GLASS IN THE LANDSCAPE OF THE

GREAT DISMAL SWAMP

By

Rebecca Anne Peixotto

Submitted to the

Faculty of the College of Arts and Sciences

of American University

in Partial Fulfillment of

the Requirements for the Degree of

Master of Arts

In

Public Anthropology

Chair:

Daniel Sayers, Ph.D.

Richard J. Dent, Ph.D.

Lance Greene, Ph.D.

Dean of the College of Arts and Sciences

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ABSTRACT

This thesis seeks to illuminate the movement of material goods and people through the socially and physically complex landscape of the Great Dismal Swamp and in so doing to expose some of the detail obscured by existing maps and popular conceptions of the area. Multiple lines of evidence, including ultraviolet fluorescence of glass artifacts and details gleaned from a variety of maps and remote sensing images of the area, contextualize the presence of historic glass at archaeological sites representing canal adjacent enslaved laborer camps and interior maroon settlements. A landscape archaeology perspective foregrounding people, time-depth and scale guides the analysis of glass distribution amongst five historic sites.

ACKNOWLEDGMENTS

I would like to thank my committee members, Dr. Daniel Sayers, Dr. Lance Greene and Dr. Richard J. Dent for providing support and mentorship throughout my studies at American University and in particular with this project. My path to archaeology has been circuitous and these professors have kindly provided feedback, insight, and encouragement along with truly enjoyable academic challenges. Dr. Sayers set a high standard for theoretical inquiry, graciously welcomed me into the GDSLS, and offered the steady, thoughtful mentorship that allowed me synthesize my previous studies and experience with rigorous studies in anthropological archaeology. Dr. Greene taught a pivotal course my first semester back in school and his enthusiasm and patience in the Swamp and in the classroom are both greatly appreciated and inspiring. Dr. Dent generously allowed me to use his windowless lab for the UV analysis and was willing to meet an endless stream of questions with straightforward answers. Working with the GDSLS in the classroom, in the lab, and especially in the Swamp itself has been a profoundly positive experience academically and personally.

I would also like to thank Dr. Mark Plane for commenting on drafts of course and conference papers that preceded this thesis. Professor Teun van Dijk, many years ago, mentored me in the foundational research skills necessary for a project of this scope and I often draw upon the theories and skills I studied with him.

In the depths of the Swamp and outside of it, I have worked alongside and learned from colleagues who share a passion for archaeology, a willingness to debate ideas, and a remarkable ability to find joy in both bugs and tiny artifacts. In particular, I would like to acknowledge Kevin Bradley, Cyndi Goode, Mark Hamilton, Justin Uehlein, Jordan Riccio, and Karl Austin. Finally, my grandparents, Col. (ret.) Roland and Kitty Peixotto, are fountains of encouragement and love and have fostered in me a sense of place and an appreciation for those that came before.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF ILLUSTRATIONS

CHAPTER 1

INTRODUCTION

The topographic symbol for 'swamp' long employed by cartographers and used today by the United States Geological Survey (USGS) is a horizontal line with five little lines of different lengths emerging from the top of it, reminiscent, perhaps, of a cluster or a fan of reeds. When used sparingly on a map, the swamp symbol might indicate, for example, the low-lying end of a meadow, providing a more nuanced picture of the local landscape than may be evident by topographic lines alone. Many USGS maps blanket the entire expanse of the Great Dismal Swamp of North Carolina and Virginia with that symbol even when other topographic variation appropriate to the scale of map exists on the ground. The symbol alone hardly does justice to a landscape that is much more than simply ca. 190 square miles of flat wetland.

The Great Dismal Swamp has existed in the public imagination for centuries. Its long social and economic history is inscribed in the present landscape through landscape alterations and archaeological sites. And, as others have recently argued, the Swamp was home to thousands of people in the two-and-a-half centuries between the founding of Jamestown and the Civil War. Thus, hidden behind historic and present-day cartographic representations of the Great Dismal Swamp lies the history of a complicated landscape dialectically intertwined with the social and political-economic history of the Tidewater region from the earliest days of European contact through the Civil War.

In this thesis, I seek to illuminate the movement of material goods and people in the past through this socially and physically complex landscape and in so doing to expose some of the detail obscured by existing maps and popular conceptions of the area. I will explore multiple lines of evidence, including ultraviolet fluorescence of the glass artifacts and details gleaned

from a variety of maps and remote sensing images of the area, to contextualize the presence of glass at the various archaeological sites from a landscape archaeology perspective.

It is my hope that this analysis will contribute to the Great Dismal Swamp Landscape (GDSLS) and the growing body of knowledge about the Swamp and its historical people. The GDSLS was initiated in 2002 by Dan Sayers to investigate, using archaeological methods, the social histories of generations of indigenous Americans, people of African descent, primarily maroons and enslaved laborers, and others who found in the Swamp an alternative to the emergent global capitalist and enslavement systems of the outside world (Sayers 2006).

A key aspect of work within the GDSLS is the adoption of Sayers' (2008, Sayers, Burke and Henry 2007) modes of communitization model, hereafter, the *communities model*. In this model of community formation, the physical landscape of the Swamp contributes to the development of a diasporic social landscape perspective that includes patterns of exile and resistance while retaining an emphasis on the people involved. Sayers (Sayers, Burke and Henry 2007, Sayers 2008) labels the three modes of communitization as follows: Semi-Independent Perimetrical (hereafter, *edge communities*), Scission (hereafter, *interior communities*) and Canal-Adjacent Labor Exploitation (hereafter, *canal-adjacent communities*).

The presence at these various communities, however limited, of 18th and 19th century goods like lead shot, gunflint and glass, the raw materials for which are not available in the Swamp, can provide important insights into the access each had to the other communities within the Swamp and to the world beyond it. I refer to these kinds of artifacts as *outside world material*. Other GDSLS literature uses phrases such as *outside world commodities* or *mass-produced materials.*

This thesis will focus on one primary research question: How do glass artifacts from sites representing *interior* and *canal-adjacent* communities reflect the movement of material goods and people through this socially and physically complex landscape? In addressing this question, this research will highlight ways in which maroons, enslaved laborers and others, as individuals and as groups, negotiated social and economic networks, created understandings of the Swamp landscape that enabled communities to persist and adapt to the changing physical and social surroundings. For this study, glass artifacts provide a common point of insertion into the multi-faceted and dynamic landscapes experienced by different communities within the Great Dismal Swamp.

Glass and Landscape

Glass, particularly in the form of bottles, was a common consumer good throughout the 18th and 19th centuries with many factors, including extensive reuse affecting the difference between the date of manufacture and the date of deposition (Jones 1986, Adams 2003, Staski 1984). Scholars studying 18th and 19th century domestic sites have counted glass among the objects of daily use in those contexts (Heath and Bennett 2000, Harrison 2003, Praetzellis and Praetzellis 2001). Other studies have examined the continued, purposeful use of glass bottles in other forms including knapped and expedient glass tools in post-contact, historic and diasporic sites (Harrison 2000, Flexner 2010, Wilkie 1996). The near-ubiquitous nature of glass, its durability, and its potential usefulness even after breakage as tool, spiritual marker or simple decoration suggests it could serve as a point of insertion to the study of the dynamic landscape of the Swamp.

Glass artifacts ranging from whole bottles to tiny fragments have been found at nearly every historical era site surveyed thus far in the Swamp (Sayers, personal communication, 2013).

The Swamp-wide collection of glass generally lacks the quantitative and qualitative characteristics as well as the typological variation of more conventional sites ca. 1607-1860 such as plantations or towns where whole bottles, large fragments and even table ware might be found in much higher quantities (Noel Hume 1968; Noel Hume 1969; Heath and Bennett 2000). Nevertheless, it remains consistent with the expectations of the communities model. Data about the types of glass found at each site reveal patterns of similarity and difference in availability, use and reuse by *interior* and *canal adjacent* communities.

The predominance of bottle fragments, some smaller than ¼ inch, over whole bottles presents significant challenges in analysis for an artifact class whose literature focuses on complete bottles or large fragments with diagnostic characteristics (Jones and Sullivan 1989, Fike 1987). Some of these challenges are mitigated in this study through the use of ultraviolet (UV) fluorescence. The presence of certain elements in glass can be inferred by the color of visible light given off by the fragment when it is exposed to different wavelengths of light beyond the visible spectrum. Leaded glass, for example, 'glows' blue under short wave UV light. The historical community conditions of the Great Dismal Swamp are reflected in the dearth of complete bottles and other large glass artifacts. However, the small glass shards recovered in excavations do allow us to distill significant insights into the social world of the morass.

In this analysis, glass is contextualized in the larger landscape of the Great Dismal Swamp. In this regard, I draw on the recent work of scholars who have illuminated marginalized social and economic histories by placing individual sites within regional contexts (i.e. Lucas 2006, Byrne 2003) and who have shown how looking at material culture within a landscape can bring to light new aspects of social relations that were previously unrecognized (i.e. Gwyn

2005). This study strives to remain allied with modern, especially contemporary European, landscape perspectives which foreground multiple scales of analysis, people and palimpsest.

Chapter Overview

The work presented here begins in Chapter 2 general historical background of the Great Dismal Swamp as a whole and more detailed information about each of the five sites. Chapter 3 continues by laying out the framework of the study. The relevant landscape archaeology theories and their application to the GDSLS as well as the particular methodology of UV glass analysis are discussed in this chapter.

Data gathered from the glass analysis are presented in Chapter 4. Little commentary is offered in this chapter in hopes that by separating, at least temporarily, the data from the interpretation, the data may be more useful to a future researcher who might choose to approach the artifacts from a different theoretical perspective.

Chapter 5 discusses the glass artifacts within the landscape of the Swamp and draws upon complementary lines of evidence including narratives and maps to offer an interpretation of the landscape as experienced by those living in the Swamp prior to the Civil War. Finally, Chapter 6 concludes my thesis with suggestions for avenues of future research based on both gaps and insights revealed in this project.

CHAPTER 2

NATURAL AND HUMAN HISTORIES OF THE GREAT DISMAL SWAMP

The Great Dismal Swamp spans the border between Virginia and North Carolina in the Tidewater region of the mid-Atlantic United States. Bounded in the north by James River and in the south by the Albemarle Sound, the Swamp lies between what is known as the Suffolk Scarp and the Atlantic Ocean. Several rivers including the Pasquotank (Elizabeth City, NC), the Western Branch of the Elizabeth River (Norfolk, VA) and Deep Creek (Norfolk, VA) find their headwaters in the Dismal. Once covering more than 2000 square miles, the Swamp is roughly 10% of its contact-era size with the Dismal Swamp Canal, part of the Intracoastal Waterway, forming the practical eastern boundary. The remaining Swamp is protected under a mosaic of National Wildlife Refuge, North Carolina State Park and Army Corps of Engineers stewardship and land management plans. Today, Chesapeake and Suffolk, Virginia, and Elizabeth City, North Carolina, are the nearest metropolitan areas and numerous smaller towns surround the Refuge and State Park. The geological, ecological, and social histories of the Great Dismal Swamp have been extensively treated by other authors (see for example Nichols 1988, Martin 2004, Sayers 2008, Riccio 2012). Here, I will present a brief overview, highlighting those aspects that are particularly relevant to the discussion of outside world materials within the landscape of the Swamp.

Geology and Topography

The Great Dismal Swamp began developing 11,000-12,000 years ago on an ancient hillside (as opposed to in a basin), but thick layer of peat that provides the foundation for the ecosystem did not fully form until about 3,500 years ago (Baird 2006). The western edge of the Swamp, delineated by the Suffolk Scarp (hereafter, Scarp), marks the extent of Pleistocene (2.6 million to 11,700 years ago) coastline (Riccio 2012). Although the Scarp rises between 30 and 50 feet above sea level within one half mile of the Swamp, the topography and ecosystems of swamp and upland environments are intermingled in that zone, creating a gradual transition. The swamp itself slopes gently north and east with an average of 1 foot per mile elevation drop from the base of the Suffolk Scarp to the Deep Creek Swale east of the Dismal Swamp Canal (Baird 2006). Elevations across the Swamp range from 10-25 feet above sea level (Baird 2006). This apparent lack of dramatic topographic variation within the Swamp is interrupted by mesic islands, areas of drier ground that rise several feet above the peat and water level, and by Lake Drummond, one of only two natural lakes in Virginia (Sayers 2010).

Maps of the region exhibit very little change throughout history in their depictions of the actual wetland areas. In general, cartographers disregard any topographic features beyond Lake Drummond and, beginning in late 18th century, the gradually increasing network of canals through the Swamp. As will be discussed shortly, large portions of the Swamp have been drained and maps reflect this phenomenon and the resulting dryland topography clearly. However, even early 21st century maps show most of the remaining Dismal as simply homogenous, flat *swamp.*

Just prior to the United States entering World War II, the US Army Corps of Engineers embarked on a major surveying and mapping program to train new Engineers for the impending war. Units like "A" Company of the 30th Engineers Battalion (Topographic) were stationed

along the east coast where their preparation included surveying, checking the accuracy of existing maps, filling in blanks, updating data, setting datum lines and extending existing ones, and adding data they collected to aerial photographs (Gaisford 1984). As an example of their work, one project involved the survey of twelve 15 minute quadrangles, an area of more than 2800 square miles. The 30th Engineers were engaged in many such projects during the early 1940s and "[a]s a result, the eastern half of North Carolina was entirely surveyed for the first time during the training exercises needed to form these new topographic Battalions" (Gaisford 1984:1). Maps of the North Carolina portion of the Swamp from this era show a remarkable amount of topographic detail within the actual wetland including intermittent watercourses which do not appear on other, even modern technical, maps of the region. Parsing older maps, lidar images and other sources for minutiae such as these, it is possible to assemble a composite map which includes at least some of the creeks and other landform variations that may have been significant in the daily lives of people with intimate knowledge of the Swamp.

