

The archaeology and architecture of Fort Atkinson, Iowa 1840-1849

by

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This is to certify that the Master's thesis of

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Signatures have been redacted for privacy

to my parents, Sherry Pooler and Tom Carr
whose support and patience made this possible.

Thank You.

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CHAPTER 1. INTRODUCTION

Garrisoned between 1840 and 1849, the establishment of Fort Atkinson, Iowa was directly tied to the removal of the Winnebago people from Wisconsin into northeast Iowa. The post was officially built to quell the fears of the Winnebago by providing protection for them from the Santee Dakota, Sauk and Meskwaki, and Euro-American squatters and traders encroaching on Winnebago lands (Williams 1980:34). Primary duties assigned to the fort also included the coerced or forced containment of the Winnebago within their assigned territory (Lurie 1978; Mahan 1922; Merry and Green 1989; Petersen 1963; Rogers 1993).

The purpose of this study is twofold. One research objective is anthropological in nature, the other is preservation-centered. Simply, this study concerns 1) the history and culture of a particular group of people in a particular time and space (i. e. the military occupants of Fort Atkinson from 1840-1849), and 2) the preservation of and the modern-day interpretation of the built environment that they left behind. The first goal of this study is to model past lifeways of the military occupants of Fort Atkinson utilizing documentary evidence and material culture, including architecture, portable artifacts, and features (non-portable artifacts). In realizing such a goal, this study is important in that it provides a description, an analysis, and an interpretation of an artifact assemblage which has gone largely unanalyzed and unreported for over 30 years, namely the privy artifacts excavated by Marshall McKusick in the 1960s. Save for an analysis of bottles (Wiltfang 1976) and an analysis of clay pipes (Tobey 1974), there is no comprehensive study which

describes or interprets these artifacts. Furthermore, no other study combines historic, architectural, and artifactual evidence into a single body of interpretative work on the Fort Atkinson State Preserve. A comprehensive analysis of the artifact collection, fort buildings, and historic documents allows for a more complete and accurate depiction of the lives of those who inhabited the site in the 1840s. The study is intended to supplement not only the histories of the City of Fort Atkinson and of Winneshiek County but also the histories of Iowa and the of United States military. This research presents new interpretations of fort-era happenings which may not have been accurately or completely portrayed in the historical record or understood by the general public today.

A second major goal of this study concerns issues regarding the site which the military occupants of Fort Atkinson left behind. Part of this goal was, first, to provide architectural descriptions of all fort-period buildings including preserved buildings, restored buildings, and non-extant buildings and features. The second part of this goal was to explore relevant preservation issues including the administration of the preserve, accessibility issues, the site's current state of repair, and how best to preserve the site. An architectural study of the site provides historical documentation outlining the construction of fort buildings, their deterioration through time, and efforts made to preserve and interpret the buildings and the site. This study provides an architectural survey of the site in its present state, and, most importantly, examines relevant preservation issues.

Significance of Fort Atkinson Preserve

The Fort Atkinson State Preserve is archaeologically, historically, and architecturally significant as a United States Army post, which was occupied from 1840 to 1849. In archaeological terms, the preserve is significant for the subsurface structural remains and material culture. The archaeological investigations discussed below have proven that the site is a potentially rich resource for future archaeological study. Though some archaeological excavation has occurred, further subsurface investigation of archaeological features will most likely yield information concerning not only the fort's structure, but also information about the lives of the past occupants.

The fort is significant in architectural terms as well. Three original fort-period buildings remain standing on the site, two of which (the Powder Magazine and Southwest Blockhouse) are in remarkable condition. These two buildings as well as the North Barracks represent significant examples of nineteenth century military architecture and contribute to the overall significance of the site. Also adding to the significance of the site is the Northeast Blockhouse. Reconstructed in the 1920s, the building represents an early effort in the preservation movement. Unfortunately, the remaining structures had been neglected during the site's years under private ownership (1850s-1921). During this time, fort buildings were dismantled or left to deteriorate. It was not until the early twentieth century that people began to call for the site's preservation.

The site is historically significant as a U. S. military post built on the frontier to enforce the Indian removal policy of the United States government of the early nineteenth

century. Fort Atkinson was built as a temporary post to keep the Winnebago Indians from returning to Wisconsin once they had been forcibly resettled west of the Mississippi River. The fort also served as a headquarters for the policing of the Neutral Ground (Figure 1), a section of land in northeast Iowa that was established as a buffer zone between three hostile native groups: the Santee Dakota and the allied Sauk and Meskwaki tribes. The fort was supposed to quell the fears of the Winnebago who were nervous about being relocated to a region sandwiched between the two groups. The post is often referred to as the only fort in the country built to protect one tribe of Indian from another. This statement is only partially true, however. Until a permanent settlement site could be agreed on by the Winnebago and the United States government, the troops stationed at Fort Atkinson were to perform several other functions.

First, troops were responsible for preventing bands of Winnebago from returning to their original homelands east of the Mississippi. Force was necessary to remove them from Wisconsin; likewise, force was necessary to keep them at the Iowa settlement. Also, since the Neutral Ground was to be a buffer zone, it became the duty of the Fort Atkinson troops to maintain peace among the potentially hostile tribes. Further, patrols were routinely sent out from the fort to prevent white traders and settlers from illegally entering the region. Finally, Fort Atkinson helped reinforce the authority of the Indian agent who operated a school and a model farm, and who provided supplies for the Winnebago at the Turkey River Subagency located roughly five miles downstream from the fort (Figures 1 and 13). In short, the historical significance of Fort Atkinson is a product of the

interaction between the United States Army, the Indian Subagency, White settlers, the Winnebago and other Native groups.

Ultimately, Fort Atkinson, its standing structures, its non-extant buildings, and its archaeological features should be placed on the National Register of Historic Places. The Fort Atkinson State Preserve is not in a historic district nor is it listed on the National Register of Historic Places. It is the opinion of the author that the preserve does have architectural and cultural merit as well as archaeological potential and should receive National Register status. A National Register nomination form has been completed by Robert C. Vogel, Bear Creek Archeology, Inc., Decorah, Iowa. Pending a few corrections, the nomination form will be submitted by Kathy Gourley, State Historical Society of Iowa (Kathy Gourley, personal communication, 1998). It is surprising that a site such as Fort Atkinson has gone this long without being included on the National Register.

Plan of Presentation

This study is presented in the following manner. Chapter 2 outlines historical, architectural, and archaeological research methods utilized for this study. Chapter 3 provides a general description of Fort Atkinson's nineteenth century environmental setting, describing the flora and fauna present, climate, available resources, and topography. Chapter 4 presents a discussion of the historical context in which Fort Atkinson existed. Subjects discussed include a general history of the U. S. military in the early nineteenth century, the Winnebago, a history of Fort Atkinson, daily life at the fort, and the health and diet of those who lived there. Chapter 5 presents an architectural study of the Fort

Atkinson State Preserve, including descriptions of standing and non-extant buildings and features, a discussion of preservation efforts related to the site, a description of the present state of repair of the site, and a discussion of accessibility and safety issues concerning the site. Chapter 6 concerns the archaeology of Fort Atkinson, providing a discussion of previous archaeological investigations, a description of privy artifacts, and a discussion and interpretation of Fort Atkinson material culture. Chapter 7 presents a summary of the study and a discussion of the significance of Fort Atkinson.

CHAPTER 2. METHODS

This study has to its advantage the fact that three separate databases are drawn upon in order to reach the research goals mentioned above. These three data bases are 1) the historical record, 2) portable artifactual remains from the officers' latrine pits, and 3) extant and subsurface architectural evidence. Alone, each database is characterized by certain strengths and weaknesses. By incorporating all three data bases into a single body of interpretation, certain shortcomings of each data base can be compensated for. This study is based on a theoretical framework concerning the nature of relationships between historical and archaeological evidence as discussed by Little (1992). According to Little, archaeological and documentary data can be considered interdependent and complementary or independent and contradictory. Both views are viable depending on research questions and the interpreter's point of view. Though the two models seem at odds, both models are useful and are reflected by this research. Similarly, structural evidence (extant and subsurface features) shares the same relationships with documentary and archaeological evidence that documentary and archaeological evidence have with one another. More simply, architectural data may complement or contradict both historical data and artifactual data. Such relationships help to provide a more accurate interpretation of the past by filling in gaps left by each data base and by correcting data which may be erroneous or skewed.

The nature of the historical record is such that it provides valuable documentation concerning archaeologically defined phenomena. Such documentation helps to provide

more complete and accurate interpretations of the archaeological database. While it is characterized by this strength, certain weaknesses discussed by Wedel (1976) also typify the historical record. Weaknesses are linked to interpretive problems concerning documentary evidence. In order to avoid such interpretive problems it is first necessary to become familiar with all available primary sources, so as not to exclude evidence that may provide more accurate and complete data. Second, it is important to use original or primary documents whenever possible in order to avoid errors which result from copying. The smallest error or omission can create a significant difference in meaning. Third, it is advantageous to be familiar with the author of a particular source in order to understand better the author's biases, prejudices, truthfulness, and purpose in writing the document. Finally, meaningful data is often implicit and requires careful study and interpretation.

The nature of the artifactual data utilized for this study is such that it is a skewed portion of the potential total archaeological database from Fort Atkinson. This is due to the fact that the privy assemblage is most likely comprised of different types and amounts of artifacts as compared to other proveniences at the site such as the Commissary or Guardhouse. Further, certain artifacts from the privies have been discarded and are not available for analysis. Hence, the analysis of the lifeways of the post's military inhabitants is somewhat skewed. However, much like the historical record, the privy assemblage is useful in yielding certain data that will help to present a more complete and accurate picture of the lifeways of Fort Atkinson's military occupants.

Finally, the nature of Fort Atkinson's architectural database has been determined greatly by preservation factors. Like the artifactual database, the architectural database is somewhat skewed. This is due mainly to natural and human-created factors which have affected the preservation of fort-period buildings. Natural factors include processes of decay and weathering that have been responsible for the deterioration, collapse, and disappearance of certain structures. Though three original fort-period building remain standing, most of the fort's buildings are represented by surficial and subsurface foundations only. People have played a major factor in skewing the architectural database especially during the period from the early 1850s to the 1920s, when the fort site was under private ownership. During this time, many of the buildings were dismantled, providing building materials for the construction of buildings in the City of Fort Atkinson. Other buildings were left to decay. It was not until the early 1900s that individuals became more preservation-minded with regard to Fort Atkinson. By this time, much of the architectural database was gone.

Admittedly, there are "gaps" in each of the three databases drawn upon for this study. However, the complementary nature of the three allows gaps to be filled in each. Likewise, the contradictory nature of the three makes it possible to correct biases in each to some degree, allowing more complete and accurate interpretations to be made.

Historical Research

A search was made for primary source material pertaining to Fort Atkinson in various archives around Iowa. The archives at the State Historical Society of Iowa at Des

Moines and Iowa City and those at the Office of the State Archaeologist of Iowa were utilized. A substantial amount of official correspondence from Fort Atkinson and the Turkey River Subagency was transcribed by Reque (1930). Later, McKusick (1966a) retrieved and organized those transcriptions which are directly associated with the fort. Other documents including post returns (Appendix C), a post surgeon's report, rosters of soldiers who served at the fort (Appendix D), and a list of those presumed buried in the fort cemetery (Table 1) were also consulted and are discussed as part of the fort's historical context, below. Secondary sources were abundant and provided much useful information. They included histories of Winneshiek county, of the United States military, and of various forts, and discussions of Fort Atkinson itself.

Architectural Documentation and Survey

Three fort-period buildings remain standing at the Fort Atkinson Preserve. They are the Southwest Blockhouse (Figure 2), the Powder Magazine (Figure 3), and a portion of the North Barracks (Figure 4), which now houses a museum. A reconstruction of the Northeast Blockhouse also stands on the site (Figure 5). In defining the construction history of the fort, documentary evidence including two fort-period sketches (Figures 6 and 7) and official period correspondence between the fort and the War Department, Washington D. C. was used. Secondary sources which helped identify the layout of the site and construction sequences were also utilized.

