ABSTRACT

Title of Thesis:	LOST LABOR: AN ASSESSMENT OF THE INTERPRETATION OF IRISH CANAL WORKER HISTORY AND ARCHAEOLOGY AT THE CHESAPEAKE AND OHIO CANAL
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The Chesapeake and Ohio Canal would not exist without the labor of thousands of Irish immigrants in the 19th century. Through a framework of labor history, critical archaeology, and public history this study sought to improve interpretation of these canal workers. Archaeological and visitation data were analyzed to form recommendations for improvements to the parks interpretive materials on this subject. Labor history may have begun with the intent to balance historical narratives which had previously focused on powerful individuals. But continuing the trend of narrating specific groups experiences within history limits the perspective on these groups and perpetuates the issue of narrow, marginalizing, perspectives on complex history. The archaeological record from the C&O Canal construction can fulfill the parks interpretive mission through critical archaeology and labor theory. The interpretive potential of the archaeological findings, combined with the knowledge of visitation trends, form an exciting opportunity to build upon an evolving interpretive art.

LOST LABOR: AN ASSESSMENT OF THE INTERPRETATION OF IRISH CANAL WORKER HISTORY AND ARCHAEOLOGY AT THE CHESAPEAKE AND OHIO CANAL

by

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Dedication

To my parents, Mark and Bonnie Hauber. I never would have made it this far without them. And to my dear wife Ashlyn, who consistently reminded me to build this house one brick at a time.

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Table of Contents

List of Tables

List of Figures

Chapter 1: Introduction

Park Background

In 2021 approximately 5 million visitors came to the Chesapeake and Ohio Canal National Historical Park. As a popular recreation area, and with a national historical park designation, the C&O Canal is uniquely situated to engage the public with certain themes in U.S. history. The National Park Service has, among other topics, interpreted the story of Irish laborers who initially dug and built the canal. But compared to other topics and time periods in the canal's history, the interpretation of these immigrant laborers is lacking. My research question is how can archaeology be better integrated into the interpretation of these laborers at the C&O Canal? The power struggle that took place between these laborers and their employers is a relevant topic in today's turbulent labor market. It could also play an important role in the NPS focus to engage with new audiences.

In 2020 the labor force of the United States experienced enormous turbulence following the outbreak of COVID-19. The unemployment rate jumped from 4.4% in March to 14.7% in April of the same year (BLS survey 2021:1). Instances of looting, rioting, and peaceful protest dramatically increased in May and continued throughout the summer (Kishi 2020:3). The difficulties of that year impacted the many ethnicities and races of the United States to varying degrees. The Bureau of Labor Statistics found that among men 20 years and older, Black Americans were the most likely to be jobless with an unemployment rate of 11.6 percent, while white Americans were the least likely with an unemployment rate of only 6.7 percent. This unequal impact of the pandemic also played out in the length of unemployment. According to the same report, "The median duration of unemployment for Asians and Blacks

was 11.2 weeks and 11.0 weeks, respectively, whereas the figures for Hispanics and Whites were 9.6 weeks and 9.3 weeks, respectively (BLS 2021:8).” Undergirding these statistics are economic and social patterns that have been present for centuries. The history of immigrant labor on the C&O Canal can help visitors contextualize the changes in the labor market that happen today, and provides a way for visitors to engage in discussion about the topic.

The Chesapeake and Ohio Canal National Historical Park covers all 184.5 miles of the historic canal. Built between 1828 and 1850, the canal followed the Potomac River from the Southwest side of Washington D.C. all the way to Cumberland Maryland. The canal had 74 locks at varying intervals which allowed boats to navigate the elevation change of 605 feet between Cumberland and D.C. The mile marker system and canal lock system are used to identify locations along the canal today (High 2015). Mile marker 0 and Lock 1 are located in Washington D.C. and the numbers increase until the end of the canal in Cumberland Maryland at mile 184.5 and lock 76. The stakeholders of the canal initially envisioned a controlled waterway that would connect the Chesapeake Bay with the Ohio River, and thus connect the nation’s capital with western lands (Unrau 2007:49). The difficulty of the project combined with insufficient funding forced the decision to end the canal in Cumberland instead (Mackintosh 1991:1). Nevertheless, the originally intended destination remained in the name, Chesapeake and Ohio Canal.

Thousands of workers from Ireland came as free laborers or indentured servants to work on the canal (Unrau 2007:113). Smaller groups of Germans, local residents of European descent, and African-descended slaves also toiled to build the canal. Most of the workers were young single men though some were accompanied by their family (Way 1993:146). These workers used picks, shovels, wheelbarrows, and teams of horses to cut through difficult terrain full of roots and stone. They also risked life and limb using rudimentary black powder blasting techniques to cut through stone without safety measures. Working long hours

in the wet conditions of the East Coast exposed them to diseases such as Cholera, which swept up and down the line and killed many. Through back breaking labor these immigrants carved out a canal prism 60 feet wide at the surface, 48 feet wide at the bottom, and 6 feet deep from Georgetown to Harpers Ferry. (Unrau, Historical Resource Study, pg. 63) Though the prism narrowed for the upper portion of the canal, it is important to remember that each of the 184.5 miles of the canal was blasted or shoveled by these hardworking laborers.

The canal operated from 1831 to 1924. Repeated damage from flooding and competition from the Baltimore & Ohio Railroad eventually closed down the canal. In 1938, the United States bought the C&O canal and employed workers to restore it as part of the Civilian Conservation Corps. In response to plans to convert the canal into an automobile parkway, supreme court justice William O. Douglas and several others hiked almost the full length of the canal to raise publicity and popularize the idea of preserving the canal as a park (Mackintosh 1991:70-71). President Eisenhower designated the canal a national monument in 1961, and in 1971 it became a full-fledged National Historical Park (Mackintosh 1991:90, 101-102). The full length of the towpath is still preserved as a hiking and biking path. Several canal locks and lockhouses are also preserved or have been reconstructed by the National Park Service and their partners (High 2015:372) (C&O Canal Trust:1).

Working as an interpretive park guide at the C&O Canal provided valuable data on the park and its interpretation trends. I worked primarily along a 3 mile stretch of the towpath adjacent to the Great Falls tavern, from June 23rd, 2021 to September 25, 2021. I patrolled 11 miles of trails that branched off of this portion of the towpath and engaged in hundreds of conversations with diverse visitors. During this dynamic time as the park responded to developing Covid-19 regulations, I had the opportunity to engage in a number of interpretive activities. These included a pop-up table talk with a model canal boat and park brochures, informal interpretation on Olmstead Island, and the operation of the Charles F. Mercer replica

canal boat through lock 20. Frequent meetings with interpretive staff also allowed for shared insights from other interns and employees. These diverse experiences and perspectives provided valuable insight into the practical application of interpretive and critical theory.

Figure 1. Canal Interpretation. The author (pictured left) and Tyson Kilbourn-Shear (pictured right) take a brief respite on the reconstructed lock gate at the Great Falls Tavern. Photographer Ani Murray.

Chapter Summaries

In the next chapter of this thesis, a discussion of power and capitalist theory is laid out, as it pertains to the circumstances of canal construction. These two themes provide a framework through which to analyze the labor history of the canal workers. This is followed by discussion of interpretive theory to lay a structure for how these themes could be interpreted in the park. Since Freeman Tilden's *Interpreting Our Heritage* in 1957, interpretation has been an important part of the NPS mission and public history in general. The review of interpretation facilitates a stepping back from the interpretive efforts of the

park to wrestle with abstract ideas about what interpretation is at a large level, and how it can be improved today. The review of power and capitalist theory provides an avenue which the immigrant laborer story can be told within.

Following this framework of theory, the historical context of the canal is laid out from the height of American Canal construction in the early 19th century to modern day government administration. This allows for the review of efforts that have been made by the park or its contractors to gather historical and archaeological data on canal construction-era immigrant laborers. This review helps to understand the socio-economic situation of 19th century Irish immigrant laborers. It also tracks some of the park administration's interpretive focuses over time. This provides a clear understanding of the canal laborers themselves, as well as what has already been done by the park to present it to the public. As we consider the answer to the question of how interpretation can be improved, this review provides a foundation on which innovative approaches to interpretation can be built. It highlights what visitors are familiar with and what possibilities there are to explore.

The fourth chapter outlines the methods of obtaining data. A combination of fieldwork and archival research contributed to the data collected for this thesis. In the summer of 2021 I interned as an interpretive park guide at the Palisades district of the C&O Canal. This portion of the canal is less than 20 miles from Georgetown and is one of the most visited portions of the park. This exposure to the cultural resources and the mindset of visitors laid the groundwork for further study presented in this thesis. Following this period of interpretive fieldwork and operations, historical records and archaeological reports were consulted. Subsequent fieldwork revealed where further archaeological study could be conducted in order to locate archeological sites or components with potential to yield important data regarding the working conditions and struggle of immigrant labor during construction of the

canal. These experiences and research, culminated in an accumulation of data that could be used to improve interpretation of a glossed over topic.

The results and analysis of archaeological and interpretive data were split into two chapters. The archaeology chapter focuses on previously discovered sites along the C&O Canal which have been associated with canal workers or are likely to be linked with this history with further archaeological study. Present day conditions of the Monocacy sites (18MO577 and 18MO582) and a site location model are also outlined. These sites are located around MM42 and are associated with the building of the Monocacy Aqueduct (Fiedel 2005: 113-121). The interpretation chapter analyzes visitation trends for park land and online resources. There is also critical analysis of the parks interpretive products related to canal labor.

In the conclusion of the thesis, the archaeological and interpretive potential of C&O Canal National Historical Park are assessed. The C&O Canal was added to the NRHP for its record of transportation and engineering (Romigh and Mackintosh 1979). The park has emphasized its connection to well-known people like George Washington and invested in entertaining re-enactments such as canal boat demonstrations. But visitors' interests are expanding from great man history and living history to transnational and social history. In order to accommodate this interest, parks need to access and interpret new resources within their boundaries that pertain to these interests. The NPS mission is to conserve resources unimpaired for the enjoyment, education, and inspiration of present and future generations. I hope that this thesis facilitates that effort for the topic of Irish laborers on the C&O Canal.

Chapter 2: Interpreting Labor History at the C&O NHP

Labor Theory

At a large scale, the fluctuating fortunes of the labor market within the capitalist economy reflect a power struggle that goes back as far as the start of the industrial age and beyond. In the 1970s Michel Foucault argued that power only exists so long as there is the possibility of insubordination, of escape, or some means of rebellion. He posited that,

> "Every intensification, every extension of power relations to make the insubordinate submit can only result in the limits of power. The latter reaches its final term either in a type of action which reduces the other to total importance (in which case victory over the adversary replaces the exercise of power) or by a confrontation with those whom one governs and their transformation into adversaries. Which is to say that every strategy of confrontation dreams of becoming a relationship of power" (Foucault 1982: 794).

