The Urban Landscape of Health, Hygiene, and Social Control: The Development of Municipal Services in Battle Creek, Michigan

Barrett

Follow this and additional works at: https://scholarworks.wmich.edu/masters_theses

Part of the Archaeological Anthropology Commons

Recommended Citation
THE URBAN LANDSCAPE OF HEALTH, HYGIENE, AND SOCIAL CONTROL: THE DEVELOPMENT OF MUNICIPAL SERVICES IN BATTLE CREEK, MICHIGAN

by

Jared Lee Barrett

A Thesis
Submitted to the Faculty of The Graduate College in partial fulfillment of the requirements for the Degree of Master of Arts Department of Anthropology

Western Michigan University
Kalamazoo, Michigan
June 2002
ACKNOWLEDGEMENTS

The first person I would like to thank is Dr. Michael Nassaney. His guidance, support, and continual feedback during the thesis process helped me get to the light at the end of the tunnel. I would also like to thank Dr. Allen Zagarell and Larua Spielvogel for being on my committee and for their constructive comments during the revision process.

A special thanks goes out to my mother, Cleo Barrett, for her love, support, and proofreading of my thesis. I would also like to thank the rest of my family, my father John Barrett, my brother John Barrett, and my sister, Harmony, for their love and support throughout this long process. A special thanks goes out to my sister Rachel for her help with the illustrations and design for this thesis.

I also want to thank Peter Lawson, Jim Harris, and Matt Laidler. These three individuals came into the program with me and were of great support. If it were not for these three being here, it would have been a lot harder to finish this program.

I also would like to thank Matt Deloof for the time he spent with me reconstructing artifacts for this project. The 2000 Western Michigan University field school also needs to be mentioned here for their fieldwork, without which, I would not have been able to conduct this work. Juan Florencia also needs to be mentioned here for his support during the thesis revision process.

I would also like to thank the Historic Adventist Village for allowing Western Michigan University to conduct fieldwork at the James and Ellen G. White site.
I would like to thank Paul Shackel, Randall McGuire, and Robert Paynter. Their work on social control and discipline inspired me to take something commonplace and use it to examine issues of social control and discipline.

And last, but certainly not least, I would like to thank God. Without which, none of this would have been possible.

Jared Lee Barrett
This thesis is outlining the introduction of municipal water and sewer by using archaeological evidence. First, I will lay out a theoretical framework in which this research will be conducted. It will outline what social control is, how others have examined it, and how is it used by elites to retain their position in society. Next, it will outline the health, social, political, and economic conditions that existed that would give rise to this transition from privies and cisterns to municipal water and sewer services. Then the James and Ellen White site (20CA118) will be used to give evidence of this transition and how it can be used to examine issues of social control in regards to health, hygiene, and proper behavior/etiquette in the archaeological record. And finally, it will conclude with a summation of the thesis and raise questions regarding social control that one could examine using the archaeological record.
# TABLE OF CONTENTS

ACKNOWLEDGEMENTS .................................................................................................................. ii

LIST OF TABLES .............................................................................................................................. vi

LIST OF FIGURES ............................................................................................................................ vii

CHAPTER

I. INTRODUCTION ............................................................................................................................ 1

   Problem Orientation ...................................................................................................................... 1

   Organization of the Thesis .......................................................................................................... 9

II. THEORETICAL FRAMEWORK OF SOCIAL CONTROL ............................................................... 11

   Social Theory and Social Control ............................................................................................... 11

   Archaeological Approaches to Discipline and Social Control ................................................. 17

   Previous Archaeological Approaches to Privies ...................................................................... 21

III. THE DEVELOPMENT OF MODERN SANITATION, PUBLIC HEALTH, AND CITY WATER AND SEWER ................................................................. 24

   The Sanitation and Public Health Movement in the U.S. During the Nineteenth Century ........ 24

   The Sanitation and Public Health Movement in Battle Creek During the Nineteenth Century ......................................................................................... 27

IV. HISTORICAL AND ARCHAEOLOGICAL INVESTIGATIONS ................................................. 40

   Early Period (ca. 1855-1863) ..................................................................................................... 40

   Agricultural Period (ca. 1864-1885) ......................................................................................... 43

   Residential Period (ca. 1886-1899) ......................................................................................... 43

   Tenancy Period (ca. 1900-1975) ............................................................................................... 45
CHAPTER

Preservation Period (ca. 1976 – Present) ....................................... 47

Archaeological Investigations ....................................................... 50

2000 Excavations ........................................................................... 51

Oval Cistern Behind the House ...................................................... 52

Cistern Under the House ............................................................... 58

Square Cistern .............................................................................. 63

Privy .............................................................................................. 71

Ceramic Pipe ................................................................................. 77

V. DISCUSSION ............................................................................... 85

Using Archaeological and Historical Data to Examine the Shift
Municipal Services ........................................................................ 86

Latent Reasons for Advocating City Water and Sewer ................. 92

Municipal Services as a Means of Discipline and Social Control .... 94

VI. SUMMARY AND CONCLUSIONS ............................................. 102

BIBLIOGRAPHY ............................................................................ 109
LIST OF TABLES

1. List of Applicants for Water as of August 11, 1887 as appeared in *The Battle Creek Daily Moon* ................................................ 37

2. Chronology of Water and Waste-Related Features Examined at the James and Ellen G. White House Site ........................................ 83

3. List of Important Events That Relate to the James and Ellen White Site (20CA118) in Battle Creek, Michigan ................................ 84
LIST OF FIGURES

1. S.S. Granger farm in Tekonsha Township, Calhoun County, Michigan .............................................................. 30

2. The Anson Mapes farm located in Battle Creek Township, Calhoun County, Michigan .............................................................. 31

3. Battle Creek College in Battle Creek, Michigan .............................................................. 32

4. Copy of a portion of the 1858 wall map of Calhoun County showing residential structures on lots 64 and 3 in Manchester’s 3rd Addition .............................................................. 42

5. 1873 map showing the James and Ellen G. White house likely misplaced on Lot 64 .............................................................. 44

6. Sanborn Insurance Map of Battle Creek, Michigan made in 1920 .............................................................. 48

7. The James and Ellen G. White house as it appeared in a photograph taken ca. 1930 .............................................................. 49

8. Map of the James and Ellen G. White site showing the three cisterns, the privy, and the ceramic pipe in relation to the house .............................................................. 53

9. East profile wall of oval cistern behind the house .............................................................. 54

10. West profile wall of oval cistern behind the house .............................................................. 55

11. Artifacts recovered from the oval cistern behind the house .............................................................. 57

12. Planview of cistern under the house .............................................................. 59

13. Planview of James and Ellen White house circa 1861 showing room on back of house .............................................................. 61

14. Top of automatic machine-made bottle recovered from the cistern under the house .............................................................. 62

15. Glass artifacts recovered from the cistern under the house .............................................................. 64
List of Figures - continued

16. Raised decoration, blue floral print ironstone dish and porcelain doll head recovered from the cistern under the house ................................................................. 65

17. Metal can of Sweet Georgia Brown Hair Dressing Pomade, copyright 1934 recovered from the cistern under the house ................................................................. 66

18. Planview of square cistern behind the house ................................................................. 67

19. South wall profile of square cistern behind the house ................................................................. 68

20. Some of the artifacts recovered from the square cistern ................................................................. 70

21. Profile of privy ................................................................................................................................. 72

22. Planview of privy ................................................................................................................................. 73

23. Plain white ware cup and decorated floral print white ware bowl recovered from the privy ................................................................................................................................. 74

24. Blue automatic machine-made bottle recovered from the privy, which dates to post-1920 ................................................................................................................................. 75

25. Milk bottle from M.P. Company and Ball Mason jar recovered from the Privy ................................................................................................................................. 76

26. Planview of ceramic pipe ................................................................................................................................. 78

27. Planview of James and Ellen White house in 1998 ................................................................................................................................. 79

28. 1920 Sanborn Insurance Map showing locations of 63 N. Wood Street and 202 Manchester Street ................................................................................................................................. 91

Chapter I

INTRODUCTION

Problem Orientation

Social control is an aspect of life that affects people on a daily basis whether they know it or not. It is the way in which anyone, actively and knowingly or unknowingly, is turned into a subject so that they become easier to predict, control, and manipulate which makes for a more ordered society, free of uncertainty and unpredictability. Social control is accomplished through any variety of operations on people’s bodies, thoughts, actions, and conduct (Rabinow 1984:11). Additionally, it can also be accomplished through the use of such categories as class, gender and ethnicity.

Social control has become of particular interest to social archaeologists in recent years, as the archaeological record has been used to show how social inequalities are created, maintained, and transformed. Social archaeologists interpret various forms of social control whether it be very overt such as chains from slaves in the American South (Ferguson 1991:45) or through the subtle manipulation of city landscapes to reinforce a particular social hierarchy (Mrozowski 1991). They have also suggested that some people, to varying degrees, either accept or resist these controls such as factory workers throwing out wasters at a cutlery factory in nineteenth century New England (Nassaney and Abel 2000) or enslaved women on plantations in Jamaica growing gardens separate from the ones they worked on (Delles 2000:195-196). An example of acceptance comes from William Fawcett and
Walter Lewelling (2000) in which they examined Shoshoni converts in the 1870s to the Latter Day Saint religion who settled in an area of northern Utah called Lemuel’s Garden. Here, the Shoshoni abandoned their traditional hunter-gatherer ways and adopted an agrarian lifestyle, thus accepting the dominant lifestyle in the area at the time. Furthermore, archaeologists interpret social control from the vantage point of the people being controlled, as well as the often-opposing perspective of those in control.

Although scholars have examined social control throughout the world, this study seeks to focus on America in the nineteenth and twentieth centuries. Many archaeologists have used categories that distinguish certain social relations of power, such as class, gender, and ethnicity, that occur within American society to examine social control (Leone 1995; Mrozowski 1991; Paynter and McGuire 1991; Shackel 1993). These categories of class, gender, and race have been used in research conducted under the auspices of the Southwest Michigan Historical Landscape Project (Nassaney et al. 2001). Dr. Michael Nassaney developed this project to examine how class, gender, and ethnicity are reflected in the built environment in southwest Michigan. My work will contribute to this growing body of literature that examines these social dimensions that are expressed within the archaeological record.

I chose to examine a residential home lot in Battle Creek, Michigan to explore how changes in the landscape, namely the abandonment of privies and cisterns, was motivated by a need for control and discipline over city residents. Social control can take on many forms and meanings, such as city ordinances, traffic laws, specific
institutions or structures, or specific behaviors associated with a particular class. It can also take the form of rules, customs, etiquette, and traditions such as how one acts in public, how one situates their house, what dishes are used at a formal dinner, or how one behaves at work, the taken-for-granted activities of everyday life that people do without actively thinking (Shackel 1993; Wall 2000). This thesis seeks to concentrate on some of the forms that social control took in the late nineteenth/early twentieth century by examining city municipalities, specifically water and sewer. Besides the health benefits of these services being promoted by elites within the city, I argue that there were also economic and political factors behind their introduction. By examining privies and cisterns excavated at the James and Ellen White site (20CA118) in Battle Creek, Michigan, one can better understand the introduction of municipal water and sewer services because this site was occupied during the late nineteenth and early twentieth centuries and has evidence of a privy and three cisterns.

Social archaeologists are examining the ways in which the social dimensions of human life structured archaeological remains in the past and how contemporary social relations inform and influence present day interpretations of the archaeological record (Nassaney 2000:3). The aims of this social archaeology are to demonstrate that the patterns of archaeological materials and their interpretations are expressions of social relations of class, gender, and race (Nassaney 2000:3). Social archaeologists employ a political-economic perspective to analyze the social relations that underscore the unequal access to wealth and power (Nassaney 2000:3). This
political-economic perspective can be used by historical archaeologists to examine issues of social control in the archaeological record.

This political-economic perspective can then be used to explore the development of what Orser has labeled the four “haunts” of historical archaeology: colonialism, Eurocentrism, capitalism, and modernity (Orser 1996:27). These four haunts are clearly characterized by complex social hierarchies created and maintained through the material world and numerous social interactions. Orser then, defines historical archaeology as the study of the modern world, or more specifically, it is a multi-disciplinary field that shares a special relationship with the formal disciplines of anthropology and history and seeks to understand the global nature of modern life. The time period for historical archaeology or in other words the study of the modern world, according to Orser, is somewhere from around AD 1492 and extends to the present (Orser 1996:27). It is during this period that one begins to see the four haunts of historical archaeology come together.

These four haunts of colonialism, Eurocentrism, capitalism, and modernity, are responsible for the expansion and growing influence of Western Europe, and later the United States (U.S.) throughout the world. As part of this expansion, new peoples and cultures were being encountered around the world that required various means to control while making them ideal subjects. Also due to these four haunts, large amounts of wealth was being accumulated in Western Europe, and later the U.S., which led to the development of a middle class. A need then arose to control these new cultures and a growing middle class, which led some elites to reinforce such
existing social hierarchies as class, gender, and ethnicity (Shackel 1993). A need for controlling populations has persisted throughout history, either subtly or with force, but it became a major issue at around A.D. 1492 because of the discovery of these new cultures and growing middle class. This attempt at social control by elites often involves the manipulation of the material culture. It begins with an elite notion of what they consider to be a correct social behavior. They then develop physical means to bring about this correct behavior in others. This process ends with the original behavior grounded into action (Paynter and McGuire 1991:8). It also begins to appear as common sense, like this behavior has always been done and anything different would be considered different. This process of controlling a population through the use of ideal behaviors has a material dimension that can be detected archaeologically.

As mentioned above, class is one of these social relationships employed by elites to establish social control. Class is a concept that differs in usage within historical archaeology. Wurst (1999) outlines two differences that are prevalent in historical archaeology today when examining the concept of class: a gradational view and a relational view. A gradational view is one in which classes are viewed as fixed rungs on a ladder of inequality as in strata within an income distribution, occupation structure, or status variations (Wurst 1999:1-2). One common analysis falling under this gradational view concentrates on the socio-economic status of the site occupants. The other view, relational, uses class to designate the nature of the underlying social relations. One common analysis that falls under this view is to place emphasis on
dominance and resistance (Wurst 1999:1-2). This study will use the relational view of class that focuses on dominance and resistance and the attempts by elites to implement various forms of social control.

Just as historical archaeologists disagree on the usage of class within its discipline, people today also have differing ideas of what characteristics one associates with each degree of class (Paynter 1999:184). Many people today assume that certain amenities are associated and are to be found within certain social classes. For example, electricity, heating, air conditioning, gas, and municipal water and sewer services are amenities that are today associated by most Americans as being “middle class” (Linde-Laursen 1997:161-162). Most of these conveniences have been introduced at differing times and to different environments throughout the U.S. For instance, cities had access to these amenities before rural areas, the wealthy before the poor, and the Eastern U.S. before areas in the West or South (Schlereth 1992:225).

This thesis seeks to understand the abandonment of privies and cisterns and the introduction of two of these amenities, municipal water and sewer, and how this shift affected the people to whom it was introduced. This will be accomplished by examining several water related features excavated at the James and Ellen White site (20CA118) in Battle Creek, Michigan. This site has been chosen for this case study because it was occupied during the period in which privies and cisterns were abandoned and municipal services were adopted. Furthermore, the site has been examined under the auspices of the Southwest Michigan Historical Landscape Project
(SWMHLP), which has focused on landscape changes and their archaeological signatures (Nassaney et al. 2001). The background from SWMHLP will be used to examine, in conjunction with the site data, this major shift in landscape configurations.