Plant Ecology

Situated as it is on the boundary of Virginia and North Carolina, the Great Dismal Swamp is home to a mix of northern and southern species. "Many plants primarily associated with the swamplands of the Deep South reach their northernmost extent here..." (Carter 1979:93). The characteristic Cypress and Gum plant community consisting of cypress, cedar, gum, red maple and sweet bay trees together with various swamp shrubs and herbs became established in the Swamp roughly 3500 years before present (Whitehead and Oaks 1979). The distribution of types of plants across the Swamp is not uniform, nor was it during the ca. 1660-1860 period of interest here. The "variety of local changes in forest composition...may have been a function of changes in water level, fires, windfalls, human activities, etc." (Whitehead and

Oaks 1979:34). These local concentrations of subsets of the plant community may be the source of place-names within the broader Swamp which appear in narratives, on maps and in canal

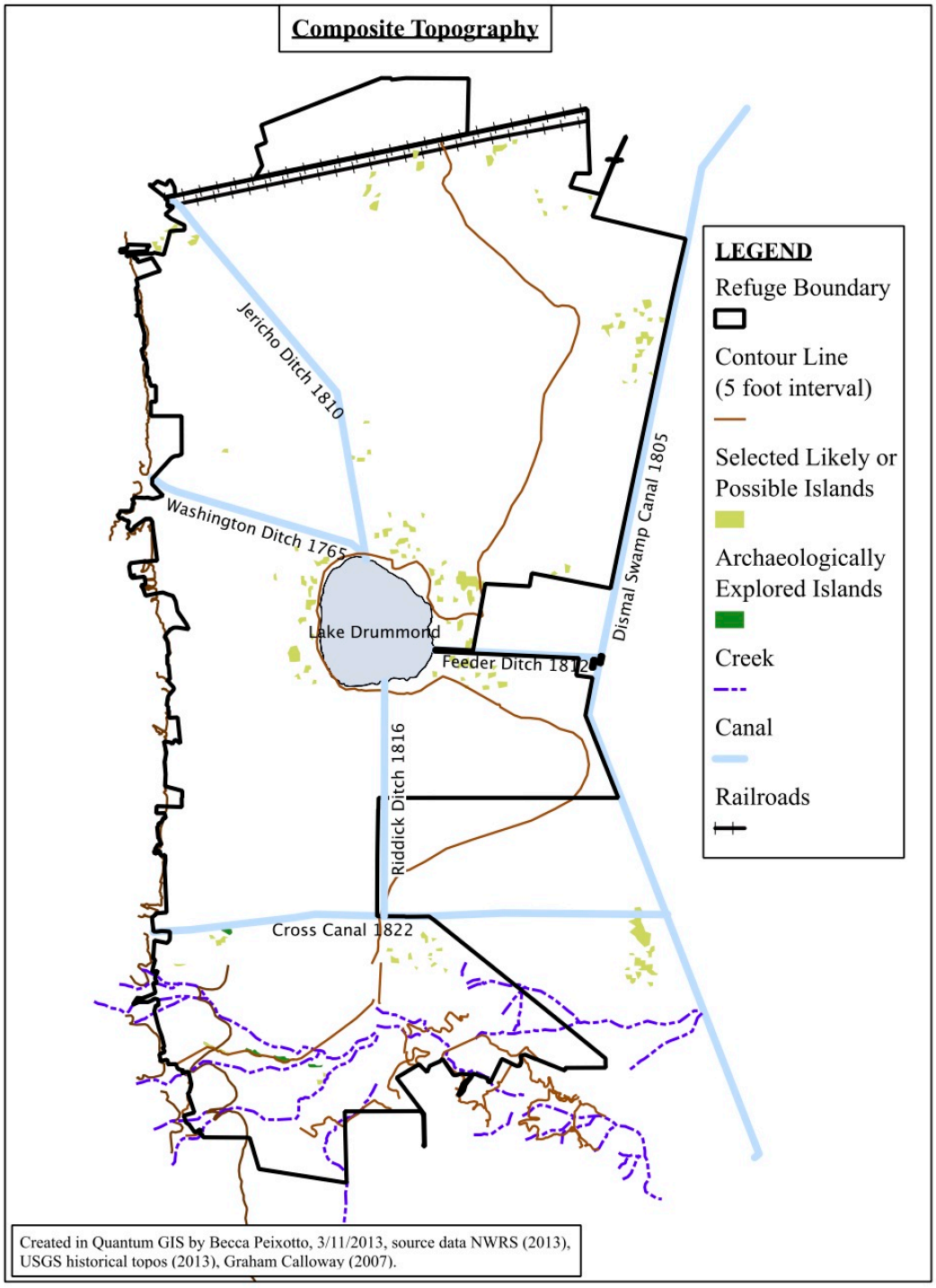

Figure 1. Composite Topography Map

company names. The precise location of many 18th and 19th century referents such as Juniper Swamp, Gum Swamp (Frederick Douglass' Paper 1859), White Oak Marsh and the Green Sea[1] (Byrd 1967) are difficult to identify. Place-names connected to types of vegetation, however, suggest that past differences in plant cover were both noticeable and significant to people living in the Swamp (see Rippon 2012:27, 52).

Intensive logging and draining in the late 19th and 20th centuries damaged the 3000 year accumulation of peat so integral to the ecology of the Swamp. Fire is equally important to maintain the Swamp plant communities. Land managers began intense fire suppression activities beginning in the 1940s (Baird 2006) partly in response to urbanization in the region. Swamp fires tend to be long-burning, smoldering as ground fires sometimes for years. Lake Drummond may be the product of a deep burning ground peat fire (Baird 2006).[2] One slash fire that burned for three years, from 1923-1926, blanketed the cities of Hampton, Norfolk and Newport News with smoke (Baird 2006). Shallow ground fires help to maintain the peat layer, bolstering the wetland species habitat. Surface and crown fires similarly support regeneration of different species. The loss of peat and the disruption of fire processes created growing conditions more suitable for plants associated with other stages of forest succession and has significantly altered the concentrations of particular species.

The vegetative cover of the Great Dismal Swamp in the early 21st century may bear only a moderate resemblance to that which human residents of the Swamp would have experienced in the 18th and 19th centuries. For example, period narratives refer to extensive cane-brakes as

1 The 1902 USGS 30 minute Norfolk quadrangle (surveyed 1888-91) labels an isolated section of swamp "Green Sea." This area is located east-northeast of Lake Drummond, east of the Dismal Swamp Canal and between the Albemarle and Chesapeake Canal to the north and the Northwest Canal to the south. As this area lies well north of the colonial boundary between Virginia and North Carolina, it may not be the same area to which Byrd refers.

2 Other theories as to the origin of the nearly circular lake include meteor impact and local indigenous legends of the lake as home to a fire bird (Bruner 2006). Although many sources claim the lake was discovered in 1665, it appears on maps in the early 1600s as LaQuick's Lake (Sayers 2006), and has likely held meaning for people in the landscape since long before the contact period began.

significant places (Frederick Douglass' Paper 1859, Byrd 1967). William Byrd II describes one area just south of the colonial boundary between North Carolina and Virginia: "Some parts of this Swamp has few or no trees growing in it, but contains a large Tract of Reeds, which being perpetually green, & waving in the Wind, it is call'd the Green Sea" (Byrd 1967:85). Such cane-breaks barely exist in the Swamp today. Instead, non-riverine pine-hardwood forests seem to have succeeded them largely as a result of fire suppression (Baird 2006:57). Using information from the National Wildlife Refuge Comprehensive Conservation Plan (CCP) about the current forest cover communities within the Refuge and expected forest succession processes in the Swamp, it is possible to surmise, albeit imperfectly, which forests may have been where prior to 20th century impacts of extensive logging and fire suppression. While a full reconstruction of the 18th century Swamp forest is well beyond the scope of this work, the map here provides additional data to help contextualize the relationship between the physical landscape and the human history.

Human History

At the time of European contact, the Great Dismal Swamp encompassed roughly 2000 square miles, from the James River to the Albemarle Sound extending as much as 30 miles inland (Sayers, Burke and Henry 2007). Parts of the Swamp, particularly near the Suffolk Scarp, were occupied by Middle Archaic (c 6000-3000 BCE) and Early Woodland (c 1000-1 BCE) peoples. Later groups, at least up to the arrival of Europeans, hunted and foraged in the area (Riccio 2012). Many indigenous peoples incorporated the expansive Swamp landscape into their territories and the contemporary Nansemond tribe claim ancestral roots there (Martin 2004).

Early European settlers found the Dismal to be vast, dangerous, inhospitable and forbidding. These qualities made it a place of refuge for generations of Native Americans,

indentured servants, and maroons seeking respite from the violence, disease, exploitation, disenfranchisement and other upheaval of the colonial, enslavement and early capitalist projects.

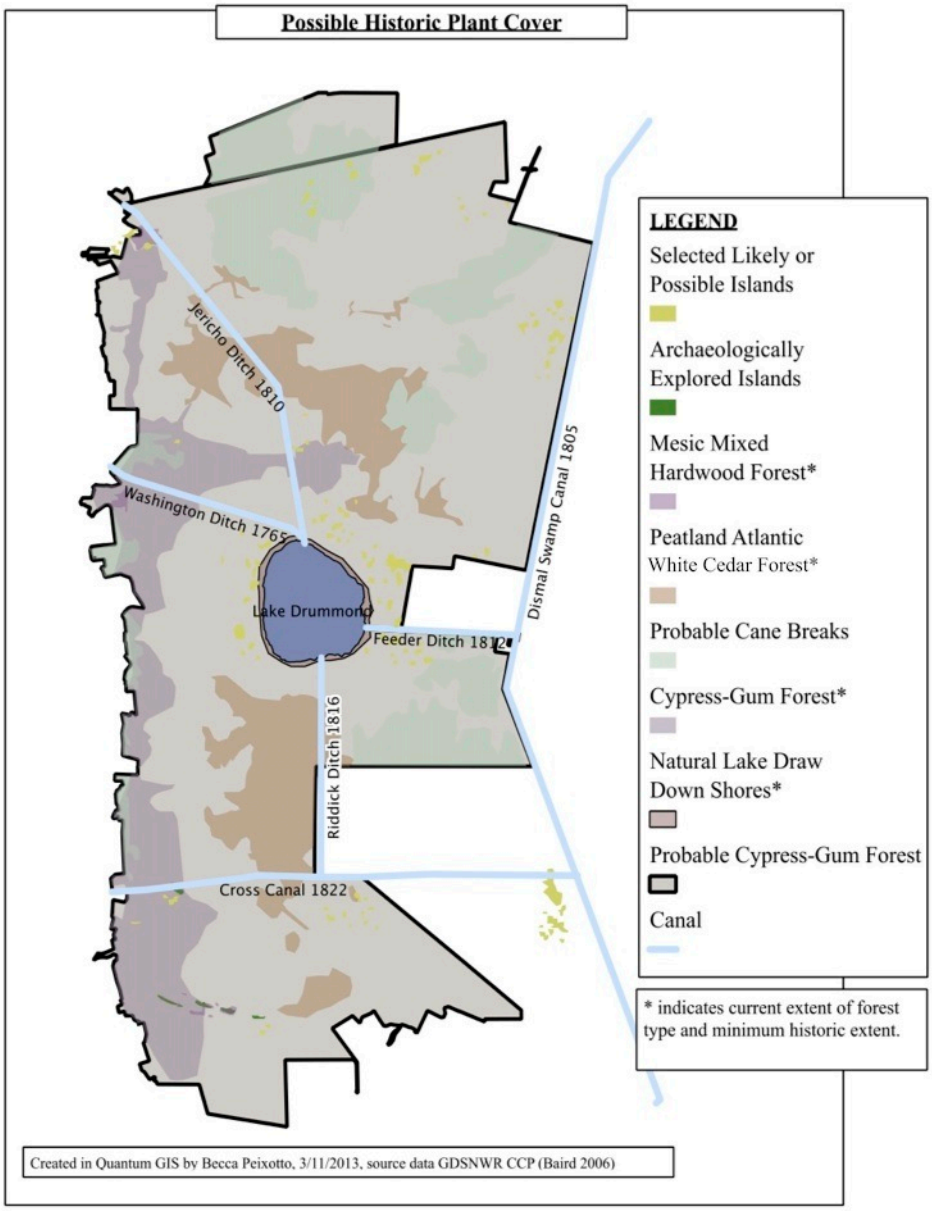

Figure 2: Possible Historic Plant Cover Map

Between the establishment of European settlements in the Virginia Tidewater and the emergence of chattel slavery as a primary social and economic structure in the region, the edges of the

Swamp became home to mixed communities of largely Native American and poor European people that likely included some former African slaves (Martin 2004).

One such *edge* group may be the 'Scratch Hall folk' of what is now Gates County, North Carolina (Martin 2004). According to Martin (2004), the 'Scratch Hall folk' typify these communities with their loose organization of subsistence farmers, distrust of outsiders, swamp-edge homes, and swamp-based economy in which they hunted and foraged for subsistence and produced tar, turpentine and lumber for economic exchange with communities more distant from the Swamp. Martin (2004) argues that the 'Scratch Hall folk' and other similar communities along the edges of the Swamp likely helped to facilitate the movement of would-be maroons through the region and may have shared their knowledge of the Swamp with them.

This image of the people of the area immediately adjacent to the western and southern edges of the Swamp is supported by several accounts of the region extending through at least the end of the 18th century. The first recognized settlement in the region was Orapeake in 1660, roughly a mile from the Dismal and two miles south of the Dividing Line. In 1672, a traveling Quaker preacher found only one house in twelve miles when passing through the same area (Harrell 1916). William Byrd II, on his well-documented survey of the colonial boundary between Virginia and North Carolina the Dividing Line, found many more people but noted that "Their only ambition was not to live in Virginia" (Harrell 1916:61). Byrd himself did not actually traverse the Swamp, choosing instead to go around and leaving the arduous task of moving through the wetlands to his surveyors (Byrd 1967).

When the first postal route was established between Suffolk, Virginia, and Edenton, North Carolina, in 1758, it bypassed the existing road near the edge of the Swamp through the emerging trading centers of Corapeake and Sunbury in favor of a longer route to the west

(Harrell 1916), reinforcing the area's reputation as backward and dangerous. Even after the establishment of Gates County as a political unit in 1779, the swamp adjacent township of Mintonsville, and to a lesser extent its northern neighbor also swamp adjacent, Holly Grove Township, maintained significantly different politics from the rest of county to the west, consistently voting Democrat (vs. Whig) in elections up to the mid 19th century (Wheeler 1851).

Meanwhile, the Swamp itself was largely overlooked by European landowners in favor of more easily settled and exploited terrain in the region throughout the 17th century and into much of the 18th century (Sayers, Burke and Henry 2007). By the early 1720s, the Dismal was acknowledged by Spotswood, the governor of Virginia, to harbor maroons and other refuge seekers (Sayers, Burke and Henry 2007). Although small scale draining of swamp fringes to create arable land was already occurring in the early years of the 18th century, capitalist attempts to tame and exploit Swamp resources did not fully take hold until about 1760 when George Washington and others formed a company called "Adventurers to Drain the Great Dismal Swamp" (Sayers 2008). They established the Dismal Swamp Plantation south of Suffolk, Virginia, with an eye toward creating arable land out of the morass and enslaved laborers began work on the Washington Ditch in 1763. The *Adventurers* evolved into the Dismal Swamp Canal Company by 1788 and work began on the Dismal Swamp Canal (completed in 1805) shortly thereafter. The end of the 18th and start of the 19th century saw rights to Swamp lamp divided between a dizzying array of smaller canal companies (Sayers 2008). Among these was the White Oak Spring Canal Company, formed in 1805 to connect "the head of the woods in Camden County [at the Dismal Swamp Canal] to the White Oak Spring Marsh in Gates County" (Trout 1998:39) via a canal known today as Cross Canal. Attempts to create additional canals in

Gates County, from Merchant's Millpond in 1811 for example, never came to fruition and the next canal did not appear in the southwestern part of the Swamp until the 1950s (Trout 1998).

Canal and lumbering efforts in the Virginia portion of the Swamp were more successful. Jericho Ditch, connecting Suffolk to Lake Drummond, was completed in 1810. The Feeder Ditch connected Lake Drummond to the Dismal Swamp Canal by 1812. And, Riddick Ditch extended south from Lake Drummond toward Cross Canal around 1816 (Trout 1998).

Two railroads also cut through the northernmost portion of the Swamp prior to the Civil War. The Portsmouth and Roanoke Railroad opened a rail version of the Dismal Swamp Canal between Portsmouth and Suffolk in 1834. This route through the wetland was built on 6-7 foot high pilings (Trout 1998). Later in 1854-1858, the Norfolk and Petersburg Railroad ran 10 miles of track on earth embankments parallel to and about one mile south of the Portsmouth and Roanoke (Trout 1998). These railroads represent a much higher level of activity in the northern counties than the Gates County portion of the Swamp.