From 1828 to 1850 the Chesapeake and Ohio Canal Company sought for a relationship of power over immigrant laborers who dug and built the canal.

This pitting of laborers against capitalists in scholarly analysis is nothing new. Karl Marx positioned the Bourgeoisie against the proletariat in his analysis from the mid 19th century in Germany (Marx 1867). The interesting element of the C&O Canal project is that the capitalist venture was state sponsored (Way 1993: 268). The uniting of their employers with their government left the Irish laborers at a disadvantage. These were two of the most powerful entities in their lives, to which they may have gone for redress and representation. But the uniting of these two large entities created a conflict of interest which left the Irish out to dry when economic downturns occurred. In the midst of these marginalizing conditions, the Irish sought to earn enough money to take part in the collective consumerism which defined the 19th century (Brighton 2011). The class struggle between laborers and capitalists is an engaging subject. It has remained engaging in the United States because it continually

raises the question of whether the American dream is still alive. Whether this is, or ever was, a land of opportunity for immigrants, second sons, or any other disadvantaged people.

In this revisiting of the question of the American dream, there is a competition between capital and labor for public memory of events (Shackel 2013). Whoever shapes this public memory can use it to their advantage in the relationship of power (Benjamin 1940). When archaeologists focus on labor history, they are able to look at material culture of day to day working class people and conduct detailed analysis of empirical data. Analyzing historical working-class issues can provide context for today's labor struggles (Shackel 2013, McGuire 2014). As it stands, the archaeological record of Irish laborers at the C&O Canal consists more of the product of their labor—the canal and its surviving infrastructure—than their personal possessions. The canal prism, aqueducts, towpath, and other canal features are larger and more easily observed than personal possessions of these laborers, surviving in the archeological record. This is unique compared to industrial sites like Lowell, Massachusetts (Wurst & Mrozowski 2016) or Virginius Island at Harpers Ferry in West Virginia (Palus & Shackel 2006), where permanent housing was offered, and material culture of the workers deposited at those sites. Labor theory and social history inherently attempt to empower the laborers voice in public memory, which has been historically suppressed for so long.

Nineteenth century Irish people faced dominating entities in Ireland and America. In Ireland the United Kingdom implemented imperial practices, which were reinforced by ethnic bigotry (Dolan 2008; Geber 2020). This led to their marginalization in society and some sought to escape this in America. However, the rise of industrialization and the end of paternalism which occurred around this time did not provide a very soft spot to land for the Irish immigrants. Religious and cultural differences with their neighbors and employers only added to the obstacles Irish canal laborers had to overcome. Add circumstances like the depression of 1837 and the Great Famine of the early 1840s and it was a difficult time for the

Irish. These societal forces and cultural heritage influenced the decisions of Irish immigrants in their actions within the market. Many left their homeland in response to the poor conditions there, and in America they gathered in violent outbursts according to their ethnic identity (Way 1993).

Canal workers differed from the textile workers and factory workers often analyzed in labor history. Canal digging was seasonal, more exposed to the elements, and employed thousands of immigrants in work that continued to move them geographically. The rural nature of the work, combined with religious and cultural differences, caused the Irish to be marginalized in America as well. Common laborers performed manual labor, and since society valued nothing else they had to offer, little assistance was provided for them (Carp 1990). This situation left Irish laborers with few bargaining chips in their relationship of power.

In their struggle, the large increase in numbers gave laborers a tool in the new industrial capitalist market. A large canal project employed around 1,000 laborers; a scale much larger than other early industrial endeavors (Way 1993: 25). When labor demand was high, these seasonal laborers had more of a bargaining chip, and the Irish immigrants also found a sense of community with the gathering of their fellow countrymen. The power struggle evolved over time with the introduction of contractors as a buffer between the C&O Canal Company and immigrant workers. Way's (1993) research on the specific situation at the C&O Canal illuminates Foucault's theory on the "phenomena of domination" (Foucault 1982: 795). For example, at the outset of contract work, Peter Way found that many of the contractors practiced paternalistic leadership. They provided food and shelter along with some wages for their team of laborers along the canal. He asserts that having control over the space where someone sleeps, and the food which they eat, grants the provider of these things with a large amount of power over the person receiving them (Way 1993: 68). This

paternalistic relationship also defined the living situation of a contemporary settlement on Virginius Island near the canal. Entrepreneurs on this island initially dwelt near the homes they provided to workers, similar to the contractors on the C&O Canal (Palus & Shackel 2006: 34). However, when economic hardship hit the canal in 1837, this power relationship degraded into a "confrontation between two adversaries" as Foucault would say. Over its twenty-two years of construction, the power struggle between laborers and the canal company followed many of the patterns that Foucault identified.

This large-scale discussion about power and domination can be further analyzed within the context of capitalism. It has been suggested that large scale theories such as those posited by Karl Marx should be tested in specific historical situations (Ollman 2014, Wurst & Mrozowski 2016). The C&O Canal provides an excellent case study for a "detailed archaeological and historical stud[y]" which "provide[s] the real, concrete understandings of capitalism in motion" (Wurst & Mrozowski, 2016: 84). Limited archaeological data has been gathered along the canal to accomplish a detailed study which provides concrete understanding. I will highlight in later parts of this thesis areas where this archaeological work could be continued. And while Peter Way has already done an excellent job at analyzing this canal in a capitalist context, there is still much work to be done at an interpretive level within the park.

Other studies with similar contexts have also resulted in sparse material culture. A study of Chinese labor camps along the Northern Pacific Railroad relied on comparisons of Chinese and non-chinese tableware, along with scattered materials related to railroad construction (Merrit, Weisxz, and Dixon 2012: 679). The Noxon line camp in this study was disturbed by a large water feature in the form of a reservoir, similar to the sites at the C&O Canal being disturbed by flooding. Even at a site dated to the beginning of the 20th century, at an aqueduct constructed in the California desert, archaeologists uncovered relatively few

artifacts. They conducted stratigraphic excavations of pit features at the Alabama Gates camp, which was part of the Los Angeles Aqueduct construction of 1912-1913, and the excavations turned up largely negative results. This study was able to identify the location of workers dwellings and found the laborers consisted of predominantly single men (Van Bueren 2002: 29). These results show that archaeological studies of labor camps along extended infrastructure projects, even camps where the exact location of dwellings are known, turn up limited material culture.

This lack of material culture reveals important information and theories about these types of sites. At the Northern Pacific Railroad Chinese camps, the archaeologists concluded the findings were scarce due to the impermanence of the camps and disturbance of nearby water features. In this studies case, the lack of photographic evidence also meant the visual interpretation of these sites had to be done through imagination based on limited historical and archaeological data (Merrit, Weisxz, and Dixon 2012). The archaeologists at the Los Angeles Aqueduct took their conclusion one step further, positing that the transience of workers was due to the harsh nature of the work and the vulnerability of the work to changes in the weather throughout the year. The transiency of these workers, combined with their low pay, means they simply had little ability to accumulate and retain material goods for archaeologists to find years later.

Interpretation Theory

The interpretive possibilities on this topic at the Chesapeake and Ohio Canal National Historical Park are vast. It is appropriate here to consider interpretive theory. Creation and interaction with historical interpretation does not occur neutrally or passively (Potter et al., 1986: 103). Scholars like Stephanie Moser have argued that the flow of archaeological knowledge between excavators and the public is not "unilinear or unidirectional" (2015:

1302). In the realm of public archaeology, I believe it is necessary to acknowledge and solicit the flow of knowledge from the public to archaeologists. Any falsehoods should obviously be rejected by archaeologists. But familiarity with the public's knowledge of archaeology, whether it is true or false, facilitates better engagement with the public. This is an important part of the National Park Service mission and an important part of this thesis. The best interpretation of the historical archaeology of immigrant laborers depends on recognition of the two-way flow of knowledge. It is also important to consider common experiences that affect a wide audience, in order to frame historical events in an engaging way. This consideration of public knowledge of archaeology and common experience facilitates more impactful interpretation.

The next aspect of interpretive theory to consider is Jean-Claude Gardin's work which has been dubbed "description theory" (discussed in Dallas 2016: 309). This theory covers the decisions archaeologists make in how to describe and label their work. Understanding the foundations of the language archaeologists use in their reports is a key element to understanding the difficulty of transferring this knowledge to the public. Then I will address the issues of the Information Age and reception theory as they pertain to public facing archaeological interpretation. Finally, solutions to the interpretation aspect of the curation crisis will be listed with their implications.

The transfer of knowledge from the field to a report is crucial to the process of getting accurate information to the public. The observations an archaeologist makes in the field are precious pieces of a puzzle that illustrates a historical narrative. When an archaeologist does not record an observation, it removes that piece of the puzzle that future audiences may need to assemble a coherent and accurate understanding of history. These observations, combined with analysis, are integral to the process of educating the public. One source has described these initial steps in data transfer as "manipulating the data". This

involves using, “the records generated in the laboratory and manipulates those data, and it will be done as part of the process of preparing the written report” (Neumann et. Al 2010: 209). Archaeologists face a challenging task in transferring data into a readable report. It is a translation from one form of communication into the language of the report. An archaeologist is uniquely trained to carry out this translation and it is as important as anything they do with a shovel, brush, or drone.

With the volume of tools available to analyze archaeological data comes the challenge of condensing the information into a report. “The laboratory analyses provide a condensation of the artifactual evidence from the site. The information in effect is transformed from individual physical elements to a series of inventories and tables representing classes of objects” (Neumann et. Al 2010: 210). Condensing artifactual evidence, with the time constraints and limited budgets that archaeologists operate under, can easily lead to loss of data or inaccurate representations of a site. This observation is not intended to put blame on any party involved, but to raise awareness of an important point in the transfer of data from the archaeologist to the public. This point of condensation funnels large amounts of data gathered through various means into the medium of tables and language that can be easily accessed from a repository instead of the field. This is the first opportunity for those outside of the archaeological team to absorb all of the gathered data from a single source. This is also where description theory presents itself.

Costis Dallas made Jean-Claude Gardin’s work relevant in contemporary times by focusing on the application of description theory to current archaeological issues. Referring to Gardin, Dallas said,

> [Gardin’s] call towards the development of more effective methods of capturing, communicating and analyzing the knowledge structures embedded in the actual products of archaeological research - archaeological data, catalogues and research publications – is critically relevant today, in the context of the archaeological curation crisis connected with the glut and fragmentation of information produced by disparate archaeological projects

> and the proliferation of orphaned, under-reported and under-analyzed archaeological collections (2016: 324).