The locations of many non-extant buildings were identified during excavations that took place from 1939 to 1941. Within this period Sigurd S. Reque, a Luther College

professor, led efforts to uncover the foundations of non-extant buildings within the fort's walls. As a result, the foundations of many buildings were uncovered, in some cases rebuilt, and interpreted for the public. These buildings include the Guardhouse, Sutler's Store, enlisted men's and officer's quarters (North, South, East, and West Barracks), and the Commissary (Figure 6).

Beginning in 1966, Marshall B. McKusick undertook further excavations which revealed the Bakehouse outside of the fort walls as well as the location of officer's privies to the east of the East Barracks and to the west of the West Barracks (Figure 6) (McKusick 1966b). The most recent project that added to what is known of the layout of Fort Atkinson was an archaeological survey of the outbuildings of Fort Atkinson. In 1981, John N. Kean of the Office of the State Archaeologist of Iowa, conducted a limited archaeological survey which located eight fort-period outbuildings (Kean 1981). These included the Dragoon Stables, the Bakehouse, the Granary, and the Icehouse, among other outbuildings (Figure 6).

The on-site architectural survey employed for this study took place in March, 1998, and was followed up by a visit in September 1998. The survey was undertaken by the author and Susan Carr. Standing structures were photographed, in black-and-white and on color slide film, from various angles in an attempt to record the general appearance of each building as well as its relationship to the surrounding environment. During the survey, special attention was paid to preservation issues including site accessibility, present state of repair, and appropriateness of changes made to fort buildings and to the

site. These observations are discussed below, as are suggestions on how to improve the preservation and interpretation of the site.

Artifact Recording and Analysis

The majority of artifacts from Fort Atkinson are housed at the Office of the State Archaeologist of Iowa (OSA). The State Historical Society of Iowa, Des Moines, and the Fort Atkinson Museum have fort artifacts on loan for display purposes. For this study, artifacts from the OSA were taken on loan and analyzed in the Iowa State University Archaeological Laboratory, Ames. The artifacts not held by the State Archaeologist were identified and recorded in the State Historical Society Building and fort museum. As stipulated when this study was proposed, this research was focused on modeling the lives of military occupants at Fort Atkinson, and not those of the civilians who inhabited the site after its official military abandonment. As the analysis of materials excavated by Reque (i.e. those artifacts which lacked vertical provenience) progressed, it became clear that it was impossible to identify accurately fort-period artifacts from those deposited by later occupations. Because of this problem, only the artifacts from the officers' privies have been included in this study.

Employed in this study were a modified version of a cataloging system and a method of analysis used by the OSA for the analysis of historic artifacts (Snow 1997a:35). Presentation of the data is based on archaeological reports concerning other nineteenth century fort sites (Carlson 1979; Comer 1985; King 1997; Reynolds 1983; Stone 1974; Wagner et al. 1993). Several criteria were utilized to classify and analyze the collection.

Criteria included material type, manufacturing technique, decoration, and general morphology (vessel form, rim type, paste, size, color). Material type refers to the raw material from which an artifact was produced and includes categories such as glass, metal, ceramics, stone, and bone. Manufacturing technique identifies the way in which an artifact was made. This information was used primarily for the dating of glass, ceramics, and nails. Some manufacturing techniques for glass and pottery include hand-blown, mold-blown, and wheel-thrown. Decoration was used to describe decorative techniques including embossing, transfer printing, and hand painting. Not only does decoration provide temporal information, it provides a means by which to investigate economic status or level of affluence at a particular site (Adams and Boling 1992; Miller 1991a) This is described within the ceramics section of this report. Morphological traits such as size, shape, and color of an object were used most often in assigning vessel numbers to the ceramic and glass assemblages from the collection. Though time consuming, an analysis based on vessels instead of sherds of vessels prevents the over-representation of wares that may have fractured into many small pieces (Siebert 1997:37). Also, many vessels from the Fort Atkinson privies have been reconstructed and would be underrepresented if given equal representation to that of a single sherd.

CHAPTER 3. ENVIRONMENTAL SETTING

In February, 1849, the Army withdrew its soldiers from Fort Atkinson. In the early 1850s, the site was sold at auction and was under private ownership until 1921 when the State of Iowa purchased Fort Atkinson, intending to make it into a state park. Several preservation and archaeological efforts and studies were undertaken to improve the site during the following decades until, in 1968, the site was dedicated the Fort Atkinson State Preserve.

The Fort Atkinson State Preserve (13WH57) is located near the western limits of the town of Fort Atkinson, Winneshiek County, Iowa, along a bluff overlooking Rogers Creek, known as Spring Creek during the fort's military occupation (Figure 8). The area surrounding the Fort Atkinson Preserve is presently occupied by several single family dwellings and a commercial tree nursery. Located on site are three fort-period buildings, reconstruction of a fort-period building, numerous foundations of non-extant buildings, a partially reconstructed stockade, and a modern latrine (Figure 9). Fort Atkinson's historic setting is best expressed in a Post Surgeon's Report (William S. King 1840).

Fort Atkinson is situated fifty miles west of Fort Crawford, on an elevated plot of ground between the Turkey River to the north, and Spring Creek on the south and east, the latter emptying into the former about three-fourths of a mile from the post. The elevation on the side next Spring Creek is of crescontric (sic) form, and nearly perpendicular, commencing about fifty yards from the margin of the stream and descending on the opposite side by a gradual slope to the Turkey River, from which it is distant half a mile. Its height above those streams is eighty feet. The country between the station and Turkey River is woodland. On the west, south, and east it is open prairie, affording a fine view of from ten to fifteen miles in extent. Spring Creek, as its

name implies, has its origin in numerous springs not far distant; the water is used for drinking and culinary purposes. The soil is mostly calcareous.

Geologically, the preserve is set on a transitional area between two Iowa landforms: the Iowan Surface and the Paleozoic Plateau (Figure 10). The later is characterized by numerous rock outcroppings and deep, narrow valleys, woodlands, and insubstantial glacial deposits (Prior 1991:84). The modern landscape is largely defined by the Paleozoic-age sedimentary bedrock, which, having formed between 300 and 500 million years ago, has hardened and become deformed and fractured by crustal movements. The bedrock consists of various kinds of sedimentary rocks that include limestone, dolomite, sandstone, and shale. A series of vertical cracks now extends through the bedrock which can be seen along rock bluffs and road cuts. Such cracks, or joints, create the blocky shapes and sheer faces which can be seen along road cuts and rock bluffs of Northeast Iowa. Interruptions along bluff lines by narrow gorges and ravines, most noticeably seen along the Silurian Escarpment, offer a cool, moist, wooded habitats for diverse and sometimes rare species of flora and fauna (Prior 1991:87). Also typical of this landform is the presence of subterranean cracks and crevices, caused by the erosion of lime-rich bedrock by groundwater that percolates down from the surface. Such topography is known as karst topography. Such topography is evident from the surface by sinkholes, caves, and springs. The substantial contribution of groundwater from bedrock aquifers tends to keep streams and springs running even in times of low rainfall (Prior 1991:91). Wells drilled in this environment that measure between 100 feet and 350 feet rarely go dry, given that they have been drilled properly (Kittleson and Raymond 1968:219).

To the west of Fort Atkinson lies the Iowan Surface which was formed during the Wisconsin Period. This region is characterized by gently rolling hills, low relief, open views, elongated ridges, oblong hills, and the presence of glacial erratics, or large fieldstones. The Iowan Surface is a result of erosional scrubbing driven by a climate that was colder and wetter than the present climate. Freeze-thaw episodes, massive displacement of loose material, sheetwash of slopes, and wind turbulence all caused northern Iowa to be flattened or planed down by erosional processes (Prior 1991:70). Drainage networks are well established, although, they are of usually low gradient and sometimes promote the existence of wetlands (Prior 1991:69). As is the case in the Paleozoic Plateau, the Iowan Surface is sometimes characterized as having large amounts of groundwater which feeds rivers and wetlands in times of low rainfall. This is due to the relatively thin glacial drift on the region. Fed by groundwater discharge from bedrock aquifers, localized wetlands known as “fens” are sometimes present in the region. Fens are peat deposits which support rare plant communities. In southwest Winneshiek County, the Turkey River and its tributaries drain an eastern portion of the Iowan Surface that is characterized by nearly level to rolling landforms (Kittleson and Raymond 1968:219). This area is south of a high continuous ridge that marks a transitional area between the Paleozoic Plateau and Iowan Surface.

The soil on which the fort was constructed has been identified as Winneshiek Loam, 2 to 5 percent slopes (Kittleson and Raymond 1968). It is characterized by a 4 to 8 inches thick very dark gray or very dark brown surface layer, underlain by a lighter subsoil.

Rocks and pebbles can be found in the subsoil, but are also present on the surface. Most often, the limestone bedrock is between 15 and 30 inches from the surface, though the bedrock can be as deep as 36 inches. The soil is subject to drought in years of average rainfall (Kittleson and Raymond 1968:70), which may have effected the efforts of the military occupants to cultivate produce in their garden plots. Surrounding the fort grounds to the south and west is Steep Rock Land, which is dominated by limestone bedrock outcroppings and thinly silt-covered or loam-covered bedrock. Slopes are usually irregular, steep, and wooded. The fort-period limestone quarry is located within this land type, to the west of the fort grounds (Figure 11).

According to Kittleson and Raymond (1968:222), on poorly drained sites native vegetation consisted of grasses with trees and sedges in small areas. Plants native to forest and prairie environments grew on the well drained soils. Historic accounts of Iowa indicate a diverse and plentiful supply of wild fruits in Iowa (Galland 1840). These include strawberries, blackberries, raspberries, gooseberries, plums, crab apples, grapes, and cranberries, which may have grown in Winneshiek County near the fort.

What is known of the historic vegetation of Iowa has been greatly clarified by studies which have originated from the Iowa State University Department of Landscape Architecture (Anderson 1993; 1994; 1996; Miller 1995). Anderson's studies have involved the digitizing of General Land Office (GLO) surveyors' field notes and township maps which were completed between 1832 and 1859. A main goal of Anderson's work was to provide a vegetation data layer for Geographic Information System (GIS) data

analysis (Anderson 1996:2). Between 1832 and 1859 the General Land Office performed the first public land survey of Iowa. Surveyors provided township maps as well as field notes which described Iowa landscapes and associated natural resources including vegetation, water, and soil. This record provides some of the only written data concerning vegetation in Iowa prior to the implementation of intensive farming. According to Anderson's interpretations of surveyor H. Averill's field notes as well as of township plat maps, Winneshiek County was characterized by 17 different vegetation classifications in the early to mid nineteenth century (Anderson 1996:49-53) (Figure 12). Of these vegetation types, 4 types were noted as present within 2 miles of Fort Atkinson. These types are 1) timber/scattering/openings, 2) prairie, 3) timber, and 4) grove. The first type, timber/scattering/openings, represents the greatest percentage of land around Fort Atkinson. It is a combination type identifying the transition between or mosaic of prairie and timber, including both grass and trees. Anderson (1996, 1995, 1993) mapped this vegetation type in areas that had been identified as having timber in some parts, scattering trees in some parts, and openings in other parts. "Prairie" was the only vegetation type out of 38 to have been mapped in all 99 Iowa counties. The second most mapped vegetation type in Iowa was timber. Areas of timber are described as somewhat steep areas of large, moderately dense trees on a transitional bottom land to upland areas (Miller 1995:110). Finally, "grove" is described as a relatively small, dense stand of small trees (Miller 1995:108).