Enslaved laborers constituted the majority of the workforce for canal and railroad building projects as well as the timber and shingle cutting operations. Free African American laborers also worked for the canal companies (Sayers 2006). At least some of the companies engaged laborers in a piecework system wherein a worker would be paid outright for any production after a certain quota had been met (Sayers 2006). Individual enslaved laborers turned out many more shingles than would be reasonably possible for one person to produce (Crayon 1856). Reports and narratives from the first half of the 19th century indicate that enslaved laborers collaborated with maroons to meet and exceed quotas and acquire supplies and money from the companies (Crayon 1856, Frederick Douglass' Paper 1859, Sayers 2006). Some maroons may have participated openly in this process, living or working directly in the *canal-*

adjacent company camps, while others worked in a more clandestine manner to avoid detection or capture by maroon capturers who were active in the Swamp by the 1840s (Sayers 2006).

As the enslavement system became more entrenched in the colonial Tidewater in the early 18th century, enslaved Africans fled toward the Swamp in great numbers (Sayers, Burke and Henry 2007). The population of maroons in the Great Dismal Swamp was already growing by 1730. By the turn of the 19th century, maroons "were implicated...in a few of the more notorious insurrections of the antebellum era" (Sayers 2006:13). Reports and narratives from the 19th century indicate that the Swamp was more than a hiding place for insurrectionists or a stopping point on a journey north. Instead, it appears people self-extricating from the enslavement system were making their lives in the morass in multi-generational, long-term communities with lifeways uniquely suited to this node of remoteness within a hostile region (Crayon 1856, Fredrick Douglass' Paper 1859, Sayers 2006, Sayers 2013). GDSLS work up to this point has been focused on archaeologically recovering the histories of these *interior* communities.

Site Background

This study incorporates five sites within the Great Dismal Swamp National Wildlife Refuge which have been subjected to varying degrees of archaeological investigation. As shown on the map[3], three of the sites- 31GA119, 31GA120 and 31GA121- are situated in northernmost Gates County, North Carolina in the interior of the Swamp. The other two sites- 44SK0070 and 44SK0506- are located in Suffolk County, Virginia, near the northwestern edge of the Refuge.

[3] The Great Dismal Swamp National Wildlife Refuge has just a handful of law enforcement personnel to patrol 190 square miles. Despite their best efforts and the remote locations of the North Carolina sites, looting is still significant concern. Therefore, detailed site location maps are not included in this thesis or most other GDSLS literature.

Site 31GA119 (Cross Canal)

The Cross Canal site, 31GA119, lies closest of the five sites to the Virginia-North Carolina boundary line and about one mile from the Swamp's western edge. The site is an isolated island encompassing roughly 40 acres (Sayers 2007). Archaeological survey and excavation by Sayers through the GDSLS in 2004-2006 revealed three general occupations prior to the Civil War. Substantial pre-contact material from the Archaic and Late Woodland period was recovered suggesting Native American use of the island over a long period time prior to the arrival of Europeans (Sayers, Burke and Henry 2006, Sayers 2007). Evidence of maroon occupation of the island between 1600 and 1800 was limited but consistent with the model developed by Sayers (Riccio and Sayers 2009). Finally, an antebellum feature complex and associated material, including fragments of a transfer-printed Staffordshire bowl dated 1820-1830 and an early 19th century leaded glass vial, demonstrate use of the site as a canal laborer camp beginning in the 1820s (Sayers 2008, Sayers, Burke and Henry 2006, Riccio and Sayers 2009). Prior to the construction of the Cross Canal, the island would have been quite remote from both the outside world and the earliest canals several miles to the north. Its position as an interior island, according to Sayers' model, likely attracted maroons and other refuge seekers. Any protection offered by the island's location would have been shattered at least by 1820 when work began on the Cross Canal bringing surveyors, enslaved laborers, overseers and other elements of the outside world deeper into the Swamp. The canal, completed in 1822, was eventually cut through the northern third of the island from east to west as workers extended it from Orapeake/White Oak Springs Marsh off Daniels Road in Gates County to the Dismal Swamp Canal six miles south of Joyce's Creek (Trout 1998). Throughout its period of use, Cross Canal remained a secondary canal used primarily for the local movement of goods across the

Swamp and the transport of wood out of the Swamp (Sayers 2008). Cross Canal was never as widely used for other purposes as other canals like Jericho Ditch.

Site 31GA120 (Nameless)

Site 31GA120, the Nameless Site, is the most intensively explored of the North Carolina sites[4] . The site is an approximately 18-20 acre island in a chain of at least seven mesic islands running east-west from about 1 mile from western edge of the Swamp to about 3.7 miles into the interior. Although the islands do not appear consistently on topographical maps, they are visible in lidar images of the area (Sayers, personal communication, 2013). Today, a substantial 20th century ditch and adjacent dirt road separate the easternmost island cluster, which has only begun to be explored in 2012, from the rest of the chain. The Nameless Site's island is located about two and half miles east of the Suffolk Scarp and more than three miles southeast of the Cross Canal, the nearest antebellum canal (Riccio and Sayers 2009). This places the island soundly in the interior of the Swamp for the entire period from the 17th century to the Civil War.

The island's topography is characterized by several 1-5 acre plateaus that rise ca. 2-9 feet above Swamp level. The island is treated here as a whole but these elevation changes, minor or invisible at typical scales of analysis and mapping, are noticeable as one travels along the length of the island. Archaeologists have excavated portions of three of the plateaus with the most intensive work being done on the high point of land referred to by the GDSLS as the Crest. Numerous rectilinear structure footprints dating to the 1600-1860 era have been recorded on many of the plateau areas. As the communities model predicts, relatively few mass-produced pre-Civil War materials have been recovered in excavations. However, other evidence, including Optically Stimulated Luminescence (OSL) samples, a post-contact projectile point

4 Site 31GA120, the Nameless Site, is the locus of recent GDSLS excavations through American University field schools and is the site where the author has worked.

type, the significant number of rectilinear structure features, reworked pre-contact points, and a growing number of temporally diagnostic artifacts including pipe stem fragments, glass and other artifacts indicate a substantial occupation of the island between 1600 and 1860 (Sayers 2007, Riccio and Sayers 2009, Riccio 2012).

Site 31GA121 (*Unnamed*)

Site 31GA121, one of the North Carolina mesic islands, lies roughly 2000 meters west of 31GA120 (Riccio and Sayers 2009) in the same east-west chain of islands. Although this island covers approximately 17 acres, it remains by far the least explored of all the sites discussed here having only been briefly surveyed during Sayers' dissertation work. All four artifacts from this site were recovered from Tree Root Masses[5]. Satellite and lidar images suggest that this island bears many similar topographic features to 31GA120. Logging and other activities took place on this island during the 20th century (Sayers, personal communication, 2013).

It is worth noting here that the westernmost island in the chain has yet to be explored. That island appears on satellite and lidar images approximately one half mile long and reaches to just under a mile of the swamp edge, with an area of about 16 acres. Similarly, the easternmost island, site 31PK106, known as the Forgotten Site, was only archaeologically discovered in 2012. Initial TRM and pedestrian survey recovered a significant quantity of pre-contact artifacts as well as identified evidence of a 20th century timber operation. When the overall quantities of recovered pre-contact artifacts are compared, the pre-contact signature of the Forgotten Site more closely resembles 31GA119, Cross Canal, in quantity than it does that of the nearby islands (Sayers, personal communication, 2013).

[5] Early GDSLS work in the Dismal Swamp was conducted shortly after Hurricane Isabel in 2003. The thousands of uprooted trees have made Tree Root Mass (TRM) survey an expedient and productive "method of collecting artifacts and recording stratigraphic information" (Sayers 2004:26).

Site 44SK0070 (Washington Ditch)

The Washington Ditch site, 44SK0070, sits, unsurprisingly, alongside Washington Ditch, a 5 mile long canal dug by enslaved laborers of the Dismal Swamp Company completed in 1775. At only 3 feet deep and 1 foot wide, this canal was intended more to drain surrounding land for cultivation than for transportation though it was used to move timber and other materials toward the edges of the Swamp (Goode, et al. 2010). The Dismal Swamp Company established Dismal Plantation in 1763 on a 402 acre tract of land six miles from Suffolk, Virginia. At least by 1799, the place was known locally as Dismal Town. Insufficient capital was a constant problem for the Dismal Swamp Company and draining the Swamp to produce arable land was more difficult than anticipated. Gradually, the Company shifted toward timber operations, ceasing operations at Dismal Plantation by 1820 (Goode, et al. 2010).

Site 44SK0070 sits on elevated, well drained ground close to Washington Ditch and was likely occupied by both enslaved laborers and company employees. Although Jericho Ditch became the focus of Dismal Swamp Company efforts by 1820, Dismal Town likely remained in use as a camp for enslaved shingle cutters until the Civil War (Goode, et al. 2010). This site was explored by Sayers (Sayers 2008) and a portion of the site (.19 acre) underwent Phase III excavation by John Milner Associates to mitigate the effects of replacing a boardwalk associated with an interpretive trail (Goode, et al. 2010).

Site 44SK0506 (Jericho Ditch)

Located less than eight miles north of the Washington Ditch site, the Jericho Ditch site, 44SK0506, is tied to the Dismal Swamp Company's shift toward timber. After the Company purchased mills at the Swamp's edge on Jericho Creek in 1796, enslaved laborers began digging a 10 mile long canal to connect those mills, Washington Ditch and Lake Drummond. At 12 feet

wide and four feet deep, Jericho Ditch was a massive undertaking that enabled workers to move timber from deep within the Swamp to mills near Suffolk (Goode, et al. 2010). Prior to the Civil War, temporary post in ground structures sheltered enslaved laborers who used log roads extending from the camp to access other parts of the Swamp for timbering. During the Civil War, before the Union siege of Suffolk in 1863, "when wives and relatives of the Union officers visited the Union Camp [at the mouth of Jericho Ditch], a favorite pastime was a languid boat ride via Jericho Ditch to Lake Drummond" (Goode, et al. 2010:30). Federal troops picketed along Jericho Ditch in 1863 and the canal and road were used by both armies (Goode, et al. 2010).

This site was explored by Sayers (Sayers 2008) and Phase I investigations were performed on a portion of the site (.14 acre) by John Milner Associates to assess the potential impact of several modifications to the area including replacing a footbridge, constructing a pavilion, expanding a vehicle pull-off, and altering the path of an existing trail (Goode, et al. 2010).

The history of the Great Dismal Swamp neither begins at 1660 nor ends at 1860. Indigenous Americans interacted with Swamp long before Europeans arrived in the mid-Atlantic and people continue to engage with landscape today. The period 1660-1860 was one of dramatic change in the region and the Dismal was not exempt from the effects of the colonial and early capitalist sociopolitical and economic systems emerging around it. Indeed, those very processes played a key role in the creation of the Swamp as a place of refuge and as a place to be exploited for economic gain. People were active in the landscape throughout the period and their presence can be seen in the network of canals, the dwindling size of the Swamp and the changing forest cover due to logging. Artifacts dating to the period 1660-1860 have been also found at each of

the five sites described here, including the interior sites quite distant from the canals. Drawing upon the context provided by the geological, topographical, natural and social background discussed above, the following chapters explore the relationships between physical landscape, social landscape and material goods to access ways in which people in the Swamp comprehended and moved through their surroundings.

CHAPTER 3

THEORETICAL FRAMEWORK

Landscape Archaeology

Although archaeologists had long been interested in aspects of landscape, *landscape archaeology*, as a category of inquiry, emerged in the 1970s with a primary focus on the environmental, economic and ecological aspects of the world in which past people lived. The phrase did not come into wide use until the mid-1980s as parallel developments elsewhere in archaeology associated with the post-processual movement enabled a shift toward more socially-oriented landscape studies (David and Thomas 2008:36). The 1990s and early 2000s saw a proliferation of landscape archaeologies fueled by understandings of landscape as encompassing more than just the physical environment and as fundamental to the social, cultural and spiritual world people inhabit (David and Thomas 2008:36; Trigger 2006). Today, landscape archaeology is more a conceptual framework (David and Thomas 2008; Cassell and Stachiw 2005; Spencer-Wood and Baugher 2010b) that seeks to understand the "complex interactions between the human, archaeological and geographical" (Hicks and McAtackney 2007:15) than it is a unified theoretical approach.

I draw upon two definitions of *landscape* that together foreground scale, people, and palimpsest or time-depth. First, the European Landscape Convention defines landscape as "an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors" (Council of Europe 2000: Article 1 in Turner and Crow 2010:217; Turner and Fairclough 2007:121). Second, the World Archaeological Conference handbook offers "the physical environment *onto* which people live out their lives...[and]...the meaningful locations *in* which lives are lived" (David and Thomas 2008:38, original emphasis). These definitions reflect

Marx's notion that human history and natural history are intimately connected (Darvill 2008; Marx 1988; Marcuse 2007:84-85). An awareness of the dialectical relationships amongst the land, the people of the past and present-day researchers are then key to an archaeological analysis of landscapes.

Landscapes warrant more than 'common sense' interpretations for several reasons (Johnson 2007). First, dichotomies like social/environmental, natural/cultural and mind/body are relatively modern, Western constructions. To impose them on past landscapes presupposes a "continuity in practices" (Johnson 2007:129) and in thought. Second, modern experiences of landscape are necessarily different from past perceptions of the same space. The context- social, political, economic and technological- of the present diverges on multiple axes from the context of the past, shaping our interactions with and within a space and thus our perceptions of that landscape. Finally, a reliance on 'common sense' negates alternative perceptions of landscape in the past as well as the present and privileges a particular, usually dominant, white, wealthy, viewpoint (Johnson 2007). Thus, a critical view of the primary elements of landscape (scale, people, time-depth) and their relationships is needed.

Geographical scale, or the "dimensions of specific landscapes" (Head 2008:379), and the establishment of analytic boundaries is one arena in which the dialectical relationships mentioned above are easily overlooked. In wetland archaeology as practiced in the UK and Ireland, for example, researchers often limit their study to salt marshes, peat bogs, crannogs and other wet places, drawing a concrete distinction between wetlands and drylands (Van de Noort and O'Sullivan 2006). However, *wetland* did not develop as a term or unit of analysis until the second half of the 20th century and was originally related to ecological and conservationist studies of migratory bird populations (Van de Noort and O'Sullivan 2006; Van de Noort 2008).

Geographically, "[l]andscapes do not have defined physical limits either in time or space, except where imposed by analytical procedures and intellectual traditions" (Darvill 2008:69). This scale of analysis may or may not coincide with the scale of landscape perceived by previous inhabitants (Head 2008). There is little evidence to suggest that people of the past who inhabited the *wetlands,* as defined by archaeologists today, also viewed crannogs and salt marshes as categorically similar. Instead, *wetland* is a social construct contingent on the social, political and economic environment in which archaeologists work today. Geographic and sociopolitical contextualization of wetlands can shed light on how those spaces developed with surrounding *dryland* spaces (Van de Noort and O'Sullivan 2006). The global and the local are defined through each other (Head 2008) and one must be clear what scale is employed and why those specific boundaries are being chosen.

The Great Dismal Swamp Landscape Study, the long-term project of which my thesis is a small part, explores how the Swamp developed as a site of resistance to European colonization and the enslavement system (Riccio and Sayers 2009). As described earlier, the Great Dismal Swamp existed on the maps and in the imaginations of the colonials from the early 17th century. Its extent gradually diminished due largely to human intervention such that the current Swamp is contained within the ca. 190 square miles of National Wildlife Refuge. Following the practice established by the GDSLS, this thesis takes the Refuge as the primary geographical unit of study while recognizing that it is but a small component of a much larger, interconnected landscape.