During the excavations at the James and Ellen White site, we encountered the archaeological remains of privies and cisterns. Privies are outdoor toilets that are separate from the house, usually located behind the house. Cisterns are large receptacles for storing water, especially a tank, usually underground, in which rainwater is collected for use (Neufeldt 1991:256). The stored water can then be used for farm animals, washing clothes, bathing, or drinking. Prior to the late nineteenth and early twentieth centuries, these were common features until they were gradually replaced by city water and sewer services. According to historians (Tarr 1976), the reasons for this transition included the need for clean water and a sanitary way to dispose of waste, but I will argue that this introduction was part of a growing social control over people and that there are underlying political and economic reasons for this shift that were not mentioned. I will also argue that these new services were a way for some elites to set themselves apart from the rest of the people living within cities.

First, it will be determined when these structures were built, when they were used, and finally, when they were abandoned. Then, I will explore why people would abandon these structures in favor of city water and sewer. I will argue that besides the obvious health benefits that were being promoted by the city, that there were also
underlying economic and political reasons behind this shift from privies and cisterns to city water and sewer. There were three other underlying factors involved in this shift that will be emphasized in this work. The first is that this is part of a trend in the U.S. in the nineteenth and early twentieth century towards modernity. Besides water and sewer services, one also sees such amenities as electricity and gas being developed and marketed during this time period (Schlereth 1992). This shift in modernity was also accompanied by new behaviors that people adopted. Another factor involved is that now control has started to enter private spaces, i.e., one’s bathroom. By instituting city water and sewer, one’s behavior is soon dictated by standardized fixtures such as a toilet, tub, and sink. One begins to find it more difficult to do anything outside of the behaviors prescribed for using the bathroom and the fixtures contained within. One final factor for the development of these services is that it creates yet another means for people living in cities to differentiate themselves from people living in the countryside. By having these services available, a person living in the city portrays an image of modernity, associated with civilization. The control, discipline, and modernity that these services bring ensure predictability within the city rather than the chaos of having everyone building their own privies and cisterns, ensures healthy workers for area businesses, and portrays the city as being modern, civilized, and clean rather than dirty, diseased, uncivilized, and filthy.

While I focus on a particular site in Battle Creek, Michigan, the process that I address was played out repeatedly in the modern world and continues to occur in
developing nations. Therefore, my work has potential implications for archaeological sites beyond southwest Michigan such as examining this process in other places in the U.S. or in other countries to see if this transition occurs elsewhere. Do people in other countries view this shift with a different cultural logic than others from a more Westernized society?

Organization of Thesis

In this study I will first discuss the theoretical framework I employ by outlining previous approaches to social control and how it is used by elites to retain their position in society. Chapter three will discuss the health, social, political, and economic conditions that gave rise to this transition from privies and cisterns to municipal water and sewer services. Then, in chapter four, I will present a history of the James and Ellen G. White site from its first occupation in 1855 to the present day and emphasize changes in landscapes, health codes, and the political economy that have implications for the use and abandonment of privies, cisterns, and wells. Additionally, the archaeological record at the James and Ellen White site will be examined to determine what it can reveal about this transition from privies and cisterns to city water and sewer services. In chapter five, I will take the theoretical ideas of social control, the history of the city and the site, and the archaeological record and show how people were responding to this new shift that occurred in America in the late nineteenth and early twentieth century. And finally, in chapter six, I will re-examine the main points of this research, summarize my results, and
state what contributions to knowledge this thesis has made, and suggest potentially productive research avenues for future work.
Chapter II

THEORETICAL FRAMEWORK OF SOCIAL CONTROL

Many historical archaeologists have examined issues of social control (Epperson 2000; Nassaney and Abel 2000). In this chapter, I first review how some social theorists treat the issue of social control and discipline, then discuss how archaeologists in the past examined these issues. Finally, I review how archaeologists today examine issues of control and discipline of a population using the archaeological record.

Social Theory and Social Control

Before one can begin to understand how archaeologists identify and interpret social control from material remains, one must examine the work of social theorists and what they have to say about social control, how it is accomplished, and why people decide to accept these ideas. Many social theorists have written extensively on the issue of social control and discipline. One of these social theorists was Michel Foucault, a French social theorist, who wrote about issues of power and social control. More specifically, he focused on the history of how people in different societies are made into subjects by examining the historical background of the social changes that were occurring in the sixteenth, seventeenth, and eighteenth centuries, such as growing cities, prison populations, and the emerging middle class. He examined the process of objectification, the idea of transforming human beings into
subjects (Foucault 1983:208). Much of what Foucault outlines in his numerous books and articles can be applied to historical archaeology.

In his book, *Discipline and Punish: The Birth of Prisons*, Foucault (1977) examines the issue of modern forms of social control, why people would accept this control, and in what ways this control is enforced. He introduces the reader to Bentham’s *Panopticon*, an architectural form that is used for the purpose of social control. Although originally intended for prisons, the concept of control that was underlying its design was soon applied to other areas of society. The form consisted of a circular building with an open courtyard in the center and a tower in the middle of this courtyard. Wide windows in the tower open up onto the inner side of this circular building which in turn is divided into cells, each having two windows, one facing the tower and the other on the outside, allowing light to pass through the cells and into the inner courtyard. All that is needed is to place a supervisor in the central tower and place the prisoners in the cells which allows the supervisor to see all the prisoners and the prisoners to see the tower. However, the prisoners cannot tell if anyone is in the tower, nor can they see each other. By design, there is ease of control of the inmates, limiting their ability to plot escape, riot, or commit violence on one another. By separating the inmates into individuals, they become easier to control; they cannot gather into groups and plan for mass resistance or revolt, and it is easier to monitor individuals divided into cells than to watch a large mass in an open yard. The inmates endure a feeling of constant observation, even if no one is in the tower watching them, producing a form of self-surveillance (Foucault 1977:200-201).
Historical archaeologists have used this principle of self-surveillance in their investigations of architectural designs and the layouts of landscapes to show how these were used for social control. Examples of these include Epperson's (2000) work on Monticello, in which he argues that Thomas Jefferson employed the principle of panopticism for his plantation landscape. Leone's (1995:256) work on the architecture and landscape of Annapolis, Maryland also demonstrates this concept of self-surveillance. He examines the Maryland Statehouse in Annapolis and argues that its placement within the city, on top of a hill, and the way it was constructed, a tower on top that can look out over all parts of city, employs this panoptic concept. Nassaney and Abel (2000) also employ the work of Foucault in their examination of the Russell Cutlery factory in New England. They argue that the spatial layout of the factory, as well as the deskilling of the labor force, was used to control and maintain an ideal work environment. These examples illustrate that some elites have in the past tried to exert social control over people, either overtly or subtly using the panoptic design outlined by Foucault. This panoptic view also can be applied to the transition to city water and sewer. By having people abandon privies, cisterns, and wells and connecting them to these new services, water and sewer use can now be monitored and controlled. Before these services, ordinances and health officials were used to police the whole city in order to locate nuisance or problem privies, cisterns, and wells, with little or no effect (Stottman 2000:43).

Foucault also examines the way buildings are designed and how they can be used to instill specific, ideal behaviors, and reinforce social control. He examines
hospitals and schools and argues that they were configured to train and supervise the people in these institutions allowing them to regulate and instill specific, ideal behaviors upon individuals and make them ideal subjects that were easier to control (Foucault 1977:170-177). These ideal behaviors, such as knowing how to tell time, how one behaves in certain places, and how to use specific objects, made individuals willing subjects who would produce surpluses that could be easily extracted (i.e., maximize profit). These same observations made by Foucault can also be used by historical archaeologists to examine architecture, artifacts, and landscapes and show how these were used to regulate and instill specific, ideal behaviors upon individuals, such as Nassaney and Abel’s (2000) work at the Russell Cutlery site in which they examine the factory layout and argue that its design allows for any worker to come in and perform any of the numerous tasks. This layout then allows the factory owner to get the worker to perform the specific behaviors to produce a specific product, to ensure a greater output, and in the end a greater profit for the owner.

One other idea that Foucault (1978) proposes is found in *The History of Sexuality: Volume One An Introduction*. Here he introduces the reader to the concept of bio-power, which, as explained by Foucault, are all the techniques that are used to achieve the subjugation of bodies and the control of populations. He argues that this idea developed in the seventeenth and eighteenth centuries. The subjugation of bodies occurred though the establishment of schools, prisons, and the army while the control of populations was accomplished by the development of demographic studies and the construction of various tables of statistics outlining problem areas within
society. Instrumental in the development of capitalism, bio-power allows for the control and regulation of bodies while it furthers the growth and development of institutions that are used to control populations (Foucault 1978:139-140). This control and regulation, coupled with institutions such as schools, prisons, and the army, create ideal subjects that can now be productive members of society. This idea of controlling populations through institutions can be exemplified through the use of municipal water and sewer. The city can then argue that it can better control and protect the population from the effects of disease and filth because it now monitors the individuals hooked up to the grid. City officials can then better plan and regulate future city growth.

Another social theorist that examines power and social control is Pierre Bourdieu. His book, *Outline of a Theory of Practice* (1977), examines these issues more closely, along with the idea of practice by arguing that social control can be instituted through the introduction of specific behaviors associated with certain objects, buildings, and landscapes. He goes on to state that these behaviors can be used to impart whole cosmologies, an ethic, a metaphysic, a political philosophy, through injunctions as insignificant as “stand up straight” or “don’t hold your knife in your left hand.” These seemingly simple behaviors, therefore, can be used to make people behave a certain way because it seems “natural” (Bourdieu 1977:94-95). By installing indoor toilets and sinks, one could begin to instill in people ideas of expected, proper behaviors, such as the use of indoor toilets or washing your hands. These behaviors then will begin to be seen as being natural.
Bourdieu takes this idea of practice a step further and argues that it begins with children. This process of socialization allows children to be taught the behaviors that are associated with being an adult, such as keep your hands to yourself, the distinction between different spaces and their functions, and to have respect for persons of authority (i.e., teachers). Children naturally imitate adults and modeled their behaviors in play situations. Constant repetition reinforces these behaviors until they are thought of as “natural.” Doing something differently would have the child be labeled as an “outsider” or “delinquent” (Bourdieu 1977:87-88). One such example can be seen in the potty training of children where toddlers are trained to use the bathroom and its equipment. Deviations from these “norms” are deemed to be unacceptable or unnatural.

Another concept that Bourdieu (1977:95) develops is the term **habitus**, defined by him as "an acquired system of generative schemes objectively adjusted to the particular conditions in which it is constituted." In other words, it "is a structured set of classification schemes that is learned and provides a sense of cultural priority" (Shackel 1993:17). By examining **habitus**, one can begin to examine social hierarchies within society that are reinforced by architecture, artifacts, and landscapes, and begin to understand issues of power.

Such an example can be seen in the development of municipal water and sewer. One reason for its development in the city was to allow the city to set itself further apart from rural areas by eliminating privies and cisterns within its confines and portraying an image of modernity and cleanliness, apart from homes found in...
rural areas. These new services, then, are used by people living in cities to set themselves apart from people living in a rural setting who are still using privies, cisterns, and wells. One could even argue that this transition is part of a process of establishing oneself as being civilized, while others who continue to use privies, cisterns, and wells are seen as uncivilized. A better way to understand this dichotomy of civilized/uncivilized is to examine how people from different groups define what is considered “clean” or “unclean.” These ideas of what people consider clean or unclean vary between group-to-group or even person-to-person. What people consider to be clean or unclean is the result of the interplay of cultural values and various social structures. This division of what is considered clean and unclean is even reinforced through established social divisions (Stottman 2000:40-41). The adoption of these services then is an attempt by some elites to establish what is considered “clean” in society.

Archaeological Approaches to Discipline and Social Control

Before one can begin to examine this issue of social control in the archaeological record, one must first examine how archaeologists in the past have viewed social control or if they even considered social control as an issue of study. Archaeologists in the past examined the social power exerted by elites but not how people responded to this social control. Cultural historians focused on questions that described cultural traditions, objects, and assemblages exhibiting little variation over large areas for reasonably long time periods and made inquiries into the replacement
and persistence of various elements of a particular tradition. Cultural historians outline this history by describing how traditions come into an area. Such processes as independent invention, diffusion, and migration are used to explain these culture histories (Paynter and McGuire 1991:1-2). For cultural historians, the discussion of social power is relegated to the discussion of rapid and wholesale replacement of one tradition by another, through appeals to invasion, displacement, and/or conquest.

Cultural historians then examine social power over a large group of people but not the social control that occurs over an individual (Paynter and McGuire 1991:2). Nor did they examine the ways in which people may have accepted or resisted these invasions, displacements, and/or conquests.

Cultural ecologists examined the archaeological record differently than cultural historians. They were interested in how changes in the environment or changes in technology to obtain and/or consume energy resulted in cultural change. Cultural ecologists rarely asked questions as to why so many people would adopt these changes in their everyday lives so readily. They assumed that the changes in the environment and technology occurred so slowly that people did not notice or that the stress that they were undergoing was so great that they had no choice but to accept these changes or face extinction (Paynter and McGuire 1991:3). This approach does not examine how some people may have resisted these changes in technology and the environment nor does it examine how some people managed to get others to adopt these new or different cultural changes (Paynter and McGuire 1991:3).
Historical archaeologists, more recently, have begun to raise questions and to interpret occurrences of social control in the archaeological record, borrowing some concepts from Foucault and Bourdieu. McGuire and Paynter (1991) raise questions regarding the issue of social control and how it can be examined in the archaeological record. McGuire and Paynter argue that the traditional way of examining social control is to look at the concerns and understandings of the elites in the archaeological record and make the argument that people accept or resist, at various levels, these attempts at control. They begin to ask questions such as: How did minority populations react to social control within a larger population? How might have people affected by this social change resist the changes brought on by the elites? How does this situation of domination and resistance appear in the archaeological record? (Paynter and McGuire 1991:4-5).

One way that elites have tried to impose social control is to take objects and processes and make them appear to be natural or to make sense, creating an expectation where people are willing to act on their own accord in ways equivalent to the compliance the elites are seeking to create. Discipline, then, uses the "power over" to inject in the minds of individuals a sense of how they can experience their "power to" (Paynter and McGuire 1991:8). "Power over" is coercive domination and "power to" is the ability to get something accomplished (Orser 1996:175). Paynter and McGuire argue that people or groups in power have created social categories of class, gender, and ethnicity to exert social control over the "other," but they also argue that the people placed into these social categories may resist. These categories

19
are reinforced through the material conditions of everyday life. These social
categories that are created by elites are a means of establishing and sustaining a social
hierarchy.

One archaeologist that has taken the ideas of both Foucault and Bourdieu and
those of other archaeologists that have examined issues of social control is Paul
Shackel. Shackel (1993) analyzes the issues of social control, discipline, self-
surveillance, and ideas about practice and how things become "natural" by examining
ceramics and toothbrushes in Annapolis, Maryland from the late seventeenth century
to the mid nineteenth century. He argues that these objects were used by elites to
reinforce their social standing within society. By developing specific behaviors that
were associated with distinctive ceramics and toothbrushes, the elites were separating
themselves from others in society who did not have access to such goods. As
manufacturing techniques improved and ceramics and toothbrushes began to be mass
produced and standardized, the price of purchasing them came down allowing lower
classes of society access to these goods as well as the elites. The elites then had to
find other means, whether they be through material means, behavior, or etiquette, in
which to distinguish themselves from everyone else (Shackel 1993:49-50).

