscopic view of Confederate Powder Works Refinery and Laboratory in 1870.



Figure 16, Construction at Confederate States Armory in Macon, Georgia.



Figure 17, Confederate States Laboratory, 1878.



Figure 18, Confederate States Laboratory, 1912.

CHAPTER 3

CONFEDERATE AUGUSTA: THE AUGUSTA ARSENAL

The, “gay bazaar of the South,” accurately described the fledging town of Augusta located at the fall line of the Savannah River near South Carolina.⁹⁰ Augusta’s location at the head of navigation of the Savannah River provided reason for its inception. Throughout the eighteenth and nineteenth centuries the settlement turned city supported not only Georgia but the young nation as well. Although the area destined to become Augusta served as Creek and Cherokee lands for centuries, by 1786 it had developed into Georgia’s capital. From its beginning, the river-born town assisted as a major military outpost. In 1745, there were five warehouses for the storage of ammunition and items for barter with natives. As a center for trade and military operations, Augusta housed two forts, Cornwallis and Grierson, that were captured and recaptured throughout the Revolutionary War. George Washington visited the newly incorporated town in May 1791, acknowledging its role for the burgeoning United States.⁹¹ Augusta had evolved into an important militarily oriented location and it would remain that way throughout the nineteenth and twentieth centuries.

Rumblings of agricultural and industrial revolution positioned Augusta for substantial population growth and economic surplus. Augusta, strategically situated on the Savannah River, profited from trade of the backwoodsmen of upper Georgia and South Carolina and areas drained

⁹⁰ Mary Moragne, *The Neglected Thread, A Journal from the Calhoun Community, 1836-1842* (Columbia, 1951), 56-82.

⁹¹ Florence Fleming Corley, *Confederate City August, Georgia* (Spartanburg, South Carolina, The Reprint Company Publishers, 1960), 4-6.

by the upper Savannah. In 1817, Augusta was incorporated as a city, a mere 31 years since it had become a town. The 1820s and 1830s represented the height of Augusta's early success as a city. As an economic hub, Augusta boasted a river piled with steamboats and the formation of railroad lines. The 1830s witnessed Augusta's peak culturally, economically, and commercially. Aside from an economic downturn from 1840 to 1845, stemming from the financial Panic of 1837, Augusta represented a wealthy antebellum city at the beginning of the Civil War.⁹² Throughout this hey-day period, a newly established United States arsenal, deemed the Augusta Arsenal, mirrored the city's progression. Operating as a manufacturing and storage center the Augusta Arsenal emerged as a symbol of Augusta's success. However, on the eve of war, the arsenal transformed into something radically different, an enemy in Confederate territory.

A March 9, 1793 letter penned by President George Washington expressed the need for an established Federal arsenal in the small town of Augusta, Georgia. His authorized sending of several thousand stands of arms to Augusta, although the exact location was not mentioned, initiated the process for planning a permanent arsenal. The War of 1812 necessitated the establishment of arsenals across the young country.⁹³ In 1816 the United States purchased a tract of land a few miles up the Savannah River for \$2,500. An arsenal was constructed for \$163,905.45 with its buildings completed in 1819. In total, the arsenal site included 40 and six-sixteenth acres with eight and a half acres added in 1822. In September 1820, a yellow fever epidemic befell the arsenal, leaving only Captain Matthew M. Payne alive. Captain Payne had visited the Freeman Walker family at their Bellevue estate near the interior of Augusta proper, ultimately saving his life. Payne wrote Washington suggesting the arsenal be moved to a new

⁹² Ibid, 6-7.

⁹³ Ruby Pfadenhauer, "History of Augusta Arsenal in Augusta, Georgia," *Publications of Richmond County Historical Society* 2, no. 2 (1970): 5.

location.⁹⁴ An Act of Congress, approved by The Secretary of War, passed on May 26, 1826, for, “...a suitable site for a United States Arsenal; and to be erected thereon such buildings as may be necessary in lieu of those at the time occupied for such purposes...”⁹⁵ \$70,000 was appropriated for the project. The next day, May 27, the Act for purchase passed and Captain Payne began his search for a healthy and convenient site. The 72- acre tract of Freeman Walker’s Bellevue remained as the ideal location for the new Augusta Arsenal. The deed was signed on November 9, 1826 at a cost of \$6,000.⁹⁶ This location remains intact today.

Construction on the new Augusta Arsenal started in 1827 with \$49,900 set aside for that purpose. The arsenal consisted of two houses for officers’ quarters, a storehouse building, and a barracks building, all connected by a loopholed wall for protection. That same year, the arsenal supplied arms for Georgia Militia units in Milledgeville and Savannah. Additionally, arms were also furnished and repaired by armorers in Augusta for Harpers Ferry Armory. By 1829, all arsenal buildings were completed and occupied. Throughout the 1830s Augusta Arsenal manufactured musket balls and buckshot cartridges for various skirmishes with natives in the immediate area.⁹⁷ The construction of a stable building in 1849 signaled a decade of improvements, maintenance, and repairing at the Augusta Arsenal. This work was prompted by the foreshadowing of possible war. In 1851, commanding Brevet Lieutenant Colonel George W. Walcott commented, “Although, it is not intended to send troops to Augusta Arsenal at present, it may be necessary at some future day.”⁹⁸ Improvement work consisted of installing new mantels and grates for the south quarters and purchasing a cooking range for the north quarters. \$5,100

⁹⁴ Ibid, 6.

⁹⁵ Letter, Ordnance Department, Washington, D.C. to Major M.M. Payne, May 27, 1826.

⁹⁶ Ruby Pfaenhauer, “History of Augusta Arsenal in Augusta, Georgia,” *Publications of Richmond County Historical Society* 2, no. 2 (1970): 7.

⁹⁷ Ibid, 8-9.

⁹⁸ Ibid, 12.

was spent for repairing all arsenal buildings including renewing piazzas and shoring up the magazine. In 1854, the piazza of the north quarters was re-roofed and regular maintenance occurred.⁹⁹ Unknowingly, the Augusta Arsenal had prepped itself for eventual war.

From 1855 to 1859, work at Augusta Arsenal consisted of standard operations. In order to fill Southern arsenals with large quantities of arms and ammunition, Secretary of War John D. Floyd transferred 22,000 muskets and rifles to Augusta in January 1860. Due to increased apprehensions concerning the safety of arms, the Augusta Arsenal traded in a few hundred old carbines and pistols for updated weapons. A year later this transferal directly benefited Georgia and the Confederacy. Following secession, Georgia Governor Joseph Brown ordered the seizure of Augusta Arsenal on January 25, 1861. Captain Arnold Elzey surrendered the arsenal and its recently acquired 22,000 arms. This seizure preceded a legitimizing Ordinance of Occupation signed on March 20, 1861. The Ordinance stated,

The People of Georgia in Convention assembled do Ordain that the Government of the Confederate States of America is hereby authorized to occupy, use, and hold possession of all Forts, Navy Yards, Arsenals, Custom Houses, and other Public Sites, with their appurtenances within the limits of this State and lately in possession of the United States of America.¹⁰⁰

The capture of Federal arsenals in other Confederate states represented the initial cache of weapons for Confederate soldiers. At Augusta, Captain W.G. Gill served as the first commander of the arsenal under the Confederacy. Through Captain Gill, Chief of Ordnance Josiah Gorgas planned to make Augusta Arsenal an arsenal of construction. Civil War era buildings were constructed including a large brick building near the eastern boundary fence. It served several purposes throughout the war including a hospital and manufacturer of paper cartridges. Captain

⁹⁹ Ibid, 12-13.

¹⁰⁰ Georgia Secession Convention ordinance of occupation, MS 2441. Hargrett Rare Book and Manuscript Library, University of Georgia Libraries., as presented in the Digital Library of Georgia.

Gill was succeeded by Lieutenant-Colonel George Washington Rains, head of operations at the Confederate Powder Works. Rains put into action the construction that Josiah Gorgas envisioned for the arsenal. Rains added several additional wooden buildings for the manufacture of cartridges, fixed ammunition, signal rockets, fuses, primers, grenades, nitric acid fulminates, and percussion caps. Machinery and foundry equipment, air and cupola furnaces, and other necessities were added to the enlarged machine shop. A complete gun carriage factory and powder shop manufactory were established. Additionally, smaller buildings were constructed for the preparation of small arms, cartridges, and arms repair services.¹⁰¹ Although the Augusta Arsenal served as a central hub for storing and transporting the powder made at the Confederate Powder Works, it also manufactured a wide array of wartime items. The arsenal produced field artillery, twelve-pound Napoleon guns, carriages, shot and shell, battery wagons, caissons, canteens, sensitive tubes, friction primers, knapsacks, and cartridges.¹⁰² The Augusta Arsenal swelled into a combined manufacturing and storage powerhouse by the end of the war.

Throughout the Civil War the Augusta Arsenal represented a serviceable and reliable ordnance operation. It manufactured wartime equipment for Confederate armies in the South and West. Josiah Gorgas likened Augusta Arsenal to the class of work completed at Richmond, but on a smaller scale.¹⁰³ Late in 1864, General Sherman's raid of Georgia halted ordnance operations throughout the city. Augusta represented a strategic point for capturing the entire state. The combined efforts of military personnel and citizens fortified the city through a chain of ten earth forts that extended in a crescent shape beginning at the Savannah River and ending at

¹⁰¹ Ruby Pfadenhauer, "History of Augusta Arsenal in Augusta, Georgia," *Publications of Richmond County Historical Society* 2, no. 2 (1970): 14-15.

¹⁰² *Ibid*, 16.

¹⁰³ Claud E. Fuller and Richard D. Steuart, *Firearms of the Confederacy* (Huntington, West Virginia: Standard Publications, 1944), 122.

the Confederate Powder Works. This fortification, Augusta's location, and the number of troops garrisoned in Augusta dissuaded General Sherman from attacking the city outright. Although it proved to be a defensible move, General Sherman left Augusta unharmed by gun or fire. In fact, the city of Augusta was a month late in receiving news that the war had ended. Not until April 18, 1865, nine days after surrender at Appomattox, did rumors reach the city. After the fall of Richmond, Augusta was unknowingly selected as the future capital of the Confederate States. Treasury officials deposited remaining Confederate specie in an Augusta bank, but removed it only five days later to catch up with Confederate officials fleeing Richmond. Augusta as the Confederate capital ceased before it started. It was not until April 22 that confirmation of surrender reached the city.¹⁰⁴ The Civil War in Augusta ended, but the narrative of the Augusta Arsenal was only beginning.

It was not until May 1865 that the Confederate Augusta Arsenal was surrendered to Brigadier-General Emery Upton by Captain W.H. Warren, acting for Colonel Rains. United States Army troops were sent to Augusta and stationed at the arsenal. The appointment of Ordnance Department Colonel, D.W. Flagler, in January 1866 signaled a new era at the Augusta Arsenal.¹⁰⁵ The arsenal returned to its intended use under the direction of its intended occupants, and 1866 marked a rebuilding and repairing phase at the arsenal that extended for nearly a year. Civilian employment spiked from 38 to 106 in the first four months of 1866. This surge reflected the amount of work necessary for returning the arsenal back to an operational status. The civilian workforce arranged, prepared, cleaned, and repaired captured Confederate stores for eventual sale or transfer. Civilians also repaired and repainted the arsenal buildings. The postwar arsenal

¹⁰⁴ Florence Fleming Corley, *Confederate City August, Georgia*. (Spartanburg, South Carolina, The Reprint Company Publishers, 1960), 92-93.

¹⁰⁵ Ruby Pfadenhauer, "History of Augusta Arsenal in Augusta, Georgia," *Publications of Richmond County Historical Society* 2, no. 2 (1970): 19.

as an employer for Augustans represented a common pattern in postwar use. Although the Augusta Arsenal returned to its original use, this pattern of community engagement was mirrored at other ordnance establishments that survived the war. By October 1867, Union Infantry companies stationed in the city were removed.¹⁰⁶ The volume of production and importance of the Augusta Arsenal virtually disappeared throughout the early 1870s.

In early 1874, the United States Chief of Ordnance ordered the formation of a Board of Ordnance officers for enlarging certain Federal arsenals and discontinuing others. This Board, on March 7, 1874, met at the Augusta Arsenal and directed the preparation of a map showing railroad and water communications at the arsenal. Although fears of discontinuation mounted throughout Augusta, the Board of Ordnance adjourned with the decision to retain the Augusta Arsenal.¹⁰⁷ Reasons for retaining Augusta Arsenal abounded. The report prepared by the Board noted,

This is the only arsenal left in the entire South, east of the Mississippi, and the nearest constructing arsenal to it in the proposed plan will be nearly 800 miles distant. Its retention and improvement, and sufficient enlargement to render it adequate to supply the needs of the Department in the South, in the opinion of the Board, is a matter of wisdom, and in fact a necessity...Its present workshops and buildings are in excellent condition, and sufficiently large in plan to be utilized almost without cost in the remodeling of the Arsenal as one of storage and repair.¹⁰⁸

On June 30, 1885, the Augusta Arsenal once again became the subject of controversy. Congress inserted a clause in the appropriations for civil expenses, including the sale of Augusta Arsenal. Although the House of Representatives passed the clause, the Senate's refusal prevented the sale from becoming law.¹⁰⁹ As the arsenal transitioned into the twentieth century it again became a center for ordnance manufacturing.

¹⁰⁶ Ibid, 19.

¹⁰⁷ Ibid, 20-21.

¹⁰⁸ Ibid, 21.

¹⁰⁹ Ibid, 23.

In 1902, the Augusta Arsenal served the South Atlantic District of the Army. The arsenal manufactured cavalry equipment, seacoast targets and similar items. Major D.A. Lyle presided over operations during this period. Major Lyle highlighted the ordnance activities that occurred during his stint at the Augusta Arsenal. Two main activities took place in the main shop building. The North wing was devoted to the storage of materials. The southern wing was utilized as a machine shop and foundry. A two-year build-up period occurred between 1908 and 1910. Under the command of Major J.W. Joyes, this two-year period positioned the Augusta Arsenal as an industrial plant. Major Joyes secured ordnance machinery that was used for several decades. Two 5-ton cranes were installed, one in the machine shop and one in the foundry. Additionally, the manufacture of ammunition shop trucks was planned.¹¹⁰ Although this industrial growth period bolstered the amount of machinery at Augusta Arsenal, the unsuspected outbreak of global war took the United States and the arsenal by surprise.

Colonel J. Walker Benét assumed control of the Augusta Arsenal on August 29, 1911, and remained in command through the end of World War I in 1919. Colonel Benet was the father of illustrious poets William Rose Benét and Stephen Vincent Benét. Both sons lived at the arsenal and impacted arsenal history. Virtually no preparation had been made at the arsenal for World War I. Hurried orders were issued for the arsenal, demanding the start of production for possible war. An armory was set up in the machine shop, overhauling and reconditioning rifles and other small arms. Colonel Benét procured modern machinery including a new type of ammunition shop truck wheel. Throughout World War I, Augusta Arsenal overhauled small arms, manufactured cast iron shells and target material, and completed general seacoast artillery maintenance. An estimated 30 to 40 cast-iron target practice shells and 100 to 200 three-inch

¹¹⁰ Ibid, 24.

shells were manufactured per day. Another estimated 500 pounds of brass castings were manufactured daily, and 12 complete seacoast targets were produced each week. At the end of World War I, civilian employment was significantly reduced and Augusta Arsenal reverted to its position as an important but non-manufacturing arsenal.¹¹¹ The quiet decades between World War I and World War II at the arsenal were decidedly different from what took place at another institution in Augusta. The 1920s slowly curated the eventual combination of the Augusta Arsenal and the Junior College of Augusta.

The current Augusta University, formerly the Junior College of Augusta, has roots dating to 1785. The charter that established the University of Georgia and university system also included public academies. The only public academy in existence in 1785 was Richmond Academy in Augusta. The Richmond Academy offered college level coursework from 1785 onward. Even after the 1801 opening of the University of Georgia, the Richmond Academy continued to offer college course at the freshman and sophomore level. The citizens of Augusta knew that the academy was not a real college, but they never doubted that college level work was accomplished there.¹¹² During the Civil War the Richmond Academy was closed. In 1868, the academy reopened under the famed Colonel George Washington Rains. Colonel Rains' dedication to the Confederate Ordnance Department at Augusta Arsenal and the Augusta Powder Works positioned him as an influential member of postwar Augusta society. Following Colonel Rains' retirement in 1886, the academy experienced several decades of decline in enrollment and course offerings. In 1901 Richmond Academy trustees transferred the school's operation to the Richmond County Board of Education, and Major George P. Butler became principal. Although

¹¹¹ Ibid, 25-26.