Gardin approached this critical issue in the transfer of data theoretically and attempted to justify the standardization of the process. These strong words from Dallas express the frustration felt by many archaeologists in the midst of the curation crisis. This phenomenon is evident in shrinking repository space, deteriorating collections, and most importantly, an ill-informed public.

As the number of tools to collect archaeological data grew throughout the 20th century, Gardin recognized the need to organize the increasing amounts of data. He focused on the terminology used and this description theory expanded to analyze the connection between language and interpretation. Dallas pointed out,

> [Gardin's] approach acknowledges the interdependence between description and interpretation as theory-laden and resonates with a critical view on the objectivism of the descriptive apparatus archaeology and of the humanities and social sciences in general. In fact, enduring contribution may be in his calling attention to the articulation of different genres of archaeological publication and different modes of archaeological knowledge, the interdependence between data and interpretation and the possibilities for archaeological research and scholarly communication afforded by formal representation and digital technology (2016: 319).

Dallas recognized the connection between the language of archaeological data and its interpretation was worth exploring. Gardin's struggle with the objectivity of archaeological descriptions could help standardize the language of final reports. This standardization would allow for the more accurate translation of the archaeological data described above, into the medium of tables and reports. If the objectivity as Dallas described it, were allowed to continue, it would be like each report being a different dialect of archeological analysis and data. A standardized approach creates a common language that is less frustrating for interpreters to master. This common language also facilitates a better flow of information to the interested members of the public.

At this critical juncture in the flow of information to the public, structuralist theory comes into play. This theory regarding the understanding of knowledge says the mind naturally categorizes everything it analyzes. It looks for contrasts and things that can oppose each other in order to separate and understand them. This separation and opposition provides the structure for ideas. Mark Leone fleshed out this theory when he analyzed the work Leroi-Gourhan conducted on European cave paintings. Leone said, "mind came first and structured everything" (1982: 744). This novel approach to studying cave paintings allowed Leroi-Gourhan to discover themes among the subjects of the paintings. He found that there were subjects that inflicted pain and subjects that suffered pain in the majority of cave paintings he studies. This dividing of parties within the paintings provided insights into the minds of the ancient painters. This theory on the thought patterns of historical painters opened up anthropological theories on the culture and decisions of ancient European inhabitants.

This same theory can be applied to archaeologists and their audiences today. If the human mind functions to structure ideas by contrasts and categories, then archaeologists likely organize and analyze the data they work with according to this process. Rather than sharing names, dates, and places with the public, these structural frameworks of thought which archaeologists operate under could also be shared with the public. If archaeologists identify the structuralist framework through which they view data, they can question these structures and open new avenues of research. They can also share these structures with the public. These structures can be used to correct erroneous information that is fed to the public. Sharing these frameworks of thought also helps the public recognize and question the categorizations and contrasts that they assume in their own mind. Scholars have already identified the two-way flow of influence between archaeologists and the public (Moser 2015: 1275). The structuralist framework provides one way for these communities to identify and analyze the influence they have upon each other.

Another option to analyze how archaeological data reaches the public is critical theory, in a way an extension of structuralism. The analysis of archaeology through the lens of Marxism and class politics applies to public interpretation efforts. Archaeology is generally recognized as a middle-class profession (Matthews 2010: 196). The socio-political influences on this class also influence the archaeologists who create reports. Class differences in society make it difficult for people in one class to relate to or effectively communicate with people in another class. However, if an archaeologist is to have a broad relevance across different audiences, they need to communicate effectively to every tax bracket, not just the middle class. This class-based approach may be a limitation of structuralist thinking by restricting our perception of humanity to economic categories. But it provides another method for analyzing and improving the communication from archaeologists to the public.

Mark Leone and several other scholars applied critical theory to their work in Annapolis Maryland in the 1980s. They hypothesized that the city of Annapolis and the nearby Naval Academy produced histories that separated them to avoid a painful history that they share. Leone and others reasoned that the Academy's pattern of expansion onto city land could lead to an aggressor and victim theme in the historical narrative. Through the application of critical theory, they recognized that political forces shaped the information that was portrayed to the public in interpretive displays. (Leone et al 1986: 99). It is difficult for visitors to critically analyze information they receive, especially if they are unfamiliar with regional history. The interpretive displays of artifacts, images, and words do not always openly portray the socio-political influences that exist upon their designers. This issue was partially addressed when interpretive presentations were, "delivered by a dirt-stained, working archaeologist discussing with the visitor how he or she is thinking about a site that very day" (Leone et al 1986: 100). This allowed visitors to ask questions and critically analyze the person providing information. This person-to-person interaction provides the

public with access to a trained expert, and can alleviate the strain of comprehending the perspective of another class. Since there are not ongoing archaeological projects at the C&O Canal, interpretive efforts fall to park interpretation and education staff.

Reception theory forms the final method with which I approach this issue. In the "data deluge" of the 21st century it is important to remember that each piece of information comes with its own bias and influence (Faniel and Zimmerman 2011: 65). Analyzing how audiences interact with and internalize information is the core of reception theory analysis (Moser 2015: 1264). In her analysis of perceptions of ancient Egypt, Moser found that scholars and popular media influenced each other's perspectives. As the media industry grows, it is important for archaeologists to find ways to remain an influencing voice in the cacophony of modern times. With the motivation to educate rather than entertain, I believe most archaeologists have good intentions that can benefit the public. Intentional discussion about how to get archaeological data to the public is necessary in the overwhelming Information Age. This survey of applicable theory hopefully helps in that endeavor.

Foucault says the analysis of power relations and freedom is a, "permanent political task inherent in all social existence." He declares that it is necessary to constantly evaluate the relationship between power and freedom (Foucault year:792). Nearly fifty years later, I believe this is still an important and relevant task. The C&O Canal provides an excellent case study of power relations within a capitalist economy. It is also set in a National Historical Park whose mission includes provoking visitors to reflect upon such important topics. My research focuses on how this topic and case study can be interpreted better. This includes searching for material culture and sites where canal laborers dwelt to facilitate interpretation with tangible resources.

Chapter 3: Historical Context

American Canal Context

Many of the laborers who worked on the C&O Canal came from Ireland. This immigration to North America began long before ground was broken for the construction of the C&O Canal. During the 1720s wave of emigration from the Ulster province, as many as 80 percent of these Irish immigrants paid their own way to America. This self-funded immigration contrasted sharply with the method of indentured servitude which became more common after 1741. Famine and a poor economy plagued the Irish at this time, a century before the infamous potato famine of the mid-19th century. This led to generations of Irish who were unable or unwilling to pay the cost of passage themselves. These less fortunate immigrants eventually obtained their freedom after fulfilling their contracts. By 1790, one sixth of the population of Maryland was Irish (Dolan 2008: 16-17). However desperate their situation may have been in Ireland; the canal workers still had some modicum of control over where and how they spent their labor in their homeland. As indentured servants they temporarily sacrificed their freedom in order to travel to the mid-Atlantic region of North America. Seeing free Irish in America, and knowing that their acquaintances in Ireland were still free, surely created a sense of resentment among each wave of servants (Dolan 2008).

This resentment could be easily observed in the laborers of the Potomac company, which pre-dated the C&O Canal. The company built 5 bypass canals on the Virginia side of the Potomac River between 1785 and 1802. Known as the Patowmack canal, this infrastructure was a joint business venture between Maryland, Virginia, and private investors. As laborers arrived from Ireland some of them attempted to escape their contracts and flee the line. Research has found advertisements for at least 25 runaway indentured servants along

this canal. Nearly all of them were Irish (Dent 1986: 52; Way 1993: 38). This early partnership between private and public interests, and their struggles with labor, foreshadowed the issues that would play out on a larger scale with the C&O Canal. They operated for roughly 30 years but severe drought meant this system of navigation occasionally operated only 45 days out of the year (Dent 1986: 53). Eventually, leaders decided that a continuous canal would function better than the bypass system.

The success of the Erie Canal also encouraged the idea of a long, man-made canal. Completed in eight short years, from 1817 to 1825, this 363-mile-long canal connected New York City with the Great Lakes and the prized Ohio country. This canal proved to be a more profitable blending of private and public investment with nearly immediate pay-offs. As the first canal to connect the Atlantic to the Great Lakes, the Erie had a de facto monopoly for the first several years of its operation. In 1825 the Canal Commissioners reported toll revenues of nearly $500,000 and the next year the revenues jumped to nearly $700,000. Cities along its path grew in wealth, population, and came to pride themselves on their association with the canal. Politicians and businessmen in other states hoped to profit by a similar canal system (Burd 2016; Filante 1974). The proponents of the C&O Canal failed to recognize important differences between the Erie Canal and their own. The Erie Canal only had 36 locks while the C&O Canal would have 76. With double the number of locks over half the distance, the C&O Canal incurred higher operational and labor costs by having more locks to tend. The Erie Canal's earlier entry into the market also helped it carve out more profits before other canals and railroads tapped the wealth of the developing West. The misplaced optimism of the C&O Canal board cost their accounts and their taxpayers, but it hurt the Irish canal workers the most.

The efforts of the Potomac Company, followed by the excitement surrounding the Erie Canal, gave the idea of the C&O Canal enough momentum to become a reality. In 1819

the debt-ridden Potomac Company requested a survey of its works, hoping to remain relevant and recover its losses. That same year the State of Virginia authorized a survey that would extend from the Potomac Companies skirting canals at Great Falls all the way to the southern branches of the Ohio River. Virginia knew that if the canal could reach the Ohio River, they would be connected to the Mississippi River, the Great Lakes, and vast new markets. During the next 6 years Virginia completed more surveys and invited Maryland to invest in the venture. The proposed route followed the Potomac River from Washington D.C. to Cumberland Maryland, then followed the Youghiogheny branch to the Ohio River. Virginia and Maryland were unable to reach an agreement on their own. But eventually, through an act of Congress, the Chesapeake and Ohio Canal was chartered on March 3rd, 1825. The news of massive revenues at the Erie Canal kept the project moving forward through its groundbreaking on July 4th, 1828 (Unrau 2007: 49-54).

Construction Era

With the company charter and capital taken care of, the C&O Canal Company needed to hire laborers for the project. To solve this problem the canal company resurrected the indentured servitude system. They advertised food and post-servitude wages which were very appealing at a time of economic depression in Ireland. In directions given to Henry Richards, the company board instructed him to have common laborers sign an agreement to labor 3 months in exchange for their passage, and masons would only need to labor for two. They also expected the workers to labor for 1 year on the canal with wages after repaying their indenture. By recruiting European laborers this way, and attempting to attract local labor as well, the board hoped to employ 1,000 to 3,000 employees along the canal (Unrau 2007: 113-114).