Numerous and varied species of fauna are and have been present in Winneshiek County. In 1839, H. H. Sibley of the American Fur Company, and later, the first Governor of the State of Minnesota, led a hunting party into the Neutral Ground. He noted an extremely abundant supply of deer, which were seen in groups at all times of the day (Sibley 1846; Williams 1982:171). Other indigenous species included the panther, lynx, buffalo, elk, white tailed deer, prairie wolf, timber wolf, beaver, badger, mink, otter, and the wild turkey. (Osborn 1905). Galland (1840) added squirrel, raccoon, quail, rabbit, and prairie hen to the list of animals available to nineteenth century Iowans.

Climatic data for Winneshiek county during the military occupation of Fort Atkinson does not exist. However, beginning in the 1850s, climate data recording stations did operate in various Iowa towns including Dubuque and Muscatine (U. S. Patent Office 1861). According to measurements taken at the stations, Iowa's historic climate can be characterized as a typical continental climate. Summers tended to be warm and winters to be cold. However, prolonged periods of intense heat or cold would have been rare.

CHAPTER 4. HISTORICAL CONTEXT

Military Context

The period of military history which is of concern to this study is marked by the end of the War of 1812. Before the war had come to an end on Christmas Eve 1814, the United States Congress had begun to plan the restructure of the military. Plans were made to return the War Department to a peace-time force while allowing the military to be able to deal with new world-wide military situations, as well as those situations on the frontier. It was decided that a force of regulars, not civilian soldiers, would be needed to meet the defense needs of the western frontier, an immense territory including the Upper Midwest and the Great Lakes Region, acquired in the Louisiana Purchase. This fact was painfully realized in the first year and a half of the War of 1812, when the United States was largely ineffective against the British (Shrader 1993:25). The following years saw an effort to properly train a professional force, a force that would be used to maintain peace between groups of settlers and Native American populations on the frontier. Often, the Army was sent out ahead of settlers into frontier areas to secure Native cooperation with the coming settlement by Euro-Americans. Securing such cooperation was accomplished through treaties as well as by force when necessary.

In the 18th and 19th centuries, the U. S. Army had established a number of forts along what was known as the military frontier. During Thomas Jefferson's administration, between 1801 and 1809, only 27 posts existed. By 1817, that number had expanded to 73. By the 1820s, more than 60 percent of the Army was stationed on the western frontier.

This presence served its intended purpose by managing Native populations and encouraging Euro-American settlement (Shrader 1993:31).

The Winnebago

The main purpose behind the establishment of Fort Atkinson was to facilitate the removal of the Winnebago, or Ho Chunk Nation, into northwest Iowa from Wisconsin by providing protection for the group, making certain none of the Winnebago attempted to return to Wisconsin. Because the Winnebago were crucial to the foundation and function of the fort, a brief discussion of the group and the events leading up to their removal to present-day Winneshiek County is warranted.

Linguistically, the Winnebago belong to a family of Siouan-speaking peoples which over 2500 years has divided into the Western Siouans (Crow-Hidatsa and Mandan), Central Siouans (Winnebago, Dhegiha Sioux, and the Chiwere Sioux), and Eastern Siouans (Biloxi, Tutelo, and Ofo) (Voegelin 1941; Wolff 1950; 1951). Inferring from the distribution of Siouan-speakers, it is likely that Proto-Siouans were located in the central Mississippi and lower Ohio valleys prior to 500 BC (Springer and Witkowski 1982), a central location from which the Siouans presumably dispersed. It has been suggested that certain historic Native American groups, including Chiwere-Winnebago-speaking groups, are most likely the historic manifestation of the Oneota tradition (Mott 1959). Other groups probably linked to the Oneota tradition include Dhegihan groups along the Missouri and Algonkian groups in Illinois. The Oneota were represented by mixed hunting, foraging, and farming communities in the Prairie Peninsula, dating from AD 1150

to historic times (Tiffany 1997:205). The Oneota tradition is an archaeologically defined “culture” identified mainly in terms of ceramics (Hall 1962:108; Henning 1970:141; Wedel 1959:111). Oneota pottery is typically shell-tempered and often decorated with stylized motifs composed of trailed lines and punctuates (Tiffany 1997:205). Vessel forms are globular and ellipsoid-shaped jars with constricted mouths and rounded bottoms, though other forms such as bowls are known. Other diagnostic artifacts include small notched and unnotched triangular projectile points and red pipestone disc pipes.

The Winnebago would eventually become separated from their Siouan relatives and subsequently become surrounded by Central Algonquian groups (Radin 1923:4), particularly the Sauk and Meskwaki and the Menominee (Jones 1974:21). Europeans first encountered the Winnebago in 1634 when Jean Nicolet, agent for Governor Champlain, met them. The meeting between the Winnebago and Nicolet reportedly took place at Red Banks on the east shore of Green Bay, although no contemporary account or Winnebago legend concerning the meeting exists (Radin 1923:5). Red Banks has been accepted as the site of the first meeting because of the Winnebago’s seventeenth century presence there and because of recent Winnebago tradition that traces the nation’s origin to Red Banks (Hall 1993:11-12). At first contact the group probably extended to Lake Winnebago (Hexom 1913), at which time, they had found themselves surrounded by Central Algonquian tribes. To the west they were still in contact with related groups, the Ioway, Oto, and Missouri. However, the Winnebago and their Algonquian neighbors had come to share certain cultural characteristics (Jones 1974:21). For a time, the Winnebago were

allied with the Sauk and Meskwaki and always supported the Meskwaki during their battles with the French and battles with their Illinoian enemies (Hexom 1913). However, the Winnebago would eventually become friendly with the French, enjoying trade with the Europeans. When Canada was ceded to England by the French in 1763, the Winnebago eventually transferred their allegiance to the British, even supporting them when colonists declared independence in 1776. Eventually, during the War of 1812, the Winnebago had little choice but to shift their allegiances to the Americans.

Beginning in 1825, a number of treaties with the United States government came to affect the Winnebago. A treaty of August 19, 1825 created an east-west neutral line in northeast Iowa which was to separate the Santee Dakota to the north from the amalgamated Sauk and Meskwaki to the south. Meant to delineate each groups' hunting grounds, the line ran from the mouth of the upper Iowa River on the Mississippi to the upper fork of the Des Moines River (Hexom 1913). However, due to continued fighting between the two groups the "Neutral Ground" was created through a July 15, 1830 treaty at Prairie du Chien. This order established a 20-mile-wide strip of land on either side of the line (Hexom 1913:9). Though officially created to separate the two Santee and Sauk and Meskwaki, the United States government had begun to make plans to remove the Winnebago from Wisconsin (Street 1899). The Neutral Ground was considered a convenient place to keep them for a time (Peterson 1996:15). After the Treaty of Fort Armstrong, a small group of Winnebago moved into the Neutral Ground in 1832. Most other Winnebago were reluctant to leave Wisconsin, however. Not only did they not care

to move such a distance from their homeland, they were concerned about the animosity that the Dakota and the Sauk and Meskwaki felt toward one another. With good reason, the Winnebago were not eager to relocate to relatively small strip of land between the two groups in the Iowa Territory (Rogers 1993:9). Regardless, a treaty signed in Washington, D. C. in 1837 prompted the Winnebago to cede their land in Wisconsin in exchange for land in the Neutral ground. Most Winnebago protested, however, arguing that those tribal members who signed the treaty were not authorized to do so and that the delegation did not know exactly what they were signing. The tribe split into two factions, one that planned to abide by the treaty and one that hid from U. S. troops in Wisconsin. In 1840, the cooperative group moved from Wisconsin and were eventually resettled at the Turkey River Subagency, near Fort Atkinson in present-day Winneshiek County. In June, 1848, the Winnebago left Fort Atkinson for Long Prairie, Minnesota, northwest of present-day St. Cloud, between the Watab and Crow Rivers. In 1855, a reservation was established south of Mankato, Minnesota, with a subagency located on the Le Sueur River (Friedrick 1980; Hill 1974; Merry and Green 1989; Peterson 1996). In 1862, the Winnebago were moved to Crow Creek in South Dakota. Most of these Winnebago left Crow Creek either to establish themselves among the Omaha in Nebraska or to return to Wisconsin. Finally, in 1865, a Winnebago reservation was created south of Sioux City, Iowa, adjacent to the Omaha reservation, where it still exists today.

Those Winnebago who chose to stay in Wisconsin were settled around an agency at Plover, Wisconsin in 1864. They remained at Plover until 1869, when the agency was

moved to Necedah, then to New Lisbon, and finally abolished in 1870 (Hill 1974). In 1881, Winnebago who had remained in Wisconsin were given permission to purchase 40 acre farmsteads in ten different counties. Unfortunately, however, the most desirable land had been purchased by Euro-Americans by this time (Peterson 1996:17-18).

History of Fort Atkinson

In the spring of 1840, the United States War Department had proposed the construction of a military post on the Red Cedar River, the present-day Cedar River. However, General Henry Atkinson, a "greying career soldier" (Nichols 1965:590), decided such a location would be too far south in Iowa and wanted to assure the hesitant Winnebago that a post would be built near their new settlement on the Turkey River. Prior to his involvement with the Winnebago, Atkinson had made his career as a frontier general and Indian fighter. In 1819, he commanded the Yellowstone Expedition. Intended as a show of force to Indians and the British at the mouth of the Yellowstone River in northwest Wyoming, the expedition led to the establishment of Fort Atkinson, Nebraska, north of Council Bluffs, Iowa. In 1825, Atkinson traveled up the Missouri River meeting and making treaties with native groups. Having selected a site north of St. Louis for Jefferson Barracks, where he subsequently lived, Atkinson directed Colonel Henry Leavenworth to establish a fort on the Kansas frontier. Having commanded troops at battles including Bad Axe, Henry Atkinson was a significant force in the Black Hawk War of 1832. In April, 1840, General Atkinson gathered several bands of Winnebago and escorted them to Fort Crawford, a post on the Mississippi at Prairie du Chien, Wisconsin.

Atkinson had the assistance of Colonel William J. Worth's Eighth Infantry, a detachment of the Fifth Infantry under Brigadier General George M. Brooke, and a troop of dragoons commanded by Captain Edwin V. Sumner. The bands crossed over to the west side of the Mississippi but refused to go any farther into the Neutral Ground. Having set up houses along the river in an attempt to stay, the Winnebago were allowed to stay until fall of that year. When fall arrived, the Winnebago were still reluctant to move further west into Iowa. Profiting from sales made to the Winnebago, mercenary traders and whisky sellers had encouraged them to refuse to move to the Turkey River site. Even an offer by the government to carry the Winnebago's property and sick in wagons at no cost to the Turkey River was declined. In a final attempt to move the Winnebago, the government decided to refuse the payment of annuities to the group at any place besides the new subagency, which prompted them to begin their move westward (Mahan 1926:220-221).

As General Atkinson was attempting to move the Winnebago, Company F of the Fifth Infantry under the command of Captain Isaac Lynde had been sent into the Neutral Ground to protect the Winnebago from the Sauk and Meskwaki. They traveled to a site on a limestone bluff above Rogers Creek, near the Turkey River. The site was located four miles northwest of the Turkey River Subagency, where the Winnebago would actually reside (Figure 13). The formation of Indian agencies and subagencies is briefly discussed below.

The Office of Indian Affairs created superintendencies and agencies. Superintendents oversaw the relations between Native American groups within their

jurisdiction as well as the relations between Indians and those doing business with them. Superintendents also supervised agents who were in turn responsible for 1) the education and “civilization” of one or more Native groups, 2) allotment distribution, and 3) the preservation or restoration of peace. (Hill 1974:1). Only a certain number of superintendents and agents were appointed by the President and approved by the Senate. In 1834, an Act of Congress gave the President the authority to discontinue or transfer agencies but not to create new agencies. Thus, subagencies were created when needed. Though paid less and assigned smaller or less important jurisdictions, subagents shared responsibilities identical to those of agents (Hill 1974).