¹¹² Edward J. Cashin, *A History of Augusta College*. (Augusta, Georgia, Augusta College Press, 1976), 3-5.

not born directly from the Richmond Academy, the Junior College of Georgia was established under Butler and in the same building on August 15, 1925.¹¹³ Augusta finally had a college. The years of World War II halted operations at the newly established college, while revamping operations at its eventual partner in the Augusta Arsenal.

Kept alive throughout the decades spanning World War I and World War II, the Augusta Arsenal maintained its reputation as a distinguished military station. The arsenal experienced significant growth during its service in World War II. Construction consisted of nearly 50 new buildings, many only temporary and others eventually destroyed, and employment swelled close to 1000.¹¹⁴ Similar practices and operations completed throughout World War I occurred during World War II. Scale and volume of production comprised the main differences for Augusta Arsenal during World War II. The growth and staggering statistics of production represented the height of manufacturing at the arsenal. Additionally, German and other Axis prisoners-of-war were housed in constructed warehouses on Augusta Arsenal property.¹¹⁵ Although the arsenal achieved resounding success throughout World War II, another decade of service was all that remained. As for the Junior College of Augusta, a post-World War II increase in enrollment initiated the search for a new and considerably larger campus.

On March 5, 1955, the Department of the Army officially abandoned the Augusta Arsenal. Searching for a new campus, the Junior College of Augusta immediately initiated negotiations for purchasing the abandoned arsenal. Prolonged negotiations resulted in the transfer of arsenal property to the Richmond County Board of Education. On February 12,

¹¹³ Edward J. Cashin, "Augusta State University," *New Georgia Encyclopedia*. 06 April 2016. Web. 28 August 2017. <http://www.georgiaencyclopedia.org/articles/education/augusta-state-university>

¹¹⁴ "Campus History," *Augusta State University*, accessed August 12, 2017, <https://web.archive.org/web/20120308132123/http://www.aug.edu/history.php>

¹¹⁵ Edward J. Cashin, "Augusta State University," *New Georgia Encyclopedia*. 06 April 2016. Web. 28 August 2017. <http://www.georgiaencyclopedia.org/articles/education/augusta-state-university>

1957, an official deed recorded the transferal of 38.93 acres and 34 buildings. Five days later, a deed for 5.65 additional acres was received. The Board of Education also purchased three acres of the Augusta Arsenal property for \$19,600. In September 1957, the Junior College of Augusta moved from its shared quarters with the Richmond Academy to the spacious quadrangle of the former Augusta Arsenal.¹¹⁶ Much like the arsenal's history, the junior college experienced different periods and transitions that formulated its current position in Georgia's ranks of higher education.

Following the college's move to the Augusta Arsenal, Georgia Senator and Augusta native Carl Sanders drafted a law that permitted junior colleges to enter the University System of Georgia under the Board of Regents. On September 1, 1958, the Board of Regents assumed control of the Junior College of Augusta from the Richmond County Board of Education. Subsequently, the name was changed to Augusta College. In 1963 Augusta College added junior and senior level courses and began to award baccalaureate degrees. The 1970s president George Christenberry produced more growth in enrollment and faculty than ever before. Augusta College also grew spatially during this period, acquiring the last five acres of the original arsenal property. This decade of growth trended well into the 1990s. In 1995 student enrollment reached an all-time high of 5,759. A year later the Board of Regents authorized a name change and Augusta College became Augusta State University. In 2015, the name was controversially changed to Augusta University.¹¹⁷ Currently, Augusta University's campus encompasses 200 acres on four local campuses. Although many buildings have been added and demolished since 1957, the original quadrangle and Augusta Arsenal buildings remain intact and in use.

¹¹⁶ Ruby Pfadenhauer, "History of Augusta Arsenal in Augusta, Georgia," *Publications of Richmond County Historical Society* 2, no. 2 (1970): 30.

¹¹⁷ Edward J. Cashin, "Augusta State University," *New Georgia Encyclopedia*. 06 April 2016. Web. 28 August 2017. <http://www.georgiaencyclopedia.org/articles/education/augusta-state-university>

The Junior College of Augusta's adaptive reuse of the Augusta Arsenal as a campus directly preserved the original 1829 arsenal buildings and quadrangle. The 1957 adaptation combined with decades of repair and maintenance successfully preserved four main buildings that remain today. The historic arsenal quadrangle included four large buildings enclosed by castellated walls for protection. Original buildings included a two-story barracks for enlisted men, a two-story Commandant's House, a similar Assistant Commandant and Officer's House, and a main Store House. The original loopholed walls remain but alterations occurred over time. A fifth building, abutting the south wall, served as a kitchen and mess hall. It is unclear if this elongated building is original, but records indicate that it was utilized by the beginning of the Civil War. Aside from the four main buildings and quadrangle walls, two historically significant buildings from the Civil War era remain. A guard house, located at the original entrance of the Augusta Arsenal, and a storage building, constructed within the original quadrangle, are extant. Structurally, the main buildings have not been changed. Federal in style, the four arsenal buildings and wall have experienced additions and subtractions but have escaped serious alterations.

Individual histories, architectural features, and historic and current uses of these structures comprise the remainder of this chapter. Currently named the Stephen Vincent Benét House, the original arsenal Commandant's Residence was completed in 1829. This Federal style structure is located south of the main storage building, the larger of two formerly identical residences flanking the central Payne Hall. The other, less altered residence, now Rains Hall, served as the Assistant Commandant and Officer's Residence. The Benét House is significant for its architecture as well as its association with poet Stephen Vincent Benét.

The Federal style is obvious throughout. Two-stories in height, the house follows a conventional side-hall plan. The three-bay facade sports a two-tiered portico supported by Tuscan columns with a dentiled cornice at both levels. An arched transom surmounts the main doorway at the right of the facade. The entrance opens to a stairway to the second floor and a straight hallway to a back door that opens onto a rear gallery. To the left of the hallway is the parlor with a formal dining room behind it. A large, two-story wing projects to the rear of the house and contains a second dining room and modern kitchen. On the right, also the north, side of the entrance hallway is a small chamber. An additional two-story north wing houses a rear parlor adjoined by a washroom. The upper floor is identical to the lower in plan. The stairway is flanked on the south side by two large bedrooms, with additional bedrooms in the upper portion of the rear wing, and on the north side by a guest chamber, dressing room, and bath.¹¹⁸ Although Federal details remain, the Commandant's House experienced many alterations throughout its history.

The residence evolved through successive nineteenth and twentieth century remodeling and additions. Compared with the identical Rains Hall, it is assumed that the north wing of the Commandant's House was added in the late nineteenth century. The small glassed-in chamber to the right of the stairway, connected to the north wing, is likely a twentieth century addition. Additionally, the enclosed south wing side porch, window sashing, and most of the interior woodwork date from various periods of occupation. Although additions were added as the Augusta Arsenal experienced growth, the house has not been significantly altered structurally.¹¹⁹

¹¹⁸ Robert S. Gamble, "National Register of Historic Places Nomination Form: President's Home, Augusta Georgia," *United States Department of the Interior National Park Service*, (June, 21, 1971), 2.

¹¹⁹ *Ibid.*

Also, the house is in its original location, retains its character defining features, and is in excellent condition.

Currently, the Benét House is on the National Register of Historic Places due to its association with poet Stephen Vincent Benét. Noted for his poetry and prose fiction, Stephen Benét achieved literary success in the early decades of the nineteenth century. His connection with the Augusta Arsenal began in the second half of 1911, when his father, Colonel J. Walker Benét, assumed command of the arsenal. Stephen Benét and his brother William Rose Benét lived at the arsenal in the commandant's house until late 1915. In July and August of 1915 Stephen Benét completed his first book, *Five Men and Pompey*, while living at the arsenal. The Commandant's House remains as the extant structure most significantly associated with the career of Stephen Vincent Benét.

From 1960 to 1987 the original Commandant's House served as the Junior College of Augusta President's Home. Although the college developed into a university, the house remained extant and preserved. Interestingly, the structure essentially served its original purpose as a residence for the head official of both operations. Since 1987 the Benét House has served in a variety of capacities for Augusta University's administrative services. Currently, the Benét House is home to the Office of Academic Admissions. Work centered on student services, admissions, and counseling takes place in the Benét House. Additionally, all student tours start and end at the 1829 house. As an anchoring member of the original arsenal, the Benét House remains as not only a recognizable building, but also an important one.

The arsenal-era Assistant Commandant and Officer's House, now Rains Hall, currently represents an unaltered view of the original Federal style residences flanking the main arsenal building. Rains Hall contrasts with the formerly identical Benét House because it was not heavily

added on to during the nineteenth or twentieth centuries. The two-storied residence includes a main east facing facade with a two-tiered portico supported by Tuscan columns with a dentiled cornice at both levels. The three-bayed structure also includes a side entrance and overall rigid symmetry. Unlike the Benét House, Rains Hall does not have attached wings or enclosed side porches. Although a twentieth century addition was completed, its positioning at the rear of the house and scale do not impede on the original design. Rains Hall is named for Lieutenant-Colonel George Washington Rains who commanded the Augusta Arsenal and Confederate Powder Works during the Civil War. Since 1957, Rains Hall has served Augusta University through housing Administrative Offices. Currently, Rains Hall is the home of Augusta University's Registrar's Office. Rains Hall's unaltered status highlights the role that adaptive reuse plays in preserving a structure. The central storage building dividing the Benét House and Rains Hall also remains largely unaltered.

In 1973, Augusta College named three original arsenal buildings in honor of Commandants of the Augusta Arsenal. The arsenal storehouse and eventual headquarters was renamed Payne Hall for the first Commandant of the arsenal, Captain Matthew Payne. Captain Payne recommended and oversaw the transfer of Augusta Arsenal from its 1819 site to its current location in 1827. The large storehouse served as the main building of the arsenal throughout its history. It was constructed and utilized for the storage and manufacture of ordnance materials. Although designed as the main storage building it developed into the headquarters and center of all arsenal operations. This large rectangular-shaped building provided a warehouse-like structure with open space for machinery and storage. Original Federal detailing remains evident at Payne Hall. The symmetrical storehouse includes a traditional hipped roof, belt coursing between the first and second floor, a dentiled cornice, and flat arches

above windows. Centrally placed projections on the front and rear facades span the height of the building. These central projections provided covered entryways for both sides of the storehouse. The central projection on the eastern facing facade is the buildings main entrance. Its decorative features include an ox-eye window and an arsenal headquarters plaque. Historic American Buildings Survey (HABS) photographs from 1936 compared with current photographs highlight alterations to the western facade.

Although no significant alterations have taken place at Payne Hall, three noticeable changes have occurred. HABS photographs of Payne Hall's western facade reveal the addition of four windows as well as an outside stairway and ramp for compliance with fire code. The central projection on the western facade originally included a rounded first floor entryway. This entrance was sealed up and replaced with two windows for individual offices. Currently, the seemingly unchanged Payne Hall is Augusta University's Business Office.

Augusta Arsenal's main barracks building, now named Fanning Hall, has been altered more than any other original arsenal building. Named for arsenal Commandant Alexander C.W. Fanning, Fanning Hall displays similar but reserved Federal stylization. Although dentils on the cornice, quoining, and flat arches are present, no other decorative features stand out. This structure served a variety of purposes throughout the arsenal's history including a mess hall and hospital clinic. Fanning Hall currently houses Financial Aid and Enrollment Services for Augusta University. A complex series of additions and demolitions have returned the arsenal barracks to a more original appearance.

Civil War era fortified additions dramatically altered the appearance of Augusta Arsenal's western wall and barracks building. Original walls were extended and enclosed and used as machine shops and storage spaces. Buildings were also erected in the right and left

corners of the extended western facing wall for the same purpose. At the arsenal barracks, castellated cresting was added to the roofline and a large cupola was placed atop the hipped roof. Additionally, an entryway was cut into the center of the western facade for receiving and sending ordnance shipments. A circa 1900 photograph indicates that the western portion of the arsenal retained these additions into the early twentieth century. However, 1936 HABS photographs highlight noticeable changes that returned the arsenal barracks to its original appearance. Although different from its current appearance, by 1936 the building had lost its castellated roofline and cupola. The eastern rear portion of Fanning Hall has also experienced alterations and additions. The 1936 HABS photograph also indicates the presence of two porches spanning the length of the building. Currently, a post-1936 two story brick addition with a one-story entrance, most likely completed during the World War II era, covers the original eastern facade. The present appearance of Fanning Hall is representative of its original architecture and detailing.

Three additional buildings that remain on the campus are representative of Civil War era construction. Although the exact date is unknown, the arsenal Mess Hall and Kitchen were in use by the beginning of the Civil War. This elongated building shares a wall with the main southern arsenal wall and extends to the back of the Benét House. Now the “Quad Wall,” this building is an exclusive facility for Augusta University Honors students. The building houses computer labs, study rooms, and a large lounge area. Another Civil War era building is located near the center of the enclosed quadrangle. Built in a similar but outdated Federal architectural style, this small square-shaped building served the arsenal as a storage building, coal house, stable, and library. The university has used it for multiple purposes and it now houses the purchasing office. In 2002, the university completed the restoration of an 1866 Civil War Era Guard House located at

the university's main entrance. The Guard House is now a museum that offers displays about the arsenal, university, and surrounding neighborhoods.

The unique 1957 adaptive reuse of the Augusta Arsenal as a college campus initiated a pattern that would be replicated two additional times in Georgia. Augusta University's ability to strategically use original arsenal buildings ultimately preserved the entire 1829 complex. The Benét House, Rains Hall, Payne Hall, Fanning Hall, and loopholed walls remain extant and preserved due to sustained use. The combination of the arsenal and college does not reflect a timely coincidence. The arsenal buildings were built to withstand potential attacks and time. Additionally, they were constructed to serve various uses and were highly adaptable. The adaptive reuse precedent set at the Augusta Arsenal was utilized in 1980s Athens, Georgia. The adaptive reuse of the Cook and Brother Armory by the University of Georgia provides another example of the post-Civil War and current adaption patterns of Georgia's Confederate armories and arsenals.



Figure 19, Political cartoon including the “Letter of Marque” used by Georgia Governor Joseph Brown to seize Augusta Arsenal.



Figure 20, Clinch Rifles parading at the Confederate Augusta Arsenal in 1861.



Figure 21, Postcard of Augusta Arsenal with castellated cresting and detailing.



Figure 22, Stereoscopic view of Rains Hall. Former Assistant Commandant's Quarters.