The dialectics of scale become more complex when looking within a given landscape. Archaeologists conventionally take the *site* to be the basic unit of inquiry and study that area for content (artifacts), structure (spatial patternings) and function (role within a larger system) (South 1979). Yet, in landscape studies the gaps between (Darvill 2008:63) and the relationships

among sites carry just as much significance as the sites themselves. Landscape organization is closely related to the organization of society- "the spatial grid maps on to the social grid" (Johnson 2007:6). In the Middle Ages in Europe, enclosure and partitioning affected and reflected both the physical character of the land and the structure of the society (Johnson 2007). Yet, this "[o]rder, structure, and pattern may be perceived from many different directions according to the position of the observer" (Darvill 2008:69). For example, the scale of significance for an elite duchy may have been tens of thousands of hectares while the peasant's space may have included a village and some fields. The same land was, and is, a part of multiple landscapes.

To a capitalist with interests in lumber in the first half of the 19th century, the actively farmed edges, canals, and lumber settlements of the Dismal would have been loci of activity defining the place. To a maroon in the Swamp, the spaces between those loci provided the places for daily life.

Landscape Approaches Elsewhere

Archaeological investigations of landscapes that bear in mind the internal and overlapping relationships of people, time and geography are increasingly uncovering additional dimensions of sites and regions that were previously obscured by assumptions of static, uniform development. The Manchester methodology, developed for the Tameside region by archaeologists from the University of Manchester (England), contributes to the regional narrative of industrialization by highlighting the significant contributions of the majority non-elite population to the development of the region. Applying the approach in the Vale of Ffestinog (Wales) Gwyn (2005) showed that the three class system assumed for industrializing areas was not only inappropriately named (lord, freeholder and tenant should be patrician, middling sort

and plebian) for that part of Wales but that a fourth class of landless capital was also present there during the 19th century industrial era. This landscape study not only showed the context within which the Vale of Ffestinog experienced the industrializing period but also how it fits into the larger picture of regional trade, globalization and broader industrialization. This landscape-oriented methodology allows for both multi-scalar analyses and a framework within which to place those analyses illuminating, for example, sources of building materials, the transportation networks that brought those materials and social and economic relationships that influenced the development of the particular landscape (Gwyn 2005).

In a dissertation on a late 19th to mid 20th century Hanson's disease (leprosy) institution in Hawai'i, Flexner (2010) links the locations of the various buildings of the institution into one site and demonstrates connections with the broader landscape of the island of Moloka'i even after the documented abandonment of the institution as well as continued use of pre-existing Hawaiian ritual places throughout the period. The study reveals the strongly Polynesian character of the village previously assumed to be more European or institutional in order and structure. "The landscape should not be viewed simply in terms of static material remains, but rather as a place or nested set of places in the sense used in humanistic geography, …spread across time and alive with the echoes of past social relations and symbolic meanings" (Flexner 2010:90).

Landscape archaeologies are often explicitly political (Hicks and McAtackney 2007:15) in terms of both recognizing the inherently political nature of choices of scale, subject and approach and espousing an emancipatory or activist agenda. The racialized landscape both past and present in Australia has proven fruitful ground for employing landscape-oriented approaches to expose and, in some cases, redress inequality. Historically, the division between European and Aboriginal people ranged from overt, physical segregation on reserves to implicit, unspoken

expectations that Black and White bodies not get 'too close' to each other (Byrne 2003). Modern heritage management of colonial sites continues to marginalize Aboriginal perspectives and experiences (Barker 2007) by interpreting post-contact sites associated with Aboriginals from a European point of view (Griffin 2010).

Segregation in the Manning Valley, New South Wales, was manifest in cadastral mapping of the territory with accompanying ideals of private property, impermeable fences and surveillance (Byrne 2003). The denial of Aboriginal views of the landscape including Dreaming tracks created a White, racialized landscape which many Indigenous people resisted by developing their own, unwritten map. Following this map, they could identify routes across fenced fields, locations for gathering fruit from orchards and places to escape the ubiquitous White gaze (Byrne 2003). By working with Aboriginal people to draw and record these counter-cadastral maps, Byrne (2003, Byrne 2008) and others are adding an important layer to the contemporary sense of place.

Similarly, European settlement of Australia was marred by frontier violence, events which are often referred to as 'massacres'. Aboriginal understandings of the word 'massacre' can differ substantially from the meaning attributed to the word by settlers, period government officials or archaeologists today by incorporating not one event of mass murder at a single location but the accumulation of deaths and violence in an area over time (Barker 2007). Using oral histories and archaeological survey, researchers have substantiated Aboriginal accounts of the violence, effectively changing how history and the landscape are understood. Both of these examples demonstrate the usefulness of a landscape approach to capture an alternative perception of the landscape that was silenced by racism and could continue to be so by contemporary heritage plans.

The incorporation of landscape archaeology, including the creation of maps of historic sites and contemporary landscapes (Byrne 2008), into heritage management plans may be one way to counteract the tendency to "...regard the archaeological record for any one period of the past as a part of a landscape that belongs *in* that period and *to* that period" (Byrne 2008:611). After all, archaeology does not have access to the landscape as it was in the past, but to the cumulative effects of many pasts on the landscape of today. By foregrounding time-depth and the continuous process of change in a landscape (Turner and Fairclough 2007), approaches like Historic Landscape Characterisation (HLC) hold "...the potential to develop more politically engaged and democratic practices in heritage management- acknowledging the lived, everyday and (importantly) changing environments of heritage rather than particular sites that require protection" (Hicks and McAtackney 2007:18). HLC studies "the past within the present, and the effect of past human agency on the present day..." (Turner and Fairclough 2007:137). Integrative, multidisciplinary studies of broad landscapes can move heritage management beyond protection or salvage of individual sites toward an active role in planning, environmental impact statements, social policy and, of course, identification of archaeologically significant landscapes (Darvill 2008).

Incorporating materiality and multiscalar analyses into studies of Caribbean plantations as landscapes of resistance (Hauser and Hicks 2007), Hauser (2011) uses a nuanced study of ceramics, a durable, datable good that was in everyday use in the 18th century, to show diversity and complexity in the colonial experience in Dominica and Jamaica, where that experience is often homogenized through distinct pre-historic/historic time horizons and a glossing over of the complex identities of Africans, Europeans, Caribs and others in the region (Hauser and Hicks 2007). He is able to create an alternative map that reflects the permeable economic and social

networks that countered the established colonial, enslavement and plantation order (and also the accepted historical accounts) by, for example, tracing the presence of Spanish wares within the British colonies to "indicate trade that went beyond imperial designs" (Hauser 2011:431; Hauser and Hicks 2007). Locally made wares also factor into his analysis and together with the Spanish ones, they demonstrate the alternative economic practices and resistance that developed in response to the "inequalities and violence" (Hauser 2011:431) of the colonial and enslavement systems. This is an example of the value in looking at one class of artifacts across multiple sites to illuminate previously unseen relationships and networks, such as I do here with glass materials from the Great Dismal Swamp landscape.

Landscape and the Great Dismal Swamp

Uneven development of the landscape of early colonial capitalism resulted in "spatial nodes of remoteness" (Sayers 2006:11; Sayers, Burke and Henry 2007) like the Great Dismal Swamp because these areas, for one reason or another, were unsuitable for capitalist exploitation. As a remote wilderness, from the European perspective, the Dismal became enmeshed in the broader landscape of marronage that existed throughout the Atlantic world during the enslavement system. A process of "self-extrication from conditions of enslavement" (Sayers 2013), marronage occurred in multiple forms. Of particular interest for the Swamp, intralimital grand marronage - that is, the creation of communities outside the slavery system in remote locations within the geographic domain of slavery (Sayers 2004) – was practiced throughout the Caribbean, with other documented communities found in South Carolina, Georgia and Louisiana. The Great Dismal Swamp represents likely the largest, most populous area of this kind of marronage in North America. The perceived remoteness and forbidding nature of the Swamp is precisely what made it a viable place of refuge.

The diverse population that came to inhabit the Swamp between 1680 and 1860- Native Americans, Europeans, African maroons and their descendants- were participants, willingly or not, in one of several diaspora inflicted upon the Tidewater region (Sayers 2006). As exiles from their homelands, or from their adopted lands, these people found in the Swamp a marginalized landscape that provided the space for the formation of new communities and senses of being the world (Sayers 2006; Sayers 2007).

As Van de Noort and O'Sullivan (2006) highlight, wetlands, like the Great Dismal, were locations of refuge and resistance but only in relation to contexts beyond their boundaries. In the mid-Atlantic, as well, many geographical scales of analysis are appropriate. Maroons and others in the Swamp were not wholly cut off from the political-economic system existing in the broader world around their zone of intralimital marronage (Sayers 2004). For example, as new people came into the Swamp, they brought new goods and supplies with them while others may have left the Swamp with Swamp-made items to trade with outsiders. Thus the landscape of this kind of marronage includes the Swamp and the area around it.

If the uneven development beyond the Dismal created conditions that allowed marronage, the uneven development within it influenced the nature and location of those communities. The gradual nibbling away at the edges of the Swamp through draining to create arable land and the excavation of canals within the swamp to facilitate logging (Sayers, Burke and Henry 2007) created "a unique landscape where long linear tracts of land associated with the development of canals were surrounded by vast areas of largely unaltered natural swampland" (Sayers 2006:14). This landscape influenced how and where people created communities. Grounded in his Marxist analysis of the political economy of the Great Dismal Swamp, Sayers (2008) describes a model of community formation. The three community types- *edge*, *interior* and *canal adjacent*- are

dialectically related to the landscape in which they exist as the landscape of the Swamp changed through time in relation to external political, economic and social developments in the antebellum period (see also, Sayers, Burke and Henry 2007).

Edge communities (Semi-Independent Perimetrical) formed in the spaces where the swamp and the neighboring dryland terrain meet. Particularly along the Suffolk Scarp on the western side of the Dismal, the boundary between Swamp and not-Swamp can be difficult to define as swamp and upland topography and vegetation intermingle. Communities located in this liminal space, and perhaps as much as one half mile into the Swamp (Sayers, Burke and Henry 2007), would have had relatively easy access to both the safety of the Swamp and the economy of dryland communities nearby. The 'Scratch Hall folk' discussed above are an example of this community type. According to the model, artifacts associated with edge community sites would include both colonial and mass produced goods and swamp available materials.

Interior (Scission) communities have been the focus of the Great Dismal Swamp Landscape Study in recent years and are defined as eschewing contact with the outside world as much as possible as they created counterexilic lives in this remote wetlands landscape. Sayers' model suggests that some of these communities developed more than one half mile into the Swamp (Sayers, Burke and Henry 2007) in response to increasing pressures of the enslavement system in the broader Tidewater region. While *edge* communities may have offered sufficient protection for some, as the area around the Swamp became more well-known and more incorporated into the emergent capitalist and enslavement system, others probably moved deeper into the morass and made use of hard to find mesic islands miles from the Swamp edges. Indigenous Americans also likely drew upon long-standing cultural knowledge to use *interior*

locations both in response to early colonial pressures and as sites of traditional seasonal occupation. The artifact assemblage associated with *interior* sites consists primarily of swamp available materials with some outside world goods and is marked by heavy reuse and repurposing. The presence at these sites, however limited, of 18th and 19th century goods like lead shot, gunflint and glass, the raw materials for which are not available in the Swamp, can provide important insights into the access these maroon communities had to the *edge* and *canal adjacent* communities and to the world beyond the Swamp.

Finally, the *canal-adjacent* communities appeared in the swamp beginning around 1760 and formed within about one quarter mile of the canal corridors (Sayers, Burke and Henry 2007, Sayers 2008). These communities consisted primarily of enslaved canal company laborers with some company employees and overseers also likely present. These settlements first appeared on the northwest edge of the Swamp, a few miles south of Suffolk where the Dismal Swamp Company established its first attempt to drain and farm the land. As the canals were extended and the resource exploitation focus shifted from agriculture to timber, canal labor communities spread into the interior of the Swamp along the canal corridors. *Canal-adjacent* communities would have been supplied by the canal companies with goods moved through the canals, thus the artifact assemblage would consist mainly of outside world and mass-produced goods reflecting their sustained contact with and dependence upon the world beyond the Swamp (Sayers 2008).

Implicit in the communities model is the interconnection of the communities: as canals and the *canal-adjacent* communities expanded deeper into the Swamp, some formerly *interior* sites may have become untenable at the same time as maroons and enslaved laborers most likely entered into new economic and social arrangements as they encountered each other. The Cross Canal site (31GA119) discussed above is one example of this kind of shift. The Swamp

landscape was ever changing through the 1660-1860 period and the dynamics of those changes depended on physical, social, political-economic and environmental factors, often in combination.

One critical aspect of social and economic life in the Swamp that may have been impacted by those dynamics is trade. The formalized exchange of goods is strongly influenced by landscape yet can transcend social and geographic boundaries (Agbe-Davies and Bauer 2010) such as those implied by the communities model. Trade is "a social process grounded in interactions among people- people who moved through particular landscapes, engaged in relationships with others and used the things that those relationships brought their way" (Agbe-Davies and Bauer 2010:22). The relative abundance and lack of objects distinguishes one place from another (Lazzari 2010) not only for archaeologists who employ theories like the communities model but also for the people of the past who lived, created and understood the Swamp landscape through trade in and use of material goods (Lazzari 2010). Glass is one artifact type common to all five sites in this analysis and while canal company laborers probably received at least some provisions in glass bottles, the frequency of glass bottle fragments across the landscape suggests an additional layer of interconnection between *canal-adjacent* and *interior* communities.

Glass

Glass has been in use since ancient times and the process of its manufacture has been remarkably conservative over the last two millennia (Brill 1999, Jones and Sullivan 1989). In its purest form, glass is made from silica that has been heated to melting, reformed and cooled into an inorganic rigid substance devoid of an internal crystalline structure (Jones and Sullivan 1989). Practically speaking, however, pure silica is rare and has such a high melting temperature that the

vast majority of glass actually consists of several components. Sand is typically used as the silica source and contains different impurities depending on its geographic origin. A flux, traditionally an alkali, was added to lower the melting point. A non-alkali base, or stabilizer, prevented crizzling and rapid decay of glass products. Impurities in any of the three primary ingredients affected color, quality, weight and other features of the finished product. Iron in sand, for instance, causes various shades of green depending on concentration and other elements present (Lockhart 2006, Lindsey 2010). Additional substances were sometimes added to glass to intentionally alter its characteristics. For example, uranium was used to create dramatic colors like bright yellow and dark green in both utilitarian and novelty wares from the 1830s to the 1940s (Strahan 2001). This type of glass was particularly popular by the 1850s in western Europe but became much rarer with the advent of the atomic age (Strahan 2001). Copper, gold and selenium are among the many other additives.

For the period 1680-1860, flux was typically soda (Na_2O) or potash (K_2O). The choice was based largely on location- potash was derived from the ash of plants from wooded areas, as in the German forest glass industry, while soda, until the late 18th century, was derived from the ash of marine plants as in Venetian glass houses (Jones and Sullivan 1989). The use of potash declined during the 19th century in part due to the shift from wood to coal fired furnaces which significantly reduced the supply of wood ash. Potash based glass also did not work as well in the new glassmaking machines of the 19th century because it set more slowly than soda glasses (Jones and Sullivan 1989). Soda, on the other hand, steadily increased in popularity as it became more readily available following the 1787 discovery of a process to make soda from salt and the 1863 invention of an ammonia process (Jones and Sullivan 1989).