On May 31, 1840, Captain Lynde and Company F named their post “Camp Atkinson” in honor of their department commander (Carter 1899). Having traveled from Prairie du Chien under the escort of Company F, nearly 50 mechanics began the construction of barracks and quarters two days after Camp Atkinson was named. Some building materials had been hauled by government teamsters from Fort Crawford, Prairie du Chien, a trip that took them over fifty miles of prairie. This route would later be known as the old military trail. During the summer and fall of 1840, loads of pine lumber, nails, and other supplies were hauled by horses, oxen, and mules. Walnut lumber for interiors was milled at a sawmill near the Winnebago school, presumably at the subagency, while limestone blocks were quarried from a site very near the camp (Figures 8 and 11) (Mahan 1926:221-222). That summer, masons and carpenters finished quarters for Company F. Also during this period of construction, a storage facility was built on the west bank of the

Mississippi, opposite Fort Crawford. Supplies were to be held there until they could be hauled to the new post.

Major construction of the fort was completed by 1842, although, construction projects continued periodically at the site until 1844. Particulars of the construction sequence are outlined in the section concerning construction history, below. The cost of the construction of the fort buildings and the road from Prairie du Chien was \$90,000. Such a figure was unwarranted in the eyes of the Quartermaster General. He understood that Euro-Americans would continue their advance west, pressuring the government to force Native Americans from the Neutral Ground, eventually rendering Fort Atkinson unnecessary (Mahan 1926:223-224).

In the spring of 1841 the post was given the name "Fort Atkinson." Responding to rumors that the Sauk and Meskwaki were becoming hostile, Governor Dodge of the Wisconsin Territory requested a mounted force be sent into the Neutral Ground to protect the Winnebago and to prevent the Winnebago from returning to Wisconsin. General Atkinson, now stationed at St. Louis, ordered troops to march from Fort Crawford to the Red Cedar River and Turkey River until mounted troops, or dragoons, could be sent. Because neither stables nor barracks had been completed at this time, General Atkinson thought it unwise to station Dragoons at the post until housing could be finished and forage was available for the horses (Carter 1899:449-451).

On June 24, 1841, Company B of the First United States Dragoons arrived at Fort Atkinson under the command of Captain Edwin V. Sumner. Having arrived at Fort

Crawford in August, Company K of the First Infantry replaced Captain Lynde's Company F at Fort Atkinson in September, 1841. By 1842, those living at Fort Atkinson had settled into their routine duties. At times the monotony was broken up when patrols were assembled to search the Neutral Ground for Winnebago and Euro-American squatters. In the fall of 1842, subagent, Reverend David Lowry, reported that the Winnebago were still quite scattered. More than eight hundred had dispersed into the area north of the Neutral Ground, two hundred more were near the Mississippi on the Upper Iowa River, leaving seven hundred fifty six remaining at the subagency (Mahan 1926:224). Because of these numbers, dragoons regularly patrolled the Neutral Ground persuading or forcing Winnebago back to the Turkey River Subagency. Straying bands of Winnebago were often forced back into Iowa by soldiers called from Fort Crawford.

At the same time, settlers in Iowa were becoming increasingly interested in acquiring the Neutral Ground from the Winnebago, and began pressuring the government to remove them once again. In July, 1843, Governor John Chambers of Iowa Territory held council with the Winnebago to discuss the issue. With him were Sumner's dragoons and Company A from Fort Crawford. Chambers' attempts to persuade the Winnebago to leave Iowa were unsuccessful at that time (Mahan 1926:225-226).

From fall 1843 to Spring 1844, Captain Sumner and his dragoons persisted in removing Winnebago from the west shore of the Mississippi into the Neutral Ground, some 20 miles west. Later in 1844, a second attempt was made to purchase the Winnebago rights to Neutral Ground. Like the attempt in 1843, this one failed. In 1845, Governor

Dodge of Wisconsin Territory and a company from Fort Crawford traveled to Fort Atkinson in order to hold another council. One thousand five hundred Winnebago were present, and again, were not willing to move. It is suggested that they had come under the influence of traders who had persuaded the Winnebago to stay in the Neutral Ground (Mahan 1926:226). Dodge suggested that the Winnebago be given the right to select a new reservation in Santee Dakota-held Minnesota, and that delegations of both tribes be sent to Washington, D. C. to negotiate directly with the government.

On May 27, 1846, a War Department circular reached Fort Atkinson. It announced the state of war between the United States and Mexico. Frontier troops including those at Fort Atkinson and Fort Crawford were summoned to Mexico and the Southwest. Various state governors were ordered to raise state volunteer forces to man posts which were abandoned by federal troops. On June 20, 1846, Company B, 1st Dragoons left Fort Atkinson. James M. Morgan, having received the rank of captain from Governor Clarke of Iowa Territory, was assigned to enlist a company for service at Fort Atkinson. Affectionately called "Little Red", Morgan had enlisted 68 men at Burlington and moved them up the Mississippi via steamboat to the military road across from Prairie du Chien. From there, Morgan's Company A of the First Iowa Volunteer Infantry marched to Fort Atkinson. Three additional men enrolled at the fort and the company was brought into the service of the United States on July 15, 1846 (Mahan 1926:229).

Soon after, a mounted force was ordered to Fort Atkinson. Having had to supply their own horses, saddles, and equipment, the Iowa Mounted Volunteers were mustered

into service under the command of Brevet Major Alexander S. Hooe at Fort Atkinson on September 9, 1846. Sixty-nine days later, on November 5, the War Department decided to dismiss the mounted volunteers. This surprising turn around was most likely because of the need to commit financial resources to the Mexican front (Williams 1980:65).

Recognizing the need to patrol the Neutral Ground with a mounted force, Morgan dismissed the Volunteer Infantry and re-enlisted the Mounted Volunteers on July 15, 1847. Not only were the Iowa dragoons needed to patrol the Neutral Ground more effectively, plans were being made to move the Winnebago again, a task which required a mounted force (Mahan 1926:236).

The previous October (1846), Winnebago delegates had traveled to Washington and agreed to a treaty in which they ceded all their land claims in the Neutral Ground (Mahan 1926:230; Williams 1980:66). They agreed to move to a reservation of roughly 8,000 acres in Minnesota within one year after the treaty was ratified. On February 4, 1847 the treaty was signed into law. On June 8, 1848, "Between two and three thousand Indians with sixteen hundred ponies, one hundred and sixty-six army wagons loaded with the supplies and movable property of the tribesmen as well as the goods of the agency, a lumbering cannon, and the mounted volunteers armed with rifle, sword, and revolver" (Mahan 1926:238) left for Minnesota. In September, 1848, Morgan's company was dismissed and replaced by Captain T. L. Alexander's Company C of the Sixth Infantry. On February 24, 1849, Fort Atkinson was abandoned, more or less. A series of government caretakers

administered the property until it was auctioned to the public sometime between 1853 and 1855 (Bailey 1913:229-230).

Life at Fort Atkinson

Daily Life of Officers and Their Families

The life of an officer at a frontier post revolved around the daily schedule, much like the lives of the enlisted men. However, officer's duties differed substantially than those of enlisted men. Commissioned officers spent much of their time completing paperwork (King 1997:124). Non-commissioned officers, sergeants, and corporals spent much of their time supervising the troops' activities and training them. Other duties officers were assigned included the policing of the fort. A police officer was to inspect the camp and make sure it was clean and free of fires, save for those in kitchens (Gideon 1841). Mail duty was a welcome assignment to which both officers and enlisted men were assigned (Williams 1980:630). Leaving the fort on Monday for Prairie du Chien to pick up mail, a soldier was not expected back until Thursday. This weekly trip to the "big city" was always a reprieve from the mundane tasks of fort life. Officers were given mail, courier, and purchasing assignments that took them much further distances. Trips, like ones to buy horses might take them as far as Springfield, Illinois. A call to court-martial or recruiting service also served to alleviate the boredom.

According to military regulations, officers were provided quarters based on rank, which determined the amount of space afforded to each officer. Two rooms and a kitchen were reserved for a captain. Lieutenants were allowed only one room. It made no

difference whether an officer was married or not, leading to situations where quarters were often shared by two officers and their families.

Officers and their families regularly made attempts to bring “civilization” to frontier posts. Dinner parties and dances were thrown, theaters and libraries were established, and churches and schools were organized at most posts along the frontier (Mahan 1926:200). No record of the establishment of a theater troop at Fort Atkinson exists. However, 13 years earlier, Fort Crawford had established a tradition of staging dramatic productions for the garrison and visitors (Williams 1982:172). Fort Crawford also housed a post library, suggesting that Fort Atkinson may have done the same. Often times officers brought fine furniture and table service to frontier posts. Unbelievably, one Major Plympton brought a piano with him when he was sent to Fort Snelling, Minnesota.

Few primary or secondary documents mention the presence of women or children at Fort Atkinson. They did live at frontier posts, and left some evidence of their presence (King 1997:126; Prucha 1953:201). Schools were usually established at forts to provide an education for the children of officers, as was the case at Fort Atkinson. The lower level of the South Barracks was divided into living rooms and one large room with benches, a platform, and a pulpit. This large room served as a chapel on Sunday and a schoolroom during weekdays. It is not clear whether enlisted men regularly brought their wives and children to live at Army posts. Given the limited amount of space allotted to a private, it is likely that only officers could afford this luxury.

Daily Life of Enlisted Men

The military life of an enlisted man was spelled out the *General Regulations for the Army*, a book that listed basic rules of army life. This book, orders from superiors, and the routine of the fort regulated a soldier's daily life (Williams 1982:164). *General Regulations* called for *reveille* to wake the sleeping soldiers every morning. Roll was called in front of the quarters, after which, soldiers were to put their quarters into order. Sick call then sounded, at which time any ill soldiers were taken to the hospital. After a second roll call, breakfast was served at nine o'clock. Enlisted men ate their meals separately from the officers. Meals usually consisted of bread and soup, which was to be boiled for at least five hours (Williams 1980:52). For some, then, food preparation was a time consuming part of the day. The Sutler's Store provided a means to supplement one's diet and was a place to purchase various non-military-issue items. Sutler, Henry Rice, stocked goods from cooking utensils to furniture, whose prices were set by a council of officers (Rice 1845).

Stable call was sounded twice a day, before noon and at sunset. Obviously, the care of post animals was of utmost concern. Horses were watered, fed, and shod. Apart from horses, there were mule and oxen teams to care for. The number of mules and oxen present at Fort Atkinson varied according to the cost of hiring local teamsters. The more expensive local teamsters' fees, the more the fort depended on military-owned animals to haul supplies. In December, 1842, the quartermaster at Fort Atkinson had two six-mule

teams and two six-oxen teams for general work. The cost of maintaining these animals was substantial as indicated by numerous local contracts for oats, corn, and hay (Reque 1930).

Men were summoned for duty each morning with the “troop” bugle call. The soldiers’ duties were assigned according to skills they already possessed. For instance, a man with a propensity for baking bread might find himself put to work at the Bakehouse. More food-related assignments included slaughtering and butchering beef, cutting ice in the winter, tending gardens, and cooking the meals (Williams 1982:167). During the first few years of the fort’s occupation, soldiers would most often contribute to the construction of the fort structures. The building of Fort Atkinson required stone masons, plasterers, brick masons, and carpenters. If soldiers that were skilled in a particular construction trade were unavailable, civilian workers were brought in to do the jobs. In 1841, Captain Lynde reported that he only had a single stone mason, three carpenters, and no plasterers or brick masons (Lynde 1841; Williams 1980:54). In the unfortunate event that a soldier was unskilled, he was set to carrying stone from the quarry or felling trees for the picketing or other buildings. During the sometimes severe winters, men were assigned to cut firewood, a assignment that drew soldiers farther and farther from the post as trees were felled for the construction of the fort. In January of 1843, 25 privates and 1 non-commissioned officer were sent in the dead of winter to cut wood. A month later, 20 privates were detached for the same task (Williams 1980:55). On the upside, soldiers were given an extra 18 cents a day for cutting extra fuel (Plummer 1844).