One avenue in which I propose elites chose to distinguish themselves from the
middle and lower classes may have been through city water and sewer services and
the fixtures that accompany them. This modern discipline then is first seen among
some elites as a way to distinguish themselves from the rest of society. The
practicing of certain behaviors in order to separate oneself from either another person
or a group is what Bourdieu described as habitus. These new bathroom behaviors and resulting etiquette were first practiced by the elites and if an intruder did not know the rules then he or she was not considered part of the group (Shackel 1993:50). This occurred even though middle and lower class people were exposed to some forms of modern discipline through factory work, which was instilling in them specific, ideal behaviors in order to have more productive workers. Even though they were exposed to this new form of modern discipline they were not privy to the rules of etiquette being practiced by most elites. These new services also are an example of how a shift develops of control in public life, i.e., factory, church, and business, to now controlling behaviors in private life, i.e., the bathroom. Because these ideas about discipline and modern behavior have been developed, I propose that we can use these theories to explain the transition from privies and cisterns to the use of city water and sewer. They can also be used to explore the extension of specific, ideal behaviors into the private lives of individuals.

Previous Archaeological Approaches to Privies

Privies are a common feature encountered by many historical archaeologists. Many archaeological examinations of privies concentrate on its contents or its architecture. The contents of a privy can bring forth all sorts of information about the inhabitants of a site such as the user’s class background (Wheeler 2000). Another example comes from research conducted at Harpers Ferry, West Virginia. Here they examined privies from the nineteenth century for evidence of parasites in the night
soil, another name for the waste that is left in a privy after continued use. This information was used to demonstrate the level of healthiness of the people living at this site (Reinhard 1994).

Another avenue of research involving privies is the study of its architecture. The architecture of a privy can vary significantly from individual to individual. This variation can be used to help understand the occupants of individual house lots as well as the relationships between house lots in a neighborhood (Stottman 2000).

In this thesis, I will use the archaeological record to examine the presence or absence of privies at a particular house lot. The absence or presence of a privy on a house lot would have conveyed many messages to the people of that time. It could have been seen as resistance to attempts by the city to connect people to its services. The presence of a privy on the landscape might have been interpreted as the retention of specific behaviors that one would associate with people of a lower socio-economic background. If the site has evidence that a privy has been abandoned before or during city sewer connection then it could also be argued that the people living at the site were adopting these new services and the behaviors associated with them.

This chapter outlined two social theorists, Foucault and Bourdieu, and how they both examine social control and discipline. Foucault examined issues of self-surveillance through the use of various panoptic devices, how things are designed to instill in people specific, ideal behaviors, how power and truth are interlinked, and the concept of bio-power, which are all the techniques that are used to achieve the subjugation of bodies and the control of populations. Bourdieu examines the issue of
practice and how this concept can be used to impart whole ideologies, ethics, or political philosophy. He also examines the concept of habitus, which is a structured set of classification schemes that is learned and provides a sense of cultural priority (Shackel 1993:17). This means that some people learn specific behaviors that can be used to set themselves apart from others simply through exercising the behaviors. Archaeologists have begun to use the concepts outlined by Foucault and Bourdieu to examine issues of social control and discipline in the archaeological record. Paynter and McGuire (1991) also outline how archaeologists have identified social control and discipline in the archaeological record. Shackel (1993) has put the social theorists' ideas about social control and discipline into practice in his examinations of the material record of Annapolis, Maryland and how it was used by elites to reinforce social control and discipline during this time period. He also examined how the material record was used to create a social boundary between elites and non-elites. The next chapter will outline the history of the sanitation movement in America in the nineteenth century and how it led to the eventual abandonment of privies, cisterns, and wells in favor for the development of a city water and sewer system in Battle Creek, Michigan.
Chapter III

THE DEVELOPMENT OF MODERN SANITATION, PUBLIC HEALTH, AND CITY WATER AND SEWER

In this chapter, I outline the history of the sanitation movement, the beginning of the public health movement in America, and its contribution to the abandonment of privies, cisterns, and wells, in favor of municipal water and sewer. Then, I will examine how this movement occurred in Battle Creek, Michigan, beginning with the early pioneers in the 1830s through the early twentieth century. A prominent individual in regards to health and sanitation in Battle Creek during this time period was Dr. John Harvey Kellogg. Not only was he known as a strong advocate for sanitation and health reforms in Michigan, but he was also renowned internationally for his ideas on health. He also conducted health surveys and commented on the sanitation of the region in several studies, which will be used to suggest that his ideas may have influenced the sanitation movement in Battle Creek.

The Sanitation and Public Health Movement in the U.S. During the Nineteenth Century

Municipal water and sewer services were first adopted in the U.S. in Philadelphia in the 1790s (Schultuz and McShane 1978:389). By 1860, the sixteen largest cities in the U.S. had a water works (Tarr 1979:310). The first two sewer systems developed and built in the U.S. prior to the Civil War were in Chicago and Brooklyn. The system in Brooklyn was started in 1857 and the one in Chicago was started in 1859 (Tarr 1979:314). During the nineteenth century in the U.S., as some
major cities began to build water and sewer systems due to growing populations, large urban areas began to experience epidemics such as typhoid, yellow fever, and cholera (Galishoff 1980:36-37). Diseases and epidemics had occurred before in the past, but with growing city populations, this problem posed serious health consequences (Stottman 2000:41). Contributing to these outbreaks was the common practice of dumping one’s trash, grey water, and sewerage into streams and rivers, into backyards, or on farm fields outside of town (Tarr et al. 1980:60). During this time, many doctors misunderstood how to judge impure water as most embraced the thought that running water, such as a stream or creek, would clean itself over a short period of time and therefore would be safe to drink (Lowe 1976:229). Water would be judged by its physical characteristics; if it was colorless, odorless, and tasteless then it was considered good to drink. If water appeared hard or had animal or vegetable matter in it then it was considered unsafe to drink because it was believed to be responsible for kidney, digestive, and intestinal problems. It was not until Dr. John Snow's work with cholera in England in 1854 that people began to realize that polluted water was the cause of epidemic disease (Galishoff 1980:38). Snow argued that cholera was caused by an organic poison that attacked the intestines and was subsequently discharged in the feces. If some of the infected feces were to end up in the public water supply, he argued, an epidemic would ensue (Galishoff 1980:38).

Snow's work led the way for work on typhoid fever by Dr. William Budd in 1873. He demonstrated that typhoid fever was spread not only through fecally-contaminated water supplies but also through milk produced in unsanitary conditions,
raw fruits and vegetables fertilized with night soil (excrement from privies), oysters and other shellfish caught in contaminated waters, and by flies that gained access to privies and kitchens. Despite these new discoveries, the epidemics continued (Galishoff 1980:38; Rosen 1958:287).

Contaminated water then, had been suspected for the transmission of cholera, typhoid fever, and other waterborne diseases but conclusive evidence was still lacking. This suspicion continued until the development of bacteriology and the germ theory of disease in the 1880s when scientists were able to provide laboratory proof that micro-organisms were responsible for many of the fearful diseases that were plaguing urban populations. Soon after, cholera and typhoid were discovered and proven to be transmitted through any medium that provided a circuit between the infected excrement and a healthy intestine, such as water supplies contaminated by the dumping of raw sewerage into waterways (Galishoff 1980:44).

Business leaders, city officials, and public health officials used these new discoveries as another way to argue for the installation of water and sewer municipalities to help curb health-threatening epidemics. While public health officials and doctors understood the health advantages, business leaders in these developing cities were considering other benefits. Water and sewer services almost eliminated the need for individualized human decisions and actions of how to get water and remove the wastes; they also offered greatly improved conditions of convenience, cleanliness, and the elimination of nuisance, such as overflowing privies and cisterns in people’s yards (Tarr 1979:311). Some business leaders saw water and
sewer services as a way to improve the economic status of the city as well as instill civic pride within its citizens, thus insuring productive workers. Industrial interests realized that without a source of clean, reliable water, there would not be water readily available for cooling machinery, producing steam, and washing away filth. Business leaders throughout the country also argued that by having city water and sewer, an image of progress and modernity would be projected to the rest of the nation, reflecting the capitalist ideology of progress. Some argued that without municipal water and sewer services there would be dirty streets and unflushed sewers providing a poor image to potential new businesses and a poor advertisement for the city (Galishoff 1980:51). This is also an early example of business and government working together for a similar goal, the control of sanitation and the projection to the rest of the country of a modern, progressive city.

People in favor of these services promised city officials and the public that by replacing the current system of privies and cisterns in favor of municipal water and sewer that the city would save money (Tarr 1979). Not only would they save money in health costs due to reduced epidemics and costs of resultant treatments, but property values would increase because of available modern services, thus benefiting both the city and the people living in it (Tarr 1979:312; Tarr et al. 1980:65-66).

The Sanitation and Public Health Movement in Battle Creek
During the Nineteenth Century

When the first settlers of Battle Creek arrived in the early 1830s, there were several ways in which water was collected for use in the home. The first would be to
locate near streams or a spring-fed pond, which allowed them to take two buckets strapped to a shoulder yoke and carry it back to their home (Lowe 1976:125). Another way to procure water would be from an open well usually made by digging to just below the natural water level or by tapping an underground stream. A lining partway down and a collar several feet above the ground were made either from fieldstone, sandstone, or brick, whichever was available. A roof was built over the well opening in which a pulley would be placed so that one could use a rope and bucket to bring water up from down in the well (Lowe 1976:125).

Later, a more efficient means for residents to procure water was by the use of a pump. The narrow well and pipe associated with the pump had to be installed by a professional. These pumps were known to be erratic and obstinate and often had to be primed with a pitcher of water; in the winter months this would be hot water (Lowe 1976:125). The city of Battle Creek had community pumps located throughout the city. One was located in front of the City Hall, in which a tin cup was chained to it for the convenience of passers-by. Another was on the corner of Calhoun Street and North Avenue. There is no record of how these community pumps were financed. Each school in the city also had its own pump and allowed local access until 1860 when school trustees voted to prohibit their use by the public, reasons of which were not recorded (Lowe 1976:125-126).

Cisterns were used to procure water for households where the home was shingled. Eaves troughs were built with a downspout leading to a cistern, usually located under the kitchen (Lowe 1976:126). One documented example is the Kimball
House, which today is a museum in Battle Creek. It was built in 1886 and had a cistern for the storage of rainwater located beneath the kitchen (Lowe 1976:225). If a household could not afford a cistern then a rain barrel was placed below the downspout and stored the rainwater for later use (Lowe 1976:126).

Privies were used for bathroom purposes but any mention of them is absent from the early histories of Battle Creek. This may because they were such a common and mundane feature in nineteenth century America that no one thought of writing about them. However, evidence for privies comes from sketches found in *History of Calhoun Country, Michigan with Illustrations* (1877). This book illustrates many different, prominent buildings in Calhoun County but out of 116 illustrations, only 13 depict a privy; the rest omit them. I have included three of these illustrations to show how the privies were depicted (see Figures 1 - 3). In Figure one, the Granger farm, a hand pump is also visible near the house. As the documents and illustrations listed have shown, people had access to several means of acquiring water and disposing of waste within the city of Battle Creek, and this system seemed to be working for the citizens of the city. This system was well entrenched in the minds of the people living around Battle Creek at this time and the possibility of doing something else may have seemed out of the ordinary.

Beginning in the 1870s, Henry Willis started to make plans to supply city water from Spring Lake, located on his property. His plan was to make water available by the early 1880s. A survey was conducted by Wiley of Grand Rapids, Michigan, that stated that the Spring Lake could not keep a two-inch city water pipe
Privy and pump behind the house

Figure 1. S.S. Granger farm in Tekonsha Township, Calhoun Country, Michigan
Note the privy and pump behind the house
(Pierce 1887:Facing page 150)
Figure 2. The Anson Mapes farm located in Battle Creek Township, Calhoun County, Michigan. Note the privy located in the back yard (Pierce 1887:Facing page 80).
Figure 3. Battle Creek College in Battle Creek, Michigan. Notice the privy at the end of the path behind the college (Pierce 1887:Facing page 28)
filled with water due to its location and low pressure (Lowe 1976:127). During the time that the idea of a city water system was being discussed for Battle Creek, Dr. John Harvey Kellogg, an influential and internationally recognized expert on health and sanitation, became an advocate for the removal or replacement of privies, cisterns, and wells. He served on the State Board of Health of Michigan, traveled extensively overseas, and ran the Battle Creek Sanitarium, known internationally for its health practices and treatments (Schwarz 1970).

In the tenth annual report for the State Board of Health of Michigan in 1883, Dr. Kellogg published a paper entitled, "Decomposing Organic Matter." First, his paper explained bacteria, how they cause disease and death, and in what conditions bacteria thrive. Next, he discussed a typical household and listed all the areas where bacteria could be located. Two of the areas he emphasized were privies and cisterns. He argued that people usually situated their wells in the backyard in proximity to the privy, which would be one cause for contamination of the home’s drinking water. He further stated that cisterns could also be sources of bacteria, running the risk of contamination because they are left open for all matter of materials to fall into them. Kellogg then outlined several ways to reduce or eliminate these sources of bacteria. He proposed that in small towns and rural areas, people should replace their privies with earth closets. Earth closets are rooms, either inside or separate from the house, that have a pan with earth, charcoal, and disinfectant placed under the receptacle that could be removed and emptied similar to the way modern cat litter pans are emptied. He conducted a study in a small, unspecified rural town in Michigan and recorded a
reduction in fevers, sickness, and other zymotic diseases when earth closets were in use (Kellogg 1883).

In 1884, a year after Kellogg’s study was published, an experimental water supply was built around the West End neighborhood, the area surrounding the Sanitarium (Lowe 1976:225). This experimental water supply was the first running water in Battle Creek. Before this time, no system of this sort existed within the city. This seems to be more than just mere coincidence; one has to wonder if Dr. Kellogg himself did not have a hand in the development of this water supply near his Sanitarium.

Another example of Dr. Kellogg’s crusade for the replacement of privies and cisterns comes from a book he wrote in 1904, in which he discusses the health and diseases of women and what women should do to live a healthy and disease free life. He argued that most of the diseases that afflict women can be traced to the use of privies and goes on to state that if the most improved form of indoor toilet is not available then one should use an earth closet (Kellogg 1904:491-492). This assumption that women were the cause of disease and filth from privies goes along with the social views held by others in society during the late nineteenth and early twentieth centuries. These two examples show that Dr. Kellogg was an advocate for the removal of privies and cisterns and also was influential in elite thinking of health, sanitation, and proper behavior and etiquette.

The city of Battle Creek did not begin its plans to build a public water works until the mid-1880s. After Spring Lake was deemed to be unsuitable for a source of
city water, Gougac Lake was selected. The contract to build a city water system was
let to a Chicago firm, which built a standpipe 18 feet in diameter and placed it on an
elevation near the pumping station so the water could get to town using the slope
caused by the change in elevation. Because the pumping station was 200 feet above
the business section of the city, its elevation assured the citizens that there was
enough pressure from this new system to deliver water to the city (Lowe 1976:127).