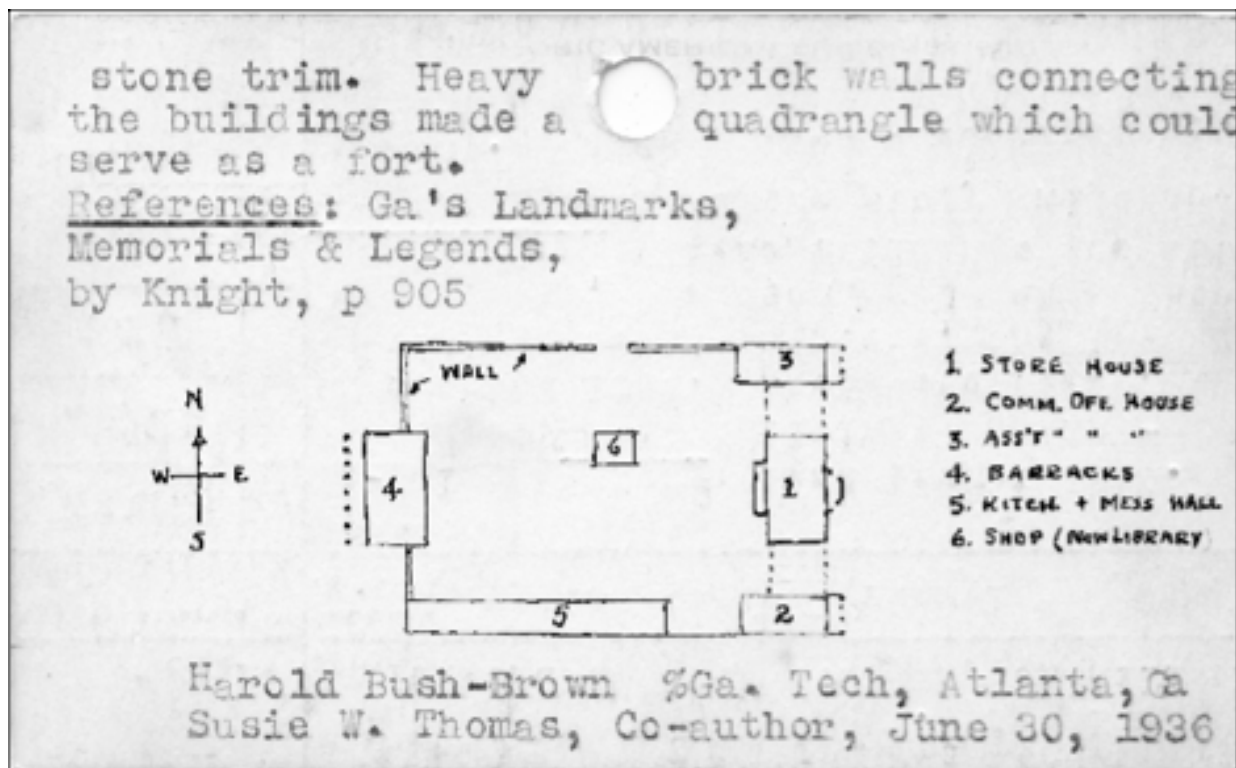


Figure 23, Historic American Building Survey sketch map of Augusta Arsenal quadrangle, 1936



Figure 24, 2014 map of Augusta University Summerville campus.



Figure 25, Central Avenue of Augusta Arsenal.



Figure 26, Historic American Building Survey photograph of original arsenal storehouse now Payne Hall.



Figure 27, Historic American Building Survey photograph of original arsenal barracks now Fanning Hall.



Figure 28, Historic American Building Survey photograph of western facades of original storehouse and assistant commandant's quarters now Payne Hall and Rains Hall.



Figure 29, Eastern façade of Benet House.



Figure 30, Southern façade of Benet House.



Figure 31, Southern façade of Benet House.



Figure 32, Western façade of Benet House.



Figure 33, Eastern façade of Rains Hall.



Figure 34, Close-up of eastern façade of Rains Hall.



Figure 35, Southern façade and addition of Rains Hall.



Figure 36, Eastern façade of Payne Hall.



Figure 37, Close-up of eastern façade of Payne Hall.



Figure 38, Western façade of Payne Hall.



Figure 39, Western façade of Fanning Hall.



Figure 40, Close-up of western façade of Fanning Hall.



Figure 41, Loopholed wall connected to Fanning Hall.



Figure 42, Eastern façade of Fanning Hall.



Figure 43, Civil War Era Storehouse now Purchasing Office.



Figure 44, Augusta Arsenal Kitchen and Mess Hall now Quad Wall Building.



Figure 45, Civil War Era Guardhouse now Campus Museum.

CHAPTER 4

CONFEDERATE ATHENS: COOK AND BROTHER ARMORY

From its creation in 1801 as the site for the University of Georgia, Athens developed steadily over the nineteenth century. Established on the rising grounds overlooking the north branch of the Oconee River, Athens operated as a cultural, social, and intellectual epicenter of Georgia throughout the antebellum period. Athens represented the true college-town. University operations dictated every aspect of early Athenian life. Sustained growth hinged on the presence of the school, its students, and its professors. Although the University of Georgia attracted intellectuals from across the South, wealthy planters and investors quickly gravitated to Athens to educate their children and purchase property along the Oconee River.¹²⁰ By 1850, the size, importance, and convenience of Athens became obvious to the entire state. Its population, wealth, and building increased more rapidly than Clarke County. At this time, life and growth in Athens was supported by more than the university. Several important manufacturing centers and the Athens branch of the Georgia Railroad enhanced the town's economy and importance.¹²¹ A decade before the Civil War, the burgeoning college-town was on the brink of evolving into a city.

In 1860, the corporate limits of Athens were described as a circle with a two-mile radius extending from the college chapel.¹²² Athens was bound by the Oconee River on the east the

¹²⁰ Charles Brockman Jr., "Life in Confederate Athens Georgia," *The Georgia Review* 21, no. 1 (1967): 107.

¹²¹ Kenneth Coleman, *Confederate Athens*. (Athens: University of Georgia Press, 1967), 1-2.

¹²² *Ibid*, 1.

University campus on the south Pulaski Street on the west and Hancock Avenue on the north. Various streets and connecting avenues were occupied by business interspersed with residences and churches.¹²³ As the seventh most populous city in Georgia, Athens boasted 4,000 inhabitants, 1,955 whites and 1,890 enslaved African Americans. The 1850s, a decade of significant growth, situated Athens as an economic hub in Northeast Georgia and across the state. By 1860 capital invested in business comprised \$430,000 and the total tax digest was more than that of the entire county. Athens included around 40 stores ranging from the traditional general store to jewelry and book stores. Clarke County housed three important cotton factories, one positioned inside the city limits. The Athens Manufacturing Company, commonly referred to as the Athens Factory, utilized a host of buildings for spinning and weaving locally harvested cotton. Railroad transportation grew alongside Athens' manufacturing operations and provided a vital aspect for growth and communication. The only railroad in northeast Georgia, the Athens branch of the Georgia Railroad, ended at Carr's Hill across the Oconee from the Athens business district. All freight and mail for the entire northeast section of the state flowed through Athens.¹²⁴ The combined manufacturing, transportation, and communication successes defined the city before the outbreak of war. However, Athens was not equipped to serve an early Confederate Georgia in any significant capacity. Removed from the front lines of battle, Athens sent her fighting men but was not enlisted as a location for Confederate manufacturing.

Prior to the Civil War, there were three established military companies in Athens. These companies functioned more as social and fraternal groups rather than militarily. The oldest of the three, the Athens Guards, succeeded at parading and target shooting but were not conditioned for

¹²³ Charles Brockman Jr., "Life in Confederate Athens Georgia," *The Georgia Review* 21, no. 1 (1967): 107.

¹²⁴ Kenneth Coleman, *Confederate Athens*. (Athens: University of Georgia Press, 1967), 2.

protecting an entire city. Secession and the outbreak of war produced a collective spirit of enthusiasm mixed with apprehension. Confederate-leaning professors and orators frequented the University of Georgia campus throughout years prior to the Civil War, spreading radical ideas concerning enslavement, secession, and states' rights. This rhetoric primed citizens and students for embracing Georgia's departure from the United States on January 21, 1861. Initially, groups of adventure-seeking students left Athens for the front line. This group represented the small portion of Athenians that witnessed true combat during the war. Life in Confederate Athens was significantly different from operations in other major Georgia towns and cities. The normalcy of life defined Athens throughout the war. Far removed from combat, daily routines only changed for those engaged in assisting the war effort through personal endeavors. For the most part, life in Confederate Athens mirrored prewar Athens.¹²⁵ However, the zeal and zeitgeist connected to winning the war birthed the necessity for purpose. An unforeseen opportunity presented itself in late 1862.

Patterns of industry established in antebellum Athens remained constant throughout the first two years of the war. Individuals aided the war effort through experimentation and manufacturing in the field of munitions. Athens resident Dr. William King invented a shell that exploded after striking any solid object. Experimentation at the Athens Foundry produced a part for outfitting shotguns with bayonets.¹²⁶ Women's organizations throughout the county formed to meet the demands of war through supplying coats, shirts, pants, and other necessary materials. John A. Gilleland, a local house-builder, invented his infamous double-barreled cannon in hopes of supporting the Confederate Army. His venture garnered the backing of 36 citizens, raising a

¹²⁵ Ibid, vii.

¹²⁶ Charles Brockman Jr., "Life in Confederate Athens Georgia," *The Georgia Review* 21, no. 1 (1967): 111.

total of \$350. Although his cannon failed due to the nature of gunpowder, Gilleland's aspirations reflected the longing of wartime Athens to be involved in substantial work. In July 1861, serious meetings and discussions among the Athens elite developed plans for establishing an armory for the manufacture of firearms. On August 17 John H. Newton, Albon Chase, Reuben Nickerson, P.W. Hutchinson, and J.B. Carlton organized a company and offered stock at \$2.50 a share. Although set to begin operations by that September, the plan failed and was dead by February 1862.¹²⁷ As the need for wartime purpose increased throughout Athens, Confederate New Orleans and other Southern states connected by the Mississippi River experienced the true nature of war.

Throughout 1861 and 1862 the Confederate Ordnance Department relied on non-traditional methods to arm soldiers. Arms manufacturing depended on contracts with private arms makers across the South. Although this practice produced small batches of arms and took time, it sustained the Confederacy's weapons stockpile. Brothers Ferdinand W.C. Cook and Francis L. Cook, born in England, exemplified the early private arms industry. Situated in New Orleans, the Cook brothers contracted with the Confederate Government to manufacture weapons in 1861. In April 1862, their armory was contracted to provide 30,000 Enfield rifles at \$30 each. Before work under the contract could begin Confederate New Orleans was captured.¹²⁸ During the siege, the Cook brothers avoided Union forces and removed machinery from their small armory. The duo escaped with their heavy machinery on a Mississippi River barge destined for Vicksburg. Landing at Vicksburg, Francis and Ferdinand transported the equipment

¹²⁷ Ibid, 95.

¹²⁸ Ibid, 97.

overland to Selma, Alabama where they began searching for a suitable location to build a new armory.¹²⁹ Athens topped a list of various locations.

The long-awaited arrival of Confederate purpose in Athens finally came to fruition in the summer of 1862. Athens represented the logical selection. The town had experienced the necessary prewar industrial growth to support manufacturing like an armory. Removed from combat, Athens boasted a foundry and two iron furnace mills. Power was furnished by the Trail Creek dam, and manufactured materials were easily exportable on Oconee barges.¹³⁰ By August 20, 1862, the news of the planned Cook and Brother Armory had reached the citizenry of Athens. The *Southern Watchman* recorded,

We are pleased to be able to state that Messrs. Cook & Brother, formerly of New Orleans, who succeeded in escaping with much of their valuable machinery from that place when the Federals took possession, have purchased of Messrs. Hodgson and Col. William A. Carr the mills and other contiguous property lying on the opposite side of the river, where they will as soon as possible, put in operation their extensive establishment for the manufacture of small arms.¹³¹

Although the purchased property included original mill structures, the Cook brothers realized a new building was essential to the success of the establishment. The reception of the planned ordnance operation was immediate. The *Southern Watchman* congratulated citizens for, "...this acquisition to our population and increase of manufacturing facilities." The Athens populous understood that, "The location of such an establishment in our midst will be of great benefit to the place..."¹³² Set to employ 200 Athenians, the construction of a main armory building and several lesser buildings started in the late summer of 1862.

¹²⁹ John F. Stegeman, *These Men She Gave* (Athens, University of Georgia Press, 1964), 79.

¹³⁰ *Ibid*, 79.

¹³¹ *Southern Watchman* (Athens, Georgia), August 20, 1862.

¹³² *Southern Watchman* (Athens, Georgia), August 20, 1862.

Progress throughout autumn resulted in the completion of the armory complex on Christmas Day 1862. Although limited production had taken place in temporary and already extant structures, the large armory provided a space for fulfilling previous government contracts. Completed, the Cook and Brother Armory stood as one of the largest and most architecturally significant buildings in Athens. In addition to the main structure, the armory complex included a saw and planing mill, wood finishing shed, blacksmith shop, smokehouse, and provision room.¹³³ The main armory building, housing original machinery, was 300 feet long by 150 feet deep and two stories tall. The vaguely Gothic Revival symmetrical facade faced the river on its western side and benefitted from a chase running from Carr's Pond for power. Large and rectangular, the armory represented the common mid-nineteenth century factory building. At the center of the western facade was a three-story octagonal shot tower with battlements detailing. The wings to either side of the tower had pedimented parapets above the roof. First story walls consisted of skillfully laid red sandstone with brick above. The interior floor and roof structure utilized heavy timbers.¹³⁴ The massive beam members allowed for open spaces for machinery and workmen. The armory's castle-like detailing combined with its formidable size and sound construction situated it as a defining feature of Confederate Athens. The completed Cook and Brother armory propelled Athens to the forefront of private wartime production in Georgia. The superiority of the privately manufactured weapons subsequently sparked interest across the entire Confederacy.

Shortly after the armory resumed production in Athens, an ordnance inspector surveyed the new establishment. The inspector declared the Cook rifles to be, "the finest that I have seen

¹³³ John F. Stegeman, *These Men She Gave* (Athens, University of Georgia Press, 1964), 79.

¹³⁴ Charles Brockman Jr. "The Confederate Armory of Cook and Brother," *Papers of the Athens Historical Society* 2, (1979), 76-87.

of Southern manufacture.”¹³⁵ Besides rifles, the armory produced bayonets, naval cutlasses, horseshoes, and agricultural machinery. The armory turned out three types of weapons; an infantry rifle, an artillery rifle, and a musketoon. Confederate contract rifles made at the armory were faithful and well-made copies of the .577-caliber British Pattern 1856 rifle. Additionally, Cook and Brother manufactured a .58-caliber carbine copy of the British Pattern cavalry carbine. Another, the so-called artillery carbine was identical to the cavalry carbine.¹³⁶ Among the most consistently configured arms in the Confederacy, the manufacturing process for producing these rifles was complex and arduous. The lengthy, six-step process started with taking walnut or cherry wood blocks and spinning them on lathes to shape them into gun stocks. Holes were then drilled and routed in the wood with milling machines for the placement of metal parts. Brass was melted, poured into molds, and smoothed with rotating polishing wheels to make trigger guards, buttplates, bands, and sling swivels. The next step, forging the barrel, set the Cook brothers apart from other rifle manufacturers. This unique process included taking square bars of Swedish iron which had been heated, twisting it, and boring it hollow with a vertical drill from below. This process allowed the scrapings to drop out of the barrel as the drill turned and made the barrels nearly burst-proof. Other machinery in the process poured melted iron cast into molds to form triggers, lock-plates, sights, ramrods, and bayonet sockets. Lastly, the parts were checked with gauges to insure a good fit, and then assembled.¹³⁷ Throughout the Civil War, production at the Cook and Brother armory fluctuated due to the availability of workers. This problem however

¹³⁵ Charles Brockman Jr. “The Confederate Armory of Cook and Brother,” *Papers of the Athens Historical Society* 2, (1979), 76-87.

¹³⁶ Gordon L. Jones, *Confederate Odyssey* (Athens, University of Georgia Press, 2014), 186-188.

¹³⁷ “Making Things in the Mill: Weaponry,” Cook and Brother Armory Interpretive Plaque, viewed August 25, 2017.

did not hinder the armory from evolving into the finest private weapons manufacturer in the South.

Because nearly all men of fighting age had left Athens by 1863, the armory relied heavily on the use of enslaved labor, women, and older Athens men for continuing operations. Confederate Chief of Ordnance Josiah Gorgas intervened by detailing skilled workers from the army to assist the armory in fulfilling its contract. This decision alleviated labor shortages and the armory reached peak production in 1864. During 1864 Cook and Brother manufactured 4,500 rifles and carbines. At 640 arms per month, the armory's rate of production was second only to that of the Richmond Armory.¹³⁸ Superintendent of armories James Burton commented that Ferdinand Cook, "exhibited a much better appreciation of the requirements of an armory than any other person who has attempted a like enterprise in the Confederacy."¹³⁹ Although officials within the Confederacy expressed appreciation for the Athens operation, by August 1864, the armory was in debt to the Confederate government and had not received payment for arms since that March.