Often times, patrol duty was a welcome change from the monotonous life of garrison duty. Patrols were not only dispatched to prevent the Winnebago from returning to Wisconsin, they were sent out to remove Euro-Americans who had begun to enter the Neutral Ground. During 1842, Captain Sumner's Dragoons patrolled for several weeks forcing Euro-American squatters from Native lands to the south. A squatter might have expected soldiers to burn his cabin down, destroy his fences, and trample his crops, likely persuading him not to stay in the Neutral Ground or return to it later (Mahan 1926:225). At times patrols were only sent out to demonstrate the strength of the United States Army. Other times, patrols were the vehicle by which the Winnebago received their annuities.

Soldiers might also be required to perform guard duty, although, it is not certain how many guards were posted at Fort Atkinson at one time. The number of guards at a particular post depended on the size of its garrison and the extent to which it needed to be guarded. It is unlikely that guarding Fort Atkinson was a major concern. In fact, a threat to Fort Atkinson was so unexpected that the two blockhouses, the principal defensive positions of the fort, were some of the last to be finished, and, were used to store Commissary goods while that building was being finished (Williams 1980:57). Most often guards were placed at a fort's gates, though, they might have been placed at other posts, such as at the Commissary or Sutler's store.

It is unlikely that soldiers had much time for leisure activity during the years the fort was under construction. An off-duty soldier could earn extra money working on the

buildings, as many men did (Williams 1980:62). Once the buildings were finished a soldier could still earn extra money painting and making repairs. However, regardless of the many opportunities for soldiers to keep busy, commanders at frontier posts often complained that their troops spent too much of their time smoking, drinking, and playing cards. By 1830, whiskey was no longer a part of a soldier's daily rations, so drinking was not officially condoned. Evidence for other recreational activity is represented by the material culture of Fort Atkinson, which includes dominos, pipes, and Jew's harps (a.k.a. jaw harps) recovered during archaeological excavations.

At every sunset, "retreat" was heard, prompting the soldiers to assemble and listen for the next day's orders. Later, "tattoo" was sounded, ordering soldiers to stay in their quarters until reveille woke them the next morning (General Regulations).

Daily Life of Others

According to the *General Regulations*, four women could be employed as laundress, women who washed and mended enlisted and non-commissioned officers' clothes. Laundresses were civilian women, listed on company rosters, and eligible for rations. Some were single or widowed, while most were the wives of enlisted men or non-commissioned officers (King 1997:134). Usually, the women, their husbands, and their children lived in quarters which were supplied by the post (Williams 1982:167). In the case of Fort Atkinson, three log cabins serving as laundresses' huts were constructed outside the picketing to the west of a row of workhouses. The names of these women are not known, nor is whether they were married to any of the men stationed at the fort.

Another civilian residing at the fort was the sutler. Henry Rice was Fort Atkinson's sutler, but for how long is unknown. The Sutler's Store, located in the northwest corner of the fort grounds (Figure 6), provided food and non-military-issue items for soldiers to purchase. Finally, as Fort Atkinson was in its construction stages, the government was forced to hire skilled civilian laborers to help build the fort. Presumably, these men lived on or near the fort grounds. Little is known of where they resided, whether in the barracks or in structures which have not been located archaeologically.

Health and Diet

Despite the varying degrees of social and economic standing, all frontier residents, military or civilian, shared common circumstances, including physically demanding labor, natural disasters, disease, harshness of climate, and general lack of health care (Faragher 1986). Skeletal evidence and the historical record are two sources one may draw from to analyze health and diet on the frontier. Since skeletal evidence is not available for Fort Atkinson military populations, fort documents and accounts of health at other frontier posts and homesteads are used to determine the level of health at Fort Atkinson. Post returns do indicate that soldiers visited the fort hospital in regular numbers.

Diet

One of the most significant factors affecting health is diet. Obviously, starvation was the most extreme result of an insufficient diet on the frontier. However, a poor, unchanging diet, while not necessarily resulting in starvation, also impacted health, often quite dramatically. Evidence for diet and the problems stemming from an inadequate one

are apparent in numerous historical and skeletal studies concerning both military and early settler populations (Larsen et al. 1995; Nepstad-Thorberry 1987; Ortner and Putschar 1981; Turner 1979).

In relation to the diet of a typical frontier settlement during the nineteenth century, it is likely that soldiers received a superior diet. The government had the financial resources and transportation to be certain a post did not go hungry. However, the people at Fort Atkinson did not have to rely on government food shipments alone. A substantial amount of provisions and food were obtained from the vicinity of the fort. Beef cattle were kept nearby, presumably to become a main ingredient in the soldiers' soup. Gardens provided the officers and enlisted men with a variety of produce. Officers' gardens were located directly behind their barracks (Figure 6), with company gardens located somewhere outside of the fort stockade. So important were gardens, that Private John Putnam was sent to Fort Atkinson ahead of Company B, First Dragoons in order to plant a garden for the company two months in advance (Williams 1980:53). Documentary evidence does not indicate what sorts of produce were being grown in the gardens. Likewise, no relict plants indicating what might have been grown are present on the former garden plots. It is possible that crops including maize or squash may have been cultivated as was the case at Fort Atkinson, Nebraska (Carlson 1979:95). Other food and provisions which were not available at the fort were bought on contract. Supplies purchased for one year (1844) included 125 barrels of salt pork, 160 barrels of flour, 40 bushels of beans, 1,150 pounds of soap, 500 pounds of candles, 15 bushels of salt, and 500 gallons of vinegar (Gibson 1844).

From a warehouse at Prairie du Chien, supplies were hauled by wagon to Fort Atkinson and stored in the Commissary. Owners of the warehouse were H. L. Dousman and Henry Rice, Fort Atkinson's sutler. Finally, water was supplied by ox teams that hauled water up the bluff to be dumped into the cistern (Williams 1980:51). The cistern had actually be started in hopes of striking a spring to create a well, a hope that was quite possible given the area's abundant subterranean drainage systems (Prior 1991:91). However, after digging through 70 or 80 feet of solid limestone, engineers gave up having not reached water.

Disease

Another great threat to health on the frontier was infectious disease. The historical record allows one to understand more clearly the occurrences and effects of disease on frontier populations. According to Larsen et al. (1995:143), most deaths were thought to have been caused by various diseases, pneumonia, tuberculosis, and intestinal disorders. Outbreaks of typhoid ("brain fever") were common during late summer and fall when flies thrived in the raw sewage and offal pools that were common to pioneer farms (Faragher 1986). Thus, living conditions were conducive to parasites and bacteria that cause acute disease. Cholera tended to affect Fort Crawford in the years prior to the construction of Fort Atkinson. In 1832, General Winfield Scott, attempting to reach Fort Crawford, was delayed in Detroit and then in Chicago by an outbreak of cholera among the troops. Another attack of cholera delayed a council with the Sauk and Meskwaki and would prompt conferences to be held across the river, away from the scene of the epidemic. In 1833, the building of barracks at Fort Crawford was interrupted by another episode of

cholera and was not completed until a year later (Mahan 1926:137). Occupied until the 1860s, Fort Harker Kansas was also visited by various infectious diseases. These included malaria, dysentery, bronchitis or pleurisy, cerebro-spinal meningitis, tuberculosis, typhoid fever, and pneumonia (King 1997:134-135). Though no list of particular diseases affecting Fort Atkinson's population has been located, presumably, soldiers there suffered similar diseases. In a third quarter, 1840 surgeons report William S. King notes, "the cases of fever at this post with few exceptions, can be traced to Fort Crawford" (King 1840). It is likely that Forts Atkinson and Crawford, roughly 50 miles apart, shared similar instances of disease because of the regular traffic between them and because the forts shared similar conditions, including close-quarter living which is conducive to the spread of infectious disease, most notably tuberculosis and cholera.

Health Care

Today one would consider the availability of health care to be directly correlated to a population's level of health. However, the knowledge and abilities of physicians in the nineteenth century probably aided little in the fight against the host of diseases or injuries listed above (Riley 1981). Quinine, morphine, herbal medicines, patent medicines, and blood letting were the extent of a doctor's treatments. However, doctors were often called upon to curb and hopefully eliminate the symptoms associated with a range of illnesses. Each morning at Fort Atkinson the bugler sounded "surgeon's call", at which time soldiers who had become sick over night would be escorted by the first sergeant of the company to the hospital in the east wing of North Barracks. Health care was markedly more available

to the soldiers than it was to other frontier populations. Post surgeon, an officer in the Army, was always present at the fort. Assistant surgeons were also present and accorded the rank of captain if they had served five years or the rank of first lieutenant if they had served less than five years. Out of the entire time the post was garrisoned, only six months went by without a man reporting to the hospital. Many months saw 8 to 11 men escorted to the hospital for treatment. Regardless of the probably futile attempts to treat the actual causes of illness at Fort Atkinson, 16 deaths were reported between August, 1840 and February 1849 (State Historical Society of Iowa, Fort Atkinson Research File Ms 173). After the name of each of the deceased, this source sometimes lists two dates, roughly two months apart, without any explanation (Table 1). The author's only guess is the first might represent the onset of an illness and the second, the date of death. It is presumed those listed below are buried in the post cemetery, northwest of the fort site, with the exception of William Williams, who drowned in the Cedar River while on duty.

Trauma

Another impact on one's health is trauma, either accidental or intentional. Trauma is most often associated with accidents or battle wounds that may result in fractures, internal injuries, or both. Because frontier life contained periodically stressful or dangerous activities, one expects to find historical accounts of physically traumatic events. The 1850 Mortality Census of Iowa (pp. 446-447) reports that 300 deaths resulted from accidents that year. Another study cites an example of a young child having fallen from a wagon and almost being crushed by the wheel on a family's trip to Iowa (Riley 1981:22). One might

expect the lives of frontier military men to be fraught with danger and constant physical trauma as they battled Native Americans and Euro-American squatters. However, the life of an enlisted man at a fort tended to be rather mundane (King 1997; Mahan 1926; Williams 1882). At Fort Atkinson and Fort Crawford, daily life was filled with monotonous tasks. Though no documentation suggests that traumatic accidents ever resulted from cutting logs, quarrying stone, sawing lumber, or cutting ice, one might expect there to be a periodic mishap associated with such potentially dangerous activities. All of the accounts of trauma were reported to have occurred during field patrols. On one occasion in 1844, Private William Williams of B Company Dragoons drowned while attempting to cross the Cedar river on his horse (McKusick 1966a). Ten years earlier, a keel boat traveling down an unidentified tributary of the Mississippi was tossed from one bank to the other, becoming entangle in trees. After hitting a sandbar, the boat encountered two Menominee Indians in a dug-out canoe who paddled the men to safety, one by one (Mahan 1926).

Physical Activity

Physical labor is another element of frontier life that would have a affected health. Historical documentation reveals the types and amounts of work that people would have done. Strenuous physical activity can be considered beneficial to the health of an individual up to a point. However, prolonged physical strain can cause a host of problems including dislocations, fractures, and degenerative joint changes (Ortner and Putschar 1981). At military posts, skilled soldiers were assigned to specific jobs, such as baker,

blacksmith, carpenter, clerk, cook, hospital steward, mechanic, or teamster. Many of these jobs subjected the men to repeated physical stress that would affect their health. Other soldiers found themselves assigned to unskilled tasks such as hauling water, picking up or hauling trash, cleaning or repairing buildings, gardening, cutting wood or hay, loading or unloading supplies, or cutting and hauling ice. However, unlike the soldiers with skills, unskilled soldiers were not bound to one job. In fact, most soldiers were periodically given assignments to escort a stagecoach or wagon train or ride on patrol. Had the soldiers ridden horses continuously one might expect the soldiers to develop related pathologies.