The first water flowed from the city waterworks on August 8, 1887, more than
ten years after Henry Willis approached the city with his plans to use Spring Lake as
a source of city water (Lowe 1976:127). On August 11, 1887, three days after the
first water flowed through this new system of pipes in the city, a list appeared in the
Battle Creek Daily Moon which showed all the applicants that had filed papers to be
connected to the new water system (see Table 1). Most of the people on this list had
either high-paying occupations or owned businesses. One of the people, Simeon
French, was the city health officer. Another person on the list, Edwin Nichols, was
president of the Board of Public Works and George Howes’ son was a clerk on the
Board of Public Works and lived with his father. There appears to be overlap among
the interests that would be in favor of a waterworks in Battle Creek and the first
people that were connected to water in the city. This list also demonstrates that not
everyone in town was connected to water, at least not immediately.

The city sewer system in Battle Creek was constructed in 1893, six years after
city water was made available (Lowe 1976:229). Before this date, individuals and
businesses were responsible for the disposal of their own waste through the use of a
A sewage line from the Sanitarium to the Kalamazoo River at Jackson and Wood Streets was discovered by city engineers sometime in the twentieth century indicating that Dr. Kellogg had a sewer system installed at his Sanitarium, no doubt inspired by his study conducted in 1883 (Lowe 1976:229).

After these start dates for water and then for sewer services, the city began to connect houses along various streets to help pay for these new amenities. After 1905, Battle Creek had the bonds for the construction of the waterworks paid off, and it was actually accumulating a surplus from the income taken in from its customers. This surplus was noticeably important because it was used to help less efficient city departments stay out of the red on more than one occasion (Lowe 1976:129).

It appears that water and sewer services were made available in the nineteenth century, at least in major cities in the U.S., before contagious diseases were well understood. This would indicate that there were other reasons, besides health concerns, behind the introduction of these services. It appears there were also underlying political, economic, and social reasons for advocating municipal water and sewer. The archaeological record will be used to demonstrate that the introduction of these city services were elite attempts at social control to create a new discipline in the city and that some people resisted abandoning their privies, cisterns, and wells and adopting municipal water and sewer. By examining when these features were abandoned and comparing these data to the dates the city has for the connection of this house lot, it can be determined if people actually abandoned these features once they connected to these municipal services. The abandonment of these features can
Table 1.
List of Applicants for Water as of August 11\textsuperscript{th} 1887 as appeared in *The Battle Creek Daily Moon*. Addresses and Occupations come for the 1887 Battle Creek City Directory. This list is in no particular order.

<table>
<thead>
<tr>
<th>Name</th>
<th>Residence</th>
<th>Occupation or Business</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.W. Alvord</td>
<td>71 West Main</td>
<td>Physician at 67 W. Main Street</td>
</tr>
<tr>
<td>William Gage</td>
<td>53 College Avenue</td>
<td>Owner of William Gage &amp; Son Book, Job, and Railroad Printers located at 54 W. Main Street</td>
</tr>
<tr>
<td>Frank H. Preston</td>
<td>34 Beach</td>
<td>Bookkeeper at Union School Furniture Company</td>
</tr>
<tr>
<td>Joseph Smith</td>
<td>163 West Main</td>
<td>Owns Bakery same address as residence</td>
</tr>
<tr>
<td>Dallas Carpenter</td>
<td>219 Cherry</td>
<td>Machinist at Nichols and Shepard Company</td>
</tr>
<tr>
<td>George W. Marsh</td>
<td>17 Barney</td>
<td>Owns Saloon at 31 West Canal Street</td>
</tr>
<tr>
<td>Henry B. Hoagland</td>
<td>225 Cherry</td>
<td>Coal Dealer</td>
</tr>
<tr>
<td>Alexander L. Clark</td>
<td>45 Marshall</td>
<td>No Occupation Listed</td>
</tr>
<tr>
<td>J. Allan Raymond</td>
<td>50 Fremont</td>
<td>Owns Tea Store at 8 West Main Street</td>
</tr>
<tr>
<td>Albert Whitney</td>
<td>160 Green</td>
<td>Travel Agent</td>
</tr>
<tr>
<td>Alson Evans</td>
<td>108 Cherry</td>
<td>Mechanic</td>
</tr>
<tr>
<td>Steven Hulbert</td>
<td>41 Fremont</td>
<td>Lawyer at 18 West Main Street</td>
</tr>
<tr>
<td>Archibald R. Henry</td>
<td>62 Washington</td>
<td>Business Manager of Seventh Day Adventist Publishing Association located corner of W. Main and Washington</td>
</tr>
<tr>
<td>Charles A. Young</td>
<td>Rooms at Zang</td>
<td>Druggist at 9 North Jefferson Street</td>
</tr>
<tr>
<td>C.N. Rapp</td>
<td>Not Listed</td>
<td>Not Listed in 1887 Directory</td>
</tr>
<tr>
<td>Austin S. Johnson</td>
<td>140 Marshall</td>
<td>Physician at 45 E. Main Street</td>
</tr>
<tr>
<td>Irving L. Stone</td>
<td>301 Maple</td>
<td>Treasurer at Union School Furniture Company &amp; President of Duplex Printing Press Company</td>
</tr>
<tr>
<td>Albanus M. Phillips</td>
<td>48 Marshall</td>
<td>Dentist at 2 E. Main Street</td>
</tr>
<tr>
<td>Nicholas Zang</td>
<td>55 South Division</td>
<td>No Occupation Listed</td>
</tr>
<tr>
<td>Clara Burrall</td>
<td>116 West Main</td>
<td>Widow of George (No Occupation Listed)</td>
</tr>
<tr>
<td>Mrs. Martha E. Latta</td>
<td>202 North Avenue</td>
<td>Widow of Alfred (No Occupation Listed)</td>
</tr>
<tr>
<td>George E. Howes</td>
<td>272 Maple</td>
<td>Fruit and Coal (East of End Race) His son George Jr. is clerk on Board of Public Works and lives at 272 Maple</td>
</tr>
<tr>
<td>Charles Austin</td>
<td>46 Green</td>
<td>Owns Austin and Company (Grocer) at 44 W. Main. Also commission Merchant at Austin and Godsmark 46 W. Main</td>
</tr>
<tr>
<td>George C. Steele</td>
<td>94 North Avenue</td>
<td>Owns Art Album Company corner of Jackson &amp; W. Canal</td>
</tr>
<tr>
<td>Samuel M. Holton</td>
<td>90 North Avenue</td>
<td>Druggist at 19 E. Main</td>
</tr>
<tr>
<td>William H. Mason</td>
<td>10 Upton Avenue</td>
<td>Part Owner of Mason, Rathbun &amp; Company Lumber and Planing Mill Located on S. Jefferson near Depots</td>
</tr>
<tr>
<td>Name</td>
<td>Address</td>
<td>Occupation</td>
</tr>
<tr>
<td>-----------------------</td>
<td>------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Albinus Boehme</td>
<td>45 Fountain</td>
<td>Florist</td>
</tr>
<tr>
<td>Charles J. Miller</td>
<td>35 Fountain</td>
<td>Painter</td>
</tr>
<tr>
<td>Leopold Werstein</td>
<td>275 Maple</td>
<td>Owns Salonn at 73 W. Canal Street</td>
</tr>
<tr>
<td>Cholet Beach</td>
<td>23 Beach</td>
<td>Cashier at Nichols and Shepard Company</td>
</tr>
<tr>
<td>Simeon S. French</td>
<td>64 Van Buren</td>
<td>Physician, Also City Health Officer</td>
</tr>
<tr>
<td>Peter Zang</td>
<td>95 Frelinghuysen Ave.</td>
<td>No Occupation Listed</td>
</tr>
<tr>
<td>Daniel R. Griswold</td>
<td>286 Maple</td>
<td>Owns Dry Goods Store at 14 E. Main</td>
</tr>
<tr>
<td>L.F. Woodward</td>
<td>196 S. Divison</td>
<td>Photographer at 66 W. Main</td>
</tr>
<tr>
<td>Charles Bronner</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Martin E. Brown</td>
<td>60 North Avenue</td>
<td>Editor &amp; Publisher of Battle Creek Daily Moon Newspaper</td>
</tr>
<tr>
<td>Mrs. Martha Pugsley</td>
<td>87 Van Buren</td>
<td>In 1887 Directory listed as Mrs. James W. Pugsley. No Occupation Listed</td>
</tr>
<tr>
<td>William R. Wooden</td>
<td>42 Bennett</td>
<td>Clerk at Nichols and Shepard Company</td>
</tr>
<tr>
<td>Edwin C. Nichols</td>
<td>199 Maple</td>
<td>Treasurer of Nichols &amp; Shepard Company, Also President of Board of Public Works</td>
</tr>
<tr>
<td>Josiah W. Freeman</td>
<td>92 Cherry</td>
<td>Works at Hinman &amp; Ward</td>
</tr>
<tr>
<td>Lucretia Ellis</td>
<td>61 S. Division</td>
<td>Widow of Cleveland</td>
</tr>
<tr>
<td>Leavitt L. Livingstone</td>
<td>64 Cherry</td>
<td>Shoemaker at 16 S. Jefferson</td>
</tr>
<tr>
<td>Robert Binder</td>
<td>34 E. Main</td>
<td>Owns Meat Market, Business address same as residence</td>
</tr>
<tr>
<td>Frank Beach</td>
<td>210 Van Buren</td>
<td>Secretary &amp; Treasurer of Battle Creek Machine Company</td>
</tr>
<tr>
<td>George B. Jenkins</td>
<td>226 Cherry</td>
<td>Owns Meat Market at 31 N. Jefferson</td>
</tr>
<tr>
<td>Walter Clark</td>
<td>98 Van Buren</td>
<td>Breeding Stables</td>
</tr>
<tr>
<td>Mrs. Alexander Clark</td>
<td>45 Marshall</td>
<td>No Occupation Listed</td>
</tr>
<tr>
<td>Reuben Shettler</td>
<td>73 Marshall</td>
<td>Travel Agent</td>
</tr>
<tr>
<td>R.M. Percy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Charles H. Canfield</td>
<td>62 Bennett</td>
<td>Clerk at Nichols and Shepard Company</td>
</tr>
<tr>
<td>Zeno C. Spencer</td>
<td>119 N. McCamly</td>
<td>Secretary of Union School Furniture Company &amp; Vice President of Art Album Company</td>
</tr>
<tr>
<td>Arthur H. Kimball</td>
<td>196 Maple</td>
<td>Physician and Surgeon at 18 E. Main</td>
</tr>
<tr>
<td>Albert W. Oxley</td>
<td>214 Upton Avenue</td>
<td>Contractor and Builder</td>
</tr>
<tr>
<td>Fr. J.F. Van Antwerp</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roldon P. Kingman</td>
<td>101 Maple</td>
<td>Vice President of City Bank</td>
</tr>
<tr>
<td>Frederick A. Allwardt</td>
<td>144 S. Division</td>
<td>Bookkeeper at City Bank</td>
</tr>
<tr>
<td>Rhoda M. Noble</td>
<td>48 McCamly</td>
<td>Runs Boarding House at 48 McCamly</td>
</tr>
<tr>
<td>Mahlon LaQuay</td>
<td>166 Marshall</td>
<td>Engineer for Chicago &amp; Grand Trunk Railroad</td>
</tr>
<tr>
<td>Tabor N. Sweet</td>
<td>156 Cherry</td>
<td>Head Miller at Hart Mills</td>
</tr>
<tr>
<td>John M. Caldwell</td>
<td>285 Maple</td>
<td>Owns Boots, Shoes &amp; Gents Furnishings Store at 18 E. Main Street</td>
</tr>
<tr>
<td>Aruthur H. Kimball</td>
<td>196 Maple</td>
<td>Physician and Surgeon at 18 E. Main (2nd Connection)</td>
</tr>
</tbody>
</table>
also be used to examine if the people living at this site were fully adopting the new behaviors and etiquette that some elites were advocating. Furthermore, I will argue that this transition was part of an emerging modern discipline and behavior which at first allowed the elites to distinguish themselves from other people within the city but then diffused to the other people in the city (Shackel 1993:50).
Chapter IV

HISTORICAL AND ARCHAEOLOGICAL INVESTIGATIONS

This chapter will first outline the history of a particular home lot in Battle Creek by examining the construction of the building, changes in occupancy, when it was connected to city water and sewer, and any historical accounts of privies, cisterns or wells. I will then outline the archaeological investigations conducted at this site with a focus on landscape features such as privies, cisterns, and ceramic drainage pipes. The James and Ellen White site was chosen because I wanted to explore how individuals respond to new technology and behaviors, whether one embraces it with total acceptance or resists it by continuing to do things the old way. I also wanted to explore how individuals respond to attempts at subtle social control by elites, through the use of behaviors and artifacts, whether they would resist or accept this social control. This site has evidence for the introduction of new technology, city water and sewer services, and evidence for the use of a privy and cisterns. This site can be used then to study social control and the introduction of new behaviors.

Early Period (1855-1863)

To understand the archaeology of this site, one must first examine the history of the property itself, which can help to either reinforce or raise questions in regards to social control at the site. The history of this particular home lot starts in 1855 when James White purchased two small wooded lots, 64 and 65 (ca. 1.5 acres), less than a year after he and his wife moved to Battle Creek from Rochester, New York.
This same year, Jonah Lewis also established residence on four village lots to the south of the Whites. Lewis then dug a well along his northern property line and the Whites’ southern property line and allowed the Whites and others (neighbors) to use this well (White 1936). A year later, in 1856, the Whites erected a modest, Greek Revival-style wood framed house on one of the lots at a cost of about $500. After this, much of the land was cleared to make way for gardens, orchards, and likely necessary outbuildings (Nassaney et al. 2000:31)(see Figure 4).

The Whites’ home is a simple, Greek Revival-style construction with the gable end towards the road. The southern wing of the house is part of the original construction (Crawford & Sterns 1998). A later addition built on the north side of the house gave the house a symmetrical appearance. A crawl space separated the floorboards from the ground surface, as the house lacked a true basement. Some additions were made in the early 1860s including an expanded kitchen, dining room, large bedroom, buttery, and pantry. Even with these additions, the floor area of the house was less than \( 1000 \text{ ft}^2 \). The Whites occupied the house until April 15, 1863 when Robert Sawyer bought it for $1,480 (Nassaney et al. 2000:31). During the whole of the Whites’ occupation of this house, there was never any mention in the historical documents of privies or cisterns. This may have something to do with the Victorian thinking during the mid-1800s. Bathroom use was a private affair and it was not to be talked about or mentioned (Lowe 1976:228). Even available pictures of early log cabins located in southwest Michigan, which had to rely on such features, omit outhouses, as well as haystacks, corncribs, and stables (Lowe 1976:228).
Figure 4. Copy of a portion of the 1858 wall map of Calhoun County showing residential structures on lots 64 and 3 in Manchester's 3rd Addition.
Agricultural Period (ca. 1864-1885)

By the late 1860s George W. Angell owned lots 64/65, and three-quarters of the adjacent lot 3 (Beers 1873). He was listed as a farmer residing at 63 Wood Street in the 1871 Battle Creek City Directory. If Angell was still actively farming then he likely owned or rented other parcels of land in the vicinity, since Lots 64 and 65 were much too small to support him in agricultural pursuits. In 1867, Angell purchased the northerly quarter of Lot 3 and the privilege of using water from the well on said lot from Jonah R. and Caroline E. Lewis (Sayers et al. 1999:41). The mention of George Angell being able to use the water from the well is the second time this well stated in historical documentation, and this information adds to the understanding of how people at this home lot acquired water prior to city water services. An 1873 Map shows Angell’s name listed for lot 64 (see Figure 5).