1864 represented a tumultuous year for the Confederate armory, as well as the entire South. Shortages of labor and food plagued the Cook brothers' operation. The struggle to maintain production forced Ferdinand and Francis to consider a buy-out from the Confederate Ordnance Bureau. This deal covered the debt that was owed and represented a potential savings for the Bureau. However, before the deal could happen, Sherman's invasion of Georgia halted all operations. In September 1864, Major Ferdinand Cook organized armory workers as the Twenty-Third Battalion, Georgia Infantry, Local Defense. By November, the battalion joined with the Georgia militia to combat Sherman's Union forces. The combined group fought at Griswoldville,

¹³⁸ Gordon L. Jones, *Confederate Odyssey* (Athens, University of Georgia Press, 2014), 181.

¹³⁹ James Burton, *Diary*, April 13, 15, 1864, 353.

Georgia and Honey Hill, South Carolina. On December 11, 1864, near Hardeeville, South Carolina, Major Cook was killed by a federal sharpshooter.¹⁴⁰ The *Southern Watchman* recounted the valiant death, mentioning, “It is said he shot five of the enemy’s sharpshooters before he received the fatal wound.”¹⁴¹ Ferdinand Cook’s death combined with continued labor shortages prompted Francis Cook to complete the previously discussed sale. Cook reached an agreement with the Confederate Ordnance Bureau to sell the arms machinery but retain title to the armory buildings. Though no new production occurred, limited arms repair did take place until mid-March 1865. Throughout the war, Cook and Brother armory fabricated 7,800 rifles and carbines for the Confederacy. This success made it the largest production of any private arms maker in the South.¹⁴² Following Confederate surrender, the United States Government took control of the armory and shipped all the machinery away. It was decided that the building did belong to Francis Cook and he regained control of his empty armory.¹⁴³ Heavily indebted, Mr. Cook sold the facilities to the Athens Manufacturing Company in 1870, initiating 150 years of adaptive reuse.

As Athens’ oldest business, chartered in 1829, the Athens Manufacturing Company positioned itself to thrive in postwar Georgia through purchasing wartime establishments. Director Robert L. Bloomfield capitalized on many business ventures during the postwar period including his buyout of the armory. By 1869, Athens citizens collectively agreed that an adaptive use of the armory was needed. An editor of the *Southern Watchman* expressed these sentiments, stating,

There is a large and valuable manufacturing establishment in this town, now idle, with almost enough buildings to make a country village. We refer to Cook’s Armory, where

¹⁴⁰ Gordon L. Jones, *Confederate Odyssey* (Athens, University of Georgia Press, 2014), 181.

¹⁴¹ *Southern Watchman* (Athens, Georgia), December 21, 1864.

¹⁴² Gordon L. Jones, *Confederate Odyssey* (Athens, University of Georgia Press, 2014), 181.

¹⁴³ *Athens Banner* (Athens, Georgia), September 14, 1917, 6.

small arms were manufactured during the war. This establishment ought now be converted into a manufactory of articles of use or necessity in time of peace.¹⁴⁴

The citizenry's call for adaptively reusing the armory for manufacturing exemplified distinct patterns of postwar reuse common across Georgia. Athens Manufacturing Company utilized the old armory as a check factory. The company operated textile machinery, producing "daisy check" gingham. Yarn for the cloth was shipped via the Oconee from the company's original plant site downriver.¹⁴⁵ In 1879, the check mill upgraded from water power to a Corliss engine. Equipment at this time consisted of 320 double box looms, which were worked primarily on checks and wool cloth.¹⁴⁶ At the beginning of the twentieth century the old armory remained intact, manufacturing textiles rather than weapons.

In 1920, the Athens Manufacturing Company merged with another firm under the leadership of Alonzo G. Dudley. The merger signaled an era of expansion and conversion at the Check Factory. A.G. Dudley converted production into synthetic fabrics for automobile tires and later for clothing. Although the building and company survived the Great Depression, the building suffered neglect and lost a notable feature. The battlemented tower, although remaining structurally, lost its defining castellated detailing following the removal of the castellated cresting. However, this loss did not destroy the integrity of its representation as an armory. In 1947, Chicopee Mills, a division of Johnson & Johnson Company, bought the building from the Check Factory following the death of A.G. Dudley. Johnson & Johnson significantly enlarged the complex by adding another building connected at the western end of the old armory. These 1950s era buildings differ architecturally from the original armory and represent the combined

¹⁴⁴ *Southern Watchman* (Athens, Georgia), April 28, 1869, 3.

¹⁴⁵ Charles Brockman Jr. "The Confederate Armory of Cook and Brother," *Papers of the Athens Historical Society* 2, (1979), 76-87.

¹⁴⁶ *Athens Banner* (Athens, Georgia), December 1, 1912, 1.

adaptation of earlier Check Factory additions with new construction techniques. In 1978, Johnson & Johnson announced the closing of the Chicopee Athens plant as part of a company-wide reorganization.¹⁴⁷ The 180-year-old University of Georgia was positioned to inherit one of Athens' most notable buildings.

In 1979, Johnson & Johnson donated the 300,000-square foot complex to the University of Georgia (UGA). The donation also included 22 acres valued at \$5.7 million. Throughout the early 1980s the University used the building for registration purposes. An extensive renovation project began in the spring of 1984 and ended in the late summer 1985. Additionally, the University worked with the City of Athens and Clarke County to realign Broad Street 30 feet closer to the river. This realignment expanded the grounds in front of the building. The UGA Physical Plant moved into the complex first. The right wing, completed for the occupation of the Chicopee Mills division, was earmarked for the Physical Plant. Parts of the facility included work concerning central receiving, central office supply, and storage of surplus property and records. Housed at various campus locations, the State's Small Business Development Center (SBDC) moved into the original wing of the armory. The highly successful SBDC commemorated the move to its permanent home at the old armory with a two-day dedication service on September 4 and 5, 1985. Currently, the Confederate armory complex houses Information Technology Outreach Services, Marine Extension Services, and Business Outreach Services in addition to the 1980s occupants.¹⁴⁸ Structurally, the armory wing is sound and retains its 1862 architectural features, other than those that have been removed. The renovation project completed on the interior did not impede on the character of open spacing. Office walls do not

¹⁴⁷ Charles Brockman Jr. "The Confederate Armory of Cook and Brother," *Papers of the Athens Historical Society* 2, (1979), 76-87.

¹⁴⁸ Charles Brockman Jr. "The Confederate Armory of Cook and Brother," *Papers of the Athens Historical Society* 2, (1979), 76-87.

reach the ceiling and original columns and massive timbers remain visible. The adaptability of the manufacturing complex created an easy transition for the UGA Physical Plant. Today, daily operations involving heavy machinery, storage, and office space symbolize a lasting connection between original and adaptive purpose.

Patterns of postwar adaptive reuse and preservation at the Cook and Brother Confederate armory remain today. The Athens citizenry's call for reusing the armory represented a postwar pattern. This pattern combined with the grandiose nature and adaptability of armory spaces, evident in Athens, embodies the reuse of Confederate armories and arsenals on Georgia university and college campuses. Ordnance operations in Confederate Columbus, Georgia mirrored wartime uses and postwar adaptive reuses and preservation patterns that occurred in Athens. Additionally, the narrative of Columbus highlights that these patterns of adaptive reuse and preservation remain as a modern phenomenon.



Figure 46, Main façade of Cook and Brother Armory.



Figure 47, 1895 view of Cook and Brother Armory with Carr's Pond.



Figure 48, Postcard of Cook and Brother Armory after the Civil War.



Figure 49, Postcard of Cook and Brother Armory after the Civil War.



Figure 50, Confederate Naval Cutlass manufactured at Cook and Brother Armory.



Figure 51, Confederate Naval Cutlass manufactured at Cook and Brother Armory.



Figure 52, Cook and Brother Two-band Rifle.



Figure 53, Cook and Brother Two-band Rifle.



Figure 54, Cook and Brother Two-band Rifle.



Figure 55, Cook and Brother Two-band Rifle.



Figure 56, Current left wing of the main Cook and Brother Armory façade.



Figure 57, Current right wing of the main Cook and Brother Armory façade.



Figure 58, Central Tower of the main Cook and Brother Armory façade.



Figure 59, Massive timbers supporting roof of Cook and Brother Armory.



Figure 60, Open space and offices in Small Business Development Center.

CHAPTER 5

CONFEDERATE COLUMBUS: THE CONFEDERATE NAVAL IRON WORKS AND ARSENAL

Incorporated in 1828, Columbus, Georgia had long been known as a frontier outpost. Located on the fast-flowing Chattahoochee River, what is now Columbus served as the site of Coweta Town, capital of the Creek Confederacy. The removal of the Creek nation in 1826 prompted resettlement by planters from Virginia, North Carolina, and eastern Georgia. Land lottery lots were auctioned off in July 1827. Impressive expansion in population and the built environment immediately followed white settlement. One year after incorporation, Columbus, boasted a population of over a thousand and served as a hub for travelers and traders. Initial settlement of the town was completed in the 1830s. Although the population increased steadily, a majority of original land lots operated as plantations and farms at the end of the decade. By this time, Columbus was well established as a trade and marketing center that extended to Montgomery, Alabama, Macon, and northern Georgia.

Manufacturing and industrialization did not comprise a crucial economic facet in early Columbus. Rather, an extensive network of wagon roads radiating from the town allowed for the transportation of cotton across the state. Attempts to utilize the water-power of the Chattahoochee River for industrial purposes started in 1838. The 1838 establishment of the small-scale Columbus Cotton Factory ignited a revolutionary era of industrialization in Columbus. Supported by water-power, options for manufacturing became virtually endless. The

1840s and 1850s witnessed the transformation of Columbus into a Southern industrial powerhouse. By 1860, Columbus was accurately deemed the “Lowell of the South.”¹⁴⁹

The two decades prior to the Civil War positioned Columbus as an ideal city to aid the war effort. Throughout the 1840s, the falls of the Chattahoochee River brought steamboats to Columbus. Shipping routes for manufactured goods and cotton utilized the city as a port, and Columbus-based steamboats piled the river. Additionally, railroad lines, introduced and completed throughout the 1850s, placed Columbus on the Savannah to Montgomery route. This growth in transportation attracted industry and people. The 1838 Columbus Cotton Factory led to a total of four such operations in 1850. A large paper mill, an extensive iron foundry, and smaller manufacturers also existed before the war.

Prior to any combat, citizens and city leaders boasted about Columbus’ ability to sustain war manufacturing for the Confederacy.¹⁵⁰ City leaders stated that their town possessed, “sufficient water power to drive machinery to do the manufacturing for the South.”¹⁵¹ Only three decades old in 1861, Columbus was comprised of 9,600 citizens, making it the third largest city in Georgia. Although Columbus sent a large number of men to fight proportional to its population, commercial and industrial affairs increased during wartime. Industry of all types flourished due to the supply and demand of war.¹⁵² The combination of private contracts and outright leases with the Confederate Ordnance Department birthed heightened business and production. Initially, the private utilization of textile manufacturing complexes to aid the

¹⁴⁹ Diffie W. Standard, *Columbus, Georgia, in the Confederacy* (New York, The William-Frederick Press, 1954), 11-13.

¹⁵⁰ Stewart C. Edwards, “To do the manufacturing for the South: Private Industry in Confederate Columbus,” *The Georgia Historical Quarterly* 85, no. 4 (2001): 538-539.

¹⁵¹ *Columbus Daily Enquirer* (Columbus, Georgia), February 16, 1861.

¹⁵² Nancy Telfair, *A History of Columbus, Georgia 1828-1928* (Columbus, The Historical Publishing Co. 1929), 116.

Confederacy supplied significant amounts of uniforms and other articles of clothing.¹⁵³ By 1862, industrial operations transitioned to the heavier manufacturing of small arms, cannons, and naval ironclads. This shift defined Confederate Columbus until the end of the war.

The Columbus Iron Works Company, established in 1853, reflected the vast industrial growth experienced in Columbus throughout the 1840s and 1850s. Owner William R. Brown had operated a small foundry since 1847. The organized and much larger Columbus Iron Works represented an outgrowth of the successful foundry business.¹⁵⁴ Fully incorporated by 1857, the Columbus Iron Works provided products that were influential in the economic development of Columbus and the region. Although only a decade old at the beginning of the Civil War, the company manufactured a wide variety of items including, kettles, ovens, brass castings, cast-iron columns and storefronts. Additionally, the Iron Works produced sugar, grist, and saw mills and the steam engines to power them.¹⁵⁵

The 1853 organization, expansion, and growth into the Columbus Iron Works necessitated a new location and facilities. A twelve thousand-square-foot building that included fifteen lathes comprised the Iron Works' production facilities. Located on Front Avenue on the banks of the Chattahoochee, the Iron Works facilities also included several additional buildings utilized for smaller operations and storage. The core of the Iron Works was separated by an elevated railway from its drop-forge shop and storage warehouse. Like the main complex, this vast brick building spanned an entire block and provided open space for machinery and

¹⁵³ Stewart C. Edwards, "To do the manufacturing for the South: Private Industry in Confederate Columbus," *The Georgia Historical Quarterly* 85, no. 4 (2001) : 539.

¹⁵⁴ Janice P. Biggers, "National Register of Historic Places Nomination Form: Columbus Iron Works," *United States Department of the Interior National Park Service*, (July 18, 1969), 3.

¹⁵⁵ John S. Lupold, "History of the Columbus Iron Works," *Columbus, Georgia Convention and Trade Center*. Accessed Augusta 2, 2017. http://www.columbusga.org/tradecenter/history_4.htm

production. The developmental evolution of the foundry turned iron works primed the newly established complex for wartime use.

Private industries in Columbus carried the burden of wartime manufacturing throughout the first two years of the Civil War. Described as a “beehive” of activity, the privately-owned Columbus Iron Works employed 250 workers operating several departments. The Iron Works included a cannon foundry, a rolling mill, a machine shop, and a manufactory for steamboat boilers.¹⁵⁶ Volume of production combined with the wealth of private industrial operations in Columbus initiated a change in 1862. The Confederate Ordnance Department, no longer interested in private contracts, transitioned to leasing wholesale Columbus industries and operating them under the Confederate Government. In August 1861, F.W. Dillard, a local merchant and cotton warehouseman, was commissioned a captain in the Quartermaster Department and placed in charge of the manufacture of 20,000 uniforms. Although private Columbus operations promptly completed the contract, increasingly larger orders were requested. Promoted to major, Dillard was forced to establish a government clothing shop by early 1862. In June 1862, the monthly production of 240 boxes of uniforms were shipped to Richmond for distribution in the field.¹⁵⁷ Major Dillard’s decision decidedly altered wartime production in Confederate Columbus. Although private industry manufactured impressive amounts of wartime items, heightened need and the ever-increasing scale of war challenged the pace of private production. By the end of 1862, Columbus evolved into the center of Confederate controlled manufacturing. Aside from Richmond, Columbus’ wartime industries were unrivaled

¹⁵⁶ Stewart C. Edwards, “To do the manufacturing for the South: Private Industry in Confederate Columbus,” *The Georgia Historical Quarterly* 85, no. 4 (2001): 544.

¹⁵⁷ Diffie W. Standard, *Columbus, Georgia, in the Confederacy* (New York, The William-Frederick Press, 1954), 36-37.

within the South. In June 1862, the Columbus Iron Works transitioned into its own era of Confederate control.

Relying heavily on capture from Union forces and European imports, the Confederate Ordnance Department held only a small number of light artillery during the early stages of combat. In addition to establishing Confederate works at Selma and Augusta, the Ordnance Department supported this artillery need through private contracts. Following declarations of war, the Ordnance Department almost immediately commissioned the Columbus Iron Works. First attempts to manufacture cannon resulted in the successful casting of two three-inch artillery pieces. This success produced additional contracts in the summer and fall of 1861. By January 1862, the private company was producing bass twelve-pounders, mortars, and wrought iron rifled cannon. In June 1862, successfully completed contracts initiated discussions concerning the complete leasing of the Iron Works to the Confederate Ordnance Department. In that same month, all buildings were leased by the Confederate Navy.¹⁵⁸ This transition moved operations at the complex into a stage of production that more resembled an arsenal. For the remainder of the war, a dichotomy of naval operations and standard arsenal production represented ordnance efforts at the Columbus Iron Works.