To manage these large numbers of laborers, the canal company called for contractors. This also facilitated the building of the canal in sections. According to Unrau's research,

> "After examining 462 proposals submitted by some 100 contractors, the board let contracts for the 34 sections between Little Falls and Seneca Creek. Most of the successful bidders had prior experience in the construction of canals in New York, Pennsylvania, Ohio, Connecticut and Canada. New York and Pennsylvania men secured 18 of the contracts, amounting to $160,000 of a total of $218,000 let." (2007: 181).

This letting of contracts took place on August 20th of 1828. The laborers in Europe who Henry Richards recruited were expected to arrive that fall. This gave contractors who would be using immigrant laborers time to prepare, and the board also hoped that this later start time would help workers avoid the sickly summer months. Among the first contractors hired on the C&O Canal, five were from New York, five from Pennsylvania, two from Virginia, and one from Washington D.C. In 1829 a contractor named Osborn even came down from Canada (Way 1993: 64-66). The contractors with experience on American Canals and the Irish navvies with experience on European canals combined their talents to begin construction on the C&O Canal.

These crews of contractors and laborers faced difficult work to build the canal according to the engineers' dimensions. The company's 1825 charter called for a canal which was 40 feet wide at the surface, 28 feet wide at the bottom, and 4 feet deep. This generally aligned with the dimensions of other canals in New York, Pennsylvania, and Ohio. However, when conflicting estimates about the cost of the canal came out, President John Quincy Adams appointed James Geddes and Nathan Roberts to revise estimates for the eastern section of the canal. Their optimistic estimate led to the expansion of the canal prism design to 60 feet wide at the surface, 48 feet wide at the bottom, and 6 feet deep. These men were renowned for their experience on the Erie and other canals, but they did not accurately predict how difficult the terrain would be, nor could they foresee the inflation that would rock the country in the next decade. The company only implemented the larger dimensions until Harpers Ferry, but the financial costs of extra digging and blasting incurred heavy debts (Unrau 2007: 55-63).

One of the first major features the workers tackled was the Monocacy Aqueduct. This stone structure stretched 438 feet and was the longest aqueduct built for the C&O Canal. Construction began in the spring of 1829 under the contracting firm of Hovey and Legg. Skilled workers such as masons were desperately needed here, as pointed out by the companies Inspector of Masonry, Robert Leckie. In 1829 he wrote to chief engineer Benjamin Wright, "Eight masons may set a lock in 40 days. There are in the Monocacy Aqueduct 11,000 perches and supposing each mason to lay three perches per day it would require 20 masons 6 months to lay it. Seneca Aqueduct would require 5 masons 6 months to lay it" (Leckie 1829). Leckie bemoaned the fact that he counted only 50 masons along the entire length of the canal, while there were many other projects like locks and lockhouses that also required masonry skills (Unrau 2007:112). This lack of labor and other setbacks caused the Monocacy aqueduct to not be completed until the spring of 1833. It stands about 42 miles from the beginning of the canal in Georgetown (Unrau 2011: 29).

Figure 2. The Monocacy Aqueduct. Photograph by E. H. Pickering. Courtesy of the Library of Congress.

Another major project along the canal was the Paw Paw tunnel. Located at about mile marker 155, this tunnel was carved out much closer to the terminus of the canal than the Monocacy Aqueduct. Construction took place under a couple different contractors, beginning in the summer of 1836. Thousands of subpar bricks were created for the lining of the tunnel in 1837 and ’38 but were rejected by the canal engineers. In 1841 it was reported that, “the contractor for the tunnel and deep-cut is still working more than one hundred hands.” (Sprigg 1841). The canal ceased construction a few months later due to financial difficulties and the tunnel sat unfinished. In 1848 construction on the tunnel resumed under a new contractor. Better brick creation methods were shared with the contractor’s employees and they finished the tunnel in 1850 (Unrau 2007: 174, 251).

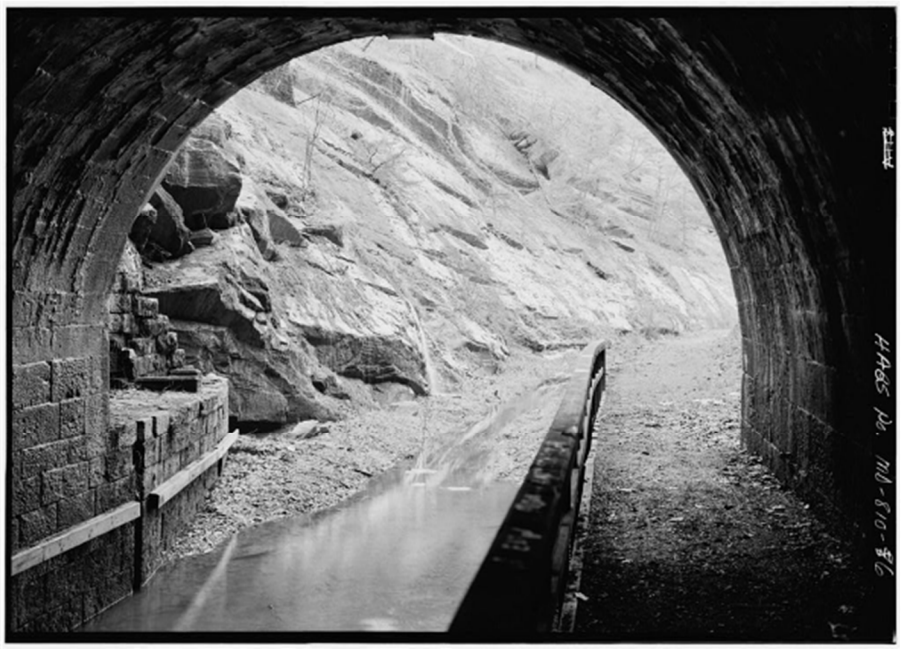

Figure 3. The Paw Paw tunnel. Photograph by Jack Boucher. Courtesy of the Library of Congress.

Riots and labor unrest were a defining characteristic of the construction of the C&O Canal. According to Peter Way, there were at least ten significant disturbances between 1834 and 1840. The state militia were called out five times and federal troops even responded once to these interruptions of construction (Way 1993: 212). Such sustained military intervention

came due to the significant investment state and federal governments had in the project. This was not the first time riots broke out on a project co-funded by private and public capital. In the mid-1790s riots had broken out along the C&O Canal's predecessor, the Potomac Canal. Much has been written on what the causes of this riotous behavior may have been (Miller 1985; Unrau 2007; Way 1993). Ultimately, the individual laborers worked in brutal conditions and sometimes received wages late or not at all. It is interesting to note that this organizing and lashing out predates the formation of trade unions later in the 19th century.

While laborers clamored for their owed wages of approximately 10-20$ per month, the Maryland legislature debated over a $2,000,000 loan to the C&O Canal. In March 1835 Maryland passed the act that would provide a major portion of the funding for the next two years. They agreed to pay out the loan in seven installments between June 1835 and January 1837. With a unanimous recommendation of the canal directors, company stockholders formally accepted the loan on April 22, 1835 (Unrau 2007: 80). This loan was only to provide the funds necessary to get to Cumberland Maryland, and at this point the original goal of reaching the Ohio river seemed far away. Construction on the canal had been underway for nearly 7 years, only 1 year less than it took to complete the Erie Canal. At this time only 110 miles of the C&O Canal were operable, less than a third of the distance of the Erie Canal (Unrau 2007: 205).

Rapid inflation leading up to the Panic of 1837 undercut the construction goals of the two-million-dollar loan. Several factors lessened the efficacy of the loan during the two years after its approval by Maryland. These factors included increase of land prices beyond anticipated amounts, usable stone being located further away than expected, and abandoned contracts which had to be re-let at an increased price (Unrau 2007: 81-83). It also profoundly impacted the lives of the canal workers. In desperation to hire more hands and compete with other employers in a market experiencing rapid inflation, the canal increased wages to more

than $30 per month. However, during depression years after 1837, hard times put a strain on the paternal relationships that existed between contractors and laborers. It has been suggested that these lean times are what caused the removal of shelter, food, clothing, and other services that used to be included for laborers (Way 1993: 68). This abandonment of paternalist care changed the power relationship on the canal, as canal workers looked to new sources for their basic needs. This process of decreasing benefits outside of wages was a key point in the new industrialist and capitalist market.

Continued financial troubles came to a head in 1841. The tolls charged to navigate the completed portions of the canal, the primary planned source of income for the venture, amounted to only a fraction of the debt the C&O Canal Company possessed. The yearly revenue from tolls in 1837 only amounted to $24,000. By 1841 the yearly revenue had grown to a measly $45,000. This hardly made a dent in the debts of the company, which amounted to $944,000 (C&O Canal Company 1841). In a report to stockholders, president M.C. Sprigg painted a bleak picture with the following lines.

> The board must be reduced to the mortifying and ruinous alternative of abandoning the works now in progress over which they have control, of suspending, perhaps, all farther operations on the unfinished part of the line. Aware of these facts, and having exhausted their resources, nearly all the contractors have, from necessity, ceased work; those of the laborers, who are able to do so, are leaving the line, whilst others, less fortunate, are reduced to a condition painful to reflect upon (Sprigg 1841). - Report presented by M. C. Sprigg, Esq., President of the Company, from the President and Directors, to the Stockholders of the Chesapeake and Ohio Canal Company. August 2, 1841.

Deprived of the benefits of paternalism, and now deprived of wages as well, canal workers were left to their own devices. With nothing left to give and no signs of funding in the near future, the company basically ceased to exist in the canal workers lives. The worker's foe in the power struggle had essentially collapsed, and the vacuum sucked workers into new relationships of power. These may have been with other employers, relatives, friends, charitable organizations, or any other source capable of providing the necessities of life.

The suspension of work would extend until 1847 (Unrau 2007: 643). The canal had proven a much more expensive project than initially forecasted. The company eventually succeeded in obtaining the necessary funds, and work resumed along the line. The canal formally opened its full length on October 10, 1850 (Unrau 2007: 140). Steeped in debt, the company was forced to stop short of its goal of the Ohio river. It extended 184.5 miles from the port of Georgetown in Washington D.C., to the coal fields of Cumberland Maryland. A few workers, like John Swain, found work along the canal (Kytle 1986: 129). However, many drifted to other jobs, cut off from the "Grand Old Ditch" they worked so hard to dig.