Residential Period (ca. 1886-1899)

By the late nineteenth century, lots 64 and 65 were subdivided and several smaller house lots were created immediately north and south of the Whites’ house. Residential structures were erected at 51 N. Wood Street (1880s?) and 57 N. Wood Street (1880s?). This subdivision of lots probably occurred after the death of George Angell in 1886. The houses that were built on the subdivided lots were also modest dwellings typically occupied by middle class owners (Sayers et al. 1999:41-42). By 1898, Jeannette Angell, widow of George, sold the former Whites’ house to Albert
Figure 5. 1873 map showing the James and Ellen G. White house likely misplaced on Lot 64. Note that the site is owned by G.W. Angell.
Mudica. Albert was listed as a laborer in the Battle Creek City Directory in 1899 and was the last of the owners to actually occupy the house at 63 N. Wood Street.

**Tenancy Period (ca. 1900-1975)**

Mudica had the property for less than a year and sold it to Louis Strauss in 1899, who was the first in a long line of landlords to rent out the property. This is demonstrated in public records because Strauss is not listed as living at 63 Wood Street in the Battle Creek City Directory for the years of 1899 to 1906. By further researching the Calhoun County Index of Deeds, one is able to trace the ownership of the property. It continued to be subdivided and, in 1906, a house was constructed at 71 N. Wood Street. This subdivision of the lot also corresponds with the sale of the house at 63 N. Wood Street to Charles Stewart, a medical doctor at the Battle Creek Sanitarium. The Battle Creek Sanitarium was a major Battle Creek employer in the early 1900s and known internationally as a place to become healthy due to its owner, Dr. John Harvey Kellogg, world renowned for his views on healthy living and sanitation.

Dr. Stewart had his rental property connected to city water in November 1906, the same year he bought the property (Battle Creek Public Works Records 1906). It is interesting to note here that Dr. Kellogg, living only approximately a block away from this property had a water connection a full nine years before the occupants at 63 N. Wood St. Dr. Kellogg’s water was connected to his residence on June 25, 1897 (Battle Creek Public Works Records 1897), indicating that water was available to
neighborhood residents. This indicates that either Dr. Kellogg was given preferential treatment or the residents of 63 N. Wood Street opted out of connecting because of the cost or personal preference.

This property continued to be a rental property; it was sold again in 1909 to Walter Martin, a physician at the Sanitarium who lived at 71 N. Wood Street. During the period Martin owned the house, it was connected to the city sewer on November 23, 1914 (Battle Creek Public Works Records 1914). The agreement to connect the house to the city sewer clearly states that the owner of the property must sign but is instead signed by the tenant, one Jens Holmes (Battle Creek Public Works Records 1914), as his name appears in the 1913 Battle Creek City Directory. Holmes is listed as working as an engineer at the Sanitarium. Why would the tenant be allowed to sign off on documentation that clearly states that the property owner must agree to the connection? Maybe he felt pressure from neighbors or the city to comply. Further evidence is needed. Dr. Kellogg also had a sewer connection installed at his residence at 202 Manchester in 1913, a year earlier than 63 N. Wood St. (Battle Creek Public Works Records 1913).

A Sanborn Insurance Map of the neighborhood drawn up in 1920 shows a wooden structure approximately 10 to 20 feet behind the house at 63 N. Wood St (see Figure 6). The Sanborn Insurance Company compiled these maps for fire insurance purposes to document what buildings were located in the city and what buildings were actually on an individual’s property. This symbol indicates that this is single story wooden structure with a pump associated with it (Sanborn Map 1920). The
association with a pump may have something to do with it being connected to the kitchen of the house by a ceramic drain pipe, which will be described later. It has the same dimensions and is in the right location for where a privy would be located (Sanborn Map 1920). Martin continued to own the property until 1925, when he sold it to William Marsh, an engineer at the Sanitarium who also lived at 71 N. Wood Street. In about 1930, a photograph was taken of 63 N. Wood St. (see Figure 7). The picture is facing west looking towards the house at the front. In the back of the house there appears to be a building in the approximate location of where the Sanborn Insurance Map indicated a small wooden structure to be. Apparently the property continued to have a privy on its premises until at least 1930, when the property was still being rented. The question remains as to why there was a privy on the property when the house was connected to sewer in 1914 and whether or not it was still being used during this time period. Marsh held onto the property until 1959, when he sold it to his wife, D. Hildegard, who was listed as living at 55 Wiltshire Avenue in Battle Creek.

Preservation Period (ca. 1976-present)

In the mid-1970s, the Adventist Historic Properties began their preservation program by buying the James and Ellen G. White house at 63 N. Wood Street. At first the property was left as is except for finding a tenant to rent one half of the house with the other half used to store artifacts, documents, and furnishings associated with James and Ellen G. White (Nassaney et al. 2001:246). Over the following decades,
Figure 6. Sanborn Insurance Map of Battle Creek, Michigan made in 1920. Note the structure behind 63 N. Wood Street. This is a privy.
Figure 7. The James and Ellen G. White house as it appeared in a photograph taken ca. 1930. Note the structure behind the house with the slanted roof and entrance. This structure is the privy. (courtesy of Adventist Historic Properties, Inc.)
the Adventist Historic Properties began to purchase properties that surrounded the James and Ellen White house and began to reconstruct the landscape to make it look like it did in the early 1860s, when the Whites occupied the house.

Archaeological Investigations

The archaeology of the James and Ellen White site has focused on landscape changes that have occurred at the site since its first occupation by the Whites in 1856. This focus comes from the Southwest Michigan Historic Landscape Project, developed by Dr. Michael Nassaney which emphasizes that people actively configure space, situate outbuildings, and use the environment around them to express aspects of their social identities such as class standing, ethnic background, or ideological beliefs (Nassaney et al. 2001:221). With this approach, one can begin to emphasize that the built environment and material goods are the products and precedents of social negotiation in historical development (Nassaney et al. 2001:219-221).

Archaeological investigations were first conducted at the site in 1996 at the request of the Historic Adventist Village, the owners of 63/65 N. Wood St. Lot (Nassaney et al. 1999:21). Eight 50 x 50 cm square test pits (STPs) at 5 m intervals were staggered along 3 transects behind the house. These STPs revealed subsurface artifact deposits to a depth of more than 60 cm and in some cases suggested the potential for nineteenth century materials and possibly features in undisturbed context (Nassaney et al. 1999:21). This initial testing of the site led to further archaeological and geophysical investigations in 1998.
In 1998, for a three-week period, the Western Michigan University (WMU) field school conducted an intensive archaeological survey to identify potential subsurface features and to assess the site for National Register eligibility. Before the archaeological survey was started in 1998, geophysical investigations were conducted to determine if any subsurface features could be detected. Using the results from this survey, as well as the information gathered during the 1996 archaeological testing, archaeological work began. During these excavations, STPs (50 x 50 cm) were used as well as larger excavation units (1 x 1 m, 1 x 2 m) and trenches (2 x 0.5 m) to expose horizontal spatial relationships and vertical stratigraphy. This survey uncovered several features including a cistern behind the house, a cistern under the house, and a possible root cellar.

2000 Excavations

In 2000, the WMU archaeological field school continued investigations of the James and Ellen White site to further examine the root cellar, both cisterns, and to possibly uncover any more subsurface features that may have been missed by previous excavations. During these excavations another cistern (square shaped) was uncovered, along with a ceramic pipe leading from the northwest corner of the house out to the feature interpreted to be a “root cellar.” This root cellar, upon further excavation, has been reinterpreted to be a privy, the data for which will be presented later.
This thesis will focus on the three cisterns, the privy, and the ceramic pipe (see Figure 8). Each will be examined to determine approximate construction date, how they were utilized by the residents of the home lot, and when they were abandoned. In conjunction with the historical data and social theory, this data will be used to suggest that besides the obvious health benefits, there were less apparent economic and political reasons behind the shift to city water and sewer. It will also be argued that this shift is part of a means to implement subtle social control over the residents of the city.

**Oval Cistern Behind the House**

First encountered during the 1998 excavations, the 2000 field season returned to this cistern to continue excavations that would help determine its vertical and horizontal extent, as well as obtain a larger sample of its contents to help determine when the cistern was abandoned. The 2000 excavations revealed that this cistern is 1.51 meters deep and 2 meters long, and of unknown width but having an oval shape (see Figures 9 and 10). It lies approximately 30 meters west of the house and was initially constructed by first digging an oval shaped hole, then lining it with a layer of cement about 2 to 3 centimeters thick.

*The Prairie Farmer* in 1843 describes how to construct a plastered cement cistern similar to the one described above:
Figure 8. Map of the James and Ellen G. White site showing the three cisterns, the privy, and the ceramic pipe in relation to the house.
UNEXCAVATED

SOIL TYPES

I = 10 YR 3/2 VERY DARK GREY-BROWN SANDY LOAM (FILL)

II = 10 YR 4/6 DARK YELLOW-BROWN SAND (FILL)

III = 10 YR 3/2 VERY DARK GREY-BROWN SANDY LOAM (A HORIZON)

IV = 10 YR 3/3 DARK BROWN SANDY LOAM

V = 10 YR 2/1 BLACK SANDY LOAM

VI = 10 YR 4/4 DARK YELLOW-BROWN SANDY LOAM - MOTTLED WITH LAYER IV SOIL

VII = 10 YR 3/3 DARK BROWN SANDY LOAM

VIII = 10 YR 2/2 VERY DARK BROWN SANDY LOAM

IX = MOTTLED WITH THE FOLLOWING 3 SOILS:

A) 10 YR 4/6 DARK YELLOW-BROWN SAND

B) 10 YR 4/2 DARK GREY-BROWN SANDY LOAM

C) 10 YR 4/3 BROWN SANDY LOAM

X = 10 YR 4/2 DARK GREY-BROWN SILT

XI = 10 YR 4/4 DARK YELLOW-BROWN SANDY SILT

XII = 7.5 YR 3/4 DARK BROWN SAND

XIII = 10 YR 3/2 VERY DARK GREY-BROWN SANDY LOAM/SILT

*NOTE: Layers beneath layer IV appear to be fill, over which "ground layers" III and IV have accumulated. Layers VI and beneath are probably evidence of the cistern having been filled.

Figure 9. East profile wall of oval cistern behind the house in unit N13.5 E11.5
SOIL TYPES

I = 10 YR 3/2 VERY DARK GREY-BROWN SANDY LOAM (FILL)
II = 10 YR 6/6 BROWN-YELLOW SANDY (FILL)
III = 10 YR 3/2 VERY DARK GREY-BROWN SANDY LOAM (FILL)
IV = 10 YR 4/4 DARK YELLOW-BROWN SAND (FILL)
V = 10 YR 3/2 VERY DARK GREY-BROWN SANDY LOAM (A HORIZON)
VI = 10 YR 2/2 VERY DARK BROWN SANDY LOAM (A-B TRANSITION)
VII = 10 YR 5/6 YELLOW-BROWN SANDY LOAM (B HORIZON)

VIII = VERY MOTTLED FILL WITH 4 DISTINCTIVE SOIL TYPES:
A) 10 YR 4/2 DARK GREY-BROWN SANDY LOAM
B) 10 YR 5/6 YELLOW-BROWN SANDY LOAM
C) 10 YR 4/4 DARK YELLOW-BROWN SAND
D) 10 YR 2/2 VERY DARK BROWN SANDY LOAM

* Listed in order of decreasing amount in area VIII

Figure 10. West profile wall of oval cistern behind the house in unit N14.5 E11
To make a cistern of about 40 barrels—that being suitable size for a common family—I would commence by digging a circular hole, 8 feet in diameter and two feet deep; having made the bottom tolerably level, strike a circle 6 ½ feet in diameter on it, this leaving a shoulder all round to rest the plank on. Then dig by the circle a hole 6 feet deep, drawing gradually in as you go down, so that at the bottom, about 18 inches deeper, thus making it somewhat in the shape of a pot ash kettle, but considerably deeper in proportion (Smith 1843).

After the hole was excavated, the cement was plastered directly onto the soil walls, usually in two or three coats, whichever was preferable, and the top was covered with wood planks—preferably oak. After the planks were placed down over the cistern, one needed to plaster the cracks in the plank and joint where the plank and wall come together. Finally, one was supposed to cover the hole with earth to a depth that would exclude frost, and it would be completed (Schroeder 1991:110-111).

The mostly clean fill from this cistern yielded relatively few artifacts. Some of the artifacts recovered included unburned bone, small pieces of blue transfer print white ware, green transfer print white ware, miscellaneous metal fragments, machine-cut nails, amethyst glass fragments, the bottom of a possible medicinal bottle with a “French cut” base, a floral print porcelain plate, and non-diagnostic clear glass (see Figure 11). The artifacts recovered ranged in dates from the blue transfer print white ware diagnostic to the 1860s, to the square machine-cut nails, amethyst glass and porcelain plate that are diagnostic to 1900 to 1910. Square machine-cut nails were recovered in almost all the levels excavated within the cistern, which supports the idea that this cistern was abandoned and filled in over a relatively short time, possibly within a few days or weeks. This cistern may be associated with a barn the Whites are reported to have had behind the house, according to unsubstantiated, local reports.
Figure 11. Artifacts recovered from the oval cistern behind the house
   Top: Bottom of possible medicinal bottle with a "French cut" base
   Bottom: Going left to right: Plain white ware ceramic piece, decorated floral print porcelain, blue transfer print white ware
(Nassaney et al. 1999:80).

There are accounts from the 1860s and 1870s that mention the use of barnyard cisterns to supply drinking water for livestock as they were cheaper and less laborious than digging or drilling a well (Schroeder 1991:108). The abandonment of this cistern may suggest that animals were also being abandoned during this time. The 1900 to 1910 date for the artifacts recovered from this cistern would then support an abandonment date sometime during this time period, perhaps when the house was connected to city water in 1906 (Battle Creek Public Works Records 1906). This cistern was built then in the early 1860s, when the Whites owned the house, probably being constructed to water animals due to its proximity to the barn. It was used from the early 1860s to ca. 1906, when it was abandoned and filled in after the house was connected to city water. After this time period, one would also expect the occupants of this house to also abandon animals, since they are also losing the ability to care for them.

The Cistern Under the House

The cistern under the house was first encountered during the 1998 field school. During the 2000 field school, a 50 x 50 cm unit was placed in the west half of the cistern to determine the depth of the fill and of the cistern. It measures 3 meters across and 2.2 meters wide, and extends to a depth of 2 meters (see Figure 12). This cistern was constructed by first digging a circular hole, then lining the walls of the hole with bricks, followed by covering the bricks with concrete to help contain the
Figure 12. Planview of cistern under the house. The west half of the cistern was excavated using a 50 x 50 cm unit

1 = HEAVILY DISTURBED SOIL WITH CONSTRUCTION DEBRIS MIXED IN
water. This brick lining served to support the cistern and prevent contamination should it fall apart and allow vermin and other such creatures to get inside (Schroeder 1991:111). The bottom of the cistern was first covered with concrete upon which boards were laid down. After the concrete dried, additional concrete was poured onto the floor to help hold the water in the cistern. This cistern is located under the kitchen and was accessible through a square floor hatch where someone could lower a pail into the cistern to retrieve water (see Figure 13). The water from a cistern associated with a house had many uses including drinking water, washing hair, clothes, and dishes, and bathing (Schroeder 1991:108). The cistern’s position under the kitchen suggests that it was constructed at the time the house was added on to, in 1861, as it would have been more difficult to construct this cistern after the addition was completed (Crawford and Stern 1998).