Confederate Naval operations comprised the majority of production at the Iron Works throughout the war. In the fall of 1861 the Confederate Navy sent Major James H. Warner to supervise the production of cannon and the construction of an ironclad gunboat in Columbus. By June 1862, Major Warner became commanding officer of the Columbus Naval Iron Works. The Naval Iron Works undertook three major tasks during the war including casting cannon, assembling steamship boilers and machinery, and constructing gunboats. Following Confederate

¹⁵⁸ Ibid, 40-41.

takeover, Major Warner greatly expanded facilities for casting brass, bronze, and wrought iron cannons. Additionally, Major Warner constructed a large boiler factory in the fall of 1862. This addition greatly increased output. On November 1, 1864, six of the ten gunboats then in construction in the Confederacy were manufactured by the Columbus Naval Works. The wooden gunboat *Chattahoochee* was successfully launched from the Naval Works in early 1864. However, her inexperienced crew blew up the boilers before reaching the coast. Another notable vessel, the *Muscogee*, was pieced together throughout the war at the Naval Works. The *Muscogee* was destroyed during the Union raid of Columbus in April 1865.¹⁵⁹ The notoriety of the ironclad gunboats produced at the Naval Works overshadowed more successful endeavors. Of the three major tasks set by Major Warner, the casting of cannon proved to be the most successful. Operating at a capacity of 300 workmen, the Columbus Naval Works completed an estimated 60 guns. By the end of the war, it had developed into the most important manufactory of marine machinery.¹⁶⁰ The arsenal-like operations at the Naval Works also aided the Confederate Ordnance Department.

Separated by an elevated railway, the adjacent drop-forge and warehouse of the Columbus Iron Works produced a wider array of war-related items for the Confederate Navy. The expansive brick building consisted of a large two-story square block front with two rectangular pent-roofed halls connected at the back. This large structure provided open space for heavy machinery for foundry and forging operations. This section of the greater Iron Works complex supplemented operations across the railway, but it also assisted in supplying small arms ammunition, artillery shot and shell, iron for gun barrels, and small arms repair. In addition to

¹⁵⁹ Ibid, 43-45.

¹⁶⁰ James B. Whisker, *U.S. and Confederate Arms and Armories During the American Civil War: Confederate Arms and Armories Volume 4* (Lewiston: The Edwin Mellen Press, 2003), 110-111.

these industrial efforts, this spacious building provided storage for finalized wartime items. The entire Confederate Naval Iron Works complex typified the industrial successes experienced in Columbus during the war. Production of war goods proceeded without interruption throughout the winter of 1865. Columbus citizens developed a level of complacency, and wartime life seemed normal.¹⁶¹ By April 1865, the war was over and Columbus' industries laid in ruin.

Nearly the last battle of the Civil War, General James H. Wilson's raid of Columbus devastated the wartime city. Three years of sporadic work had only partially fortified the Chattahoochee city. Defenses consisted of a two-mile line of trenches and gun emplacements on the crest of the ridge on the Alabama side of the river. General Wilson's cavalry appeared on the outskirts of Columbus in the afternoon of April 16, 1865 and attacked by 8:00 P.M. With only one line of defenses, Confederate troops quickly lost the main bridge leading into the city. The end of the war came suddenly for the complacent citizens that labored to support the Confederate cause. For two days after the capture, General Wilson directed the burning of all industries and government supplies. With methodical thoroughness, incendiary squads traversed the city, making inventories of war goods, and burning all that was not needed by the cavalry force.¹⁶² The Confederate Naval Iron Works was burned and its machinery was destroyed. General Wilson's superior cavalry had nixed the last industrial stronghold of the Confederacy.

Although the burning of Columbus signaled the end of Confederate ordnance operations, the wartime ruination highlighted the ultimate resistance of her industries. Burned that April 1865, the Columbus Iron Works was operational by September of that year.¹⁶³ Although the

¹⁶¹ Diffe W. Standard, *Columbus, Georgia, in the Confederacy*. (New York, The William-Frederick Press, 1954), 62.

¹⁶² *Ibid*, 60-61.

¹⁶³ Janice P. Biggers, "National Register of Historic Places Nomination Form: Columbus Iron Works," *United States Department of the Interior National Park Service*, (July 18, 1969), 3.

buildings had been burned and machinery had been destroyed, the scale of Iron Works structures combined with their brick material saved them from total decimation. These attributes allowed them to recover from fire and resume production of prewar products. Additionally, this facet of resistance played a major role in the adaptive reuse of the Columbus Iron Works throughout its history. Following the war, the Columbus Iron Works reverted to its original purpose in manufacturing. Despite destruction, William R. Brown and company stockholders doubled capitalization and expanded facilities due to technologies and experiences gained during the war. This transition made the Iron Works the city's most sophisticated foundry. The resilience of the company was reflected across the industrial landscape of Columbus. By 1880, Columbus led the south in textile production thanks to pulleys and shafting manufactured at the Columbus Iron Works.

The company's location provided access to customers within the city as well as those connected by the river. This mixed clientele increased business throughout the latter half of the nineteenth century. Thriving business also allowed for experimentation and new financial ventures. Throughout the 1870s and 1880s, the Iron Works manufactured and sold its traditional products as well as finished lumber, other buildings supplies, and agricultural products. In 1872, the Columbus Iron Works deviated from the traditional manufactured product. The technique that the company had perfected for building steam engines allowed it to become a pioneer in the refrigerator industry. Directed by George J. Golden, the Iron Works erected the city's first ice machines. By 1880, the Columbus Iron Works was one of three companies within the United States mass-producing ice machines. For 20 years, the Iron Works produced the best-selling ammonia-absorption machines. Although another fire occurred in April 1902, the owners again expanded the facility and had it back in operation by 1903. After 1902, the Teague family of

Montgomery, Alabama became the primary owner of the company. Production at the Iron Works consisted of a variety of goods to support the Teague hardware business.¹⁶⁴

In 1925, the W.C. Bradley Company acquired the Iron Works. This acquisition led to a business plan centered around producing fewer, more marketable, items. The 1920s witnessed the sale of heaters and stoves, the 1940s, tractor-drawn implements, and the 1950s, forged parts for other manufacturers. In 1953, the Bradley Company absorbed the Columbus Iron Works and focused production on barbecue grills. In the early 1970s, the foundry and forge were moved to new plants. The complex's history did not end with this move. Already recognized in 1969 by its placement on the National Register of Historic Places, the Iron Works represented an important aspect of overall Columbus history. In 1975, the city of Columbus purchased the Iron Works and planned to convert it into a convention and trade center. The transformation of the building began in 1977 with funds from a local beverage tax and federal grants.¹⁶⁵ Currently, the Columbus, Georgia Convention and Trade Center hosts 533 events per year in its 182,000 square-foot space.¹⁶⁶ The \$8 million adaptive reuse project continues to benefit Columbus and its historic buildings. Since its humble beginnings in 1848, the ability of the complex to withstand complete destruction combined with continued use for manufacturing preserved it along Columbus' historic waterfront district. Throughout its history, the Iron Works endured various changes, uses and reuses. The large drop-forge and storage warehouse beyond the railway trestle also boasts a lengthy history of adaptive reuse. Currently, this structure is owned and operated by Columbus State University.

¹⁶⁴ John S. Lupold, "History of the Columbus Iron Works," *Columbus, Georgia Convention and Trade Center*. Accessed August 2, 2017. http://www.columbusga.org/tradecenter/history_4.htm

¹⁶⁵ Ibid.

¹⁶⁶ "Columbus Convention and Trade Center," 2017. Accessed May 28, 2017. <http://columbustradecenter.com>

A tremendous volume of manufactured agricultural products at the Iron Works led to the creation of a subsidiary, the Southern Plow Company, in 1877. Housed in the expansive drop-forge building, the company manufactured cast iron goods and agricultural implements. Products included cotton planters, harrows, cultivators, hay presses, cane mills, plows, and cotton screws. The Southern Plow Company remained in business until 1971.¹⁶⁷ It is unclear if this portion of the Iron Works was affected by the 1902 fire, although it is unlikely because of its distance from the main complex. By 1980, the W.C. Bradley Company still owned this section of the Iron Works, having sold the main buildings to the city of Columbus. Plans to adapt it into a function that would support the trade and convention center were established but were never accomplished.¹⁶⁸ For two decades the buildings experienced limited use and vacancy. The development and growth of the young Columbus State University would not revive the structure until the twenty-first century.

Throughout the 1940s and 1950s, Columbus promoters of higher education pushed for funds to purchase farmland outside the city for a campus. By 1958 this group had raised the necessary capital to finance the junior college's first four buildings. In May 1958, the local school board agreed to donate these properties to the University System's Board of Regents in exchange for University System membership. From 1958 to 1979, Columbus College evolved from a junior college into a four-year institution under president Thomas Whitley. From the beginning, the university expressed an interest in preserving and adaptively reusing Columbus' historic buildings. A renovated hosiery mill housed the original campus and served the college until 1962. As industry in Columbus was being consolidated, the college experienced vast

¹⁶⁷ John S. Lupold, "History of the Columbus Iron Works," *Columbus, Georgia Convention and Trade Center*. Accessed August 2, 2017. http://www.columbusga.org/tradecenter/history_4.htm

¹⁶⁸ John S. Lupold, "Industrial Archeology of Columbus, Georgia," *8th Annual Conference of the Society for Industrial Archaeology*, (1979): 13-14.

growth during the late 1960s and early 1970s. Enrollment reached a peak of 5,600 in 1976. The 1980s represented an era of growth and maturity of the college. In 1996, the Board of Regents approved a request to rename the institution Columbus State University (CSU). Since 1996, CSU has played a significant role in the cultural and economic development of Columbus and the surrounding Muscogee County. The CSU Foundation has purchased and renovated downtown buildings for several purposes.¹⁶⁹ CSU's RiverPark Campus, started in the early 2000s and completed in 2007, represents the university's most notable achievement in spatial growth. The recently established campus serves the University's Music, Theatre, and Art Departments, creating a downtown Fine and Performing Arts complex. The campus features the Corn Center for Visual Arts, Carpenters Hall, RiverCenter for the Performing Arts, and the Riverside Theatre Complex. Utilizing preservation and adaptive reuse as catalysts for university growth, CSU has transformed downtown Columbus into an educational center.

The original drop-forge and Confederate Naval Iron Works building comprised a key portion of the CSU RiverPark Campus project. The adaptability of the large and spacious industrial structure provided an area for the expanding university campus. Completed in 2006, the current Yancey Center at One Arsenal Place houses the Departments of Art, Theatre, History, and Geography. In addition to offices and conference facilities the Yancey Center includes two acting studios, a 2,400 square-foot dance studio, a student design and lab studio, a theatre library, a computer lab, theatre classrooms, and a student lounge. Although the adaptive reuse project radically altered the interior, it preserved and maintain the architectural features of the original Iron Works building. Currently, the building maintains its symmetrical facade with graduated red brick and evenly spaced rounded windows. Structurally, the former Confederate ordnance

¹⁶⁹ Lloyd Craig, "Columbus State University," *New Georgia Encyclopedia*. 03 September 2013. Web. 11 September 2017. <http://www.georgiaencyclopedia.org/articles/education/columbus-state-university>

supplier has retained the large two-story square block front and connected rectangular halls. In 2012, the Yancey Center, named for alumnus James Yancey, was outfitted for 15 new studio apartments for 31 students.¹⁷⁰ Currently, the Civil War Era Confederate Naval Works serves not only CSU but the Columbus community as well.

The RiverPark Campus has economically revitalized the historic industrial district of downtown Columbus. A 2015 annual economic impact study completed by CSU Professor Ben Blair determined that the downtown RiverPark Campus generates an output of \$21.5 million per year. The campus supports 227 jobs and provides \$11.2 million in labor income annually. Additionally, an estimated 450 students live in CSU housing within the RiverPark area.¹⁷¹ As recent as 2016, CSU has utilized preservation and adaptive reuse of Columbus buildings for economic and spatial growth. A two-year project dating to 2015 included the purchase and reuse of the Ledger-Enquirer's property. Languishing for years, CSU now houses its College of Education and Health Professions at the site of the former newspaper. The site retains the Ledger-Enquirer's historic Mediterranean-style building and has adaptively reused it for different purposes.¹⁷²

The contemporary utilization of adaptive reuse and preservation as tools for expanding the university illustrates the viability of these practices. Adapting the Confederate Naval Works structure not only saved Columbus State University financially, but it also preserved the historic fabric of Columbus. Like the armories and arsenals in Augusta and Athens, the history of Columbus Iron Works at One Arsenal Place highlights several patterns and themes of adaptive

¹⁷⁰ *WLTZ News* (Columbus, Georgia), July 23, 2012.

¹⁷¹ "Economic Impact of RiverPark Campus Estimated to be \$21 Million Annually," *Columbus State News*. September 23, 2015. Accessed August 30, 2017. <https://news.columbusstate.edu/economic-impact-of-riverpark-campus-estimated-to-be-21-million-annually/>

¹⁷² Tony Adams, "Columbus State University plans transformational expansion on Ledger-Enquirer property," *Ledger-Enquire* (Columbus, GA), January 10, 2015.

reuse and preservation. The connection of these practices and Confederate armories and arsenals on campuses of Georgia universities will be discussed in the next chapter.

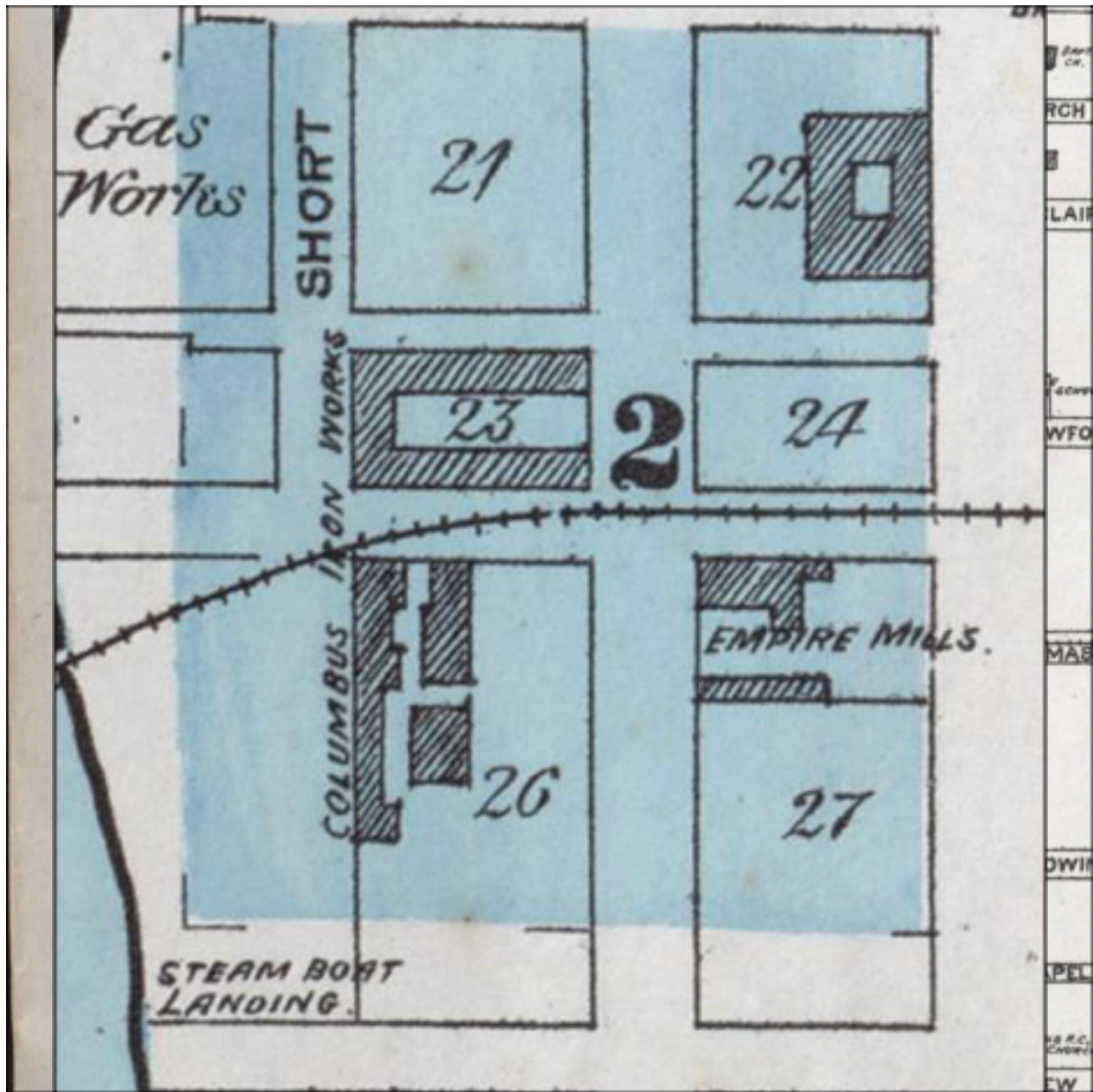


Figure 61, 1885 Sanborn Map of Columbus Iron Works in Columbus, Georgia.