Stabilizers in the 17th to 19th centuries included lime (CaO) and lead (PbO). Contrary to

popular understanding, lead glass predates George Ravenscroft's 1676 development of 'crystal.' Lead is found in Egyptian and other ancient glasses and has been used as a chemical marker for tracing the origin of source materials for those glasses (Brill 1999). High-lead glass was in use in Europe at least by the 12th century, particularly in stained glass and other ornamental pieces (Brill 1999) where glassmakers added lead to their glass to improve refraction and clarity (Polak 1975). "What was new in Ravenscroft's use of lead was that he added it in greater quantities than anyone before..." (Polak 1975:117). This 'new' potash-lead glass was colorless, heavy, lustrous and highly refractive (Jones and Sullivan 1989). Already on the rise by the time of Ravenscroft's discovery, English glass was, by the end of the 17th century, the model for the rest of the world (Polak 1975:26). Mouth blown table glass, medicine vials, lamps, condiment bottles and other utilitarian and decorative wares containing lead were widely produced by English and Irish factories by the late 18th century. William Leighton's 1864 formula for soda-lime glass created a colorless, less expensive glass that worked well in the glass pressing machines developed in the 1820s (Jones and Sullivan 1989) and marked the beginning of the end for utilitarian lead glass manufacture.

Lime also has a long history in glass making. It can easily be combined with potash or soda in equal parts to create a stable, hard glass. Again, the relative quantities and purity of base, flux and stabilizer impact the color and quality of the glass. The light green color caused by iron oxide in the sand base and other impurities in the flux and stabilizer was counteracted to varying degrees with manganese which, when added in sufficient quantity, can cause glass to turn purple or "amethyst" after prolonged exposure to sunlight. This is the so-called solarized glass found from about 1875 to 1920 (Jones and Sullivan 1989), though the use of manganese in commercial glasses may have begun as early as 1810 (Sutton and Arkush 1998). With the exception of a few

key dates, glass manufacture changed only gradually over the historic period and, apart from the potash-lime combination, the main formulas of colorless glass are still being used today (Jones and Sullivan 1989).

Certain colors of glass- colorless (especially not leaded), bright yellow, amethyst and others- can be useful dating tools for historic glass because they are related to particular developments in glass manufacture. Unfortunately, olive green is less useful for dating because "[d]ifferent colors and shades of olive greens…can be found in a lot of different types of bottles from different eras" (Lindsey 2010: Bottle Colors Page). Although it is much less common in post-1900 bottles and colorless glasses became more common as the 19th century progressed, olive green bottles are still produced today (Lindsey 2010). For olive green glass, bottle shape is a better indicator than color for date of manufacture (Noel Hume 1969).

Ubiquity and Deposition Lag

To say glass was common in the 18th, 19th and early 20th centuries is a bit of an understatement. The first glassworks in what would become the United States, in Jamestown in 1608, foundered. A second attempt in 1621 at Jamestown was marginally more successful at producing local glass for local use (Polak 1975). Throughout the 17th century colonists relied almost exclusively on imported, generally English, glass. It was not until 1739 that a small glassworks in New Jersey began producing simple, useful, commercially viable glass (Polak 1975). Sixty years later, in 1800, there were eight glassworks in the US. That number increased to 33 by 1820 and 169 in 1880 (Busch 1987). Although in Europe at the end of 18th century millions of glass bottles were being produced each year (Polak 1975), industrialization, colonial expansion and the rise of consumer goods meant that demand continued to exceed supply. In one year, 1899, more than 1 billion glass bottles were produced in the United States alone (Busch

1987).

Glass is a durable material that lends itself to reuse. This durability and reuse, combined with the conservative nature of the industry, makes dating glass deposits difficult. Bottles "were much more than containers for other goods; they had trade value and property value" (Busch 1987:67). Merchants and producers, such as druggists and brewers, bought bottles and reused them to sell their goods. Other bottles were reused in the home for home brewing, food storage (certainly by the 1870s), and other purposes (Busch 1987). Such was the extent of this reuse that the deposition lag (the time between manufacture and discard) for many bottles at the Custis House in Williamsburg, Virginia, in the late 18th century was 20 years (Busch 1987:68). Although the shape, color and seal or other markings on a bottle strongly correlate to its original contents and use, they are less accurate indicators for its final contents or use. Through the networks of reuse, trade and exchange, bottles produced for one purpose could travel quite far with wholly different contents before entering the archaeological record. For example, European made wine bottles were refilled and resold with fruit juice and bubbly water in upstate New York (Busch 1987). Although "[m]ultiple use reduces the certainty of bottle interpretation, ...it adds dimension..." (Busch 1987:78). Whole bottles may indicate wealth and availability or they may indicate the lack of scavengers, or bottle redemption and exchange systems.

Even bottle fragments carried value and purpose in the colonial world. Repurposed glass fragments appear at many sites associated with contact-era Native Americans along the Atlantic seaboard (McCary 1962, MacCord 1973, MacCord 1969), including on Jamestown Island in Virginia (McCary 1962). These knapped glass pieces include projectile points and scrapers made from clear green gin bottles probably manufactured between 1625 and 1650 (McCary 1962) as well as from dark green and other clear (but not necessarily colorless) glasses

(MacCord 1969, 1973). Similar artifacts from mid-19th century Native American sites in the Plains region have been recovered though Schaeffer (1961) points out that the amount of obviously worked glass pales in comparison to the quantity of apparently accidentally broken shards.

Finds of bottle glass projectile points, scrapers and other implements from South Africa (Mason 1949), Canada (Martindale and Jurakic 2006), Argentina (Conte and Romero 2008) and Australia (c.f. Harrison 2000, Cooper and Bowdler 1998) from the earliest moments of European contact in each region and for a century or more after would suggest that native people experimented with or adopted the practice of knapping glass in part because it "chips so easily and has a sharper edge than many of the local stones" (MacCord 1973:162; Cooper and Bowdler 1998).

Drawing on ideas of agency and mimesis, Harrison (2003) suggests that other factors may have also been at work at least in Australia. Some glass shards appear to be ad hoc or expedient (Martindale and Jurakic 2006) scrapers or knives, showing retouching and signs of utilization for cutting, scarification, shaving and scraping (Cooper and Bowdler 1998; Wilkie 1996; etc) but little evidence of intentional shaping. These studies appear to call into questions Schaeffer's (1961) earlier dismissal of many shards found in Native American contexts. Others mimic finely crafted formal tools such as projectile points but show no signs of utilization suggesting another meaning beyond function (Harrison 2003). "[B]y knapping glass artefacts Aboriginal people were subverting the colonial 'West' not by resisting it, but by transforming its own indices into Indigenous things" (Harrison 2003:327). These statements may have been mocking or humorous gestures toward the colonists, a harkening back to 'the old ways' and tools in the face of rapid change or an adaptation of the spiritual significance of sharp objects

(Harrison 2003).

Bottle glass, as whole bottles and as shards, appear in spiritual contexts as bottles placed near doorways at slave sites in Jamaica and in the southern US (Smith 2008). This practice echoes the early modern British tradition of witch bottles placed below hearths to protect against witches (Smith 2008). Shards appear in both European-American and African-American garden contexts in the late 18th and early 19th century as paving for paths, markers for planting beds and as drainage aids (Smith 2008). Whatever the intention behind their manufacture- as a quick sharp tool, as a political statement, as a curio, as a decorative item, or as a spiritual marker - the use of glass bottle shards for various purposes persisted in indigenous and diasporic African and African-American contexts into the 1930s (cf. Wilkie 1996).

UV Fluorescence

The ultraviolet (UV) region of the electromagnetic spectrum was 'discovered' in 1801 by JW Ritter but was not applied as an analytical tool until the middle of the 19th century (Bacci 2000; Reichman 2010). UV falls below the visible spectrum, with wavelengths between 190nm and 400nm. The visible spectrum begins at 400nm with violet and extends to about 750nm with red. Wavelengths greater than 750nm fall in the infrared range (Reichman 2010). Substances react to UV light in different ways. UV-A (320-380nm) and UV-B (280-320nm), for example, cause damage to human skin and eyes and shortwave UV is germicidal, destroying viruses, bacteria and molds. Other substances fluoresce, or emit light, under UV. *Fluorescence* is "a molecular phenomenon in which a substance absorbs light, then radiates part of this absorbed energy as light of another color, one of lower energy and thus longer wavelength" (Reichman 2010:34). This process occurs almost instantly and ceases when the UV light is removed, which distinguishes fluorescence from other types of luminescence. The specifics of how this occurs at

the molecular level are beyond the scope of the present discussion.

For the purposes of the present discussion, the UV spectrum need only be divided into two bands. Long wave (LW), or near, UV falls closest to the visible spectrum and the lamp used in this study emitted LWUV at a wavelength of 365nm. Short wave (SW), or far, UV consists of wavelength more distant from the visible spectrum. This study's lamp emitted SWUV at 254nm. Basic UV fluorescence- observing an item while it is exposed to long or short wave UV- has applications in mineralogy, art history and conservation, forensics and archaeology. Minerals from specific sources can be distinguished in a rock sample by their fluorescence under various wavelengths of UV light; certain glues and paints similarly react revealing repairs and alterations to artwork; as is popularized by the plethora of crime-solving television shows, traces of blood and other bodily fluids, even after they have dried, fluoresce under UV. Archaeological applications of UV fluorescence include ceramics analysis where creamware (fluoresces cream colored), pearlware (appears dark) and whiteware (appears bright) can be distinguished from one another (Magid 2010) and glass analysis.

UV fluorescence is particularly helpful in determining the presence of lead in glass. Although in the historic period lead is commonly associated with colorless glass, assumptions of chemical composition based purely on color (as viewed under visible, white, light) are dubious. "[T]he common green, amber, and brown glass colours can occur in soda, potash, and lime glasses; many lead glasses are coloured" (Jones and Sullivan 1989:12). Soda-lime, potash-lime and potash-lead glasses can all be colorless but are not necessarily so (Jones and Sullivan 1989). (Note that soda-lead glass is not a combination discussed in the literature for 17th - 19th century European or American commercial glasses.) Lead-containing glasses generally fluoresce pale blue to lilac under shortwave UV. Soda glasses, on the other hand, tend to be more muted under

shortwave but fluoresce yellow to green under longwave UV. Many factors including the quality of glass, its condition, the original quantity and source of lead (or uranium or other substance) in the batch, the size of the fragment, and the presence of other substances in the glass (iron oxide, for example suppresses uranium fluorescence (Strahan 2001)) affect the intensity and color of fluorescence. Despite these difficulties, UV fluorescence is an inexpensive and expedient method of distinguishing leaded and non-leaded glasses.

More in-depth analysis is also possible with UV when samples of known origin are available for comparison (Jones and Sullivan 1989; Watts 2004), in which case reasonable inferences can be made that similarly fluorescing samples share an origin. The inverse is also true: samples of the same color which fluoresce significantly differently are most likely not from the same bottle. Again, a myriad of factors can influence the perceived fluorescence and other evidence must also be taken into consideration. Glass is an homogenous substance so two pieces from the same object, or at least from the same recipe, should fluoresce similarly. And, as the ratio of fluorescent elements in glass changes between batches or manufacturers, the fluorescence should also differ. This observation proved helpful when analyzing the Dismal Swamp glass. The table below lists common glass types and their expected fluorescence under short and long wave UV. Limitations of this table will be discussed in Chapter 4.

Table 1. Expected UV Fluorescence

Expected Ultraviolet Fluorescence[a]

	LWUV (365nm)	SWUV (254nm)
18th century lead glass	light blue	blue/lilac
19th century lead glass	light blue; possibly yellow-green	light blue
		English lead- ice-blue *Demi-lead*- ice-purple
20th century lead glass	light blue	blue/lilac
Soda glass	yellow/green	very pale yellow/green
Uranium Glass	yellow/red (dependent on valence of uranium)	-
Borosilicate Glass	-	-

[a](Jones and Sullivan 1989, Watts 2004, Strahan 2001)

CHAPTER 4

GLASS ANALYSIS

Glass is just one component of the overall assemblage of artifacts from excavations in the Great Dismal Swamp. As discussed above, it is a durable, outside world material found throughout the colonial world in the historic period. For the purposes of the data presented here and the analysis that follows, "outside world material" refers to artifacts found in historical period contexts made of substances not available in the Great Dismal Swamp such as glass, metal, mass-produced ceramics, gunflint, slag, and coal. Outside world materials can be contrasted with Swamp available materials and handmade ceramics probably originating from pre-contact and early contact period Native American inhabitants. Although there is no naturally occurring lithic source in the Swamp, materials brought in by Native Americans in the deep past are considered swamp available material for the purposes of this study.

A total of 420 artifacts from five sites are included in this analysis. The glass bottles and fragments were recovered through excavations and surveys conducted by the GDSLS, and John Milner Associates. All five sites are found in the western half of the GDSNWR with two in the northern, Virginia, portion and three in the southern, North Carolina, portion.(See map). This chapter first reviews methods and challenges before presenting an overview of the entire glass assemblage. Then, the chapter discusses each site separately presenting details about the glass artifacts from that location. The final section of this chapter will highlight trends across the sites.

Method of Analysis

The analysis presented here differs from much conventional glass artifact analysis in its focus on material type rather than vessel form. Vessel form is a primary means of identifying

glass artifacts: bottle shapes, embossings, manufacture processes and other characteristics can be traced not only to specific production locations and time periods but also can lead to information about original contents (see for example Fike 1987; Jones and Sullivan 1989; Switzer 1974). Table glass can be similarly parsed (see for example, Noel Hume 1968). However, 16% of the glass artifacts from the GDSLS collection discussed here are smaller than ¼ inch. The tiny size of these glass fragments creates an added layer of challenge in typing the both the material and the vessel form.

I conducted this analysis and accompanying lab work during the fall of 2012 in the Great Dismal Swamp Landscape Study laboratory at American University. I began with a review of the inventory of the entire assemblage present at American University. Based on discussions with fellow GDSLS graduate students and undergraduate laboratory volunteers, I suspected that some ¼ inch or smaller items classified as *clear quartz* may have been in fact glass. Therefore, I performed a database search to locate any item coded as *quartz, clear quartz, glass/clear quartz,* or *unidentified.* All *clear quartz* and *glass/clear quartz* artifacts were visually evaluated regardless of size. *Quartz* and *unidentified* artifacts were visually evaluated when accompanying information suggested the possibility of misidentification. I paid particular attention to items smaller than ¼ inch designated as *quartz* or *clear quartz*. Based on close visual inspection and UV examination, eight pieces previously classed as *glass/clear quartz* were determined to be lithic while three items listed in the database as *clear quartz* were evaluated to be glass. All but one of these 11 artifacts were smaller than ¼". No *unidentified* objects appeared to be either lithic or glass.

The artifact inventories for sites 44SK0070 and 44SK0506 included in the October 2010 report prepared by John Milner Associates (JMA) for the US Fish and Wildlife Service were

used to gather information about the glass recovered in Phase I and III investigations at the two Virginia sites (Goode, et al. 2010). Those artifacts were not available for further inspection. They are nevertheless included here to provide a fuller picture of the range of glass present at the two Virginia canal adjacent sites. Where the JMA artifacts are treated separately from the GDSLS artifacts from the same site, they are designated in the charts that follow with *JMA* or *GDSLS* preceding the site number.

Each piece of glass, or possible glass, in the collection currently housed at American University was examined under visible light as well as short wave and long wave ultraviolet light and thickness was measured. Several challenges emerged during the analysis largely related to the difficulty in handling minuscule bits of glass compounded by working in the low (visible) light conditions necessary for effectively evaluating UV induced fluorescence. Small pieces emit correspondingly low levels of fluorescence and, even in a darkened, windowless room, any visible light or fluorescence of other items such as notepaper on the lab table diminished the visibility of any potential fluorescence from the tiny shards. These problems were mitigated by the construction of two 2.5 inch square boxes from heavy black paper with approximately two inch high sides into which any sample that would fit was placed before being moved under the UV lamp. The paper did not fluoresce, the sides both kept the artifacts contained and blocked most of the ambient light, and having two boxes facilitated comparison of samples without danger of mixing up proveniences on the unlabeled artifacts. Fluorescence, or not, of the tiniest pieces remained difficult to assess and this issue will be discussed in Chapter 6.