Correspondence and other historical accounts indicates that a great deal of horseback riding over sometimes rough terrain was performed (Mahan 1926; McKusick 1966a; Reque 1930). Such activity would result in certain health problems, especially those affecting the back and knees. At Fort Atkinson, routine tasks depended on the season. In the spring and summer, gardens were cultivated. Other soldiers were employed to cut the enormous supply of logs needed for the winter's fireplaces. While the fort was being built, stone was quarried, logs were cut and hauled, and lumber was sawed. All such tasks were performed by, and probably took their physiological toll on the soldiers.

CHAPTER 5. ARCHITECTURE OF FORT ATKINSON

Construction History

The ideal location on which to construct a 19th century military post was on or near a river, preferably on an adjacent bluff (Shrader 1993:32). The river not only provided protection against assault on one side, but also served as means of transporting men and supplies. Military posts were given a variety of classifications. One with permanent wooden structures was called a “cantonment.” Most often such a post would be occupied for one or two seasons and lacked extensive defenses. A “fort” housed troops inside a high-walled defensive structure. Such forts were characteristic of military outposts east of the Great Plains, where timber was plentiful. As was the case with Fort Atkinson, the soldiers at a specific post were responsible for its construction. Making improvements over time, soldiers might transform a post from a collection of timber structures to those constructed of brick and stone. From 1783 to 1846, U. S. soldiers built or helped to build 148 forts, one of which was Fort Atkinson.

The following historic profile outlines the series of events contributing to the construction and use of Fort Atkinson. On May 31, 1840, Company F, 5th Infantry, arrived at the site where the fort was to be built. Orders were given to J. H. Whipple to superintend the construction of log cabins to house food stores sent from Fort Crawford on the Mississippi. There were also to be soldiers’ barracks (South Barracks) and an officers’ quarters (East Barracks), each two stories high and made of logs which were hewn flat on two sides. The barracks were also to hold a temporary hospital. The buildings

were to be built at right angles to each other with a picketing or stockade enclosing the spaces (Reque 1930). As the summer progressed, so did construction. However, bureaucratic troubles would delay the completion of the buildings for more than two years. At the end of the summer, the Quartermaster General in Washington sent word that no appropriation had been made for the construction of the post and, consequently, the employment of hired mechanics could not be sanctioned. From that point, the majority of fort construction would be completed by troops who volunteered for extra duty. Carpenters that had been hired were dismissed. By October, the troops had moved into the new quarters, though interior work on the buildings was not yet complete.

The following season other buildings were to be built to house a new company that was to be stationed at the fort. The additional company was to be a company of dragoons and required not only extra officers' quarters and barracks, but stables as well. It was suggested that stone be used for all future buildings for two reasons. First, the wooden buildings did not stand up to the harsh Iowa winter as they had not been weather boarded and plastered on the interior. Also, adequate building stone was much more abundant than good timber, with a quarry just fifty yards from the site (Lynde 1841). The stone was to be quarried by the enlisted men without the use of blasting powder. Work on the new stone buildings began in 1841, while the log buildings remained unfinished. The portion of the log barracks that held the hospital was only partially floored and the buildings were still in need of weather boarding. In July, 1841, work to finish the log buildings was finally authorized and a carpenter and plasterer were hired.

Reportedly, in the spring of 1842, the stone officers' quarters had yet to be completed and the stone barracks had not yet received a roof (Jesup 1842). To expedite the construction process, S. M. Plummer, Acting Quartermaster of Fort Crawford, was ordered to superintend the construction of Fort Atkinson. Plummer was also directed to make a detailed estimate of the amount of money needed to finish the work. Having arrived at Fort Atkinson, Plummer found outstanding debts of almost 8,000 dollars in the accounts of the post and estimated the cost of completing the buildings would be roughly the same amount. At this time it was estimate that it would take two or three months to complete the stone barracks and that the post still did not have a powder magazine. Also, contracts for the digging of a well and the construction of a commissary storehouse had just been let.

By the end of the summer of 1842, the fort was for the most part complete. Lieutenant A. W. Reynolds sketched the post for the War Department's records. His plan shows the locations of 24 buildings at the fort (Figure 6). Four long, rectangular barracks stood, two of logs hewn flat and two of stone, all two stories tall. The barracks enclosed a square parade and drill ground which was larger than an acre (Mahan 1926:223). Each of the barracks measured twenty feet from ground to eaves and had an upper porch stretching the length of each building. One of the stone barracks (East Barracks) was occupied by commissioned officers and their families. Non-commissioned officers and their families resided in one made of hewn logs (West Barracks). One of the officers' quarters had movable wooden blinds hung on its second story porch for privacy. Private soldiers lived

in the other stone (North Barracks) and wood (South Barracks) barracks. The North Barracks housed a hospital on the first story of its east wing. The South Barracks' second story was fitted with bunks, while the lower level was divided into living rooms and one large room with benches, a platform, and a pulpit. This room served as chapel on Sundays and as a school for the officers' children during the week (Mahan 1923:223). A tall flag pole was placed at one end of the parade ground. At the northeast and southwest corners of the stockade stood two gun houses (Northeast and Southwest Blockhouses), each with thick stone walls and hipped roofs. The Powder Magazine stood in the southeast corner, with the Commissary, an adjoined Sutler's Store, and the Guard House opposite to it in the northwest corner. An 11 feet 9 inches picketing of squared logs stood with loop holes present every four feet (Hexom 1913:338-339). Outside the stockade were 14 additional buildings. They were 4 large stables, a granary, a bakehouse, a blacksmith shop, a carpenter shop, 3 laundresses' huts, a root house, and an ice house. Although Lieutenant Reynolds' map does indicate the size and materials used to construct the outbuildings, little more is known of the architectural nature of the outbuildings. On the contrary, documentary evidence does lend some insight into the architectural nature of the officers' quarters.. The officers' quarters were painted, railings were put on the porches, and venetian blinds were hung for privacy. In 1844, hearths, fireplaces, and chimneys were repaired, 17 rooms were painted, and doors were made for the slaughterhouse and the root cellar. Also, lattice work was placed in front of the doors of the officers' quarters to protect the rooms from wind and rain. The cost of the lattice work was \$13.57 1/2

(Plummer 1844). The last major construction project was undertaken this year when the commanding officer ordered the addition of a log kitchen onto his quarters.

The Winnebago were removed to Minnesota in June of 1848. With them went the primary function of the fort. The following February the last group of soldiers stationed at Fort Atkinson left the post for Fort Crawford. The surplus supplies and food stores were sold at auction in March and the care of the buildings at the post was entrusted to a custodian (Williams 1980:66).

Building Descriptions

The architecture of the fort-period buildings must be considered “vernacular”, which can be described as common, ordinary buildings fashioned for functional purposes. The term “vernacular” is not so much a definition of a particular style, rather it describes the method by which a building is erected. Each of the three are of heavy masonry construction, made of limestone from a nearby quarry. The only stylistic inferences one might make is with regard to the North Barracks (Figure 4), which might have some Early English Colonial leanings. Typically, this style is characterized by steeply pitched gable roofs, tall, massive chimneys, which the structure is thought to have had originally, second-story overhangs, and narrow plans, often only one room deep (Dwight 1993:3). Vogel (1993) has identified the architecture of Fort Atkinson as having been built in the style of Greek Revival, possibly due to the presence of a cornice with abbreviated cornice returns on the Powder Magazine. This feature does identify the architecture of the Powder Magazine as having been influenced by Greek Revival. However, the remaining buildings

cannot be considered thus. The blockhouses (Figures 2 and 5), one of which is a reconstruction, and the powder magazine (Figure 3) are box-like structures, with one entrance each, and with either gabled (blockhouses) or hip (powder magazine) roofs. Basically, the architecture of Fort Atkinson is simple and functional. The location of each of the following structures is illustrated in Figure 6.

Standing Structures

North Barracks

Constructed between 1840 and 1842, the North Barracks (Figure 14) is a partially preserved two story limestone structure. It is located along the north perimeter of the main fort grounds, that is, inside the stockade. The north wall of the building actually acts as part of the stockade (Figure 15), as did the south wall of the South Barracks. It has a rectangular plan measuring 170 feet east to west by 24 feet north to south and 20 feet from the ground to the eaves. Roughly one third of the building remains, in which is housed a fort museum. The rest is represented by two feet thick foundations. The first floor was divided into at least four rooms, a mess room, lounge rooms, and the hospital in the far eastern portion (Figure 16). Interior stairways were present at each end of the barracks and led to the squad rooms where soldiers slept on double bunks (one above the other). Ceilings were lathed and plastered. Interior walls were plastered with a deep orange colored plaster. A low attic existed which could be reached through openings in the ceilings of the second floor. Four chimneys served the first and second floor fireplaces. First and second story porches extended the entire length of the building and measured eight feet

wide. Four outside stairways, at least one of which contained 16 treads, lead to the second story porch. The barracks's gabled roof projected out over the second story porch, the ceiling of which was plastered. Door and window placement can be ascertained for about half of the structure by referring a historic photo of the building (Nichols 1965:596) (Figure 17). At least two doors opened to the second story porch. At ground level, doors opened to both the south side of the barracks and the north side, which would have led to outside the stockade.

During restoration work between 1958 and 1962 the north wall of the North Barracks was rebuilt to about half its height and to its entire original length (Figure 18). Chimneys were removed, the southeast corner of the preserved structure was reconstructed, and the west wall of the preserved structure was replaced with cinder blocks (Figure 19). Prior to 1933 the rafters had been replaced.

Northeast Blockhouse

Located in the northwest corner of the main fort grounds, the Northeast Blockhouse projects outward from the north and east walls of the Stockade (Figure 20 and 21). It is a reconstruction of the original structure constructed sometime between 1840 and 1842. The limestone building's square plan measures approximately 30 feet by 30 feet (Figure 22). Embrasures are centrally located on the rough-cut limestone walls to accommodate cannons. Four tall, narrow rifle ports were located on each of the north, west, and south sides. The structure originally had split pine shingles covering its pyramidal hipped roof. Today it is covered with cedar shingles.

Powder Magazine

The Powder Magazine is located in the southeast corner of the main fort grounds, just inside the Picketing (Figure 23). It is a preserved limestone structure built between 1840 and 1842. The Magazine's rectangular structure measures 16 feet north to south by 20 feet east to west (Figure 24). Small vent holes are present in the solid, rough-cut limestone walls. The gabled roof is characterized by abbreviated cornice returns and is covered with cedar shingles. It was originally covered with split pine shingles. Its west-facing door is set with strap hinges.

Southwest Blockhouse

The Southwest Blockhouse is a preserved, fort-era structure. Located in the southwest corner of the main fort grounds, the structure projects out of the juncture of the west and south walls of the Stockade (Figure 25). It is almost identical to the Northeast Blockhouse, measuring 30 feet 2 inches by 30 feet 2 inches (Figure 26). The structure had embrasures, rifle ports, and a split pine shingled, pyramidal hipped roof. Two rifle ports are located in the east wall, outside of the Stockade. A door is also located on the east wall, but opens onto the main fort grounds, within the Stockade. A concrete stairway leads from the west side of the structure down the bluff to the quarry area. These steps were added in the 1960s.

Non-Extant Structures and Features

Commissary

Built between 1840 and 1842, the Commissary was a one story log structure, which is no longer standing and is now represented by reconstructed foundations. The foundations are located in the extreme northwest corner of the main fort ground, within the picketing, west of the Guardhouse and north of the Sutler's Store. It has a rectangular plan and measures 60 feet east to west and 26 feet north to south (Figure 27). The height of the original building is not known. The interior area of the structure is at ground level. The location or description of any other architectural features associated with the structure are unknown.