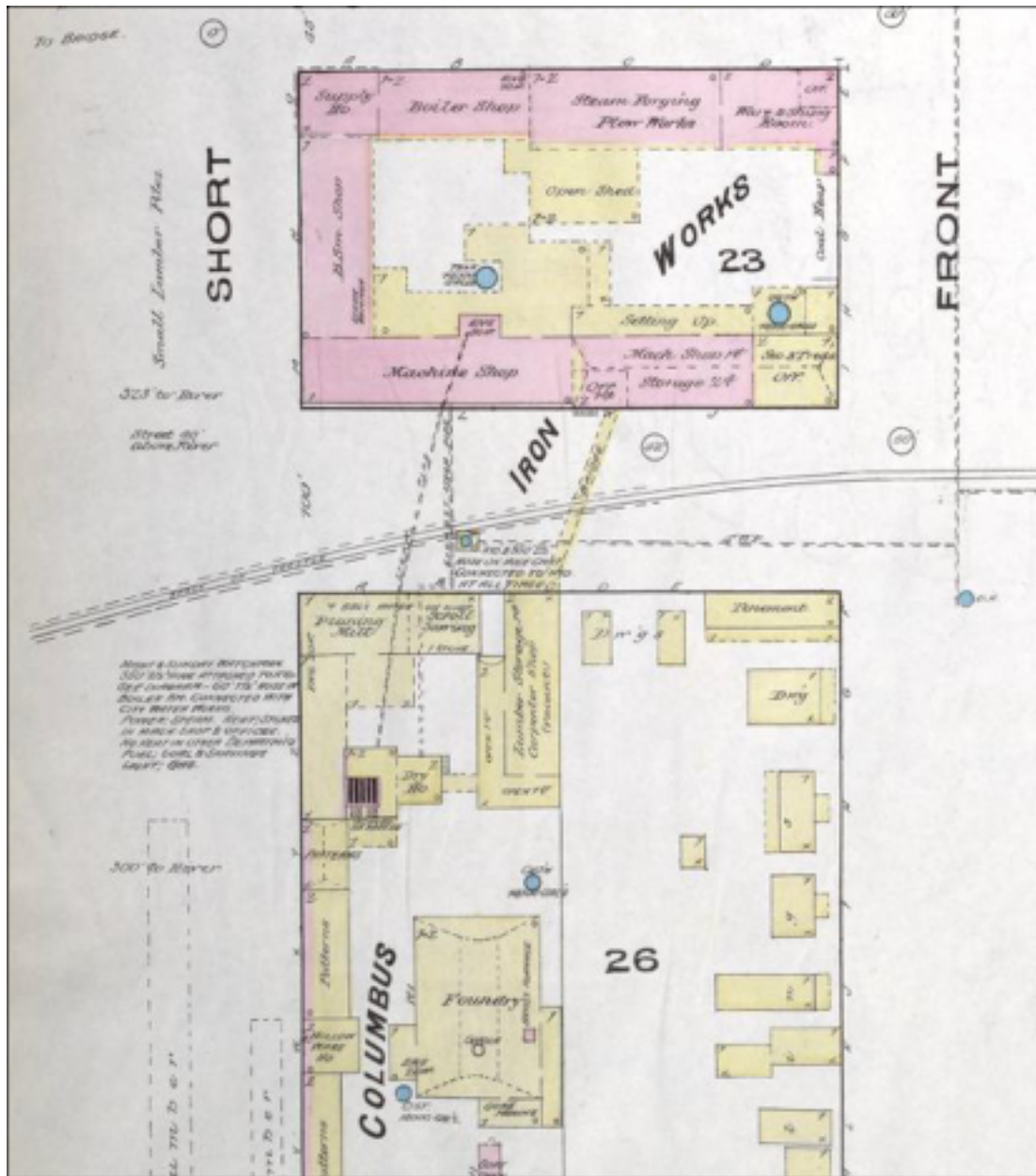


Figure 62, 1885 Sanborn Map close-up of Columbus Iron Works location.

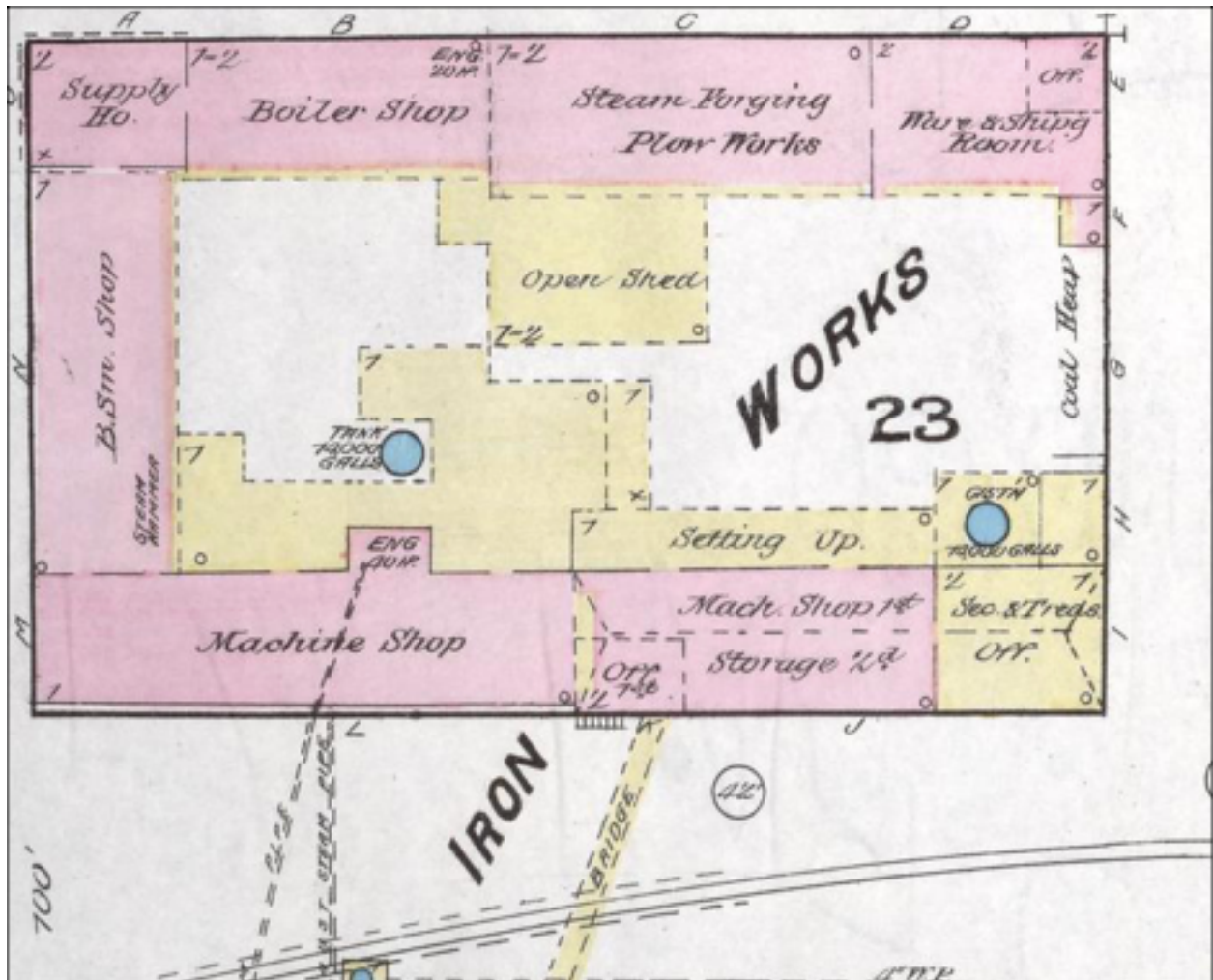


Figure 63, 1885 Sanborn Map Close-up of Drop-forge building.



Figure 64, Drawing of Columbus Iron Works as Southern Plow Company.

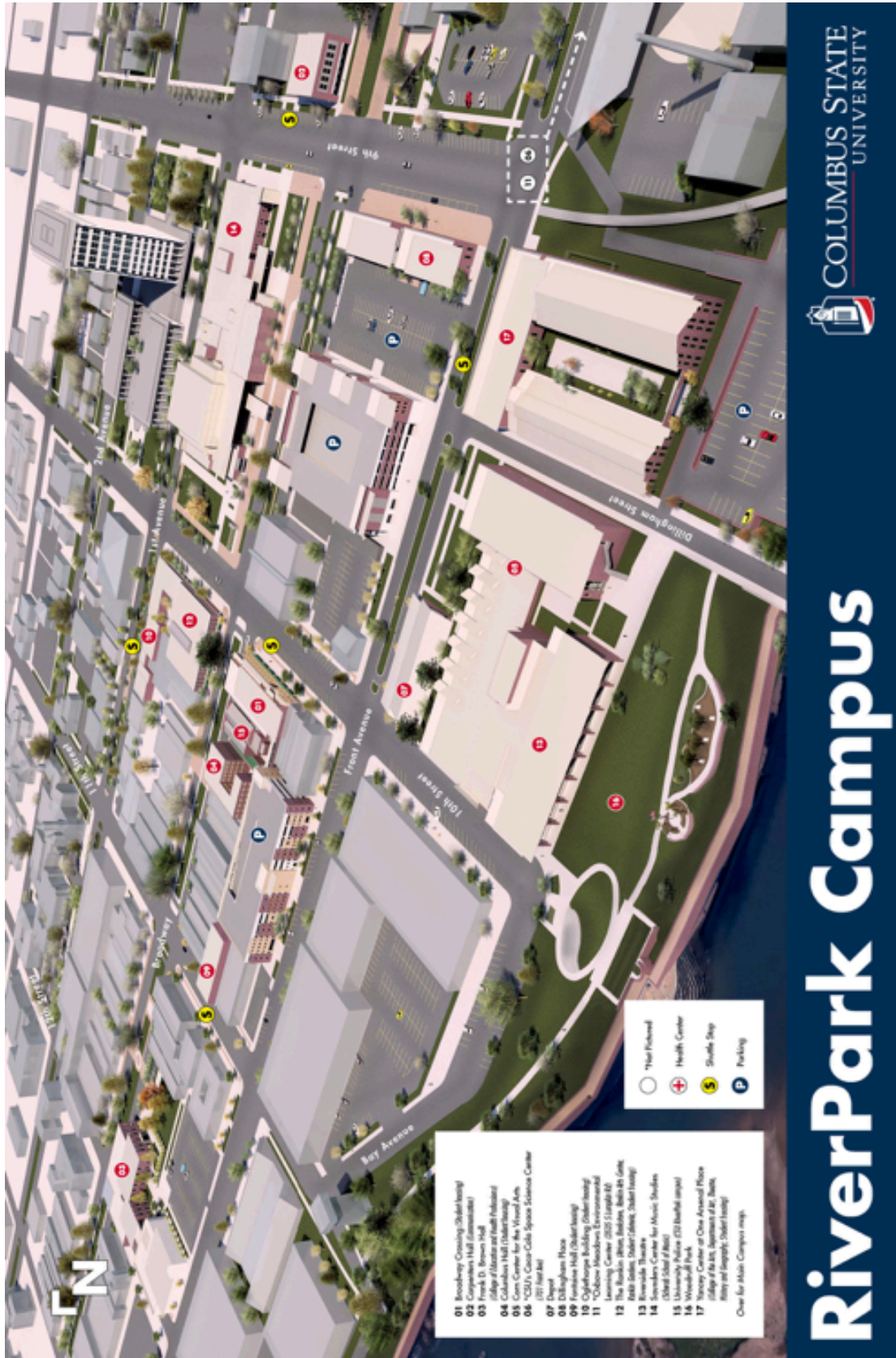


Figure 66, Map of Columbus State University RiverPark Campus.

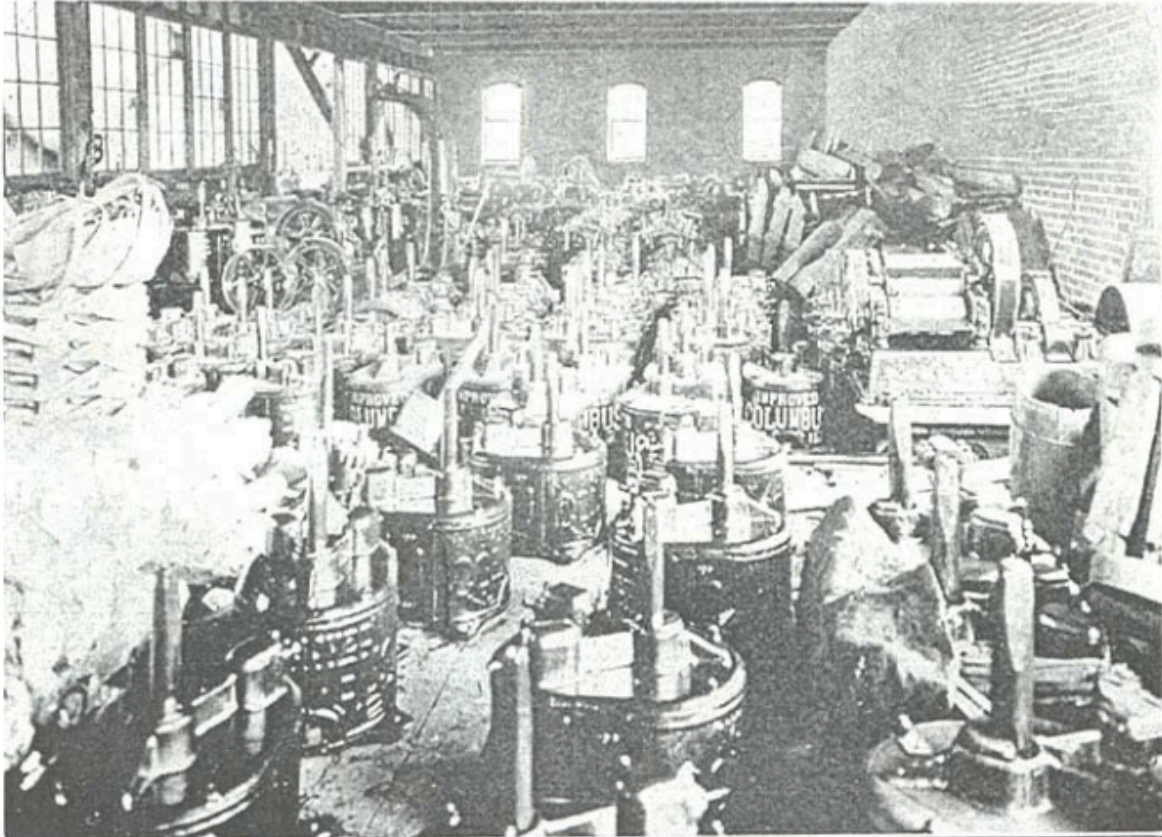


Figure 67, Interior of Southern Plow Company original Drop-forge building.