The other major challenges related to the subjectivity of colors. It quickly became apparent that c*lear*, though widely used throughout the inventories, is not clearly defined. Both Brill (1999) and Jones and Sullivan (1989) discuss the issue of color subjectivity and provide

definitions for *clear, colorless,* and other descriptive terms. However, even they, representing the Corning Glass Museum (Brill 1999) and the famed Parks Canada Glass book (Jones and Sullivan 1989) respectively, do not completely agree with each other over the use of the color words[6]. For the artifacts discussed here, many of the pieces designated *clear quartz* in the inventories appeared to this observer to be quite opaque and white rather than transparent and colorless. Some of the glass called *clear* in the inventory had distinct aqua or amethyst tints when placed on a white background under visible light. Both Brill (1999) and Parks Canada (Jones and Sullivan 1989) use the descriptor *colorless* (rather than *clear*) when referring to glass which is both lacking in color and transparent. The JMA inventory consistently referred to such glass as *clear* (Goode, personal communication, 2013) and the GDSLS inventory used both *clear* and *colorless*. I follow Brill (1999) and Jones and Sullivan (1989) and label any transparent glass that appears to have no color when placed on a white background as *colorless.*

If describing the color of the glass itself is one problem, naming the color of the UV induced fluorescence is perhaps even more subjective. Some leaded glass fragments kindly fluoresce an unmistakable ice blue. However, descriptors in the literature like *yellow-green, dull greenish, blue-lilac* or the very ambiguous *blue/lilac* (Watts 2004) are generally not accompanied by photos or references to specific shades. The result for the first round of analysis was prolific use of the suffix *-ish* in my descriptions of the fluorescence of many of the artifacts. After each sample had been tested once, the samples were tested again and similar colors of fluoresce were compared to each other. This process was repeated until I was able to establish, for myself, a set of descriptions for the fluorescence of these samples that I could apply consistently and that reasonably aligned with the descriptions used in existing literature. Where

6 See for example, Brill 1999:15-16 and Jones and Sullivan 1989:13-14. Brill (1999) distinguishes at least 13 colors while Jones and Sullivan (1989) identify seven colors and five modifiers. Both sources agree in their definitions of *colorless.* However, they group and divide other hues such as green or blue differently.

possible, fluorescing samples were compared to fluorescing known leaded or soda-lime glass objects and identified lithics from the American University type collection. Additionally, samples were compared within the inventory.

Overview of Glass Assemblage

The assemblage includes 420 individual artifacts from five sites in the Great Dismal Swamp National Wildlife Refuge. Just over half, 221 artifacts, are from GDSLS excavations. This sum includes 70 pieces likely representing a single duraglass bottle from 31GA120. The remaining 199 artifacts are from the JMA excavations. Thirty-five pieces, all from 2011 and 2012 GDSLS excavations, are smaller than ¼ inch. The rest are ¼ inch or larger and include two complete bottles, both from the early 20th century.

The 2011 introduction of 1/16th inch screens for the GDSLS work at 31GA120 resulted in a 75% increase in artifact recovery over all artifact categories. Table 2 summarizes the entire assemblage for all five sites including both pre- and post-1860 artifacts.

Table 2. Great Dismal Swamp Glass Overview

Great Dismal Swamp Glass Overview

	Total Artifacts Recovered	Total Outside World Material	Total Glass	Glass <1/4 inch	Minimum Vessel Count	% Glass of Outside World Material
31GA119	2989	411	22	0	12	5.3%
31GA120	7862	1483	187	35	20	12.6%
31GA121	4	2	1	0	1	50.0%
44SK0070	5182	3937	206	0	12	5.2%
JMA 44SK0070	*4800*	*3749*	*196*	*0*	*7*	*5.2%*
GDSLS 44SK0070	*382*	*188*	*10*	*0*	*5*	*5.3%*
44SK0506	430	289	2	0	2	0.7%
JMA 44SK0506	*161*	*130*	*1*	*0*	*1*	*0.8%*
GDSLS 44SK0506	*269*	*159*	*1*	*0*	*1*	*0.6%*
Total	**16467**	**6122**	**418**	**35**	**47**	**6.8%**

Site 31GA119 (Cross Canal)

The Cross Canal site, 31GA119, yielded 22 glass artifacts, all ¼ inch or larger, including the only two complete bottles in the collection. Both complete bottles were machine made and produced during the 20th century. One of the bottles, bearing a Hazel Atlas Company mark on its base, fluoresces the telltale yellow-green of soda-lime glass under SWUV indicating a manufacture TPQ of 1924 (US Patent and Trademark Office 2013). Other post 1860 items from this site include two (2) blue Mason jar fragments which do not fluoresce and date from at least the 1890s. Finally, one (1) fragment of a whiskey bottle with air bubbles and uneven thickness fluoresces yellow-green under SWUV supporting an earlier assessment of the piece as an early example of Leighton's Patent glass (soda-lime) with a TPQ of 1864.

Eight (8) pieces of window glass likely represent at least three different windows based on observed color of the glass, thickness and SWUV fluorescence. As happened at least two other times during the analysis, several fragments bagged together fluoresced markedly differently indicating glass from different sources or batches. Similarly, as with two (2) aqua fragments of a molded flask, identical yellow SWUV fluorescence was highly suggestive of glass from the same source when coupled with other observed similarities between the pieces. Thickness, color, and other morphology of fragments were similar to that of two (2) additional pieces of molded flask previously dated between 1800 and 1830. However, the fluorescence of the two groups did not match suggesting that at least two flasks are represented.

Five (5) leaded glass fragments including the base of a small pharmaceutical jar, an embossed body fragment, worn base and body fragments of an unknown larger vessel and the body fragment of a small vial were also present in the collection. Fluorescence and other observations suggest these represent at least four early 19th century vessels.

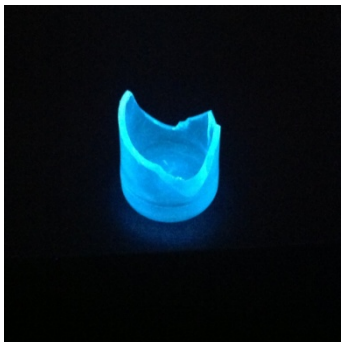

Figure 3. Lead glass pharmaceutical jar base from 31GA119 fluorescing under UV light

Pre-1860 non-glass artifacts recovered from this site include blue transfer printed creamware, pipe fragments, and nail and other iron fragments.

Site 31GA120 (Nameless)

The Nameless site, 31GA120, is the current locus of research for the GDSLS. Considering all excavations performed through the GDSLS at the Nameless site (2004-2006; 2009-2012), a total of 187 shards and shardules (less than ¼ inch in size) of glass have been recovered. Thirty three (33) fragments, all colorless, remain unidentified due to size (27 are smaller than 1/4 ¼ inch), lack of identifying features and inconclusive SWUV and LWUV fluorescence. Of the unidentified, 17 date prior to 1860 based on provenience with 14 of those smaller than ¼ inch. One hundred forty two (142) fragments are dated post-1860 through fluorescence and other diagnostic features. These include 70 fragments of one (1) duraglass bottle, one (1) Mason jar threaded rim fragment, four (4) other threaded rim fragments, one (1) piece of window glass, two (2) embossed light green fragments, one (1) colorless dimpled base fragment and 63 other fragments for a minimum post-1860 vessel count of 13. The 31 glass fragments dated 1860 or earlier were recovered from cultural activity and architectural soils. This set includes the aforementioned 17 unidentified fragments, one (1) opaque slightly melted fragment and 13 leaded fragments representing at least five (5) early 19th century vessels. One of

the leaded pieces was listed in the inventory as post-1900 Leighton's Patent glass. However, this piece fluoresced an unmistakable ice-blue indicative of glass containing lead and has been included in the pre-1860 group for this reason. A minimum of seven (7) vessels are represented by this set.

Figure 4. Fragments smaller than 1/4 inch from 31GA120

One particularly intriguing and vexing artifact from this portion of the assemblage is a clear, wedge shaped fragment with many characteristics which suggest it was deliberately removed from a larger piece of glass. This fragment fails to fluoresce under both SW and LW UV. It appears to have been heat affected with a smoky appearance at the thicker end and some internal cracking. There is a very slight amethyst hue in the thicker area. The thinner area is remarkably transparent, very unlike any of the artifacts designated *clear quartz* from the site. As of this writing the fragment remains unidentified but context and surrounding artifacts suggest it dates prior to 1860.

Figure 5. Unidentified fragment from 31GA120

Other pre-1860 artifacts recovered from this site include gunflint, lead shot, rosehead nails, and pipe fragments.

Site 31GA121 (*Unnamed*)

Only one (1) piece of glass has been collected from site 31GA121: a base fragment from a green English wine bottle produced in the 18th or early 19th century. The fragment includes part of the pontil scar from the push-up base and imperfections such as air bubbles and a straw mark[7]. Hertzian stress fractures (as described by Martindale and Jurakic 2006) are visible without magnification on two of the surfaces. On one side, these emanate from a corner that has multiple tiny chips missing, forming a flattened area that could be a striking surface. Although parallel striations are not apparent[8], microchipping along one thin edge supports the resemblance of the piece to an expedient tool that could be used to scrape or cut. Lidar images suggest the location on the 31GA121 island from which this artifact was recovered rises higher above swamp level than the Crest of the 31GA120 island. This artifact stands out as the only fragment of its kind from the North Carolina sites.

The only other outside world material recovered from this site is a possible brick fragment.

7 Straw marks and cord lines are both visible lines related to uneven heating and cooling of glass during production. Straw marks appear on the surface of the glass and cord lines are visible within the body of the glass (Lindsay 2010).

8 Martindale and Jurakic (2006) argue that parallel striations form along the working edge of expedient glass tools, a result of abrasion against a substrate. While microchipping, conchoidal fractures and stress fractures occur on accidentally broken glass fragments as well as intentionally reduced ones, parallel striations appear to be more closely tied to actual use of the fragment as a tool. Other abrasions can occur through post-depositional process but these rarely appear as parallel lines at an edge.

Table 3. Glass from North Carolina Sites

Glass Recovered from North Carolina Sites[a]

31GA119	31GA120	31GA121
2 complete colorless bottles	2 light green embossed bottle fragments	1 olive green glass bottle fragment
4 colorless bottle fragments	1 amber bottle fragment	
1 clear embossed fragment	2 light green bottle fragments	
4 aqua bottle fragments	2 colorless flat fragments	
1 light blue bottle fragment	180 colorless fragments	
3 flat aqua fragments		
5 window fragments		
2 dark blue Mason jar fragments		
22	187	1

[a](GDSLS Artifact Inventory 2012)

Site 44SK0070 (Washington Ditch)

The Washington Ditch/Dismal Town site 44SK0070 has yielded 208 glass artifacts, thanks in large part to the Phase III excavations conducted by JMA. The 198 glass fragments in the JMA collections include 140 olive green fragments, at least one (1) of which bears a pontil scar suggesting a pre-1865 manufacture, 29 colorless fragments, 17 aqua fragments, three (3) amethyst, three (3) amber fragments, one (1) flat aqua fragment and five (5) pieces of window glass. The amethyst fragments, with their date range of 1880-1915, are suggestive of a late 19th and early 20th century occupation (context and surrounding artifacts support this idea) (Goode, et al. 2010). The remaining glass fragments were found in contexts that correspond to late 18th to mid 19th century occupation of Dismal Town by the canal company and its enslaved laborers[9].

The GDSLS collection from this site consists of 10 glass fragments: three (3) crossmending light amethyst, two (2) colorless mold blown, two (2) light blue, one (1) dark green, and one (1) aqua representing at least seven vessels. One of the colorless pieces was previously dated as post-1900. Except for the very thin aqua green/light blue fragments, the

9 Although Dismal Town was no longer the center of Dismal Swamp Canal Company activities after Jericho Ditch was built, the site appears to have been used as a camp for laborers into the 19th century (Goode, et al. 2010).

remaining fragments were previously assessed to be Leighton's patent type glass, thus dating post 1864. This assessment is supported by UV fluorescence which is consistent with soda-lime glass. The thin aqua green/light blue pieces are of similar thickness but present very different SWUV fluorescence and no LWUV fluorescence. One presents a distinct orange color under SWUV. As mentioned in the previous chapter, existing literature does not address what orange fluorescence indicates. The other presents a pale blue, hinting at possible presence of lead. However, given the color of the glass and the weakness of the fluorescence, this seems unlikely.

Reflecting the *canal-adjacent* nature of Washington Ditch, a wide range of pre-1860 outside world materials in addition to glass have been recovered. These include imported stoneware, tin-glazed earthenware, white salt-glazed stoneware and other ceramics, pipe fragments, wrought nails, and gunflint.

Site 44SK0506 (Jericho Ditch)

The GDSLS collection includes just one (1) glass artifact: a marble. A possible pontil mark and other surface imperfections may suggest a 19th century production date. However, the marble was found in a context with other 20th century materials suggesting it is probably a 20th century item (Sayers, personal communication, 2013).

The JMA collection also included only one piece of glass: an unidentified olive green bottle fragment. The JMA report interprets this artifact as "being deposited by enslaved canal workers who occupied short-term camps adjacent to the canal" (Goode, et al. 2010:75) from the early 19th century until the Civil War based on context and accompanying artifacts.

Other pre-1860 outside world materials found at Jericho Ditch include 107 fragments of pearlware and creamware.

Table 4. Glass Recovered from Virginia Sites

Glass Recovered from Virginia Sites[a]	
44SK0070	44SK0506
139 olive green bottle fragments	1 unidentified olive green bottle fragment
1 free blown olive green bottle fragment	1 marble
3 amber bottle fragments	
6 amethyst bottle fragments	
19 aqua bottle fragments	
29 colorless bottle fragments	
2 light blue bottle fragment	
1 aqua flat glass fragment	
2 colorless embossed bottle fragments	
4 window glass	
1 dark green unidentified bottle fragment	

[a](Goode et al. 2010, GDSLS Artifact Inventory 2012)

Disttribution of Glass Artifacts Across Sites

Focusing on glass dated pre-1860, total quantities of fragments and minimum vessel counts present a surprising picture of glass artifact distribution across the Swamp landscape, as shown in Table 5. It would appear the *interior* site, 31GA120, differs very little in amount of glass present from its nearest *canal-adjacent* neighbor, 31GA119, even when the difference in amount of archaeological work performed at each site is taken into account. This would contradict the predictions of the communities model which hold that *interior* sites would have fewer outside world materials.

However, as stated earlier, 1/16th inch screens were introduced at 31GA120 during the 2011 field season. Of the pre-1860 fragments recovered from that site, 70% are smaller than ¼ inch (6.35 mm). Fragments from Cross Canal (31GA119) average 18.4 mm (just under ¾ inch) on the longest axis while those from the Nameless site (31GA120) average 8.3 mm (approximately 1/3 inch). The average size of Nameless fragments is a bit weighted to the large

side thanks to four pieces one inch or more long that were all found in the root cap. Furthermore, the nine Cross Canal fragments together weigh 17.3 grams but the 31 Nameless fragments weigh just 16.4 grams combined (including the four aforementioned large pieces). Thus, although the Nameless site has yielded more fragments, Cross Canal has yielded more glass.