Government Administration

Several factors led to the decline of the canal and eventual Federal government ownership. Debilitating floods struck just two years after completion of the canal in 1852, and again in 1857. The B&O railroad, which reached Cumberland Maryland 10 years before the C&O Canal did, moved freight faster and further. Throughout it's commercial existence, the canal struggled to compete with the more technologically advanced railroad. Another flood in 1889 bankrupted the C&O Canal company. Shortly thereafter, the B&O railroad obtained a majority of the bonds of the canal. In 1924, another flood struck and the damage was determined to be too extensive to repair. In 1938, in the depths of the great depression, the canal was sold to the United States government.

Public interpretation of the canal under the government's administration began in the early 1940s. T. Sutton Jett first suggested putting up 4 signs per mile for the first 23 miles. This was cut down to 14 signs total along this stretch of the canal. Around this time Jett and his co-worker Ronald F. Lee made the first recommendation that this be designated a National Historical Park but they did not make much headway. By 1950 graffiti proved to be a major issue with the interpretive signs that had been installed. The Canal Clipper launched

in July 1941 as the first mule-drawn interpretive boat on the canal. This boat operated on the south side of Georgetown, passing through lock 4 to demonstrate how commerce flowed through the canal historically (Mackintosh 1991: 40-41).

The National Park Service and Bureau of Public Roads submitted a report to Congress in August 1950 where they endorsed the construction of a parkway—the future Clara Barton Parkway, administered by the NPS and originally conceived as lanes of the George Washigton Memorial Parkway—which covered large portions of the canal. This report called for Maryland to obtain 11,900 acres of land to accommodate the parkway and add to the acreage already possessed by the NPS. The report called for nearly one million dollars to repair historic buildings, re-water 26 miles of the canal, and build a headquarters and museum in Cumberland. But the majority of the funds, over 16 million dollars, would be used for road construction. Ranking historians in the park service, Ronald F. Lee and Herbert E. Kahler, as well as T. Sutton Jett and Rogers W. Young, all endorsed the report and its proposed parkway. They viewed the parkway as a means of obtaining funding to preserve and repair at least some of the treasured cultural resources along the canal (Mackintosh 1991: 56-58). Museum exhibits were installed in 1951 during rehabilitation of the Great Falls tavern, which already had a long history of tourist traffic. The Administrative History says the tavern was meant to "assume the major burden of historical interpretation" (Mackintosh 1991: 41).

When Supreme Court Justice William O. Douglas learned of the parkway plans, he organized a hike along the towpath to raise opposition to the parkway. This famous hike of the "nine immortals" brought national attention to the canal. On March 27, 1954, after hiking all the way down from Cumberland, they boarded the Canal Clipper below lock 5 and floated into Georgetown. Two of the hikers wrote an editorial afterword which suggested, "special attention should be given to historic sites." The editorial also added emphasis on the recreational value and development of the canal. Justice Douglas himself wrote to Secretary

of the Interior Douglas McKay about developing canal property as a recreational area, enabling more canoeing and fishing, and establishing campsites. (Mackintosh 1991: 72). Eventually, in response to the public awareness raised by Douglas and others, Dwight Eisenhower designated the C&O Canal a National Monument in 1961.

The park as we know it today took shape in 1971. Nearly ten years after its designation as a National Monument, Congress passed the Chesapeake and Ohio Canal National Historical Park Act which would provide the National Park Service with more authority and funds to preserve the cultural resources of the canal. President Nixon signed the act into law on January 8, 1971. Four years later, the park commission endorsed the Chesapeake & Ohio Canal National Historical Park General Plan. This plan structured the park according to five types of zones based on purpose and expected traffic. They labelled the first type of zone a National Interpretive Zone, and designated 6 sections of the canal to this zone. Other sections received less visitors and served different purposes, but public interpretation has been an important part of the park mission ever since.

Chapter 4: Methods and Data

Research at certain locations, such as the national archives and MRCE facility, was hampered due to Covid-19 closures and restrictions. However, limited research still revealed opportunities for improved interpretation of immigrant labor along the C&O Canal. On July 20, 2021 a visit to the park headquarters in Williamsport allowed for a survey of the park archives. Conversations with the park archaeologist, historian, and cultural resource manager while at the headquarters also revealed avenues of research to explore the topic of canal laborers. The Great Falls Tavern library housed a few archaeology reports and these were reviewed on July 21, 2021. Research in the National Park Service History online library on August 11, 2021 supplemented these archaeological studies with resource reports and other park service publications. Another visit to the park headquarters on September 21, 2021 was conducted to look for any additional archaeological reports not held at the Great Falls Tavern library.

State and University records also supplemented the hard copy records shared by the National Park Service. Research conducted in the UMD special collections on November 17, 2021 led to C&O Canal company records. These highlighted the issues management faced but did not always share with the frustrated canal laborers. Based on research and conversations with the C&O Canal archaeologist, a geographic search on the Medusa database, the statewide cultural resources geographic information system (GIS) produced and administered by the Maryland Historic Trust (MHT), was focused around the Monocacy Aqueduct and the Paw Paw Tunnel. These were the two largest construction projects along the canal that took the most time and likely had canal workers camped nearby for an extended period. The search on Medusa also focused on Phase II and Phase III reports under the

assumption that these reports would likely report greater amounts of usable data. On January 10, 2022 a comparison of the list of sites that fell within the geographic area with the lists of sites with Phase II and Phase III reports led to 2 previously inventoried sites at Monocacy and one site at Paw Paw. Hard copies of the archaeology reports at Great Falls Tavern were reviewed on February 5, 2022 before going out into the field, and digitized copies of these reports (Bedell 2011: Fiedel 2005) were later obtained from the MHT library in Crownsville, Maryland.

In the Berger groups study of the Monocacy area, they focused on the South side of the aqueduct in search of an 18th century settlement rumored to be present in that location. The pedestrian survey conducted by the author of this thesis on February 7, 2022 started on the north side of the aqueduct in search of other potential locations for worker camp sites. The Louis Berger group had already surveyed south side of the aqueduct in their study. Permission was obtained from the park archaeologist but no permit was required since no excavation took place and no artifacts were disturbed. The survey followed the towpath looking for any historic structures and then went down the edge of a farm field on the eastern side of the canal along the edge of park property. A short pedestrian survey on a 5-meter spread on the north shore of the Monocacy River was conducted due to its proximity to the aqueduct. This led to the discovery of an individual, large rectangular cut stone on the surface near the top of the hill that runs along the edge of the river. The Gaia GPS app was used to record the route of the pedestrian survey and mark the GPS coordinates where photos were taken. Further research was conducted from March 21-28, 2022 in the artifact catalog in the Berger report. This was made easier through online access via the MHT. On March 29, 2022, artifact analysis books were obtained from UMD special collections and general distribution.

Visitation trends were also analyzed with historical and archaeological data to make better informed recommendations for interpretation. A visit to the Great Falls tavern library

on February 17, 2022 focused strictly on park interpretive efforts between 1936 and 2021. Canal boat interpretation featured prominently in the park's interpretive tradition, going back to the introduction of the mule-drawn, reconstructed vessel the *Canal Clipper* in 1941, and the park administrative history outlined other efforts to interpret the history of the park since before its inception. These accounts of park interpretation generally lacked detailed visitation analysis. Visitation data was collected from Irma.NPS.gov on March 7, 2022. This data on the number of visitors per site and per month showed which locations contained the most interpretive potential regarding larger audiences. This consideration of large audience areas is necessary to justify future allocation of resources for interpretation. The data for Great Falls Tavern and Monocacy visitation had been recorded by an inductive loop traffic counter. The traffic numbers were divided by two to account for vehicle entrance and exit from the parking lot.[2]

Interpretive analysis included counting the references to canal workers in several interpretive products. The Great Falls Tavern exhibit and Monocacy kiosk were chosen for their Canal worker subject matter and high site visitation numbers. The Monocacy kiosk is also located near several archaeological sites with potential for canal construction era artifacts to be found. The online articles were chosen because their subject matter pertained to canal construction, a prominent canal feature with analyzed archaeological sites nearby, or both.

As the National Park Service has expanded interpretive services into the online domain, it made sense to include data from several interpretive webpages in this study's data. These webpages all possessed content which interpreted the experience of canal workers or the fruits of their labor. Before critiquing these sites for content, I believed it was important to see how much visitation they received compared to physical visitation of sites along the Canal itself. The period of study is unique because it overlaps with the covid-19 pandemic when people were encouraged to stay indoors and the park worked to engage visitors with

online resources. This comparison of data at a time with increased incentive to view online rather than in person resources, provides interesting insights into the park's interpretive efforts. The Irma.nps.gov website has high-low graphs of the traffic counts of different locations along the canal. However, these graphs do not compare sites side-by-side, and they also do not compare in-person visitation with online visitation.

Chapter 5: Archaeology Results and Analysis

The most recent archaeological investigation conducted on the lower portion of the C&O Canal was carried out by the Louis Berger Group from 2003-2005. They split their reporting into three volumes. Volume 1 was written for a public audience, Volume 2 explains the methodology and results to a CRM professional audience, and Volume 3 contains more technical data summaries and archival records used for the narrative in Volume 1. Volume 3 of each report also contains complete artifact catalogs and partial explanation of artifact coding procedures used by the Louis Berger Group in the laboratory. This project was implemented as part of the Systemwide Archaeological Inventory Study (SAIP) for the park. The reports assert that the most valuable contributions to human knowledge can be made by focusing on pre-contact history in the park, aligning the survey with the objectives of the Potomac River Archaeology Survey (PRAS), a long-term cooperative research program to research Native American subsistence and settlement in the Potomac River Basin, which was led by Richard Dent at American University, and William Gardner at Catholic University, during the 1970s and 1980s. This prioritization of pre-contact Native American contexts is evident in the reports' disproportionate focus on these contexts in the results and analysis. However, the relatively sparse archaeological data on the canal construction era provides some interesting avenues for further study and interpretation of the canal workers. The argument of this thesis is that the NPS can leverage the results of the archaeological inventory study to better interpret labor as a historical interpretive theme.

The Berger group only hypothesized one site on the lower portion of the canal as having links to canal construction after their investigation. That site is the Chick Farm (18FR335) (Fiedel 2005:126). However, the conclusion of their report reads, "surface survey

and metal detection at Chick Farm did not produce unambiguous evidence of a workers' camp, as had been hoped. No traces of any of the workers' shanty towns have been identified [at this location], and no specific locational data concerning their whereabouts could be gleaned from any of the documents examined." (Fiedel 2005: pg. 168). Despite this disappointing conclusion, there is still hope for learning more about canal workers via archaeology.