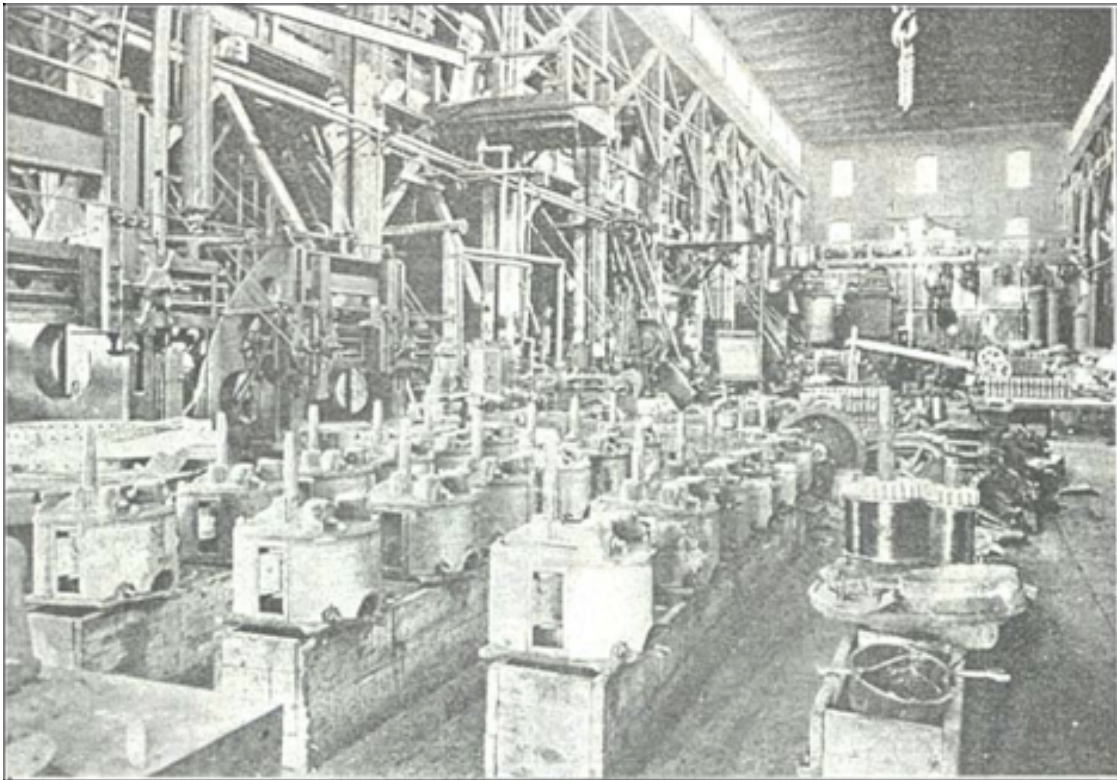


Figure 68, Interior of Southern Plow Company original Drop-forge building.



Figure 70, Historic American Engineering Record photograph of Drop-forge building.



Figure 71, Current photograph of the same view.



Figure 72, Historic American Engineering Record photograph of Drop-forge building.



Figure 73, Current photograph of the same view.



Figure 74, Current photograph of Drop-forge building with elevated railway and Columbus State University sign.

CHAPTER 6

AN ANALYSIS OF ADAPTIVE REUSE AND PRESERVATION PATTERS OF EXTANT
CONFEDERATE ARMORIES AND ARSENALS IN GEORGIA

On a cold December day in 1886, Athens-native and *Atlanta Constitution* editor Henry W. Grady delivered an informative speech to the New England Society of New York City. The speech opened with a quote from Benjamin H. Hill and included Grady's coined, New South term. Grady's New South, "[had] fallen in love with work," and ideals of progression were tied to the capabilities of industry and work as the avenue for achieving a fuller independence than that which they had fought for. Grady noted,

The new South is enamored of her new work. Her soul is stirred with the breath of new life. The light of grander day is falling fair on her face. She is thrilling with the consciousness of growing power and prosperity. As she stands upright, full-statured and equal among the people of the earth, breathing the keen air and looking out upon the expanded horizon, she understands that her emancipation came because, through the inscrutable wisdom of God, her honest purpose was crossed and her brave armies were beaten.¹⁷³

It was not nostalgia that had followed Civil War veterans and citizens into the 1880s, but a sense of progression and attachment to work. Work symbolized a much more liberated South, a South to believe in, a progressive South. At the crux of this progression was the adaptive reuse and preservation of Civil War Era buildings and structures utilized and operated by the Confederacy. The collective ideals of postwar resurgence hinged on the ability of the postwar community to

¹⁷³ Edna Henry Lee Turpin, *The North, South, and Other Addresses by Henry Woodfin Grady* (New York: Charles Merrill, 1904), 23-42.

rebuild and reuse what had been destroyed or saved during the war. Remaining Confederate ordnance centers across Georgia were viewed as locations for adaptation and industry. An analysis of postwar adaptive reuse trends at Confederate armories and arsenals in Georgia highlight the dedication to work and continued progression within the New South. These patterns and trends of adaptive reuse combined with Grady's New South ideals add a foundational principle in the historic narrative of the preservation movement.

Following the Civil War, the defeated South attempted to reclaim its identity through different social, cultural, political, and economic avenues. Prior to fighting, the southern landscape consisted of small scale farming mixed with larger plantations. Although burgeoning industry existed within urban centers, agricultural production ruled. Exemplified by the lack of Confederate arms manufacturing during the first two years of combat, early industrial operations concentrated on textile production rather than heavier industries. 1840s and 1850s southern manufacturers were immediately enlisted for Confederate production at the beginning of the war. Privately contracted and leased throughout the Civil War, industries in Confederate cities expanded and thrived. Although a majority of ordnance centers, especially in Georgia, were destroyed or dismantled, several experienced postwar usages. Attempts to revamp the failed Confederacy through converting ordnance centers into postwar manufacturers and the call from citizens to do so represent two patterns of adaptive reuse.

At the end of the war, processes of daily life slowly returned Confederate veterans and citizens to a state of normalcy. This postwar situation birthed a collective sense of urgency to bolster and strengthen the defeated South. Throughout wartime, Georgia's industrial hubs experienced increased business to meet the demands of war. Confederate contracts and leases spurred expansion and higher revenues among industries in Augusta, Athens, Macon, Columbus,

Atlanta, Milledgeville, and other locations across the state. This wartime growth prompted and promoted a postwar retooling of southern economy and industry. Confederate ordnance centers across Georgia were a direct cause of this change. Unharmed and stabilized Confederate armories, arsenals, iron works, and powder works were commonly reused for industrial manufacturing purposes. Additionally, ordnance centers that were destroyed or dismantled were often salvaged for the same purpose. This pattern of adaptive reuse was evident in Athens, Augusta, Macon, and Columbus, although not limited to these cities.

Expansion of the Augusta Canal, the site of the Confederate Powder Works, came as a result of desires to expand and heighten industry in postwar Augusta. On October 19, 1871, the city of Augusta purchased the 128-acre site and five remaining buildings with plans slated for industrial redevelopment. Opened in 1882, the Sibley Mill complex, represented the culmination of the postwar expansion and industrial development of the former Confederate Powder Works site.¹⁷⁴ Although the Confederate structures were dismantled, the Sibley complex was built almost entirely from salvaged bricks. The mill also closely resembled the Norman style of architecture of the Powder Works. This example highlights the commitment of former Confederate cities to industrial development and the postwar utilization of ordnance buildings constructed or adapted for wartime use.

Ordnance operations in Macon that survived the war also attest to this pattern of adaptive reuse. The incomplete and never fully realized Macon Armory and Confederate States Laboratory complexes did have a postwar impact in Macon. The grandiose scale of the constructed buildings allowed them to withstand destruction and abandonment throughout the latter half of the 1860s. After the armory property reverted to the city, it remained empty and

¹⁷⁴ C.L. Bragg et al. *Never For Want of Powder: The Confederate Powder Works in Augusta, Georgia*. (Columbia, South Carolina: University of South Carolina Press, 2007), 236-238.

untouched until 1870. Although eventually failing, a completed deal to adapt the armory into a 35,000-spindle cotton factory was made with the Armory Cotton Manufacturing Corporation of New York. Only the proof house was ever inhabited for manufacturing purposes. This building was adaptively reused as a knitting mill, carpet and rug cleaning company, and schoolhouse until its destruction in 1937.¹⁷⁵ Across the city, the Confederate States Laboratory, another massive brick structure, remained as an influential industrial structure. In 1868, the laboratory, used as the fair grounds for the State Agricultural Society, represented the fixation of Georgians on a future centered around manufacturing and industrialized agricultural production. Additionally, the laboratory was adaptively reused as a barrel factory, a railroad depot, and other industrial operations.¹⁷⁶ Again, postwar strategies for reusing these buildings showed up in post-Confederate Georgia.

Postwar Athens stands as a testament to this adaptive reuse pattern. The Cook and Brother Armory, established in late 1862, played a major role in the history of industrial development of Athens. Prior to fighting, Athens boasted the Athens Manufacturing Company, the only industry present in the college-town. Following the war, the utilization of the former armory as a center of modern manufacturing served as a catalyst for Athens evolving into a business and industrial center in northeast Georgia. The combination of the Athens Manufacturing Company and the Confederate armory led to the creation of an expansive textile factory, producing gingham checks. For the next century, the armory adaptively served Athens as a manufacturer of various items and goods. It was not until 1980 that operations of this nature stopped. Similarly, the industrial powerhouse of Columbus mirrored what occurred in postwar Athens.

¹⁷⁵ *Georgia Weekly Telegraph* (Macon, Georgia), January 15, 1866.

¹⁷⁶ *The Banner* (Athens, Georgia), February 16, 1912.

Although the 1840s Columbus Iron Works, converted into the Confederate Naval Iron Works, maintained its prewar purpose, postwar operations could have easily transitioned into another field or been destroyed. However, wartime development and growth provided a reason for the continuation of industrial endeavors. Business at the Columbus Iron Works flourished throughout the Civil War and postwar periods. Specifically, heavy manufacturing at the Southern Plow Company section of the Iron Works operated successfully from 1877 to 1971.

Manufacturing dominated as the logical choice for utilizing ordnance structures in the postwar era. Although these centers changed private hands frequently throughout the nineteenth century, their use and reuse kept them upright. The pattern of adaptive reuse for manufacturing purposes is backed by another key pattern, both essential for preservation. Connected with the use of former ordnance centers as industrial opportunities to revamp the defeated South, is the call from citizens to do it.

This second pattern of adaptive reuse is linked to and reaffirms the first pattern of utilizing ordnance centers for postwar industry. Confederate veterans and citizens alike promoted the use of former armories and arsenals as manufacturing centers. Across the state, calls from citizens in Georgia's major cities supported the reuse of buildings for this purpose and function. This support reflected the aforementioned desire to build a new South. Rather than keeping the Confederate buildings for commemorating the war or for nostalgic purposes, citizens understood the role they could play in distancing the lost cause. Although these collective sentiments were expressed across Georgia, evidence of this pattern showed up in postwar Athens and Macon. In Macon, a *Georgia Weekly Telegraph* editor noted, "Attention should now be turned to those superb but incomplete structures, the Confederate Armory and Laboratory. If we are insensible to their adaptation and value, we hope some shrewd Yankee with a long purse may come along

and give us a practical illustration of his wisdom and enterprise.”¹⁷⁷ This call was shared among other citizens as well. Also, this instance includes the word adaptation, highlighting that adapting and reusing these Confederate buildings was at the forefront of the postwar to-do list. In Athens, citizens well-understood the need for manufacturing following the war. The citizenry discussed the necessity of converting the Cook and Brother armory into a manufacturing center. The *Southern Watchman* expressed this collective postwar spirit, noting,

There is a large and valuable manufacturing establishment in this town, now idle, with almost enough buildings to make a country village. We refer to Cook’s Armory, where small arms were manufactured during the war. This establishment ought now be converted into a manufactory of articles of use or necessity in time of peace.¹⁷⁸

This article embodies the first and second patterns of adaptive reuse. Not only was manufacturing seen as an important postwar must, but utilizing wartime establishments represented a viable option to achieve that. Additionally, both primary accounts reflected that these converted buildings could provide jobs and generate business within the community. Connected with these expressed sentiments are several additional patterns comprised of the physical attributes that situated them for adaptability and ultimate preservation.

The adaptability of Confederate armories and arsenals primed them for adaptive reuse. This pattern was evident in the decades following the war and remains today. Adaptability, being interpreted as the ability of ordnance complexes to be easily converted and changed for other purposes and functions. This physical attribute relies on the additional attribute of scale. The binary of adaptability and overall scale situated ordnance buildings for reuse. First, the overall scale of Confederate armories and arsenals allowed for open spaces that extended for two and three stories. Ordnance buildings were built of thick brick walls that sported massive timbers for

¹⁷⁷ *Georgia Weekly Telegraph* (Macon, Georgia), January 15, 1866.

¹⁷⁸ *Southern Watchman* (Athens, Georgia), April 28, 1869, 3.

roofing structures. This method of construction allowed the buildings to extend upward and be supported by a series of smaller interior columns. Overall, these buildings possessed the ability to accommodate large amounts of machinery and workmen with additional open space for storage. The attribute of scale is the main factor for adaptability. With machinery removed, former armories and arsenals can be adapted for nearly any use. Manufacturing became the obvious option because the buildings were already outfitted with machinery or at least could support it. Although manufacturing became the de facto pattern of reuse, the current uses in Augusta, Athens, and Columbus solidify the adaptability of these Confederate centers. At Payne Hall on the campus of Augusta University, the main storehouse and arsenal building now serves as offices. In Columbus, the Yancey Center houses everything from dorm rooms to a small theatre and library. Additionally, the University of Georgia has utilized the Cook and Brother Armory for office spaces. A noted feature at the current UGA physical plant is the adapted interior configuration of offices. Rather than extending the offices, situated in the large openness of the former armory, to the ceiling, the cubicles end at eight feet, leaving the heavy timbers and other structural features visible. These combined patterns of adaptive reuse and architectural characteristics preserved the three extant armories and arsenals. Other aspects also played a key role in their protection.

Another inherent pattern that led to adaptive reuse and preservation is the ability of Confederate ordnance centers to withstand destruction. Ordnance centers across Georgia were constructed or reinforced to weather the tests of war. Constructed with millions of bricks and massive timbers, ordnance centers represented strength. This physical aspect is mirrored in architectural characteristics. At the Cook and Brother Armory, castellated cresting and the central tower suggested a castle-like structure. At the Augusta Arsenal, the entire complex was

surrounded by a loop-holed wall with only one way in and out. Although a majority of Confederate armories and arsenals in Georgia were destroyed in General Sherman's March to the Sea, it does not diminish this facet of adaptive reuse. The Union's destruction of these locations included considerable time and ingenuity to accomplish. Often, ordnance buildings that were burned quickly rather than systematically dismantled received postwar reuse. The raid on Columbus, resulting in the burning of the Confederate Naval Iron Works, exemplifies this claim. Within a six-month window, manufacturing operations were underway at the reestablished complex. This example also highlights the fireproof nature of these large brick buildings. Often, the entire buildings were not lost, only wooden members and machinery. Additionally, ordnance buildings that survived the war such as the Macon Armory, Confederate States Laboratory, and Confederate Powder Works survived until plans to raze them were developed and implemented. Because these nineteenth century armories and arsenals were meant to last, they have. Currently, the three extant armories and/or arsenals share three important aspects that have contributed to their adaptive reuse and preservation on Georgia university campuses.

The first reason that remaining Confederate ordnance centers are located on university property revolves around location. The three extant armories and/or arsenals were constructed and remain in the urban cores of Augusta, Athens, and Columbus. Traditionally, institutes of higher learning developed within areas of wilderness, with cities and towns developing because of their presence. By the 1950s, Georgia's minor and major colleges and universities had contributed to and accompanied growth alongside Georgia's important cities. The University of Georgia, Columbus State University, and Augusta University represent this pattern. Confederate ordnance centers, like Georgia colleges and universities, developed within urban cores for distinct reasons. Locating armories and arsenals within cities provided protection, a labor force,

connectivity with other business, and accessibility of transportation. Similarly, universities and colleges often evolved into cities because urban areas benefitted from and attracted students, faculty, staff, providing, connectivity through access to transportation, and places to live. Additionally, general manufacturing centers also followed these developmental guidelines. Positioning ordnance centers within or just outside city hubs created the situation in which buildings and structures dedicated to individual operations were constantly interacting. Although not always outright and possibly unknowingly, university faculty and students interacted with these Confederate centers simply because they comprised a facet of the given city's built environment. Together, the Confederate armory and/or arsenal, converted into a manufacturer or not, operated within a public sphere that made it visible and recognizable. This aspect connects with the requests from citizens to utilize these buildings following the war. Overall, both types of institutions developed in a similar way; a way in which location constituted a major factor of adaptive reuse and preservation. Location, as a facet of adaptive reuse, serves as a direct link to understanding how and why former armories and arsenals were and are suitable for university campuses.