Table 5 shows the distribution of pre-1860 glass artifacts between sites as well as an estimate of the relative quantity of pre-1860 glass to pre-1860 outside world materials as a group. The pre-1860 outside world materials counts only include those artifacts which could be clearly identified from the inventory descriptions as dating prior to the Civil War. Excluded items include brick and artifacts listed as *unidentitifed metal fragment*. Although context was considered in assessing the dates of glass shards smaller than ¼ inch, context was not considered in evaluating the broader set of outside world materials. Unfortunately, this excludes all of the metal fragments smaller than ¼ inch and many unidentified fragments slightly larger than ¼ inch.

Table 5. Distribution of Pre-1860 Glass Between Sites

Distribution of Pre-1860 Glass Across Sites

	Total Pre-1860 glass	Pre-1860 glass >1/4 in	Pre-1860 Minimum Vessel Count	*Total pre-1860 OWM Recovered**	*% pre-1860 Glass of pre-1860 OWM*
31GA119	9	9	6	139	6.47%
31GA120	31	10	7	123	25.20%
31GA121	1	1	1	2	50.00%
44SK0070	191	191	8	535	35.70%
44SK0506	1	1	1	117	0.85%
Total	**233**	**212**	**23**	**916**	**25.44%**

* This column includes only those artifacts that could be clearly identified as pre-Civil War. Brick and unidentified metal fragments are excluded.

The color of glass found at each site is also worth noting. The *canal-adjacent* sites of Jericho Ditch (44SK0506) and Washington Ditch (44SK0070) yielded 100% and 71% olive

green glass respectively. Cross Canal (31GA119) yielded 56% colorless glass while the Nameless site (31GA120) yielded 93% colorless. The absence of olive green glass at the *interior* Nameless site is noticeable given the overwhelming presence of such glass at the northern *canal-adjacent* sites and the single fragment recovered from the neighboring *interior* 31GA121 island. The possible implications of these observations will be discussed in the following chapter.

CHAPTER 5

DISCUSSION

Placing the glass data and historical background within the landscape archaeology framework of scale, people and time-depth, I will suggest some of the ways Swamp inhabitants in the 18th and first half of 19th centuries may have understood their surroundings and how their interactions in that lived landscape can be seen through material goods. I will attempt to structure the discussion that follows based on nesting scales of analysis from larger to smaller, addressing the people and time-depth within each scale. As with GDSLS research in general, this discussion examines that portion of the remaining Swamp landscape that falls within the bounds of the National Wildlife Refuge.

Glass is a durable outside world material. That is, any glass found in the Swamp would have been manufactured elsewhere, some of it as far away as England, and would have changed hands numerous times before being used by a company official, an enslaved laborer or a maroon and ultimately deposited, deliberately or otherwise, in the Swamp. In this way, glass connects the Swamp to the physical and social landscape around it. Furthermore, glass maintains its basic material characteristics throughout its use-life as well as persists in the archaeological record. Although a carefully curated bottle can be reused for decades, glass is still fragile and is subject to breakage during everyday use and after deposition. The absence of complete bottles dating prior to 1860 from any of the five sites attests to this.

At its broadest and most simplified, the mere presence of glass at all five sites suggests the movement of material goods, and by extension people, around the Swamp whether between sites or between sites and the world beyond the Swamp. Glass at the *canal-adjacent* sites confirms that enslaved laborers had access to outside world materials, probably as supplies

provided by the canal company. Many of these people had some ability to move through the Swamp away from the company camps as they built canals or harvested timber and may have carried glass bottles or bottle fragments with them. Glass at the *interior* sites implies that maroons were also gaining access to those same kinds of resources, perhaps through trade or other formalized social interactions with people outside their own community. Whereas the bottle fragments found at the three *canal-adjacent* sites probably arrived via a recognized and sanctioned (by the canal company) route, following a canal and with the likely knowledge of company officials, those found at the two *interior* sites suggest people also moved along routes through the Swamp not related (though perhaps not unknown) to canal or timber operations. Other forces beyond supply by canal-company were influencing the access people had to material goods.

Travel within the Swamp not via canal- from one interior island to another or from canal to anywhere else- would have both required and fostered a more intimate understanding of the Dismal. Navigation in this environment may have involved travel along, or avoidance of, well-established trails or paths, informal special-knowledge paths, creeks or rivers such as those seen on the Composite Topography map, and, of course, the growing network of canals and related parallel footpaths. For example, the headwaters of the Pasquotank River coalesce from a braid of creeks and watercourses flowing south out of the Swamp. That braid connects to another set of intermittent creeks that begins at the base of the Suffolk Scarp and passes by the Island Chain containing 31GA120 and 31GA121. These creeks may have been travel routes connecting the islands with parts west and southeast, may have represented community boundaries, or may simply have been landmarks known to people with an intimate knowledge of the area. Likewise, the many small rivers that flow north toward the James River may have provided access points to

the Swamp from the area between Suffolk and Norfolk and probably emerge from a similar braid of smaller watercourses, though this level of detail is not depicted on any of the source maps used to develop the Composite map.

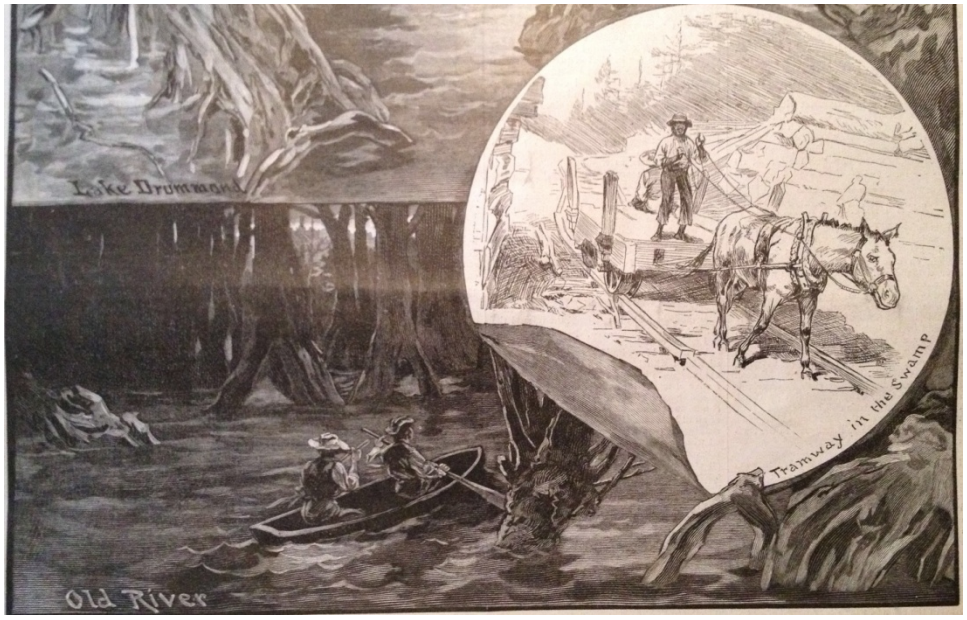

Figure 6. Illustration of River in Great Dismal Swamp (Harpers Monthly April 1884 28(1427):268). Photo courtesy Dan Sayers.

A corollary to such a topographical perception of the place may have taken the form of multiple, shifting zones or territories that both reflected and creating the changing social and physical landscape. These areas may have been counter-cadastral: they probably did not reflect the Swamp as it would have been drawn based on land ownership, state or company surveying and other out-of-Swamp factors. Shadows of these areas can be seen in narratives, vegetation maps, topographic details and in the distribution of glass as a representative mass produced good.

One of the clearest period discussions of possible zones or territories comes from a narrative reportedly by a fugitive slave in Canada by the name of Charley. Charley had escaped from an overseer somewhere near the Swamp, been hidden by friends and was eventually hired

to work in the Swamp for two dollars a month before making his way to Canada (Frederick Douglass' Paper 1859).

> "I 'spect you've hearn good deal 'bout dat swamp, ma'am? Da calls it Dismal Swamp; and guess good name for it. 'Tis al dreary like. Dar never was any heaven's sunshine in some parts orn't....
> "Well: de great Dismal Swamp (dey call it Juniper Swamp) 'stends from whar it begins in Norfolk, old Virginny, to de upper part ob Carolina. Dat's what I's told. It stands itse'f more'n fifty miles north and souf. I worked 'bout four mile 'bove Drummond Lake, which be ten mile wide. De boys used to make canoes out ob bark, and hab a nice time fishin' in de lake.
> "Best water in Juniper Swamp ever tasted by man. Dreadful healthy place to live, up in de high land in de cane-brake. 'Speck ye've heern tell on it? There is reefs ob land—folks call de high lands. In dar de cane-brake grow t'irty feet high. In dem ar cane-brakes de ground is kivered wit leaves, kinder makin' a nat'ral bed. Dar be whar de wild hogs, cows, wolves and bars (bears) be found. De swamp is lower land, whar dar's de biggest trees most ever was. De sypress is de handsomest, an' anudder kind called de gum tree.
> "Dismal Swamp is divided into tree of four parts. Whar I worked da called it Company Swamp. When we wanted fresh pork we goed to Gum Swamp, 'bout sun-down, run a wild hog down from de cane-brake into Juniper Swamp, whar dar feet can't touch hard ground, knock dem over, and dat's de way we kill dem." (Fredrick Douglass' Paper 1859:4).

The published narrative is wide-ranging, describing Charley's escape, his praise of his fellow maroons' camaraderie ("...all 'gree as if dey had only one head and one heart, with hunder legs and hunder hands..." (Frederick Douglass' Paper 1859:4)), his anguish over his still enslaved wife, the spiritual life of the Swamp's inhabitants, and the murder of a fugitive by an enslaver and hired hunters. As a piece of literature, much can be gleaned from this narrative about the Swamp and its inhabitants in public imagination and about public expectations of maroon narratives, including the expected non-standard language. As an historic document, the narrative contextualizes the facts and figures offered in documents such as Dismal Swamp Land Company records of income and expenditures (Maris-Wolf 2012).

The excerpt presented here offers insight into the complexities of the Swamp landscape as experienced by those who lived there in the early 19th century. Far from being understood as an homogenous morass, Charley's testimony suggests the Swamp was made up of zones and

territories defined by both natural characteristics such as the elevation of the land, the depth of the water or the type of vegetation as well as by social characteristics. The Company Swamp to which Charley refers may indicate the area where the Dismal Swamp Company was most active in its logging efforts during his time there. There are inaccuracies with Charley's scale,[10] but based on the Possible Historic Plant Cover map, the area roughly four miles north of the Lake Drummond meets his descriptions reasonably well. The large cane-break he describes gives way to a band of mixed cypress-gum forest and a rather large area dominated by Atlantic white cedar.[11] Each of these sub-Swamps is associated in the narrative not only with a particular type of vegetation but also with a social use: Juniper Swamp as place to get water and drown hogs, the cane-breaks as a place to sleep, and Company Swamp as a place to work.

If the lived landscape of the Swamp north of Lake Drummond was understood by swamp-dwellers to have internal variations, it is likely the southern portion of the Swamp was similarly perceived. Vegetation-related place names within the Swamp pre-date the 19th century. Byrd (1966) alludes to this when he refers in 1728 to his Green Sea south of the colonial boundary between Virginia and North Carolina. Based on Byrd's description, the Green Sea may have been a large swath of cane-break or marsh that was not dominated by tree cover. Unfortunately as another effect of the uneven development within the Dismal itself, more narratives, travelogues and similar documents address the Virginia portion of the Swamp than address the North Carolina portion. Nevertheless, these two examples, Charley's testimony and Byrd's

10 Lake Drummond is roughly 2.75 miles across north to south, not 10 miles wide as Charley suggests. This is not an uncommon portrayal of the Lake. Many early maps and other written accounts depict Lake Drummond disproportionately large. There may also be an element of deliberate misinformation to protect maroons still in the Swamp.

11 Common names of the trees belie the fact that cypress, juniper and many cedar all belong to the same family, *Cupresseceae.* The Atlantic white cedar, *Chamaecyparis thyoides,* was the target of much logging by the Dismal Swamp Company beginning in the 18th century (Baird 2006). With blue-green flattened sprays of scale-like leaves and reddish bark, it resembles red cedar, *Juniperus virginiana*, a member of the juniper genus which may also be found in the Swamp. Cypress, *Taxodium distichum,* is also common and grows well in standing water but has needle-like leaves.

history, indicate that from the inside, the Great Dismal contained several areas that were considered sub-swamps. As the 19th century progressed, land ownership by canal and timber companies and industrial development those companies supervised further divided the Swamp into another layer of zones (Maris-Wolf 2012). To take Van de Noort's and O'Sullivan's (2006) assertion about the modern subjectivity of the division between *wetland* and *dryland* one step further, the internal unity of a *wetland* as we conceive of it today may bear little resemblance to how people of the past understood the same space.

The lack of a definitive map of the Swamp interior from the 18th or early 19th century means it is not possible to identify the precise locations or limits of any given zone. Furthermore, we cannot say for certain whether there were any other political or social meanings associated with those spaces beyond those described by Charley. The communities model does suggest that *interior* and *edge* spaces had different meanings depending on one's status as a maroon or enslaved laborer but these are zones more associated with geographical location in relation to canals or *dryland* rather than vegetation. There may be some connection between these geographic and vegetation-related associations particularly as the landscape was transformed by logging and canals. Plant communities rarely change abruptly in the Swamp. Perhaps the border between Juniper and Gum Swamp, for example, was similarly vague. Or, maybe there were other, more definitive indicators one was entering a new place that could be read by members of the broader Swamp community.

These zones, whether they were real, lived areas of difference recognized by Swamp inhabitants or analytical ones imposed on the landscape by archaeologists through concepts like the communities model, would have been partitioned and cut by canal and logging development over time. This is perhaps most clear in the case of Swamp *interior*. The spread of canals, and

later railroads, in the northern portion of the Swamp likely disrupted the Swamp-as-refuge for any people who might have been using the many islands or higher areas of land that are assumed to be north of and around Lake Drummond based on satellite, lidar and other images by diminishing the space that could be considered *interior* and introducing areas of *edge* deep into the Swamp. Time-depth is significant here in thinking about how these developments impacted the movement of people and material goods through the landscape. Some seemingly remote islands, such as those to the west of Lake Drummond may have been impacted earlier than others closer to the current eastern edge of the Swamp because work on Washington Ditch in the west began roughly 20 years before work began on the Dismal Swamp Canal. Along the same lines, differential development within the greater Swamp led to the southern portion remaining less disrupted for longer, at least in the immediate geographical ways the northern areas would have been. If Washington Ditch between Dismal Town and Lake Drummond extended a cut of *edge*-like territory through that portion of the Swamp around 1765, a similar impact would not reach the Nameless site Island Chain for at least 35 years, nearly a generation, when Cross Canal, despite its status as a secondary canal, began to effectively bisect the southern interior.

Perhaps this helps explain the absence of olive green glass at the Nameless site (31GA120). OSL samples and other evidence including pipe stem fragments indicate that the island was in use by people with access to European-style goods and architecture by 1700 (Riccio 2012), much earlier than any development associated with Washington Ditch. If the Nameless site and Washington Ditch were concurrently occupied in a time when the *interior* Swamp was largely uninterrupted, one might expect to find evidence of interaction between the two communities in the form of olive green bottle glass fragments especially since such a large quantity of such fragments was found at Washington Ditch. This is not the case, however. In

addition to the early *interior* communities eschewing contact with the outside world as much as possible, those at the Nameless site may have engaged directly or through intermediaries with *edge* communities to the west and south. As stated earlier, Swamp-adjacent areas of present day Gates County remained sparsely populated, less developed and more independent well into the 19th century. *Edge* and *exterior* communities there may have been more suitable points of contact than the more populated, developed and governed Swamp-adjacent areas near Suffolk or Norfolk. The Gates County based *edge* community known as the 'Scratch Hall folk' (Martin 2004) probably themselves has less access to glass and other mass produced goods and thus fewer of such materials to trade with maroon communities.