The park archaeologist currently employed at the C&O Canal, Justin Ebersole, suggested that features with long construction timelines are more likely to have evidence of canal workers nearby. Structures like the Monocacy Aqueduct and Paw Paw tunnel took a long time to build and required laborers to be camped nearby for longer periods of time than elsewhere along the canal. This hypothesis, combined with Peter Way and the Berger groups suggestion that existing buildings were often converted to reuse by canal workers, form a site location model for the canal. Instead of looking for shanty towns which possessed little permanent infrastructure, the search for canal workers should center on more substantial structures made out of stone or brick which are located near aqueducts, tunnels, and other features which took a long time to build. The location of several of these structures is already known and they have a good chance of increasing understanding of canal worker life. Carrying out further investigation on these known sites could be a more efficient way of gathering archaeological data on canal workers, rather than continuing the search for shantytowns. Following this site location model, there are several more sites besides the Chick Farm site (18FR335) which deserve further investigation.

18MO583 (House Foundation)

Site 18MO583, identified during the survey conducted by Louis Berger Group, is located near MM 42 and consists of a house foundation from the late 18th century. Only four artifacts were recovered in a surface collection survey at this site. Three of these artifacts were mid-19th century whiteware ceramics (Fiedel 2005: Vol 3). By 1790 England dominated the tableware industry in Ireland and North America (Miller 1980: 1). If Irish laborers slept in or visited this house, the whiteware may have been familiar to them. Archaeological studies of rural homes in Ireland have found similar refined earthenware which dates to the years just prior to and during canal construction. These homes were destroyed and the families evicted during economic hardships of the mid-19th century. Many Irish families in these situations migrated to America (Brighton 2009: 61-63). The shell-edge and hand painted aspects of the recovered ceramics signify these were a more expensive type of whiteware sold at that time (Miller 1980). This more expensive tableware may have been a symbol of class distinction to the Irish in the new world and reminded Irish of the painful class distinctions they had left in Ireland. It is difficult to know whether Irish workers used the whiteware that would have been familiar to them at this site. Further archaeological study could search for canal construction related artifacts at this site and ascertain the sites level of connection with canal construction.

18MO577 and 18MO582 (Little Monocacy)

These two sites border each other on the south side of the Monocacy Aqueduct. Site 18MO577 was identified in soils exposed in a cutbank and during shovel testing conducted in search of a mid-18th century settlement in the Monocacy Basin. Site 18MO582 designated a surface lithic scatter east of the towpath, and hence received a separate trinomial site number.

The Berger group focused on the prehistoric artifacts in their report summary of this second site. However, both sites contain important mid-19th century artifacts.

The pearlware discovered at 18MO582 potentially dates the historic component of the site to the 18th century. This is before the canal construction era but could point to the 18th century village the NPS employees were interested in. Given that the Monocacy river flows westward, it is unlikely that flooding moved these artifacts east of the basin area in 18MO577. Future searches for evidence of this 18th century settlement should be conducted in 18MO582 and further East, given the presence of this pearlware, and the seeming lack of it in 18MO577.

Table 1: 18MO582 Historic Artifacts

STP	STR	Item	TPQ - TAQ	Count
A1	A/B	Whiteware	1820	1
A3	B	Whiteware	1820	1
A3	B	Whiteware underglaze painted	1820	1
B1	B	Barbed Wire	1873	1
B2	A	Whiteware	1820	3
B3	A	Whiteware	1820	2
B4	A	Pearlware	1775 - 1840	1
-	Surf	Whiteware - Transfer Printed - Flowing Colors	1835 - 1910	1
-	Surf	Pearlware - Engine-turned	1775 - 1840	1
-	Surf	Pearlware - Underglaze Blue Handpainted	1775 - 1820	1
-	Surf	Pearlware - Shell Edge - Blue	1800 - 1840	1

Source: These tables were created using data from Volumes II and III of the Louis Berger report (Fiedel, Bedell, LeeDecker 2005:115).

More pertinent to canal construction however is the presence of cut nails at site 18MO577. These nails are important to dating the site and are also evidence of an important

time in U.S. history. With westward expansion and frontier settlement, demand for building materials was high. In 1810 there were 410 naileries in the United States and the average American used 2.18 pounds of nails annually. From 1823 to 1835, overlapping the period of canal construction, the price of cut nails dropped gradually to 5 cents per pound. By 1850 the U.S. census showed only 87 naileries in the U.S. (Edwards 1993). The nails could have helped build temporary structures for residents or canal workers. Further investigation would be needed to ascertain which group used these. But the presence of nails in the area alludes to some sort of wooden structure built during, or just before, the canal construction era near the canal path. Whether it was built by residents or canal workers its proximity to the canal via chronology and location make it significant in any study pertaining to canal laborers.

Table 2: 18MO577 Historic Artifacts

STP	STR	Item	TPQ - TAQ	Count
D1	A	Machine Cut Nail	1830	1
E2	A	Whiteware	1820	1
E2	A	Machine Cut Nail	1830	4
E2	A	Wire Nail	1880	2
E3	D	Whiteware underglaze painted	1820	1
H1	C	Unidentified Bottle/Fragment-body	-	1

Source: See Table 1.

18FR335 (Chick Farm)

The Chick Farm Site is the only site the Berger Group hypothesized could be an instance of reuse of an extant structure connected with canal construction activities. This supports Peter Way's research into the instances of Canal Workers using buildings already in existence (Fiedel 2005:126). This site also contained whiteware. It should be noted that 3 of these pieces have transfer printed designs, which were among some of the most expensive

types of ceramics short of some fully hand painted designs, however transfer printed whitewares were also manufactured beyond and after the period of the canal's construction.

A previous archaeological study found evidence of two broken picks at this site. This contributed most to the hypothesis that a canal worker camp was located at this site. However, the railroad spike, and other large spike found at this site also carry importance. One or both of these spikes may have been intended for the temporary railroad used by contractors to transport stone to the aqueduct (Kapsch 2001; Unrau 2011: 26). The railroad spike could also be connected to the nearby B&O railroad, which competed with the C&O Canal for laborers.

18AG255 (Superintendent's House) and 18AG276 (Boxwell Family Dwelling)

The Berger Group discovered 4 archaeological sites near Paw Paw Tunnel. One of these was a prehistoric site, the other ended up being outside of the park boundaries. Of the two remaining sites, the Superintendents house site (18AG255) has an interesting connection to the labor of canal workers. This site contains thousands of discarded bricks which were intended for the Paw Paw Tunnel. The contractor, Lee Montgomery, had the laborers on his crew fire these bricks, only to have them rejected by the assistant engineer, Elwood Morris. This incident highlights the tension and likely frustration that existed in the management structure which canal workers labored under. By the time the tunnel was large enough to consider lining it with bricks, the paternalism that once existed on the canal had largely faded. This meant that delays in construction meant delays in the one reward laborers received for their work: wages. The delay caused by acquiring bricks from another source likely caused frustration all the way down the labor hierarchy for the canal, but canal workers paid the dearest price. The Boxwell family inhabited what is now Site 18AG276 during the canal

construction era. They were neighbors to the canal workers and also likely interacted with them.

Present Day Conditions

After researching the Little Monocacy River area, a pedestrian surface level survey was conducted on February 7, 2022 to document present day conditions. Figure 4 shows the route followed while surveying the area and the locations where photos were taken. Due to the number of dead leaves on the ground, a tight grid pattern was used along the north bank of the Monocacy River. Then the survey followed the towpath, eventually circling East to follow the path of a creek which also bordered the edge of park land. Some faint trails, near the aqueduct on the West bank of the Monocacy River, split from the towpath toward the Potomac River. Following this trail along the low ridge of the west bank led to the discovery of a stone block (Figure 5). The tight 5-meter transect interval was used along the west bank to look for other surface artifacts nearby but did not result in any more significant finds.

After crossing back over the aqueduct, pictures of stones in the aqueduct were taken for comparison to the stone pictured in Figure 5, in terms of material, color, and surface treatment. The survey continued along the low ridge on the East side of the Little Monocacy River since that tactic had met with some success on the West side. This survey of the East bank led to several discoveries of concrete foundations. Further inspection of these foundations on the East side by the park historian and archaeologist revealed they dated to around 1970, about the time the C&O Canal transitioned from a National Monument to a National Historical Park. However, the stone from the west bank did not appear in park records and further analysis is recommended to ascertain which historical period it is from.

There is a rough site location model which can be drawn from the archaeological sites mentioned in this report. Each of these sites are located near the Monocacy Aqueduct or

Paw Paw tunnel. These canal features took several years to complete, and therefore required canal construction laborers to live nearby for extended periods of time. Thus, more material culture of canal workers is likely to be found in these places with longer periods of habitation. In fact, artifacts were found at each of these sites which could be tied to canal construction upon further investigation. Future undertakings should focus on these sites and conduct a more careful search for canal construction era archaeological resources. Longstanding structures built in the late 18th to early 19th century, located within 1 mile of canal features which took more than one construction season to complete, are more likely to yield material culture related to canal construction and the Irish laborers. Significant finds at one of these longstanding structures, made out of stone or brick, could give clues to the location of a workers camp. The search for workers camps, which were made out of cheap building materials along a river which experienced multiple severe floods, should be postponed until these cataloged sites are thoroughly investigated.