Location plays the intrinsic role of bringing the institutions of manufacturing and education together. The discussed architectural characteristics of the remaining Confederate complexes highlights how these buildings accommodated educational growth. In all three situations, the universities experienced spatial growth, which provided reason for expansion. At Augusta University, the Junior College of Augusta had just been accepted as an institute of higher learning in 1957 and it needed a location outside the cramped Richmond Academy. In Athens, 1980s UGA was experiencing new growth that necessitated additional offices and storage space. As UGA's campus expanded, departments expanded and required new spaces.

Recently in Columbus, the RiverPark campus of CSU represented a major expansion of the university across several platforms including spatial, economic, and educational platforms. At these university locations, the former Confederate ordnance centers could accommodate this growth. The scale and adaptability of armories and arsenals provided two characteristics that were key for adaptive reuse into educational spaces. For example, the impressive scale of the former Confederate Naval Iron Works provided enough square footage to house two large departments as well as a theatre and 15 dorm rooms. At Augusta University, the entire Junior College of Augusta was transferred to the 1829 quadrangle, adaptively reusing the buildings for every necessary purpose. At UGA, the conversion of the Cook and Brother Armory was able to accommodate growth and house the Small Business Development Center. Adaptability hinges on the architectural aspect of size and scale.

The adaptable nature of Confederate armories and arsenals typically followed the pattern of transitioning into postwar manufacturing. Architectural features such as the brick walls and heavy timbers allowed these buildings to span large spaces, making them easily adaptable. Without walls and rooms, remaining Confederate arms manufacturers offered buildings that could be manipulated and adapted for endless purposes. This adaptability represented a solution for expanding universities in Augusta, Athens, and Columbus. Although scale allowed for much needed space, adaptability is the main reason for the reuse and preservation of these buildings. Brought together through location, these patterns of adaptive reuse have kept them intact and in place.

The 2006 reuse of the Naval Iron Works by Columbus State University highlights that adapting and reusing former Civil War buildings is a modern practice and timely. Currently, the three major ordnance centers that remain are located on Georgia university property. This

location on campuses is not happenstance but rather a combination of adaptive reuse patterns that continue to work collectively to preserve these nineteenth century structures.

This entire analysis combines broad level research with in depth studies of specific locations and patterns of adaptive reuse. The combination highlights another discussion that opened as a result of conclusions made throughout this thesis. This discussion centers around a reinterpretation of the beginnings of the preservation movement. The introduction of this discussion is supported through findings related to adaptive reuse and preservation in postwar Georgia. The themes and patterns highlighted throughout this analysis occurred within the contemporary arena of preservation's origins at Mount Vernon. Rather than upending the history of the preservation movement, conclusions made suggest that the adaptive reuse patterns of Confederate ordnance buildings should be viewed in tandem with what occurred at Mount Vernon. However, the two are notably different. At Mount Vernon, nostalgia and commemoration evolved into foundational tenants of historic preservation. In the postwar South, adapting and reusing Civil War Era buildings equaled progression. Providing a definition of the historic preservation movement highlights the exclusion of adaptive reuse, and adds context for why it should be included as a foundational principle.

Contemporary preservation now includes facets such as adaptive reuse and sustainable design. However, since the nineteenth century, the standard definition of historic preservation has often omitted ideals not tied to commemoration, nostalgia, or important historical figures. Preservation in the United States has followed two distinct paths from the earliest activities. Private groups and associations have tended to revolve around commemoration, historical figures, and associated landmark structures, and government involvement has centered on preserving natural features and establishing national parks. Early preservation efforts at

Independence Hall in 1816, Fort Wayne and Fort Meigs in the 1840s, and Mount Vernon in 1860 were rooted in these foundational principles of commemoration and close association with patriotic figures and events. In addition, throughout the formative stages of the preservation movement, there was little interest in preservation for the sake of architectural significance. The standard definition of the movement hinges on the fact that historical connections of structures to great men and important events, the earlier the better, were the only criteria worth considering for preservation of a structure.¹⁷⁹ Although this definition of preservation's history remains accurate, it does not push far enough. This thesis identifies another side of the origins. Within the same decade of what occurred at Mount Vernon, adaptive reuse led to the preservation of Confederate buildings across the southern landscape. Adaptive reuse hinged on the New South ideal of progression rather than the traditional commemorative association.

In wartime Macon, Georgia, the Confederate States Armory represented an operation so extensive, that it could potentially win the war for the Confederacy. By 1870, citizens and city officials backed plans for the sale and reuse of the armory as a cotton factory to "New York capitalists."¹⁸⁰ This example epitomizes the collective importance of reusing former Confederate buildings for progressive purposes. The very place that armaments were produced for defeating the Union, was willingly handed over for the introduction of Northern industry. The adaptive reuse and subsequent preservation of Civil War Era buildings do not fit the mold of commemoration, nostalgia, or remembrance often regarded as the singular beginnings of historic preservation. Patterns of adaptive reuse, entrenched in the progressive ideals of the New South, stand as a foundational principle in the historic narrative of preservation. The findings in this

¹⁷⁹ Norman Tyler, Ted Ligibel, and Ilene Tyler, *Historic Preservation* (New York: W.W. Norton & Company, 2009), 27-30.

¹⁸⁰ *Telegraph & Messenger* (Macon, Georgia), May 1870.

thesis support this claim as well as the discussion to reinterpret the beginnings of preservation. Currently, adaptive reuse plays a major role in preservation, and the reuse of Confederate armories and arsenals continues. Perhaps this thesis will serve as a guide for post-Civil War patterns of adaptive reuse as well as an initiation for better understanding the origins of the preservation movement.

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APPENDIX A

THESIS TERMINOLOGY

The terminology referenced in this thesis is a core component for understanding the research question and overall scope of completed work. The lexicon used throughout hinges on historical and contemporary definitions associated with the Civil War era vocabulary of arms manufacturing. Solidifying definitions for these terms establishes a concise framework for reference throughout the remainder of this thesis. Additionally, creating this vocabulary eliminates confusion regarding varying interpretations of terms used heavily in this thesis. The terms armory and arsenal are indicative of close association with war related activities in wartime and peacetime. These two words comprise the main research question of this thesis, as well as its overarching focus. The definitions of armory and arsenal are linked to function and purpose. Although confusion about differences in functionality are common, contemporary and nineteenth century definitions of armory and arsenal highlight a synonymous connection.

Contemporary definitions define an armory as: a storage place for weapons and other war equipment; a building that is the headquarters and drill center of a military unit; a place where arms and armor are made; an armorer's shop; arsenal.¹⁸¹ Similarly, contemporary definitions define an arsenal as: a place of storage or a magazine containing arms and military equipment for land or naval service; a government establishment where military equipment or munitions are

¹⁸¹ armory. Dictionary.com. *Dictionary.com Unabridged*. Random House, Inc. <http://www.dictionary.com/browse/armory> (accessed: May 25, 2017).

manufactured; a collection or supply of weapons or munitions.¹⁸² Both terms are connected through their purpose and function as buildings for the manufacture and storage of armaments and military equipment. Generally, arsenals are viewed as centers for arms storage and quartering of troops, with armories serving as locations for production and manufacturing. Nineteenth century definitions, specifically in the 1860s, highlight that slight variations exist between armories and arsenals in terms of function and purpose. Civil War era definitions of arsenals and armories highlight manufacturing as a core component of daily operation. Specifics connected to war-related materials provides the small difference between the two. The nineteenth century term, armory, referred to a manufacturing center that produced weapons for the common soldier. Armories were utilized and defined as locations where arms, rifles and pistols, were assembled and prepared for wartime use. The closely linked term arsenal, a storage and manufacturing center, produced a wider array of war-related materials ranging from uniforms to canteens. On April 8, 1864, Confederate Chief of Ordnance, Josiah Gorgas, made a clear distinction between the terms armory and arsenal. Gorgas noted,

Large arsenals have been organized at Richmond, Fayetteville, Augusta, Charleston, Columbus, Macon, Atlanta, and Selma, and smaller ones at Danville, Lynchburg and Montgomery, besides other establishments...besides the Armories here and at Fayetteville, a manufactory of carbines has been built up here; a rifle factory at Ashville (transferred to Columbia S.C.); a new and very large armory at Macon, including a pistol factory, built under contract here and sent to Atlanta and thence transferred under purchase to Macon; a second pistol factory at Columbus, Ga.¹⁸³

However, this distinction did not always hold true throughout the Confederacy. Confederate arsenals were involved in rifle and pistol manufacturing and Confederate armories certainly

¹⁸² arsenal. Dictionary.com. *Dictionary.com Unabridged*. Random House, Inc. <http://www.dictionary.com/browse/armory> (accessed: May 25, 2017).

¹⁸³ Josiah Gorgas and Sarah Woolfolk Wiggins, *The Journals of Josiah Gorgas, 1857-1878* (Tuscaloosa: University of Alabama Press, 1995), 90.

produced other war related items from 1861-1865. In 1880, Josiah Gorgas reflected on the enormous task he had undertaken during the Civil War. Gorgas stated,

Within the limits of the Confederate States there were no arsenals at which any of the material of war was constructed. No arsenal, except that at Fayetteville, N.C., had a single machine above a foot-lathe...All the work of preparation of material had been carried on at the North; not an arm, not a gun, not a gun-carriage, and, except during the Mexican War, scarcely a round of ammunition had for fifty years been prepared in the Confederate States.¹⁸⁴

In this statement, Josiah Gorgas paired gun and arms manufacturing with the arsenal. In this sense, the terms armory and arsenal, differing slightly, are synonymous. Differences in building size, volume of production, architecture, and location occurred, but these aspects did not affect the purpose or overall function of armories and arsenals. Large arsenals across the Confederate landscape produced thousands of individual rifles and pistols for foot soldiers. The armories and arsenals referenced in this thesis are characterized by size, volume of production, and location, or, manufacturing centers with several large structures, owned and contracted by the Confederate government, and located in Georgia. Other nineteenth century and Civil War era ordnance operations were distinctly different. Although connected with wartime efforts, these locations served different purposes and produced different materials.

Another key term used throughout is ordnance or ordnance operations. It is essential to understand that this term referred to Union and Confederate operations aimed at wartime arms production. Ordnance, is synonymous with military weapons, ammunition, and equipment used in connection with them. This term provided an all-encompassing title for Civil War arms production and related materials. Both armies established Ordnance Departments that controlled

¹⁸⁴ Gordon L. Jones, *Confederate Odyssey: The George W. Wray Jr. Civil War Collection at the Atlanta History Center* (Athens, Georgia: University of Georgia Press, 2014), 109.

all aspects of associated weapons manufacturing. Ordnance and the phrase “ordnance operations” are used heavily throughout this thesis and always refer to this commonly used title.

Confederate armories and arsenals comprise the main research completed for this thesis. However, several other Civil War ordnance operations took place in different structures with varying functionality and purpose. These examples are included to denote how they were different from the defined armory and arsenal and why a number are outside the purview of the completed research.

Throughout the Civil War, the Confederate Ordnance Department relied on powder works and iron works to produce large amounts of gunpowder and standard artillery. These works functioned as manufacturing centers but supplied the Confederacy with materials associated with larger weapons. Rather than personal armaments, an iron works casted cannons, artillery shells, and ironclad ships. These locations essentially functioned as foundries. Molds were used for the production of Confederate artillery and war-related materials made of iron.

The Tredegar Iron Works served as the main iron manufacturing center for the entire Confederacy. Its size and production volume exemplified the height of iron works in this era. Tredegar Iron Works was compactly situated on five acres between the James River and Kanawha Canal in Richmond, Virginia.¹⁸⁵ It included sixteen total buildings with two large rolling mills, four foundries, and five associated shops.¹⁸⁶ At the end of the war, Tredegar had cast approximately 1,099 Confederate ordnance products at a cost of \$9,431,507.¹⁸⁷ Civil War era vernacular incorporated iron works as another term synonymous with the arsenal and armory. However, this associated type of iron works operated on a more modest scale, much different

¹⁸⁵ Charles Dew, *Ironmaker to the Confederacy: Joseph R. Anderson and the Tredegar Iron Works* (n.p.: Yale University Press, 1966), 18.

¹⁸⁶ *Ibid*, 101.

¹⁸⁷ *Ibid*, 111 & 271.

from an establishment like Tredegar. Small foundries were often located in or attached to Confederate armories and arsenals and produced small quantities of iron items. Chief of Ordnance Josiah Gorgas' referenced arsenal in Columbus, Georgia was an essential ironmaker to the Confederacy that produced iron products as well as armaments and other items. The Civil War era association of iron works with arsenals and armories established a connection between distinct operations. For this reason, the smaller type of iron works is included in this thesis, but the traditional Tredegar example is not.

Confederate ordnance operations also relied on powder works for supplying essential wartime materials. At the beginning of the Civil War, the Confederate States had only enough gunpowder for one month of active service.¹⁸⁸ This serious shortage created the demand for new factories dedicated to powder production. The Augusta Powder Works, in Augusta, Georgia, was an example of this type of ordnance operation. Construction began on September 13, 1861 and resulted in thirteen major buildings and several lesser buildings engaged in the eight-step process of producing gunpowder for personal armaments and cannon.¹⁸⁹ The three largest and most important buildings included the connected warehouse and refinery with 150-foot tall square chimney, the impressive half-a-million-brick laboratory, and the continuous incorporating mills that stretched 300 feet along the Augusta canal. The key ingredients, charcoal, sulfur, and niter were stored at powder works and eventually refined and processed into gunpowder. In its three years of operation, the Augusta Powder Works produced 3,378,118.2 pounds of powder, with approximately 70% for artillery and 30% for small arms.¹⁹⁰ The machinery and number of buildings required to meet the demands of war is exemplified by the Augusta Powder Works.

¹⁸⁸ Gordon A. Blaker, "Rebel Genius: The Confederate Powder Works at Augusta, Georgia," *Augusta Richmond County History* 44, no. 2 (2013): 6.

¹⁸⁹ *Ibid*, 10.

¹⁹⁰ *Ibid*, 10-11.

However, the machinery and required buildings differed greatly from the standard armory or arsenal. The function and purpose of a powder works was to produce essentials for armaments but not the armaments themselves. Although the traditional powder works operated like a manufacturing complex, its final product made it distinctly separate from the outputs of armories and arsenals.

The term, armory hall, became a widely-used building type in the latter half of the nineteenth century. Although armory halls were utilized throughout the Civil War, their construction and use increased from 1870-1900 due to fears of renewed war and race riots. Contemporarily, this title is confused with the armory and arsenal definition established for this thesis. The armory hall served an extremely different purpose and function when compared to the large manufacturing armories and arsenals of the Civil War. Distinctions between the armory hall and traditional armory further highlight the referenced terminology that will be used throughout.

In terms of function, the armory hall did not operate as a manufacturing center or produce any war-related materials. Armory halls served as local militia meeting spaces for defending an area, drilling, and parading. These structures served multiple purposes and were located within the urban core of cities. Local militias utilized these spaces with irregularity, and the typical armory hall was located on one story within a larger multipurpose building. This meeting space consisted of an open plan for drilling and parading with some storage for weapons and other materials for emergency use. The armory hall played a culturally significant role wherever they were established. During wartime and peacetime, the armory hall was used by the local and surrounding public. Rather than operating as an industrial center, the armory hall served the community as a social hub. Specifically, activities unrelated to war occurred regularly in armory

halls. The Clarke Rifle's Armory, located in Athens, Georgia, hosted, "a dance...attended by a very large throng of young people," with all the, "joyous inspiration that it usually infuses into young hearts."¹⁹¹ Additionally, the Athens Guards gave a, "big prize drill and dance at their armory," that, "[was] decorated for the commencement dances...and their ball, which [was] a large affair."¹⁹² Armory halls were also used for bake sales, concerts, funerals, and local businesses. This public connectivity is the main difference between the armory hall and the traditional armory. The purpose and function of both were intrinsically different, and the defined armory or arsenal should not be confused with the armory hall.

¹⁹¹ *Weekly Banner* (Athens, Georgia), December. 29, 1891.

¹⁹² *Weekly Banner* (Athens, Georgia), June 6, 1902.