East Barracks

Located in the eastern area of the main fort grounds, the East Barracks, was constructed between 1840 and 1842. Built of limestone, this two story structure is now represented by foundations. The commanding officer resided in the northernmost room, with commissioned officers and their families occupying the remaining rooms. The plan is a 128 feet north to south, by 22 feet east to west rectangle with three rectangular kitchens and one 3 feet deep basement attached to the east wall (Figure 28). The kitchens were built of logs, lathed, and plastered. The barracks were divided into six rooms of similar size, three of which were on each floor. The interior contained three-inch-thick pine floors, fireplaces, lathed and plastered walls, three stairways, closets measuring 4 feet by 4 feet or 4 feet by 3 feet, and a low attic on the second floor. Four of the rooms contained two

fireplaces each, which were made of brick with wooden mantles. The east wall had at least two doors opening to the east, where the officers gardens were, but it did not have any window. First and second story porches stretched the entire length of the west side of the building, with three stairways leading to the upper porch which had a plastered ceiling. The first floor porches were set on stone or brick foundation. The porches had one foot in diameter wooden pillars spaced 10 feet apart. Lattice blinds were eventually added to the porches in 1844.

Flagpole

Located in front (to the west) of the center of the East Barracks, the two jointed Flagpole stood 30 feet. It was raised between 1840 and 1842 and cost \$40.00.

Guardhouse

Built between 1840 and 1842, the Guardhouse was a wood frame structure, now represented by foundations, all of which have not been completely uncovered. The foundations are located in the northwest corner of the main fort grounds, to the west of the North Barracks, to the east of the Well and Commissary. It is unclear whether this structure was one or two stories. The Guardhouse has a rectangular plan a measures 16 feet east to west and 24 feet north to south (Figure 29). A porch was present on the east side of the guardhouse, and, an iron gate barred a window, the location of which is not known. As suggested by the foundations, the interior plan of the structure was separated into two rooms, one approximately 4 feet by 24 feet, presumably one for prisoners, and

the other 12 feet by 24 feet. The interior floor is at ground level, with no basement present.

Privies

Excavated in the 1960s, privies which have been numbered 1, 3, 4, 5, 6, and 7 were indicated on Lieutenant Reynolds' plan of Fort Atkinson (Figure 6). They were located near the east and west walls of the Stockade, behind the officers' gardens. Privies for enlisted men were not indicated on the map and are presumed to have been placed outside of the Stockade. Privy 2, between Privies 1 and 3, was not indicated on the 1842 map (Figure 6) and, thus, might have been built there after the others. The foundations of the privies were constructed of unmortared walls of limestone resting on the limestone bedrock (Figures 30 and 31). The privy floors were chiseled from 6 to 12 inches into the bedrock, and, on average, their depths measured five feet or less below the modern surface. Because certain measurements were not taken during the 1966 excavations of the privies (Marshall B. McKusick, personal communication, 1998), horizontal dimensions of the privy vaults are unknown. Photographs of the excavations indicate that they were roughly between four and six feet square (Figures 30 and 31). Details of the structures that would have been built above the privies are also unknown.

South Barracks

Built between 1840 and 1842, the South Barracks was constructed of logs hewn flat with notched fittings and is now represented by foundations (Figure 32). The building was located along the south perimeter of the main fort grounds and provided housing for

enlisted men and a chapel/schoolroom. The south side of the structure constituted part of the stockade, similar to the North Barracks. Measuring 170 feet east to west by 22 feet north to south, the South Barracks was a two story building with first and second story porches located on the north side. The gabled roof extended over the second story porch which was accessible via outside stairways. The walls were weather boarded, lathed, and plastered. According to a fort-period sketch (Figure 7) (Hexom 1913), two ground-level doors were located on the west end of the building, on the south wall, with two small openings to the east of each. Nine second story windows were also located along the length this wall . Finally, three small first-story windows were present on the south wall toward the east end of the building. Drawn in the 1842 sketch were four chimney's which correspond to the outlines of four fireplaces. Foundations indicate that the first story was divided into five main rooms, three of which contain basements that measure from two to three feet deep. According to foundation maps (Figure 32) drawn by McKusick in 1967, the largest room is located in the far west portion of the building, which served as the chapel and schoolroom.

Sutler's Store

Built between 1840 and 1842, the Sutler's Store was a one story wood frame building, which is no longer standing and is now represented by foundations reconstructed between 1939 and 1941 under the direction of Sigurd S. Reque. The foundations, not all of which have been uncovered, are located in the northeast corner of the main fort grounds, to the northeast of the West Barracks and to the south of the Commissary. It was reported

the roof sloped to the north and the south (McKusick 1966c), presumably a description of a gabled roof. It has a rectangular plan and measures 36 feet east to west and 22 feet north to south (Figure 33). The original height of the building is not known. A three and a half feet deep basement takes up the east third of the foundations, with the remaining two-thirds of the structure at ground level. The location of the entrance to the structure and the placement of windows, if any, are not known.

Well

The Well, actually a cistern for the collection of rain water, was drilled by engineers sometime between 1840 and 1842. Located in the northwest corner of the main fort grounds, to the west of the Guardhouse and to the east of the Commissary, it measures 70 or 80 feet deep and contained at one time a stand of 40 feet of water (McKusick 1966c). Standing over the well is a small rectangular structure, which is not original (Figure 34). The structure consists of a wood plank box surrounding the Well and a small, wood shingled, gabled roof structure that is supported by four wood posts.

West Barracks

Built between 1840 and 1842, West Barracks was a two story structure constructed of notched logs hewn flat and is now represented by foundations (Figure 35). The building provided quarters for noncommissioned officers and their families. The foundations are located in the western area of the main fort grounds, south of the Guardhouse and southeast of the Sutler's Store. Measuring 122 feet north to south and 18

feet east to west, the building was divided into six sets of rooms. Each set was comprised of two rooms divided by fireplaces, providing 12 rooms total. The interior floors were made of pine. Each room had floor space measuring approximately 255 square feet, excluding space taken by stairways and chimneys, of which there are three. Interior walls were weather stripped, lathed, and plastered. Outside, the walls were chinked. The southern most first floor room served as a barbershop during the fort's military occupation (McKusick 1966c). Two stone pillars which supported first and second story porches still exist. The porches ran the length of the east side of the structure, were eight feet wide, and had railings. Three outside staircases lead to the second story porch. The gabled roof extended over the upper porch. Two or more doors were present on the west side of the building, leading to the officers gardens and yards. Basements measuring approximately three feet deep are located in the northern end of the structure as well as in a room in the mid section of the building. Second story, west wall window placement (fenestration) can be ascertained from Reynolds' fort-period drawing. The drawing depicts ten windows arranged in pairs just below the roof line (eaves ?) and three evenly spaced chimneys, which correspond actual chimney foundations.

Outbuildings

The non-extant remains of the following buildings are located on private property to the north of the Fort Atkinson State Preserve. Since the sale of the site to private parties (1850s), the area where the outbuildings stood has been impacted by the construction of roads and houses and by farming. Also, unlike the remains of buildings

inside the Stockade which were uncovered by Sigurd Reque between 1939 and 1941, remains of the outbuildings are not present on the modern surface. What is known of their dimensions and arrangement is taken from Lieutenant Reynolds' 1842 map (Figure 6) and from an archaeological survey supervised by John N. Kean (1981). The survey, discussed later, defined the underground foundations of many of the outbuildings indicated on Reynolds' map, though the buildings' measurements often disagreed between the map and what was recorded in the survey. Unfortunately, original architectural details of these structures are not as well documented as the structures previous discussed. This is due to the fact that only one of the outbuildings was made of stone; the rest were made of wood, which did not preserve as well. More importantly, however, the outbuildings have not been perceived as important a cultural resource as those building located inside the Stockade, thus were never acquired by the State of Iowa, excavated, or interpreted.

Bakehouse

Located directly north of the Fort Atkinson's main gate, the Bakehouse had a rectangular plan. According to Reynolds, the building measured 35 feet (10.7 m) north to south by 25 feet (7.6 m) east to west. McKusick's 1966 excavations uncovered the bakeoven which was measured 12 feet (3.3 m) by 13 feet (4 m), with foundation walls approximately 3.6 feet (1.1 m) wide. Kean (1981) relocated the bakeoven and measured it at 12 feet (3.3 m) by 14.1 feet (4.3 m) (Figure 36). The building material used in the construction of the Bakehouse is not known.

Blacksmith Shop

Located due west of the Bakehouse, the Blacksmith Shop was a log structure. The structure had a square plan and originally measured 20 feet (6.1 m) by 20 feet (6.1 m). Kean's survey did not locate the foundations of this building, which were destroyed most likely during the construction of Eighth Street in the City of Fort Atkinson.

Dragoon Stable A

The three Dragoon Stables were located on the far east end of the line of outbuildings. Dragoon Stable A was north of and parallel to Dragoon Stable B and south of and perpendicular to Dragoon Stable C. Stable A (Figure 37) was a wood frame building with a long, rectangular plan that measured 120 feet (36.6 m) north to south by 32 feet (9.8 m) east to west. Located by Kean, the foundations measured 122.1 feet (37.2 m) north to south by 34 feet (10.4 m) east to west with 1.6 feet (0.5 m) wide walls.

Dragoon Stable B

Located directly south and parallel to Dragoon Stable A, Dragoon Stable B was also of wood frame construction. Its rectangular plan measured 120 feet (36.6 m) north to south by 32 feet (9.8 m) east to west (Figure 37). Found by Kean, the foundations measured 122.1 feet (37.2 m) north to south by 32.8 feet (10 m) east to west.

Dragoon Stable C

Located north of Dragoon Stables A and B, Dragoon Stable C was a log structure. The building had a rectangular plan measuring 27 feet (8.2 m) north to south by 144 feet (43.9 m) east to west. No trace of this structure has been located.

Carpenter Shop

Due west of the Blacksmith Shop, the Carpenter shop was a log structure. The shop has a rectangular plan measuring 40 feet (12.2 m) north to south by 30 feet (9.1 m) east to west. Though a large amount of limestone rubble was present in the area, Kean did not locate the buried foundations of the structure. According to the Reynolds' map the Carpenter Shop was located where a modern house now stands.

Granary

Located west of the Dragoon Stables and east of the Quarter Master Stables, the Granary was a wood frame building. With a rectangular plan, the building measured 45 feet (13.7 m) north to south by 30 feet (9.1 m). Located by Kean, its buried foundations were recorded to measure 50.1 feet (15.3 m) by 23.61 feet (7.2 m) and were approximately 1 foot (0.3 m) wide (Figure 38). The east wall is characterized by a large open area. Also, the north, east, and west walls are represented by a series of nearly square areas of rock, possibly providing support for upright beams (Kean 1981:11).

Icehouse and Root House

Roughly, 180 feet southeast of the Powder Magazine, the Icehouse was a log structure and the Root House was constructed of stone. According to Reynolds' map, these outbuildings had rectangular plans, measured 18 feet (5.5m) by 12 feet (3.7m), and were constructed along a northwest to southeast orientation. Kean's survey located two depressions within the State Preserve measuring approximately 10 (3 m) feet by 15 feet (4.6 m), though no foundations were located. The depressions were the correct size,

shape, and orientation to be the Icehouse and Root house, 15 feet (4.6 m) by 10 feet (3 m). However, Reynolds' sketch shows the structures to have stood farther to the southeast, on private land.

Laundresses' Hut A

Laundresses' Hut A is the furthest west of the line of outbuildings to the north of Fort Atkinson's Stockade. The structure had a rectangular plan and was of log construction. According to Reynolds, the Hut measured approximately 25 feet (7.6 m) north to south by 20 feet (6.1 m) east to west. Kean found the foundations to be about 1.3 feet (0.4 m) thick and measure 20 feet (6.1 m) by 15.9 feet (4.8 m) (Figure 39).

Laundresses' Hut B

Directly to the east of Laundresses' Hut A is Laundresses Hut B, a rectangular log structure measuring approximately 25 feet (7.6m) north to south by 20 feet (6.1m). Kean's survey did not find foundation matching the dimensions of the structure as indicated on Reynolds' map. However, foundations measuring 6.9 feet (2.1m) by 3.9 feet (1.2m) were located in the expected location of the structure (Figure 40). It has been suggested that this foundation may represent a fireplace foundation for Hut B (Kean 1981:7).