The cultural fill within the cistern contained artifacts such as bottles, canning jars, ceramics, and various metal artifacts that date from the late nineteenth century, plain white ironstone ceramics from the early twentieth century, and the top of an automatic machine-made bottle that post-dates 1920. The top of an automatic machine-made bottle was recovered in excavation at the bottom of the cultural fill in the cistern (see Figure 14). Because it was located on the bottom of the cultural fill, this indicates that the fill episode occurred sometime after 1920. White granite ware and white ware ceramics were encountered throughout the cultural fill in the cistern. Reconstructions of these ceramics in the laboratory indicate that the fill episode for this cistern occurred at one quick interval, perhaps over a period of a few days. A
Figure 13. Planview of James and Ellen White House circa 1861 showing room on back of house. You can see the cistern under the house in the kitchen. It also shows where the square cistern would have been located in relation to room.
Figure 14. Top of automatic machine-made bottle recovered from cistern under the house
sample of other artifacts that came from the cultural fill of the cistern include the base of a gas hurricane lamp, the top of a milk bottle, a Battle Creek Sanitarium bottle, a blue ironstone floral print serving dish, and a porcelain doll head (see Figures 15 and 16). Also recovered, but not pictured, were less diagnostic undecorated white ware ceramics that can date from 1810 to present, undecorated ironstone plates and cups that can date from 1840 to 1930, and rose-decorated white ware ceramics that date to after 1900. Another artifact recovered from the cistern was a can of Sweet Georgia Brown Hair Dressing Pomade with a copyright date of 1934, suggesting that this fill episode occurred in or after the year 1934 (see Figure 17).

This cistern was built in 1861 when the addition was added onto the original home of James and Ellen White and was used until sometime after 1934, based on the can of hair dressing excavated from the fill. After it was abandoned and filled, a layer of clean fill was placed over it-probably in the early 1940s. The site occupants then used it as a storage area for canned preserves as evidenced by a shelving unit and food still preserved in canning jars discovered when the cistern was reopened by a construction crew in 1998.

Square Cistern

A third cistern was uncovered behind the house during the 2000 archaeological field school and measures 1.04 meters by 1.27 meters and 1.36 meters deep (see Figures 18 and 19). This cistern was constructed using similar techniques as those described earlier for the cistern located 30 meters from the house. Marks left
Figure 15. Glass artifacts recovered from the cistern under the house

Going clockwise: A bottle made by the semi-automatic technique that has embossed letters that read, "Battle Creek Sanitarium Battle Creek, MI", the glass base of a gas lamp, and the top half of a milk bottle.
Figure 16. Raised decoration, blue floral print white granite dish and porcelain doll head recovered from the cistern under the house
Figure 17. Metal can of Sweet Georgia Brown Hair Dressing Pomade, copyright 1934 recovered from the cistern under the house
Figure 18. Planview of Units N30 E34, N30 E35 which contains the square cistern behind the house.

SOIL TYPES
I = Sub-soil under the floor of the cistern
  10 YR 4/6 Yellow-Brown soil

II = Ash layer from burning episode
  10 Yr 5/2 Grey-Brown soil
SOIL TYPES

I = 10 YR 2/1 BLACK SOIL (A HORIZON)

II = 10 YR 2/2 VERY DARK BROWN SOIL MOTTLED WITH 10 YR 3/3 DARK BROWN SANDY LOAM (FILL #4)

III = 10 YR 5/8 YELLOW-BROWN SANDY LOAM (FILL #4)

IV = 10 YR 5/4 YELLOW-BROWN SAND (FILL #4)

V = 10 YR 2/2 VERY DARK SANDY BROWN LOAM (FILL #4)

VI = 10 YR 5/1 GREY, GREY ASH (FILL #3)

VII = 10 YR 6/2 LIGHT GREY-BROWN SAND AND ASH (FILL #2)

Figure 19. South wall profile of square cistern excavated in units N30 E34, N30 E35
in the wall indicate a different tool, possibly a trowel, was used to smooth the walls. This cistern is approximately located where a small lean-to woodshed on the west side of the house was mentioned by Ellen White in a letter, in which she stated, “Then a little stove room for the stove in summer, and to be used as a woodshed in winter” (White 1861:Letter 27) (see Figure 13). This would date the cistern to 1861 when the addition to the house was completed. It is unclear when this addition was abandoned and torn down.

Some of the artifacts recovered from this feature include rusted square and wire nails, burned and unburned bone, small pieces of plain white ware as well as pieces of blue transfer print white ware, and one bottle made by using the semi-automatic bottle mold construction (see Figure 20). It appears to have been abandoned between 1900 and 1910, based on artifacts recovered from the feature, perhaps in 1906 when Louis Strauss sold the house to Dr. Charles Stewart. When this cistern was abandoned it appears that someone deposited several layers of ash into this cistern, based on ash layers found in the cistern during excavation (see Figure 18). Whoever abandoned this cistern may have used it as a depository for trash that they had burned somewhere else on the site and then used this burned trash to fill it in. This cistern was built in 1861 when the addition was added to the original house of James and Ellen White and apparently was used until the early 1900s, to around 1906 when the house was sold and connected to city water. Perhaps this addition was torn down when this cistern was abandoned in 1906.
Figure 20. Some of the artifacts recovered from the square cistern

Top Row-Semi-automatic bottle mold construction
Bottom Row-Raised decorated white ware handle, small piece of blue shell-edged white ware, top of white ware dish with green floral print, and machine-cut square and wire nails
The Privy

In 2000, the field school returned to excavate the feature that was originally interpreted as a root cellar. This privy is located a few meters behind the house in the same position as a structure that is shown in the ca. 1930 photograph and the wooden structure indicated behind the house in the Sanborn Insurance Map (1920). It measured 1.4 m wide and 1.5 m long and had a total depth of 1.84 m (see Figure 21). It was constructed by first digging a rectangular hole that was then lined with pieces of vertical standing wooden boards (see Figure 22). This is evidenced by pieces of wood encountered along the edge of the feature during its excavation. Also encountered during the excavations was evidence for what appeared to be night soil based on the feature’s Munsell color of 10YR2/1 black. Night soil is the waste that is left in a privy after continued use. Based on its depth, dimensions, construction, historical documentation, location, contents, this feature has been reinterpreted as a privy.

It contained numerous artifacts, which increased in density at approximately 1.2 m below surface, near the bottom. This is probable evidence that when this feature was abandoned whoever filled in this privy threw in their trash before they started to fill it with soil. The artifacts in this privy have a varied age range, from the late nineteenth century to the early twentieth century. The late nineteenth and early twentieth century artifacts are mixed together throughout the fill of the privy. White floral print and undecorated white ware was recovered and can date to the 1890s and into the twentieth century with the latest artifact being an automatic machine-made
SOIL TYPES

I = 10 YR 3/2 VERY DARK GREY-BROWN SANDY LOAM (FILL ZONE)

II = 10 YR 2/1 BLACK SANDY LOAM (A HORIZON)

III = FEATURE #4-10 YR 3/1 VERY DARK GREY SANDY LOAM (FILL ZONE #5)

IV = FEATURE #4-10 YR 3/2 VERY DARK GREY-BROWN SANDY LOAM (FILL ZONE #4)

V = FEATURE #4-10 YR 4/6 DARK YELLOW-BROWN SANDY LOAM (FILL ZONE #3)

VI = FEATURE #4-10 YR 2/1 BLACK SANDY LOAM

VII = FEATURE #4-10 YR 3/2 VERY DARK GREY-BROWN SANDY LOAM (FILL ZONE #2)

VIII = FEATURE #4-10 YR 3/1 VERY DARK GREY SANDY LOAM

IX = FEATURE #4-10 YR 4/3 DARK BROWN SANDY LOAM (FILL ZONE #1)

X = 10 YR 3/3 DARK BROWN SANDY LOAM (AB TRANSITION)

XI = 10 YR 5/6 YELLOW-BROWN SANDY LOAM (B HORIZON)

XII = 10 YR 5/6 YELLOW-BROWN SANDY LOAM (ANIMAL BURROW)

Figure 21. North profile wall of privy
UNEXCAVATED AREA STOPPED AT 60 cm Bd
UNEXCAVATED AREA STOPPED AT 90 cm Bd
PREVIOUSLY EXCAVATED AREA

Figure 22. Planview of unit N25.5 E30.5 in which the privy was excavated. Note the wood that lined the outside walls of the privy

1 = 10 YR 3/3 DARK BROWN MOTTLED WITH 10 YR 2/1 BLACK SANDY LOAM (Night soil)
Figure 23. From left to right: Plain white ware cup and decorated floral print white ware bowl recovered from the privy
Figure 24. Blue automatic machine-made bottle recovered from the privy which dates to post-1920
Figure 25. Milk bottle from M.P. Company and a Ball mason jar recovered from the privy
bottle that dates to the 1920s (see Figures 23 and 24). Also recovered were a milk bottle and Mason jar that date to the early twentieth century (see Figure 25). A red earthenware black and gold floral design teapot was also uncovered but I was unable to ascertain a date for its manufacture. This privy appears to have been built sometime in the early 1900s (1900 to 1906) and was used until the mid-1930s, at which time it was abandoned and filled in.

**Ceramic Pipe**

A ceramic pipe was encountered during the 2000 archaeological field school when excavating near the square cistern (see figure 26). It was laid down to a depth of 60 cm below ground surface and slopes downward from the house towards the privy. When it installed, the excavators encountered the southeast corner of the square cistern. Broken pieces of cistern were found in the fill used to cover the pipe after it was connected indicating that the person(s) digging to install this pipe either did not care they were cutting into this abandoned cistern or that they did not know that it was there. This probably means that the cistern was already abandoned when the pipe was laid down. This ceramic pipe went from the twentieth century kitchen of the James and Ellen White house to the privy (see figure 27) and appears to be a discharge pipe for grey water from the kitchen, which then emptied into the privy, acting as a drainage feature. The presence of this ceramic pipe indicates that the privy was built sometime after the square cistern was abandoned, around 1906. Since it has already been determined that the square cistern was abandoned around 1906.
SOIL TYPES

I = 10 YR 3/3 DARK BROWN SANDY LOAM (A HORIZON)

II = 10 YR 4/5 DARK YELLOW-BROWN SANDY LOAM (A HORIZON)

III = 10 YR 3/4 DARK YELLOW-BROWN SANDY LOAM MOTTLED WITH 10 YR 3/2 VERY DARK GREY-BROWN SANDY LOAM (B HORIZON)

IV = 10 YR 3/1 VERY DARK GREY SANDY LOAM (FEATURE 5)

Figure 26. Planview of ceramic pipe and square cistern in units N29 E35 and N30 E35
Figure 27. Planview of house as it was in 1998. Note the ceramic pipe leading to the kitchen
and the people who dug this ceramic pipe did not know about the square cistern, then it can be determined that the privy was built at about the same time that the ceramic pipe was laid down, sometime on or after 1906. At this time the house was connected to city water, but not to city sewer so the residents would need both a privy for personal use and a ceramic pipe to rid the house of grey water.

For the purpose of orienting the reader, the three cisterns were built first (see tables 2 and 3)(see figure 8). The cistern located 30 meters from the house could have been built in 1861. The cistern under the house and the square cistern were both built when James and Ellen White made the addition to their house in 1861. Then, the oval cistern located near the barn appears to have been abandoned in 1906, which dates to the time of when the house was connected to city water. When this barn and cistern were abandoned, it may have also been the time when animals at the house lot were also given up. The square cistern behind the house appears to have been abandoned around 1906, when Louis Strauss sold the house to Dr. Charles Stewart and he proceeded to connect the house to city water and fill in the square cistern. The cistern under the house continued to be used, perhaps as a backup water supply or it could have been used as a means to save money after they connected to these services. To connect to these services, the people living at this site had to pay a substantial amount of money, which may have been a great cost to people during this time period. The privy was probably built the same time the ceramic pipe was laid down and connected to the kitchen sometime after the square cistern was abandoned, based on the fact that whoever installed the ceramic pipe cut through the square
cistern while excavating a trench to place it in. Perhaps another privy that was on the site was abandoned at this time and this one was built in its place. This event would date to either 1906 or later. The privy and the cistern under the house continued to be used until the mid-1930s, when they were abandoned and filled in. This date of the mid-1930s is based on the artifacts recovered from both the privy and the cistern under the house.

The next chapter will discuss how the archaeological, historical, and theoretical frameworks all come together to demonstrate that besides the health benefits being promoted there were many factors involved in creating city water and sewer services. There were economic and political reasons for some elites within the city to be advocating such services. With the adoption of these new services by people throughout the city, a new form of etiquette/proper behavior was being used which also began to be associated with the characteristics of being civilized. These proper behaviors also became a subtle form of social control which the city could use to help insure that people were utilizing specific, ideal behaviors associated with using the bathroom not only in institutions but within their individual home lots. Not everyone in the city accepted these new services and the behaviors that accompanied them. The abandonment dates that were determined archeologically for the privy and cistern under the house will be used to suggest possible resistance to these new services and behaviors being promoted throughout the city. It will be argued that by having these features open on the landscape, the people using them were resisting the city’s attempts to connect everyone in the city to these new services. It could also be
interpreted as an economic issue; they could not afford to use these new services once they were connected to them so they continued to use the old system.
Table 2.
Chronology of Water and Waste-Related Features Examined at the James and Ellen G. White House Site.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Date of Construction</th>
<th>Date of Abandonment</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cistern Under the House</td>
<td>1861</td>
<td>Mid-1930s</td>
<td>Water for household use</td>
</tr>
<tr>
<td>Square Cistern</td>
<td>1861</td>
<td>1906</td>
<td>Water for household use</td>
</tr>
<tr>
<td>Oval Cistern Behind the House</td>
<td>1861</td>
<td>1906</td>
<td>Water used for animals associated with barn</td>
</tr>
<tr>
<td>Privy</td>
<td>1906</td>
<td>Mid-1930s</td>
<td>Used for human waste needs and as a receptacle for grey water from kitchen</td>
</tr>
<tr>
<td>Ceramic Pipe</td>
<td>1906</td>
<td>Mid-1930s</td>
<td>Used to rid grey water from kitchen in house</td>
</tr>
</tbody>
</table>
Table 3.
List of Important Events and When They Happened at the James and Ellen White Site (20CA118) in Battle Creek, Michigan.