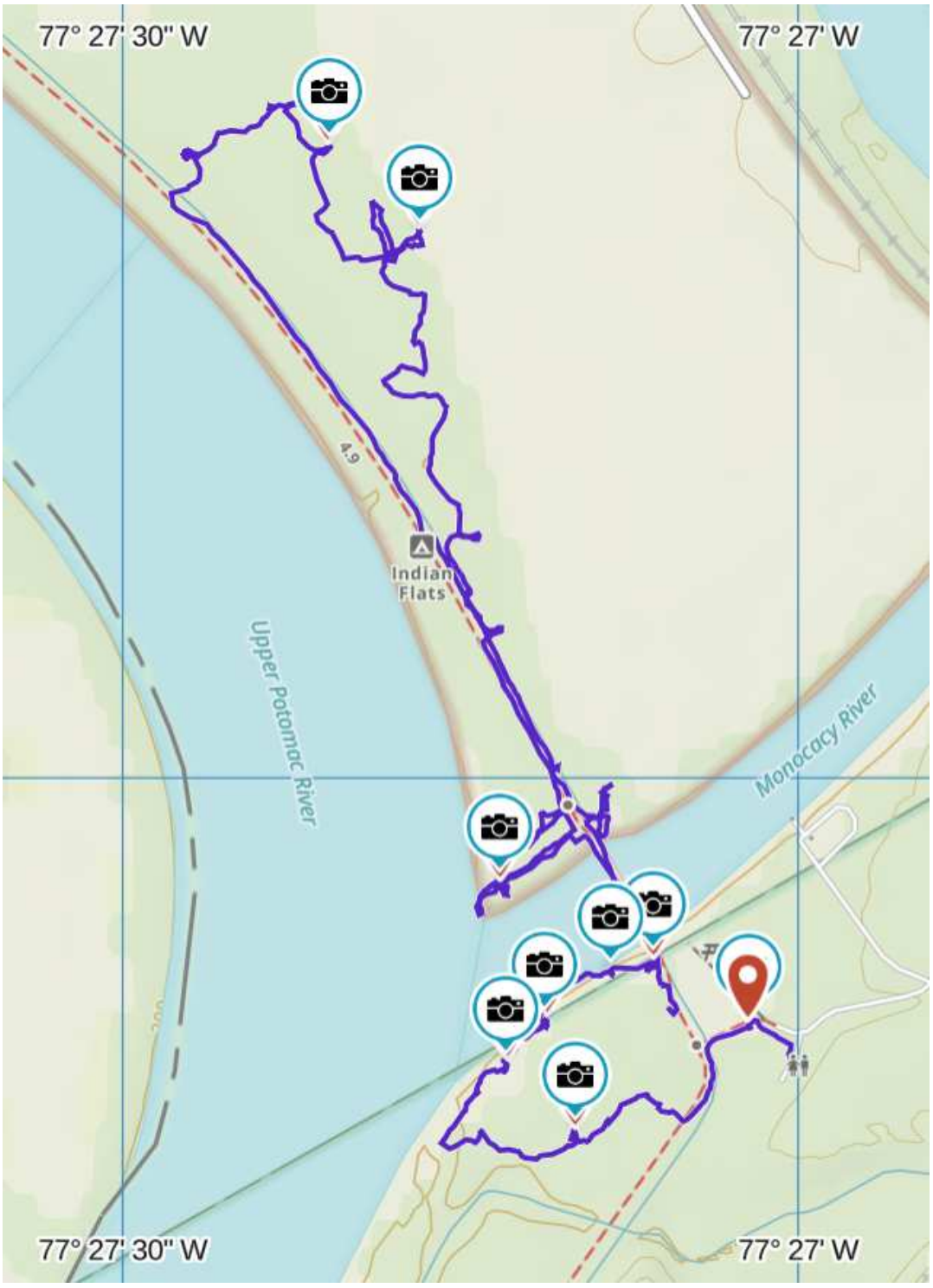

Figure 4: Route of Pedestrian survey at Monocacy Aqueduct on February 7, 2022.

Figure 5: Unidentified Stone. Stone that was unaccounted for in archaeologist's records at C&O Canal NHP headquarters. Located along the north bank of the Monocacy river, west of the aqueduct. Further inspection needs to be completed to ascertain whether this is another 20th century feature, or if it dates back to the canal construction era.

Analysis

The Berger study seems to have focused more on pre-contact Native American resources and this shows in the report. Extensive analysis of Native American sites outweighs and overwhelms the reporting on possible canal construction era sites, even though the report's authors did engage canal history and some were trained as historical archaeologists (Shellenhamer). In some instances, they failed to screen overlying soils with 19th century artifacts in pursuit of earlier buried "A" horizons. This fails to meet one of the research goals stated at the beginning of the project, to find and study canal worker camps.

Chapter 6: Interpretation of Labor History at the C&O Canal

Several interpretive products attempt to convey the history of canal workers at the park. Analysis of the content and visitation to these displays revealed possibilities for further interpretation on this topic. Displays which are located on park grounds, near tangible park resources which lend themselves to interpretation, are designated as physical interpretation. Articles and pictures accessed via the internet are designated as online interpretation.

Interpretive Product Analysis

In the table below, "GFT Exhibit" signifies the display about canal workers at the Great Falls Tavern visitor center. The "Mnccy Kiosk" stands for the 3-sided kiosk at the Monocacy Aqueduct parking lot. These two locations on the canal receive the most visitors and the physical interpretive products analyzed are the only ones at these sites that mention canal workers. The online interpretive products came in various lengths and with varying degrees of focus on the canal workers role. The next three items in the table, "Cnl Wrkrs", "Cnl Cnstrctn", and "Mnccy Aqdct" are all National Park Service webpages. The titles on their webpage respectively read "The Workers Who Built the C&O Canal", "Canal Construction", and "Monocacy Aqueduct". The last item on the table, denoted by "Brgr Vol 1", refers to the Berger Report available to the public online.

Table 3: Interpretive References to Canal Workers

Product	Worker	Immigrant	Laborer	Other Ref	Total Ref	Total Wordcount
GFT Exhibit	3	0	5	8	16	304
Mnccy Kiosk	0	0	0	1	1	244
Cnl Wrkrs	37	1	9	16	63	2454
Cnl Cnstrctn	2	1	0	2	5	727
Mnccy Aqdct	0	0	0	0	0	456

Brgr Vol 1	13	0	0	10	23	1064

Of the two physical interpretive products, the Great Falls Tavern exhibit does a better job than the Monocacy Kiosk of addressing the subject of canal workers. It is completely dedicated to the subject of canal builders, whereas the Monocacy Kiosk is vaguely titled "Springing Over the Monocacy".

The Great Falls Tavern exhibit promotes a victimhood mentality for the Irish canal workers. The text focuses on the workers unmet expectations, harsh work conditions, and their attempts to "get the pay and meager benefits they deserved". The Monocacy Kiosk highlights the successes of Benjamin Wright, who came from a higher economic class. The comparison of canal workers to their employers from another class would help visitors engage critically with the subject matter. Critical theory involves analysis within an economic class system. But it is difficult to accomplish this while only observing one class within a certain narrative, such as victimhood. Presentation of data from different economic classes, side-by-side, allows visitors to form their own narrative and critically analyze the characters and events on display. Presenting primary sources and artifacts in a structure that invites comparison and contrast fulfills the vision Leone and Shackel had at Annapolis. If the canal laborers are presented within any narrative, it may succeed in "provoking" visitors but it hampers the parks ability to facilitate safe discussions because the park has already taken a stance in the discussion. Presenting a few tangibles with contextual information, such as cut nails, whiteware, bottle glass, or before and after pictures of the canal, would easily fill an interpretive display of comparable size to what the park already has. The park can help the visitors formulate their own narrative by asking good questions. These questions should obviously focus on the primary sources presented by the park. The questions can also frame the laborers according to their relationship with their employers, their environment, and each other. Labor history may have begun with the intent to balance historical narratives which

had previously focused on powerful individuals. But continuing the trend of narrating specific groups experiences within history limits the perspective on these groups and potentially pits the park against those who have an opposing narrative on labor history.

Figure 6: Monocacy Exhibit. This interpretive panel at the Monocacy kiosk only makes 1 reference to the "200 men" who built the aqueduct, but refers to Benjamin Wright 4 times. The other two panels on this interpretive structure do not reference the canal laborers at all. More even attention to the experience of canal laborers and individuals from an upper class like Benjamin Wright, focused on the dynamics of their relationship of power, would encourage more critical thinking from visitors.

Interpretive Traffic

It is difficult to gauge how much physical products engage the public. Of the thousands of visitors who pass by the Great Falls Tavern and Monocacy Aqueduct, not all of them stop to read interpretive signs. Meanwhile, online interpretive products do not record the amount of time spent looking at a page, but there is the assurance that they did engage with the material, however briefly. Due to these important differences, the physical and online visitation graphs are separated. Both represent the potential audiences within their

reach. But online interpretive product visitation is a more direct reflection of visitor engagement.

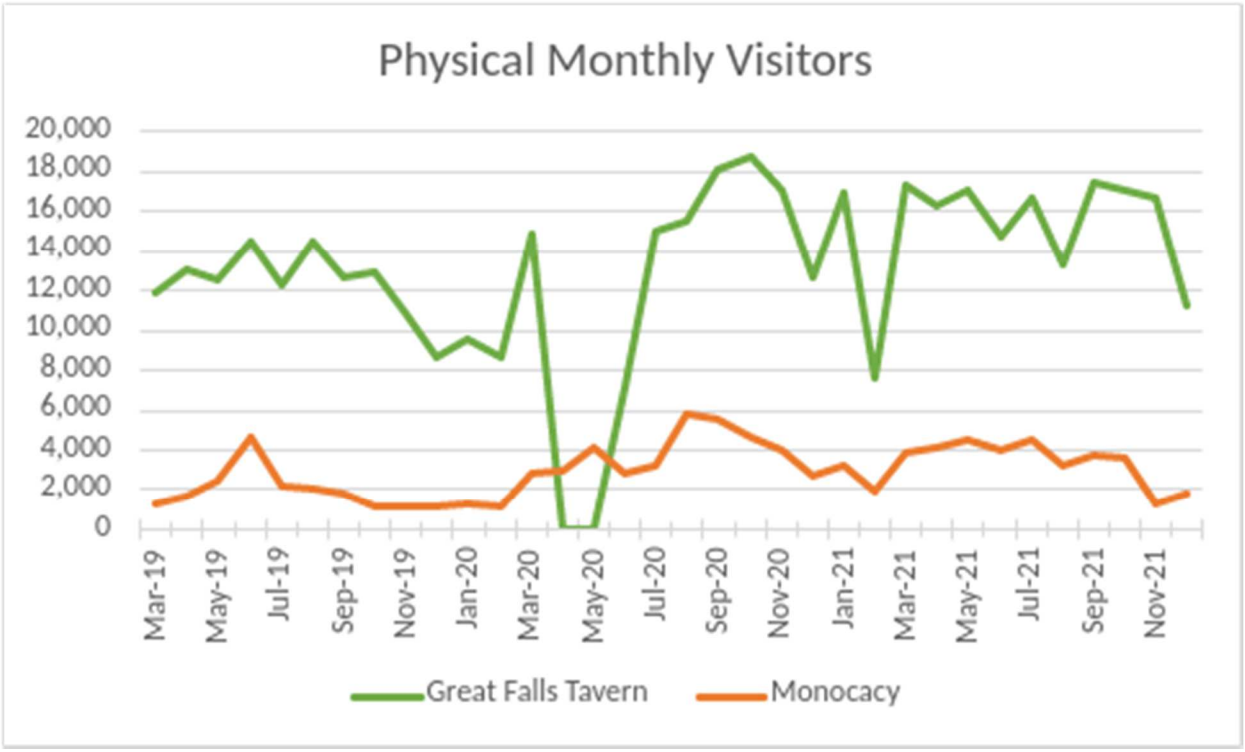

Figure 7: Physical Monthly Visitors. Source Irma.NPS.gov, chart by the author.