Additionally, when we just look at the northern portion of the Swamp, where Charley describes, we see not only different stands of trees and the cane-breaks but also many possible islands which may not be unlike those the GDSLS has been working on in North Carolina. The proximity of Norfolk (incorporated in 1705 but settlement began in early 1600s) and other early settlements and cities along the mouth of the James River suggests these islands may have been used by refuge-seekers- be they indigenous, European or African- as well. The rapid pace of development in that area likely disrupted any mid-scale continuity of the Swamp-as-refuge beginning with Washington Ditch in the 1760s and 1770s. By the mid-19th century, hundreds of enslaved and free laborers were working the 50,000 acre tract owned by the Dismal Swamp Land Company in the northwest portion of the Swamp (Maris-Wolf 2012).Maroons like Charley, who describes living with a laborer and being paid for his own work (Fredrick Douglass' Paper 1865), also participated in the emerging diverse, complex economic system (Maris-Wolf 2012). The influx of laborers for canal building and timber operations from both the northeast and the northwest brought pre-existing northern island communities into contact with the outside world

socially and economically and through material goods. Therefore, I suspect that more outside world materials, including glass, would be found on those islands, if they were inhabited, than at the Nameless site in the south.

Even so, if trade or other interaction occurred between the northern canal-adjacent sites and any communities on islands south of Lake Drummond prior to the construction of Cross Canal, one might expect to find more green glass in the pre-canal contexts at Cross Canal and at the Nameless site whereas all the glass from Nameless is colorless. The one piece of green glass recovered from a tree root mass on 31GA121 in the Island Chain is an anomaly in the collection due to both its size and color. It may represent a more direct connection with an outside community or a distinction between the Island Chain communities.

Stepping down from a broad scale of the Swamp as a whole and the straightforward presence or absence of glass to individual sites and the size of bottle fragments, the distribution of fragment size between the sites may offer clues to how glass was accessed and used at each location. As detailed in the previous chapter, the Nameless site has yielded a high number of fragments, two-thirds of which are smaller than ¼ inch. Of the 10 fragments larger than ¼ inch from that site, four pieces of leaded glass were found in the root cap of a feature associated with an early 20th century cabin. At this time, it is not known if those fragments represent one or more curated bottles imported to the Swamp by the 20th century user of the cabin or if they represent fragments of or a similarly curated bottle that had been found on the island or elsewhere in the Swamp by that later inhabitant. Since the provenience of these fragments does not definitively associate them with the period of maroon occupation, I will exclude them from this part of the analysis.

This leaves six fragments larger than ¼ inch and reduces the minimum vessel count to four, a small number compared to any of the canal-adjacent sites at which much less archaeological work has been done. The distribution of these larger fragments across the broader landscape of the Swamp- a higher proportion of large fragments in general at *canal-adjacent* sites- supports the communities model. According to the model, *interior* sites would have less access to outside world materials and be more likely to repurpose any materials that were available again and again until only tiny fragments remain.

With so much glass available at *canal-adjacent* sites such as Washington Ditch and, presumably, at Cross Canal, why are more larger fragments not also found at Nameless? One possibility is that few complete bottles were arriving at Nameless. Instead, glass bottle fragments may have had sufficient value of their own to be a trade good for use by maroons as tools or as an item of spiritual or aesthetic significance. The construction of Cross Canal disrupted the existing maroon settlement on that island and threw the Island Chain communities into contact with enslaved laborers through the extension of *edge* areas into the formerly deep *interior*. Furthermore, the western entrance to Cross Canal at White Oak Marsh would have been a significant new development in the Swamp-adjacent portion of Gates County not far from where the westernmost island in the Chain approaches the Swamp boundary. The increased activity and presence of company officials and enslaved laborers in the area may have impacted *edge* communities with whom maroons from Nameless site might have interacted.

With this in mind, the glass fragments at Nameless may represent a new (post 1810) connection between that site and Cross Canal. Glass bottles may still have arrived at Cross Canal as company provisions but rather than trading whole bottles with people from Nameless, it is possible that fragments of broken ones were retained for trade rather than discarded. Shards

from Cross Canal show signs of wear suggesting that inhabitants of that site may have used and reused whole vessels until they broke. Complete bottles may have held more value for trade, sale or reuse outside the Swamp where the bottles could reenter the market. This may also help explain why the tested feature at Cross Canal, which contained a somewhat rich assortment of outside world materials such as iron, gunflint and a transfer-print vessel, contained relatively little glass. More glass may have been moved away from Cross Canal for reuse elsewhere or trade with maroons around the southern portion of the Swamp than was discarded there. At this slightly smaller scale of interactions between two sites in one region of the Swamp, the effects changing relationships, new physical landscape features and shifting zones or territories had on the movement of people and goods across the landscape are reflected in the presence and size of glass fragments.

The notion that glass was arriving at the Nameless site as fragments, rather than whole bottles, is supported by the high percentage of shards smaller than ¼ inch. While these tiny bits may be the result of microchipping through use or retouch or may be shatter from unintentional breakage (see Martindale and Jurakic 2006), their presence in the cultural activity areas at site 31GA120 together with larger fragments that appear to have evidence of intentional shaping suggest that glass as fragments were being used at the site. None of the larger glass fragments can be definitely described as *curated* tools. Several retouched pre-contact lithic tools have been found in the historic period contexts at the Nameless site indicating that maroons may have been repurposing the materials they found on the island. However, there are no naturally occurring lithic sources in the area and pre-existing curated lithic implements were likely a limited resource. Glass is relatively easily shaped and expedient glass tools, as discussed in Chapter 3, are not uncommon in post-contact and African diasporic contexts worldwide. Access to glass

fragments may have been a boon to maroons who found them to be a "useful material for a suite of recurring but quotidian tasks" (Martindale and Jurakic 2006:425). The tiny shards dominating the glass collection from the Nameless site may be the material remnants of that practice. Glass may not have been as readily available through direct or indirect interactions with *edge* communities in the time before Cross Canal redirected trading patterns toward the new *edge* zone inside the Swamp. The disruption of the physical and social landscape wrought by the canal may have brought with it new economic, social and practical opportunities such as access to glass fragments as raw materials for tools. One colorless piece of glass debitage from the Nameless site supports this notion that maroons were intentionally shaping glass fragments into tools or other objects of social interest and value.

At this very local scale, tiny glass shards at a single *interior* site can offer insight into how maroons used glass. The lack of complete bottles or more than a few fragments larger than ¼ inch suggests complete bottles used for their manufactured purpose were rare indeed. Instead, it seems people at the Nameless site were acquiring glass already fragmented. When the glass collection here is compared to the collection from the nearest *canal-adjacent* site, Cross Canal, the pattern that begins to emerge is one of trade or interaction between the two communities (see Sayers 2008). Citing a turn-of-the-19th century account of a maroon who emerges from the Swamp with furniture and musical instruments he has made, Sayers (2008) discusses the possibility of maroons producing items from Swamp-available materials for trade within the Swamp and with outside communities. Items- glass bottle fragments, for instance- that may have been otherwise discarded by laborers working on the canal may have become trade goods for exchange with maroons who had little access to such repurposeable outside world materials through any pre-canal networks they may have maintained with *edge* or other *interior*

communities. Those connections were probably influenced by uneven development within the Swamp. North of Lake Drummond, *edge* zones infringed on the *interior* earlier, more rapidly and more widespread than in the southern Swamp. These changes may have simultaneously increased the flow of outside world material into the Swamp, facilitated movement for some people through the landscape and dramatically altered the ways in which other people (maroons) moved through and perceived the same space.

As the physical, economic and social changes to the north began to impact the southern Island Chain communities and bring them into increasingly regular contact with laborers from Cross Canal as well as other roaming enslaved or free Swamp laborers, the formerly isolated maroons may have adopted a more defensive posture against the north. An architectural feature excavated at the Nameless site during the 2012 field season yielded a relatively high quantity of lead shot and gunflint, as well as some of the glass artifacts used in this study. Initial interpretations of that feature suggest it may be related to defensive activities on the part of the maroons (Sayers, personal comm. 2013). However, lead shot and gunflint, necessary for firearms-based defense, are both also outside world materials that would have had to be obtained by people with contacts away from the *interior*. A trade in glass, in exchange for labor, handicrafts or local knowledge, no doubt was a key part of the wider trade for defense-related materials that presumably included firearms themselves. Trade in glass may have helped established relationships that allowed access to higher value items like lead shot or gunflint. Since firearms were likely scarce in *interior* communities, glass acquisition may have also been for the purpose of producing projectile points to augment firearms. This trade reflects the shift in relations and perceived security of the Island Chain.

Very tiny shards of glass at a single site in the remote *interior* of the Swamp contrasted with larger fragments at a *canal-adjacent* site, a predominance of olive green glass in the north compared to the prevalence of colorless glass in the south, evidence of reuse and repurposing: the collection of glass from five *interior* and *canal-adjacent* sites in the Swamp reflects the scale of the landscape, the time-depth over which it was inhabited and the people- enslaved laborers, maroons, free African Americans and whites- who lived and worked there. Narratives, vegetation maps and topographic details complement the glass assemblage from the five sites contextualizing the distribution of shards across the Swamp. The resulting picture of shifting zones or territories, geographically uneven industrial development, travel routes and interpersonal interaction through trade suggests ways in which people, and material goods they carried with them, moved through and understood the landscape of the Great Dismal Swamp.

CHAPTER 6

CONCLUSION

In this thesis, I have addressed my main research question of how maroons and others understood and moved through the 18th and 19th century landscape of the Great Dismal Swamp by studying glass at five sites. I examined glass fragments under both visible and UV light, compared glass type between sites, and analyzed the distribution of different sized fragments among the sites. I drew upon historic maps as well as modern maps and remote sensing images of the region to place the glass within a more detailed, composite cartographic context than is available from those sources individually. In addition, I used existing plant cover data, modern knowledge of forest succession in the Swamp environment and historic narratives as supplements to the topographic information in order to augment the picture of shifting socially recognized zones and territories that may have existed in the Swamp prior to the Civil War.

It is clear that glass is present at both *canal-adjacent* and *interior* sites indicating both enslaved laborers and maroons had direct or indirect access to mass-produced consumer goods from outside the Swamp. Higher quantities and larger fragments at *canal-adjacent* sites coupled with lower quantities and much smaller fragments at *interior* sites uphold the predictions of the communities model. This differential distribution also offers insights into the ways people in those communities acquired and used glass. By using a landscape archaeology perspective which foregrounds scale, time-depth and people to analyze the data, I have contextualized the Swamp-wide and site specific movement of glass, and thus people, through the Great Dismal Swamp.

Avenues for Future Research

The preliminary observations offered in this thesis would be bolstered by additional information. Three specific avenues of further research may prove fruitful in answering the central research question of how glass as a representative outside world material can illuminate the movement of goods and people through the Swamp landscape.

First, UV fluorescence proved only moderately successful with the tiniest shards in determining the type of glass. UV is quite productive as a means of distinguishing leaded glass from non-leaded glass for whole bottles or fragments. Other technology exists that can eliminate many of the challenges of UV analysis such as subjective descriptions of fluorescence color and difficulty in seeing fluorescence from very small samples. However, many of the standard tests for elemental composition, mass spectrometry for example, are expensive, time consuming and require destructive testing. Portable x-ray fluorescence (pXRF) might be one solution. XRF provides elemental composition data of a sample and is used widely by art historians and archaeologists (Frahm 2013, Mucilek 2012, Cechak 2000). Testing with pXRF can be performed non-destructively, a tremendous benefit for this assemblage considering its small quantity and small average size. Just as samples with identical UV-induced fluorescence are likely to have come from the same glass recipe or manufacturer, glass samples with identical elemental composition are more likely to also come from the same source. If comparative data from bottles with known provenience exists, it may be possible to identify the specific type of bottle from which these tiny fragments originated. This would be helpful not only in linking the Swamp glass to the world outside the Swamp but also in identifying currently unidentified fragments, more accurately determining minimum vessel counts, and, potentially, drawing more direct connections between sites like Cross Canal and Nameless where trade may have been in already fragmented glass.

Second, the discussion above of zones or territories along with the idea that Cross Canal and accompanying developments just outside the Swamp altered the landscape as understood by maroons at the Nameless site provides a compelling reason to archaeologically explore the east-west Island Chain in more depth. If maroons on the Island Chain were indeed engaging with *edge* communities to the west or other *interior* communities to the east and south east (along the creeks perhaps), one would expect to find evidence of this. More data from the islands could also place the single olive green fragment from 31GA121 in context. If the fragment is indeed an anomaly and few other green glass fragments are found, it may be that the older green glass in this part of the landscape is indicative of some other, perhaps spiritual, significance. One mid 19th century fictional account describes a *conjurer* in the Dismal Swamp who kept a shard of green bottle glass among his "mystic symbols" (Delaney 1970:112-113) lends credence to this idea. Or, it may be that the 31GA121 island being slightly closer to both the natural *edge* and the canal-generated *edge* than the 31GA120 island resulted in some distinction with the maroon community on the Island Chain.

Third, this study does not address the uses of the bottles by Swamp inhabitants when they were complete. Issues of reuse and deposition lag discussed above complicate such research. The small size of many of the shards also makes identifying bottle type difficult. Many of the bottles likely were manufactured to hold wine, patent medicines or other liquids containing alcohol. However, Canal Company rules prohibited alcohol (Sayers 2004) so the presence of such bottles may indicate alternative uses for them, clandestine connections outside the Swamp or alcohol production within the Swamp.

Despite these shortcomings in the data, the existing glass collection from the *canal-adjacent* sites of Washington Ditch and Jericho Ditch, the *interior* Nameless and 31GA121 sites

and the Cross Canal site with its successive *interior* and *canal-adjacent* occupations provides a productive access point from which to examine the movement of people and material goods across the Swamp landscape as that landscape changed over time from ca. 1660 to 1860. Scholars interested in issues other than landscape would certainly find insight from the presence of this representative outside world material at the various sites. The particular uses of glass fragments as fragments at the Nameless site, for example, and the apparent lack of such a practice at other sites may speak to maroon ethnogenesis. Similarly, the patterns of trade and interaction suggested by the distribution of glass across sites may speak to the changing power relations as self-empowered maroon communities encountered outsiders who had the potential to bring them back into the enslavement system they were resisting.

I chose here, however, to approach the glass from a landscape archaeology perspective in an attempt to recover some of the detail obscured by historic and present-day cartographic representations of the Great Dismal Swamp. To the generations of maroons, enslaved laborers and others who lived and worked in there in the two centuries between the arrival of Europeans and the start of the Civil War, the Dismal was more than a flat, homogenous morass. It was composed of recognized zones or territories defined by changes in vegetation, water levels, and elevation as well as by land use and other socially determined criteria from within the Swamp itself and from the outside world. These areas and their boundaries shifted over time in meaning and location as the network of canals grew and other physical and social changes occurred unevenly in the Swamp and the region around it. People carried material goods with them as moved through that complex landscape. The outside world material, such as glass, to which they had access depended upon the time, the location and to which community the person belonged. I hope this study has shown that by examining one class of outside world material through

multiple scales of analysis, and an emphasis on time-depth, it is possible to look beyond cartographers' shorthand to see how the people of the Great Dismal Swamp understood the place that provided refuge to so many during centuries of upheaval and violence caused by the colonial and enslavement systems.

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