<table>
<thead>
<tr>
<th>Year</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1855</td>
<td>Whites purchase lots 64 and 65 and move onto property</td>
</tr>
<tr>
<td>1856</td>
<td>Whites build the Greek Revival house</td>
</tr>
<tr>
<td>1861</td>
<td>Whites build addition onto the house. This is when the three cisterns were constructed</td>
</tr>
<tr>
<td>1864</td>
<td>Whites sell the house and move out</td>
</tr>
<tr>
<td>1884</td>
<td>Experimental water system constructed in area around Sanitarium</td>
</tr>
<tr>
<td>1887</td>
<td>City water is constructed and begins operation</td>
</tr>
<tr>
<td>1893</td>
<td>City sewer is constructed and begins operation</td>
</tr>
<tr>
<td>1897</td>
<td>Dr. John Harvey Kellogg has his house at 202 Manchester Street connected to city water</td>
</tr>
</tbody>
</table>
| 1906 | House is connected to city water  
Square cistern and the oval cistern behind the house are abandoned  
Privy is constructed and the ceramic pipe is laid down and connected with the kitchen and privy |
| 1913 | Dr. John Harvey Kellogg has his house at 202 Manchester Street connected to city sewer |
| 1914 | House at 63/65 N. Wood Street is connected to city sewer |
| mid-1930s | Privy is abandoned and filled in  
Cistern under the house is abandoned and filled in |
| 1975 | House is bought by the Historic Adventist Village |
Chapter V
DISCUSSION

The shift that occurred in the late nineteenth and early twentieth centuries from privies and cisterns to city water and sewer services is a significant transition in American history. This shift can be observed archaeologically at the James and Ellen White site. Advocates for these services were arguing that they greatly improved the sanitary conditions of a city, which lowered infectious diseases (Tarr 1979:311). Other reasons for these services being adopted need to be addressed. As already stated earlier, some larger cities in the eastern U.S., such as Boston and Philadelphia, had these services before people understood that small microorganisms were the cause of disease. This leads one to postulate that there were other reasons for the introduction of city water and sewer besides health and hygiene.

These services were about control and self-discipline of an urban population. It also gives evidence as to how some elites attempt to implement social control over individuals through discipline. Some elites had notions of correct social behaviors, which included the use of indoor toilets and running water. They then proceeded to develop the physical means, city water and sewer, to bring about this behavior in others. This process ends with the original ideal, using an indoor toilet and city water, being grounded into action, connecting everyone up to these new services to ensure that everybody in the city is using them properly. If this process occurs often enough, the elite ideal is adopted by the rest of society as common sense (Paynter and McGuire 1991:8).
Using Archaeological and Historical Data to Examine the Shift to City Water and Sewer

Not everyone living within Battle Creek accepted these new services offered by the city. Some people actually resisted as evidenced by the James and Ellen White site. Evidence exists from city public works records that the house was connected to city water in 1906 and city sewer in 1914 (Battle Creek Public Works Records). It would be expected that all features in regards to water and sewer at this site would be abandoned between the time period of 1906 and 1914. These dates correlate with the abandonment date for the square cistern and the oval cistern behind the house, which is 1906. On the other hand, these dates seem to contradict what we see in the archaeological record. The privy and cistern under the house have an abandonment date in the mid-1930s. This indicates that these features were either left open after the connections to city water and sewer were made or they were used up until the mid-1930s by the people living at the house.

The date of abandonment for this privy and cistern under the house on the James and Ellen White site can be interpreted two ways. First, the residents of the house continued to use the privy and cistern after the house was connected to water and sewer. One possible reason for this is that they could not afford the cost of the connection that the city had residents pay to connect to the system. Another possible reason for the continued use of these features after the house was connected is that these new services were unfamiliar to the people living at 63 N. Wood Street so they may have resisted them through the continued use of methods they were familiar with, a privy and cistern. The second interpretation is that they simply left the privy...
and the cistern under the house open after the residence was connected to city water and sewer until they were abandoned in the mid-1930s.

Why would people choose to continue to use a privy and cistern after they have been connected to city water and sewer? One reason for the continued use of cisterns is that some people had the belief that rainwater, or soft water, was better for a person than water from a well, a stream, a pond, or the city. People in the mid-nineteenth century believed that water from a cistern was healthier for a person than water from a stream or well (Schroeder 1991: 111). The belief was that water from a well or stream was considered hard water and this was bad for the digestive system. This hard water was also believed to cause other sorts of ailments, such as kidney stones or infectious disease. It was believed that if one were to drink soft water then one could prevent these ailments. This belief of soft water then may have persisted into the twentieth century and would explain why people would continue to use a cistern (Schroeder 1991: 111-112). Another possibility to consider is that the water the city was sending to its residents was polluted. The occupants then at 63 N. Wood Street would have continued to use the cistern as a source of water.

Another reason that explains why people would continue to use privies and cisterns may be the fact that they could not afford the service of water and sewer after they had the connections put in. The city stated that no one could connect with the public sewers without first paying at least two-fifths of the assessment. This document originally stated three-fifths but someone crossed out three-fifths and wrote in two-fifths, probably to make it more affordable for people who could not pay the
original connection fee (Battle Creek Public Works Records 1914). The Common Council divided the assessment into five annual payments that went to the general tax rolls. The amount of these five annual payments could not be found in the historical documents. This may have been a substantial cost to bear for some people in the early 1900s. Because the estimated wage for a general laborer in 1927 was $1042, if this same general laborer wanted to have a water closet (toilet) installed, the cost has been estimated to be about $52 or five percent of the total earnings for the year (Ierley 1999:184). This price was for the toilet and then having a plumber install it; it did not include the fee for connecting to city water and sewer. This cost concern may also be the main reason why we still see more outdoor toilets than indoor ones at the turn of the century in Battle Creek. By 1920, this figure was reversed (Lowe 1976:227).

Even merchants and industries in downtown Battle Creek resisted the city’s attempts at water control. There are accounts of downtown merchants and industries digging their own wells up until 1920 (Lowe 1976:128). After 1920, these wells were found to be polluted, but a number of these wells still functioned for industrial use as well as for air conditioning as late as 1976 (Lowe 1976:128).

It would appear that most people with means had access to these services first (see Table 1). The list of the first applicants for city water published in The Battle Creek Daily Moon a few days after the successful test of the water system shows that most of these people had high-paying jobs or owned or operated a business. Another individual with means that appears to have been connected to these services at an early date was Dr. Kellogg. As mentioned earlier, Dr. Kellogg was a well-respected
doctor, both nationally and internationally. His house at 202 Manchester Street was connected to city water in 1897 and to city sewer in 1913 (Battle Creek Public Works Records 1897, 1913). His house is also larger than the Whites’ (see figure 28). The focus of this thesis, 63 N. Wood Street, is located a block away from Dr. Kellogg’s house. The people living here were tenants with lower paying jobs. The house at 63 N. Wood Street was connected to city water in 1906 and city sewer in 1913 (Battle Creek Public Works Records 1906, 1914). By comparing the connection dates of water and sewer for Dr. Kellogg’s house and that of 63 N. Wood Street, one notices that Dr. Kellogg had these services earlier than the residents of 63 N. Wood Street. This seems to support the idea that people of higher socio-economic class were able to take advantage of such services well before those of lesser means. It may also show that some people living in Battle Creek were not receptive to this new concept of having “clean” water delivered to their house.

As the twentieth century began, other cities were experiencing similar circumstances to the residents of Battle Creek, MI regarding this shift to city water and sewer. In 1935, a survey was conducted of the health needs and activities of people living in Louisville, Kentucky which showed that not much had changed in sanitation among the people of Louisville since the mid-1800s (Stottman 2000:45). Twenty-five percent of the dwellings in Louisville were not connected to a sewer and over 12,000 privies were still in use in 1935. Three-quarters of these privies were located on lots where sewer connections were available. This survey also found that
the main reason for this high number of houses not being connected to the sewer system was because of the $100 to $125 sewer connection fee (Stottman 2000:45).

In 1936, a drought struck the city of Louisville and privy vaults became front-page news of the local newspaper. As water pressure dropped in the city’s water supply, people reverted back to using wells and cisterns. The people who used the wells and cisterns became sick, though the illnesses suffered were not specified. This was due to the fact that the privies still in use in the city were literally fouling up the water supply and causing many to fall ill. The newspaper then printed an article urging people to hook up to the city sewer system. The editors further stated that they did not wish to create unrest in the city but simply wanted to present the facts enabling the residents to intelligently cope with the present conditions. The newspaper conducted several interviews of city residents for this article and it appears that the cost of the sewer connections, and the plumbing for indoor toilets (and one could even argue here for the cost of the fixtures such as toilet, tub, and sink), were the main reasons given as to why people retained their privies (Stottman 2000:45). This example documents that people did resist modern sanitation improvements in spite of apparent health risks. Reasons for resisting these improvements seem to be that they could not afford the initial outlay of costs for these services.
Figure 28. 1920 Sanborn Insurance Map showing locations of 63 N. Wood Street and 202 Manchester Street. Note how these two homes are a block apart from each other.
Latent Reasons for Advocating City Water and Sewer

Were there less apparent reasons for the city to promote their municipal water and sewer services? Besides the obvious health benefits of clean water and the immediate removal of wastewater from an individual’s property, the local elite had economic reasons for advocating these new services. City water and sewer services were profitable for the city. Examples of this come from Battle Creek, Michigan as well as Milwaukee, Wisconsin (Foss-Mollan 1999; Lowe 1976). In Battle Creek, bonds paid for installation of a water system in the city. The manager of the Battle Creek water supply was an efficient planner and as the bonds were paid off, a surplus accumulated from the income collected from its customers. This surplus was then used to fund less efficient city departments and keep them from running deficits (Lowe 1976:129). In Milwaukee, bonds were also issued to help pay for the initial cost of building the water works. After the bonds were paid off for the building of the works, the money generated from these services was put back into the general funds of the city, which allowed the city to bankroll other city services that were running deficits. Not only was the city turning a profit on this service, it was also able to control the water supply by denying these services to people of lower economic status (Foss-Mollan 1999). The city could then dictate the quantity and quality as well as the cost and availability of these new water and sewer services (Schlereth 1992:238). They could control: how much water an individual would receive in a day, water quality, the cost of these services to an individual, and where water would be made available.
Underlying political reasons for elites in the city to advocate water and sewer services also existed. With these services, the elites could determine what constituted correct, private behavior, as well as control where and when water and sewer would be created within the city, or even if a specific neighborhood would receive them. It also created more bureaucracy within city government, i.e. the city public works. This new water and waste system required political decisions by governmental enterprises, which assumed greater control over the residence’s shape, structure, and placement, via zoning ordinances, fire regulations, and building codes so it would be assured that these services were being installed uniformly (Schlereth 1992:238).

An example of this combined political and economic clout comes from Milwaukee, Wisconsin in the late 1800s to early 1900s. In 1894, the city began to sell water wholesale to some of the suburbs developing around Milwaukee. The city charged these suburbs an additional twenty-five percent over the rates charged to city customers, thus turning a tidy profit. At the same time, the city was telling Polish residents living in southern Milwaukee that no water was available (Foss-Malian 1999:38). The apparent reason the Polish immigrants were told that no water was available for them was because the city was not ready to cover the cost of laying water pipes and connecting residents in the Polish neighborhoods. If the city did start laying pipe down it would cause the public works to lose money. The twenty-five percent the city made on selling the water to the suburbs was placed first in the water works fund, but then found its way to the city’s general fund where it was used to fund politically-beneficial projects for Milwaukee city council members. In this way,
the city was not functioning like a governmental service but rather like a private service. The emphasis was placed on profit rather than on citywide service (Foss-Mollan 1999:38).

Municipal Services as a Means of Discipline and Social Control

With these newfound political and economic powers, the elites, through city hall, had a means to enact more subtle forms of social control over the city. The concepts of self-surveillance (panoptic design) and bio-power developed by Foucault (1977:200-210; 1978:139-140) can also be seen in city water and sewer services. By separating homes as individuals connected to a grid of pipes monitored by a central location, the city could now monitor home water and sewer use, thus controlling a function of the home that used to be handled by the individual homeowner. This connection of everyone to a citywide grid of water and sewer also enables the city to insinuate rules and regulations into citizens’ private lives. The city could also better control and protect its citizens from the effects of disease and filth because it had a means to monitor the individuals connected to the grid. City officials could then identify potential problem areas faster, regulate future city growth, and potentially blame certain groups of people for the spread of diseases or blame these same people for the cause of an epidemic outbreak.

Some elites living in the city also wanted to ensure that people were all utilizing the same types of correct, standard behaviors, much as Shackel (1993) argued for eighteenth-century Annapolis. Behaviors and etiquette allow for easier
control of individuals because now behaviors can be predicted, the uncertainties are diminished and order takes its place. Simply connecting all the houses in the city to these new services would not ensure that everyone would use the services properly or even that they would use them. Some, not all, elites then established the ideal that using an indoor toilet, washing one's hands, and using city water, were part of what it meant to be civilized or "clean" and that others who continued to do behaviors in older ways opposite of these were considered uncivilized or "unclean."

This idea that standardization can instill specific behaviors within individuals was developed by Foucault. Beginning in the Renaissance, houses started to have fixed living spaces, where only specific activities took place, such as kitchens, living rooms, bedrooms, and one could include here, but it occurs much later, the bathroom (Shackel 1993:15). A modern bathroom is very standard in how it is outfitted: bathtub or shower, toilet, and a sink. Although the quality of many of these fixtures may vary along class lines, the bathroom, as we know it today, has not changed much since the 1920s (Ierley 1999:221). A standardized setup ensures that people have similar fixtures in their homes and that people are performing the socially correct behaviors. Before the introduction of the indoor bathroom, individuals could design and build a privy any way they wanted. The same went for cisterns; there were no laws in Battle Creek regulating how one should build a privy or cistern and there were no specified, ideal behaviors associated with these structures.

How was the standardization of these behaviors within this new room, the bathroom, accomplished? It was accomplished with standardized fixtures that ground
the ideal behaviors practiced by elites into action. With many U.S. cities in the late nineteenth and early twentieth centuries connecting individuals to water and sewer services, a need developed for toilets, bathtubs, and sinks. At first, these fixtures were not standardized, each company made them each differently, according to their own designs (Ierley 1999:220-225). With elites establishing these new correct, ideal behaviors, in the late nineteenth and early twentieth centuries, a need developed to make these fixtures more standardized allowing the ideals of correct bathroom behavior to be practiced on a daily basis.

By 1910, standard bathroom fixtures were being offered for sale in the Sears Roebuck Catalog and the typical bathroom began to take on a compressed average size of forty-eight square feet (Schlereth 1992:236). This average was determined by taking the tub, toilet, and sink, and aligning them along a wall in a separate room in a house. A plumbing manufacturer, appropriately named American Standard, made many of these products and a typical advertisement by this company shows a "standard" bathroom, with all the fixtures: sanitary, white, and clean (Schlereth 1992:236-28). An advertisement from 1901 shows a typical bathroom for this time period. It has not changed much in over 100 years (see figure 29). The advertisement below the one for Standard Sanitary Manufacturing Company is describing a book of progress over the century and appears that this is more than mere coincidence. What better way to sell your product than to place your advertisement over another one that is selling a book about progress. All the leading experts of the day contribute to this volume (see figure 29). This advertisement helps one understand the thinking during
this time period: one of modernity, of progress, and of new technologies changing the world we live in. Shackel also examines this idea of the development of a modern discipline and the standardization of products by manufacturers in the development of toothbrushes and ceramics. As the demand for toothbrushes and ceramics grew due to the adoption of the behaviors practiced by elites, manufacturers began to standardize the process enabling more to be produced, which in turn caused the behaviors associated with these products to become standardized (Shackel 1993:50).