The dip in Great Falls Tavern visitation in April and May of 2020 was due to a two-month closure for Covid-19 prevention measures. The subsequent peak in visitation surpasses the numbers from 2019 for the same period by several thousand. This peak takes place at both sites, although the Monocacy's takes place a few months prior to the Great Falls Tavern peak. These spikes in visitation match comments from many visitors in 2021 who said the canal was their escape during quarantine. This may have contributed to the spike in visitation, even in the humid East Coast heat. This increase in visitation shows the importance of the park's physical resources, and their potential for interpretation, even when online resources were readily available at home for many visitors.

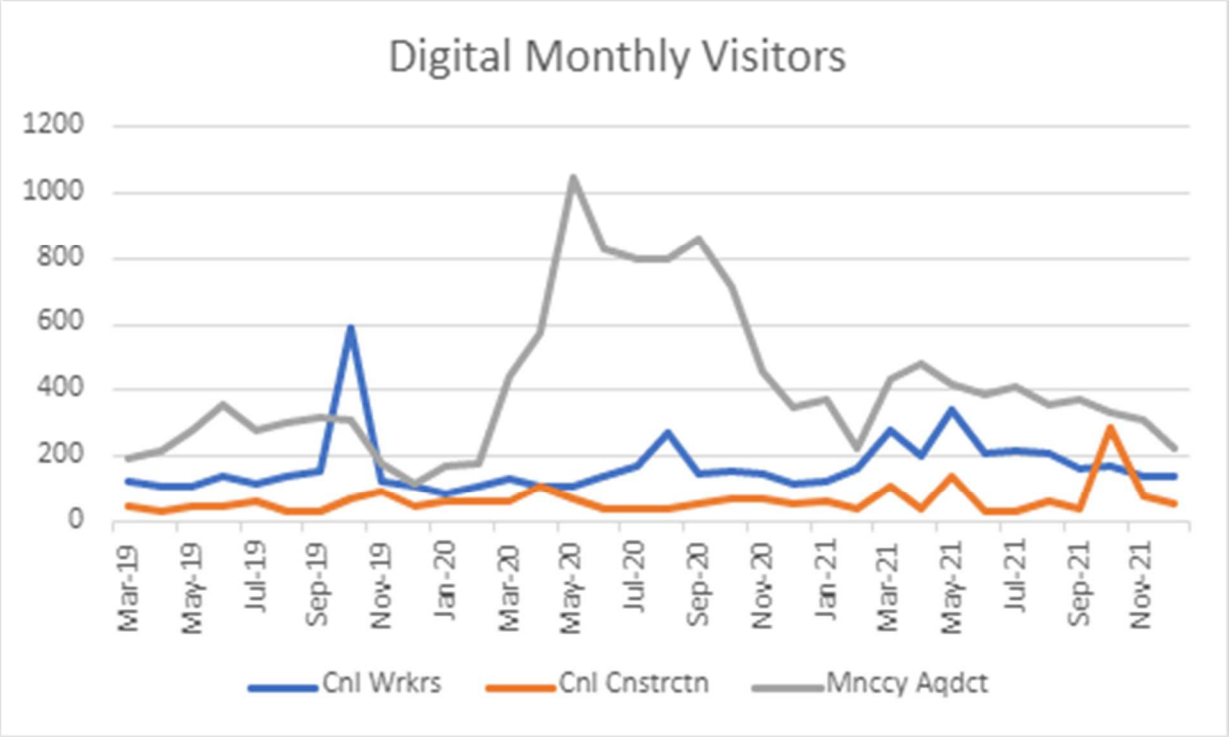

Figure 8: Digital Monthly Visitors. Source Irma.NPS.gov, chart by the author.

The data for digital monthly views is based on the number pageviews for each online interpretive product per month. The only one that seems to correlate with the Covid-19 pandemic is the Monocacy Aqueduct web page. This webpage was updated on April 30th, around the same time as the spike in pageviews. Heavy rainfall at this time also led to flooding and closure of several locations along the canal, including the Monocacy boat ramp. This webpage included updates on park alerts and closures, which visitors may have been checking to see when the boat ramp would reopen. Ascertaining the primary interests of visitors viewing the webpage would help in generating more engaging content for online visitors. The online Volume 1 Berger report, which was written with a public audience in mind, did not have monthly pageview data (Fiedel 2005). Between 10/1/2020 and 9/30/2021 the report was downloaded 73 times (Irma.nps.gov).

The analysis of physical and digital visitation is important for allocating interpretive resources. Understanding which places are visited the most, and what causes the visitors to travel to these places, helps park leaders know where to implement and update interpretive resources. Familiarity with the publics knowledge of archaeology facilitates better interpretation. It is important to consider the two-way flow of knowledge. This is one of the instances where interpretive staff can demonstrate their value. An interpreter's ability to engage in a bilateral transfer of knowledge with a visitor is unparalleled. Whatever forms interpretive displays take, whether on waysides, exhibits, web pages, or social media posts, they lack this human element. They do not leave room for the visitor to share their knowledge with the source of park knowledge except perhaps through online comments. In high quality interpretive interactions, where the visitor is inspired and engaged, they often want to share something with the interpreter, the source of knowledge. But the visitor feedback is cut off or greatly hindered by only offering static interpretive offerings with only the means of written communication for the visitor to provide feedback.

Chapter 7: Conclusion

This project began with a desire to improve the interpretation of Irish canal laborers at the C&O Canal. Their experiences with cholera panics, labor market forces, and ethnic profiling at the beginning of the industrial revolution make for a compelling story. Their experience is relatable to visitors who have experienced contemporary COVID-19 panics, a turbulent labor market, and racial tensions. From state sponsored capitalist venture to federally administered national historical park, the historical integrity of the canal dug by immigrant labor has been preserved. The 184.5-mile towpath built up by a mostly Irish labor force still allows passage of visitors, nearly 200 years later. Along this towpath, there is significant potential for archaeological study and interpretation of the labor which made the canal a reality.

At the Monocacy Aqueduct, it may be worthwhile to conduct an archaeological study on the north bank. The trees in the area around the stone block discovered during fieldwork do not appear to be any older than trees that had grown in the canal itself, which means it could have been a cleared-out area during canal construction. The land on the north side also seems to have a little bit more elevation above the water line than the south side, making it more desirable along rivers with fluctuating water levels. These factors, along with the proximity to the multi-year project of the Monocacy Aqueduct, warrant a continued search for a worker's camp. Further analysis is needed on the stone block, to see which historical period of the canal it relates to. The sites previously analyzed are all located near the labor-intensive canal features of the Monocacy Aqueduct or Paw Paw tunnel. These sites date to the period of canal construction and were likely visited, if not occupied by, canal workers. The Berger reports cursory survey of these sites should be followed up with more thorough

archaeological investigation in order to search for material culture which confirms the presence of Irish laborers.

The sparse archaeological record of the canal workers can be used to draw conclusions similar to other studies (Van Bueren 2002; Merrit, Weisz, and Dixon 2012). As with other long range infrastructure projects of this era, the workers on the C&O Canal were transient and poor. Many of them were single young men, without a permanent home along the canal and with few material possessions. If the public history community is not careful, it will be easy to overlook these builders who carved a major transportation artery out of tough soil. But their lack of personal possessions along the towpath is precisely why their story needs to be told. If the progress of critical archaeology is to continue, then the lowest classes of society must be illuminated. Even with the limited historical and archaeological record that they leave behind.

The material culture already found at these sites has great interpretive potential. Tobacco pipes, ceramics, cut nails, and bricks for Paw Paw tunnel could all provide tangibles for interpretation. These would provide more to interpret for the canal workers than just the canal prism and the towpath. Further archaeological investigation would add to the collections held by the park service which could be rotated on display for the public. This could enable the critical archaeology argued for by Potter and Leone. It would invite visitors to engage with the artifacts and primary sources to draw their own conclusions instead of narratives presented as absolute truths. The history of construction labor on the C&O Canal can help visitors contextualize the changes in the labor market that happen today and provide a way for visitors to engage in discussion about the topic.

The Great Falls Tavern Visitor Center would provide the largest audience of all the locations along the C&O Canal. When the next update of interpretive displays becomes prudent, an exhibit with canal labor material culture and canal board documents, set within

the power struggle between immigrant laborers and the board of the C&O Canal, could pose thought-provoking questions to visitors. The current canal labor display in the visitors center lacks a counter-perspective from C&O Canal stockholders, and would benefit from the addition of material culture or pictures of it. In the spirit of Tilden's third principle, which says any art is in some degree teachable, the park could display historical materials from canal construction and teach them the basics of the arts of archaeology and history. A cut nail for example, displayed with discussion of cross-grain and longitudinal grain features and how this is used to date the nail and a site, would facilitate this principle of interpretation (Tilden 1957).

There are several avenues which can be pursued for further understanding of this topic. Unfortunately, the Library of Congress and National Archives were closed for most of the duration of this study, which severely limited archival research in the area. Further research should seek out communication between contractor's and the C&O Canal Company in order to round out perspective and illuminate conflicts taking place among the laborers employers. Census records could illuminate other properties which were sublet to laborers. The park has also contracted a study of enslaved labor along the C&O Canal and those findings should be compared to the experience of Irish laborers to shed further light on both groups. Future studies of interpretation at the C&O Canal could also analyze the park's social media posts, with social media platform's plethora of data measurements.

Using these items for interpretation also follows Tilden's principles of interpretation. The first states, "Any interpretation that does not somehow relate what is being displayed or described to something within the personality or experience of the visitor will be sterile." This acknowledges the importance of understanding and appealing to common experience among visitors (Tilden 1957). As we move further into the 21st century, there is a call for engaging new and diverse audiences in the National Park Service (Coslett 2016). Labor

history, interpreted through the material culture of Irish canal workers, would engage minorities and immigrants in new ways at the C&O Canal. It would be fitting for a National Historical Park such as the C&O Canal National Historical Park to not only present a historical narrative, but the primary sources and artifacts from which historical knowledge is derived. This sharing of source material with visitors invites them to critically engage with the subject matter, which has several benefits over delivering a polished historical narrative as argued for by the Annapolis school (Potter 1986). While Tilden's principles are over sixty years old, they continue to provide an important bedrock for NPS interpretive efforts today. These principles of interpretation are enhanced by the inclusion of archaeology, an art which is uniquely situated to "provoke" visitors.

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