The combination of the city connecting its residents to water and sewer services plus the standardization of behaviors associated with the bathroom by elites, led manufacturers of these bathroom fixtures to make their own products standardized. Repetitive use of these standardized products created predictable and acceptable behaviors such as preferring an indoor toilet and washing one’s hands in a sink with running water rather than just using a privy without amenities. If one were to use anything else, they were seen as being uncivilized. The bathroom then, became part of a modern system. By connecting people to this water and sewer grid, in combination with the development of standardized bathroom fixtures, the individual’s consciousness is changed so that they now accept this new room, along with all the behaviors associated with it, as being natural. Bourdieu (1977) argued that everyday objects and manners, such as toilets, sinks, or washing ones hands, embody order and are expressed on a daily basis every time these objects and manners are used, thus continually reinforcing this modern discipline that the elites created (Shackel 1993:17).
Figure 29. Advertisements in Harper's Monthly (May 1901). The top one is for Standard Sanitary Manufacturing Company and the bottom one is for a book that outlines the continuous progress throughout the nineteenth century with experts from all sorts of fields.
Another theme to consider when examining this shift from privies, cisterns, and wells to city water and sewer is the transition that occurred within U.S. cities during the nineteenth and early twentieth centuries from a rural landscape to a modern city landscape. One archaeologist that has discussed this is Stewart-Abernathy (1986). He examined the landscape of a home lot in Washington, Arkansas, in which he took the modern landscape of this house lot and compiled a historical landscape survey of the property and noted the difference from what it looks like now and what it looked like in the past. He goes on to suggest that there is an intermediate transition that occurs between the rural and urban landscape and calls it an “urban farmstead.” Some of the elements of this urban farmstead include barns, fences, privies, and wells. One can see elements of this urban farmstead here at the James and Ellen White site. With the continued use of a cistern and a privy, the occupants of the James of Ellen White site embodied the rural ideals of people slowly being surrounded by modern, urban people. Meanwhile, these new city services of water and sewer changed the surrounding landscape in neighborhoods throughout the city. People begin to abandon and fill in their cisterns and privies in favor of the newer, modern city services, which created more open areas in one’s home lot.

This idea of differences between urban and rural landscapes also ties into what is seen as socially accepted behavior within the city. It also ties in to what is considered clean and unclean. As mentioned in chapter two, some elites used these services as a means to separate themselves from others or to place blame when epidemics broke out (i.e., people living in the countryside, recently arrived
immigrants)(Schultz and McShane 1978:392). These services were also used as a means to portray themselves as being civilized, to further differentiate themselves as being a step above others within the city. As time went on, the idea was formulated that people who continue to use a privy, cistern, or well within the city must be uncivilized. This idea of separating oneself from others by using artifacts and behaviors can be seen in the work of Paul Shackel (1993). He examined ceramics from Annapolis, Maryland from 1695 to 1870 and argues that elites were using certain ceramics to separate themselves from others in the community. In order to use these specific ceramics correctly, one would have to know that there were certain behaviors and etiquettes associated with them. Other people, such as middle and lower class people, would not be able to use these ceramics because they were unaware of the behaviors that were associated with them or could not afford to own them.

This transition from privies, cisterns, and wells to city water and sewer was a very significant and dynamic change that occurred not only in Battle Creek in the late nineteenth and early twentieth centuries, but all over the U.S. Whereas the changes that were being promoted were designed to eliminate epidemic diseases, clean water, and the removal of waste from the home, I argue that there were underlying economic, political, and social reasons for them to advocate these services. With everyone in the city connected to these new services, it made it easier to instill these specific behaviors in regards to the bathroom throughout the whole city, such as using an indoor toilet, washing ones hands after using the facilities, and bathing. Some
accepted these new behaviors and abandoned privies and cisterns in favor of an indoor toilet and water connections while others may have resisted for various reasons as represented by the James and Ellen White site. Some people living in Battle Creek could not afford these new services but had to connect to them anyway or face heavy fines (Battle Creek Public Works Records 1914). These same people that were forced to connect then may not have been able to afford to use the new services. They may have then continued to use the privy and cistern they already had open until they could afford to use the connections. Another possibility as to why we have archaeological evidence that the privy and cistern under the house were left open is because maybe the people living at the house were not familiar with the new behaviors and etiquette that accompanied this new room in the house, the bathroom. By continuing to use existing structures and behaviors that are familiar to them, the people living at the site are resisting the attempts by some elites of establishing new behaviors and etiquette that they want people to follow in regards to the bathroom.
Chapter VI

SUMMARY AND CONCLUSIONS

This thesis has examined how disciplinary tactics associated with health and hygiene were implemented in the transition from privies, cisterns, and wells to city water and sewer. The historical data suggests that the adoption of municipal services was promoted because of health concerns regarding contaminated water caused by the use of privies, cisterns, and wells. The archaeological data, coupled with social theory, has shown that there were other factors involved that led to new rules of etiquette associated with correct private behavior that served to control individuals within nineteenth and twentieth century capitalist society. Examining this shift has brought forth several points that need to be reiterated including alternatives to city water and sewer, landscape changes that occurred due to this shift, the standardization of the material record, and choosing convenience over individuality.

Many health benefits accompanied the adoption of these new services, such as the elimination, or drastic reduction, of dysentery, cholera, and yellow fever. But, there were also underlying economic and political reasons for the people in city government to be advocating these services. Once bonds were paid back, they could turn a profit, sell water to other communities that were willing to pay, and provide more jobs for residents of the city. The political ramifications of these new services now allowed the elites, through the use of City Hall, to control even more aspects of what occurred on the property of its residents. These new political powers could dictate how one connected to these services. They could also be used to limit
development on personal property, the argument being that it would interfere with these city services. Some elites also found that they could control where these services were allowed to go next, such as offering these services to a new commercial development project while bypassing an outlying lower class neighborhood.

Not everyone living within Battle Creek during the nineteenth century used the water and sewer services offered by the city. Alternatives such as privies, cisterns, and wells persisted on the landscape even after city water and sewer were made available. In many instances, the cost of connecting to the service probably was very costly, though some connected to the services due to threat of fines by the city (Battle Creek Public Works 1914). An individual, by choosing these other alternatives, could provide these services for free rather than buying them from the city. Even some businesses in Battle Creek during this time chose not to use city water and opted instead to have their own wells that were independent of city control, not to mention free. These examples then show that not all elites were using these new services being promoted amongst themselves and not all the citizens within Battle Creek were using these new services even after they were made available.

The transition from privies and cisterns to city water and sewer caused major changes to the landscape. Before the introduction of water and sewer services, outhouses, cisterns, and wells were ubiquitous features on the American landscape. Soon after the introduction of water and sewer services, privies and cisterns began to disappear from the landscape. This shift then frees up space in peoples backyards and also allows for further consolidation of city lots. Not all privies and cisterns
disappear from the landscape during this transition. The James and Ellen White site offers an example that people continued to have these features on their landscape even after water and sewer connections were made available. People who decided to adopt rather than resist these new services began to view privies and cisterns as being obsolete, old fashioned, and uncivilized. This new view in regards to privies and cisterns begins to take hold in society and begins to appear natural, as if using anything other than city water and sewer is uncivilized. It also appears that elites had access to these services before others in the city. Dr. Kellogg had access to water nine years before anyone else living on his block did, and he had sewer a full year before anyone else in his neighborhood. Privies and cisterns soon became associated with being rural, culturally “backward,” and unclean; in order to appear “modern” one needed to connect to the new city services.

The standardization of the material record is a trend that is evidenced by the development of the bathroom. With the developing and emerging behaviors associated with the bathroom developing in cities all over the U.S. during the late nineteenth and early twentieth centuries, one could see that the fixtures associated with the bathroom became standardized which helped to reinforce the elite ideal of correct social behavior. This standardization of fixtures occurred because with standardized behaviors comes standardized fixtures to assist in grounding the elite notion of correct bathroom behavior into action. This standardization of behaviors and artifacts is part of the development of a modern discipline that emerged during this time period (Shackel 1993:49-50). Examples of this modern discipline of rules
and etiquette can be found in everyday life, such as eating, health, hygiene, and where one can go to the bathroom (Shackel 1993:50).

People who accepted these new water and sewer services offered by the city gave up individuality for convenience. Now, rather than being independent of the city, people became dependent on the city for services that were once totally in their control. People who abandoned privies, cisterns, and wells in favor of these services become more dependent on the city for basic needs. This dependence then becomes part of an underlying social control over an individuals’ house lot. People also had to pay for these services, which assured them of a clean, safe water supply and the instant removal of waste from the bathroom. Additionally, people become connected to a system of standardized products, such as toilets, sinks, and tubs, which assured the city that people were following similar behaviors in regards to sanitation. These systems, such as city water and sewer, electric power grid, and gas lines, were becoming a part of what people began to think of as modern life (Schlereth 1992:238).

There are several future directions upon which this work could be expanded. First, one could search for other structures or forms of social control in the archaeological record. People in power were attempting to control other aspects of individual’s lives beside water and sewer needs, such as construction of their house, lighting, and heating. One could also explore electric and gas utilities and determine what impact the introduction of these services had on the archaeological record. Another avenue of research in regards to social control within a city would be to
examine city ordinances to determine how much of an impact they had on property owners when it comes to decisions about what they can and cannot do to their property. One could begin by examining city ordinances, such as ones that regard privy construction, nuisances such as garbage and filth, or when building permits began to be issued within a particular city. Any of these issues could be examined archaeologically. This could be done in conjunction with the excavation of a city lot to see just how much of an impact these ordinances had on the property owner and the decisions they made in regards to their property.

One aspect worth further examination would be to locate the well that is mentioned as being near the James and Ellen G. White house. Currently, it has not been located despite two seasons of excavations. It would be interesting to locate this well and determine when it was built, used, and abandoned. Then one could take these dates and compare them to the ones the city has recorded for connection to city water for the James and Ellen White house. If the well was abandoned before or during the connection to city water, then this would give further evidence that people were accepting city water. If the abandonment of the well takes place after connection to city water then this would give further evidence of resistance to city water.

Another interesting research angle to take would be to examine the lot where Dr. Kellogg’s house was located. His house was constructed in 1893, but today is an empty lot, which makes it a potential site to use as a comparison to the Whites’ house. One could also examine a property in Battle Creek of a person of higher socio-
economic status than the people living at the Whites' house to see if they were using these new water and sewer services. Do the city records match up with the archaeological record? Could there be any privies or cisterns on either of the properties, and if so, were they used after the houses were connected to city water and sewer?

One last research angle one could take would be to find a house of comparable size in Battle Creek and conduct an excavation at the house today in the search of privies and cisterns. Similar questions could be asked of whether people living at this house accepted or resisted these new city services of water and sewer. Such a site could also be used as a comparison to the James and Ellen White site. One place to start this research would be to examine the Sanborn Insurance Map of 1920 drawn up for Battle Creek located in the Willard Library. By looking behind houses, one could find single story wooden structures located directly behind the house. This may indicate the location of a possible privy.

This thesis has examined the transition from privies, cisterns, and wells to city water and sewer. It has also examined social control and discipline and how individuals can either accept or resist these attempts. There are several points that this thesis contributes to the study of historical archaeology. The first is that the archaeological record is capable of documenting actual behaviors of individuals. The privy and cistern under the house used in this thesis are examples of this. These features continued to be used even after the house was connected to city water and sewer. This resistance to city services then is embodied in the continued use of the
privy and cistern. This archaeological data contradicts the historical data, which implies that once city water and sewer became available that a person abandoned the privy, cistern, and well on their property.

Another point that this thesis makes is that it challenges the reasons that some elites used to promote city water and sewer services. Some elites within Battle Creek had other reasons, besides the health benefits, for promoting these services. They saw a broader view of these services, which included political and economic benefits, which would greatly benefit the city. They also foresaw greater control over an individuals’ home lot through regulations, a cleaner city which benefited businesses, a means for the city to offer services and actually turn a profit, and a means to further widen the developing divide between people living in a city and people living in the countryside.

One final point that this thesis contributes to historical archaeology is that one can examine privies for reasons other than their contents or architecture. This thesis examined the causes as to why people would abandon a privy. By thinking outside the privy, one begins to realize that there are major factors affecting the decision of whether a person will abandon it or not.
BIBLIOGRAPHY

*Battle Creek Daily Moon*
1887  August 11th. Newspaper article, “Application for Water.”

Beer, F.W.

Bourdieu, Pierre

City of Battle Creek
1897  Office of Public Works Documents in regards to the connection of water to 202 Manchester Street on file at the Office of Public Works, Battle Creek, MI 3rd Floor City Hall.

City of Battle Creek
1906  Office of Public Works Documents in regards to the connection to city water at 63 N. Wood Street on file at the Office of Public Works, Battle Creek, MI 3rd Floor City Hall.

City of Battle Creek
1913  Office of Public Works Documents in regards to the connection to city sewer for 202 Manchester Street on file at the Office of Public Works, Battle Creek, MI 3rd Floor City Hall.

City of Battle Creek
1914  Agreement for a public sewer on file at the Office of Public Works, Battle Creek, MI 3rd Floor City Hall.

City of Battle Creek
1914  Office of Public Works Documents in regards to the connection to city sewer for 63 N. Wood Street on file at the Office of Public Works, Battle Creek, MI 3rd Floor City Hall.

Coller Collection
Crawford & Sterns

Delle, James A.

Epperson, Terence

Fawcett, William and Walter Lewelling

Ferguson, Leland

Foss-Mollan, Kate

Foucault, Michel

Galishoff, Stuart

Harper’s Monthly Magazine

Ierley, Merritt

Kellogg, John Harvey


Lowe, Berenice
1976 *Tales of Battle Creek*. The Albert L. and Louise B Miller Foundation Inc, Battle Creek.

Mroczkowski, Stephen

Nassaney, Michael S.
2000 *Social Archaeology*. Ms. on file, Department of Anthropology, Western Michigan University, Kalamazoo.
Nassaney, Michael and Marjorie Abel

Nassaney, Michael, William Sauck, Carol Nickolai, and Hidetsugu Kosaka

Nassaney, Michael, William Sauck, and Hidetsugu Kosaka

Nassaney, Michael, Deborah Rotman, Daniel Sayers, and Carol Nickolai

Neufeldt, Victoria

Orser, Charles E.

Paynter, Mark and Randall McGuire

Pierce, H.B.
Rabinow, Paul

Reinhard, Karl

Rosen, George

Sanborn Insurance Map

Sayers, Daniel, Brian Wilson, and Michael Nassaney

Schlereth, Thomas J.

Schroeder, Erich K.

Schultz, Stanley and Clay McShane
Schwarz, Richard

Shackel, Paul
1993 *Personal Discipline and Material Culture: An Archaeology of Annapolis, Maryland, 1695-1870*. The University of Tennessee Press, Knoxville

Smith, James M.

Stewart-Abernathy, Leslie

Stottman, M. Jay

Tarr, Joel


Tarr, Joel, James McCurley, and Terry Yosie

Wall, Diana diZerega

Wheeler, Kathleen
White, Ellen G.
1861 Letter 27 from research compiled by Jean Davis, Historic Adventist Village, Battle Creek, MI.

White, William C.