Laundresses' Hut C

A log structure, Laundresses' Hut C is located to the west of the Carpenter Shop and to the east of Laundresses' Hut B. Reynolds' plan indicates the structure to be a

rectangular plan measuring 36 feet (11m) north to south by 20 feet (6.1m) east to west. Kean did not find preserved foundations of this structure. In fact, it was reported that a wood frame house was located on the lot in the 1940s and had been demolished. It is possible that the construction, demolition, and removal of the house had obliterated Hut C (Kean 1981:7).

Quartermaster Building

Located to the east of the Bakehouse and adjacent to the Quartermaster Stables, the Quartermaster Building was a log structure. The building had a square plan and measured 30 feet (9.1m) by 30 feet (9.1m). Foundations located by Kean indicate walls to have been approximately 1 foot (0.3m) wide and to measure 30.4 feet (9.3m) north to south by 18.7 feet (5.7m) east to west (Figure 41). A chimney or fireplace was apparent on the north wall and a doorway was located in the west wall.

Quartermaster Stable

East of and adjacent to the Quartermaster Building, the Quartermaster Stable was a log building with a rectangular plan measuring 100 feet (30.5m) north to south by 20 feet (6.1m) east to west. Kean did not locate any remains of this structure. A goodly amount of brick was found in the general location where the building should have stood. Since brick was not used in the construction of Fort Atkinson, it is likely that post-military occupation and construction has disturbed or destroyed traces of the Quartermaster Stable (Kean 1981:10).

Building X

Little is known of this building which was drawn on Lieutenant Reynolds' map. His map key did not indicate the function of either Building X or Y. Possible functions could have been enlisted men's privies, the sutlers' stable, or a slaughter house (Kean 1981:12-13). Building X appears to have been located 250 feet north of the Blacksmith Shop. Its rectangular plan measured 12 feet (3.7m) east to west by 20 feet (6.1) north to south. Kean did not locate the foundations of this building.

Building Y

Like Building X, little is known of this building. According to Reynolds' map it was located 225 feet due north of the Commissary. Its rectangular plan measured 12 feet (3.7m) east to west by 20 feet (6.1) north to south. Kean did not locate the foundations of Building Y.

Stockade

Originally, the Stockade measured 11 feet, 9 inches above ground. It was constructed of one foot thick, closely fitted logs hewn flat and set into three feet of earth and rock. Enclosing the main fort grounds in a rectangular plan measuring approximately 230 feet north to south and 440 feet east to west, it was interrupted by the North Barracks, South Barracks, and the Blockhouses. Loop holes were present every four feet and the tops of the pickets were pointed. Metal spikes were placed on the stockade, though, the number or description of which are unknown. About one third of the structure was made of oak with the remaining portions made of basswood and lynnwood. Three

gates were present in the stockade. The main double gate was located east of the North Barracks and constructed of heavy planks. A smaller, "single-man" door was located next to the main gate. A second, smaller gate, as tall as the stockade, was located west of the North Barracks. A third gate adjoined the west wall of the South Barracks. Each gate was hung on iron pegs or bolts. Attached to the Stockade wall was a sentry beat or platform which ran west 40 feet from the southeast corner of the Stockade between the Powder Magazine and the south wall of the Stockade. It appears, according to Reynolds' 1842 drawing, that the exterior of the Stockade was plastered. There is no mention of this in any historic document. Perhaps, he took certain liberties with what had actually been constructed and what was planned or what was most aesthetically pleasing.

A partial reconstruction of the Stockade is present at Fort Atkinson today. A new gate constructed of planks and flat timbers is located east of the North Barracks, adjacent the reconstructed portion of that structure (Figure 42). The gate has one offset door. From the gate a reconstructed stockade stretches to meet the west wall of the Northeast Blockhouse. From the south side of the Northeast Blockhouse the reconstructed stockade extends south to the extreme southeast corner of the main fort grounds, directly to the east and south of the Powder Magazine. From there it extends westward a few feet. From the west end of the reconstructed portion of the North Barracks, the reconstructed stockade extends to the northwest corner of the main fort grounds. From there, it extends southward for a short distance, ending where individual posts are shorter from one to the next (Figure 43). The reconstruction picks up a distance later and continues to meet the

Southwest Blockhouse. A small section of the Stockade has been reconstructed adjoining to the east side of the Southwest Blockhouse extending eastward (Figure 24).

Cemetery

The location Fort Atkinson's cemetery is not precisely known. It is located to the northwest of the fort site and is reported to contain about 20 graves (McKusick 1966c). A list of deaths of individuals associated with the military occupation (Table 1) identifies the names of at least 15 people who are most likely buried in the Cemetery (Fort Atkinson Research File Ms 173). A road indicated on Lieutenant Reynolds' fort-era map (Figure 6) runs north from the north corner of the Stockade and turns west, possibly leading to the cemetery. During McKusick's investigations in the 1960s, an informant, Mrs. G. J. Sabin of Park Rapids, Minnesota, stated that she would be able to locate the cemetery (McKusick 1966a). However, she had become ill and was admitted into the hospital in Minneapolis. Since there is no other mention of Mrs. Sabin in McKusick's notes, it is assumed she was not able to make it to Fort Atkinson to point out the location.

Post-Military Fort Atkinson and Previous Preservation Efforts

Having been abandoned by the U. S. Army on February 24, 1849 when the last company of soldiers was withdrawn, it would be several years before the War Department would give up the property. The State of Iowa Became interested in acquiring the site shortly after its abandonment. In 1848, the Iowa State Legislature requested that Congress donate the site for a state agricultural college. Congress ignored this request and two more which followed in 1851 and 1853 (McKusick 1975:18). The state of Iowa eventually

found suitable land in the center of the state and opened the Iowa Agricultural College and Model Farm, now Iowa State University.

Sometime in the early 1850s, the buildings were purchased at public auction by Caroline Newington. The military reservation, some 1,920 acres around the fort site, had been taken by settlers since the post's abandonment, and in 1860 congressional action permitted these people to secure title to their claims (Reque 1944). From the time Fort Atkinson was abandoned by the military until it was purchased by the State of Iowa the condition of the site deteriorated significantly. One of the barracks was partly dismantled and remade into a farmhouse. Later, the east barracks accidentally caught fire and was burned to the ground. Most other fort buildings were torn down and their stone and wooden materials reused in buildings around the town of Fort Atkinson. By the early twentieth century, only three original buildings remained standing in various states of preservation.

The first call for the preservation of the site of Fort Atkinson was seen in the February 6, 1900 edition of the *Decorah Public Opinion*. The article called for the designation of a memorial for Brigadier General Henry Atkinson, for whom the fort and town were named. The paper suggested that the site and buildings should be purchased by the state, rebuilt, and the grounds be turned into a State Park. The article was later reprinted in the *Fort Atkinson Times* where it prompted local businessmen to take up the cause. The businessmen of Fort Atkinson began circulating petitions in Calmar, Cresco, Decorah, and other local communities in hopes of persuading the state legislature to take

up the cause. The businessmen had suggested the site could be used as a meeting place for the state militia and the buildings could be used as arsenals and a museum. In spite of their efforts nothing was done for the next twenty years.

In 1919 *Iowa Magazine* published a critical article called, "Fort Atkinson, a Pig Sty." Writer Woodworth Clum had visited the site and was disgusted to see the fort grounds planted in crops and the old blockhouse, powder magazine, and barracks used as farm buildings (Clum 1919:7). Clum's article struck a chord with Iowans. Several newspapers around the state reprinted the article and the community of Fort Atkinson began to organized their efforts. Roughly 2,000 dollars was raised by the town in hopes of purchasing the property and rebuilding the northeast blockhouse. Although, it was a few years before such work was completed.

Not long after, the State of Iowa renewed its interest in creating a Fort Atkinson park. On February 17, 1921, the purchase of 2.809 acres was approved by the Executive Council. In spring of the following year 1.367 acres were added to the state's holdings. Finally, in 1939, after much negotiation, the last parcel of land was purchased, bringing the Fort Atkinson State Preserve to its present sized of 4.67 acres.

Between 1939 and 1941, Sigurd S. Reque was employed to carry out archaeological excavations at Fort Atkinson. These excavations are discussed more thoroughly in the archaeological section of this thesis, below. Briefly, Reque, a Luther College professor, uncovered the buried foundations of non-extant, fort-period buildings so they could be

interpreted for visitors. Also, excavations recovered fort-period artifacts that were to be displayed in a fort museum.

The next major study undertaken at the fort was conducted in 1956 when Merrill J. Mattes, a historian, visited the site in order to make recommendations concerning the preservation and development of Fort Atkinson. He recommended that the north barracks be converted into a museum space, a project later supervised by Jack Musgrove, Curator of the State Historical Museum (Nichols 1965:596). Mattes also thought the southwest blockhouse and powder magazine should be opened to the public while the northeast one be used as a storehouse and workshop. Further, a farmhouse in the southeast corner of the grounds and another stone building which dated after the military occupation needed to be torn down. Finally, Mattes recommended that the log stockade be partially restored. A dedication ceremony was held in 1962 to celebrate the completion of the recommended work. After excavation of the officers' privies in 1966, discussed below, the State Conservation Commission dedicated the Fort Atkinson State Monument Preserve as a historical, geological, and archaeological preserve on September 23, 1968.

In 1980, the Iowa State Preserves Advisory Board commissioned a historical analysis and study to provide a plan for long-term management of the Fort Atkinson State Monument Preserve. Prepared by Bradley B. Williams, the subsequent report outlines the significance of the preserve, history of Fort Atkinson, and three planning concepts regarding the future management of the site. Some recommendations included acquiring privately owned parcels of land on which fort outbuildings stood, returning some

historically inaccurate reconstructions to their original condition, totally reconstructing all the buildings on the site, or interpreting the site better with more clear signage. It is unclear whether most of Williams' recommendations were implemented. Quite recently, the preserve received a grant which will be used to develop more interpretive signage at the site (Kathy Gourley, personal communication, 1998).

Preserve or Park, How is Fort Atkinson to be Administered ?

The way in which the State of Iowa has governed the Fort Atkinson State Preserve has been contradictory to the way a state preserve is normally treated. Purchasing the fort site and placing it under the jurisdiction and management of the Preserves Board of Iowa, the State of Iowa has sent a message indicating that the site is to be protected and maintained in its present state. A preserve by nature should be protected by limiting public access to a particular area. However, visitors have been welcomed to Fort Atkinson, most notably during an annual rendezvous which takes place during the last weekend in September. Such a policy makes it that much more difficult to preserve the site as it is, especially in trying to preserve its archaeological integrity. The rendezvous is characterized by visitors dressed in historic clothing, partaking in activities such as shooting contests with historic firearms. Such activities and attire most likely result in the deposition of modern-aged, historic-looking artifacts such as rimfire cartridges, lead balls, buttons, and beads, potentially confusing any future excavations. Further evidence that unlimited access to the site is detrimental is the amount of graffiti drawn on and scratched into the interiors and exteriors of buildings. Past efforts to reconstruct and interpret the

Fort Atkinson State Preserve also contradict the fact of having declared it a preserve. A preserve is intended to be kept as it is found. However, previously discussed preservation efforts have done a great deal to change Fort Atkinson from the condition in which it was acquired by the State of Iowa.

The Fort Atkinson State Preserve has been administered not as a state preserve, rather, it has been administered as a state park. Visitors are encouraged to participate in the rendezvous, visit the museum, and walk the fort grounds. Foundations have been uncovered, buildings and structures rebuilt, and interpretive signs placed throughout the fort grounds. Such efforts should not be applied to a preserve. However, it is the opinion of the author that most efforts have been worthwhile and an effort to interpret the site for the public should continue. Reconstructions, a museum, and interpretive signage are all appropriate for a state park. Thus, Fort Atkinson should be designated a state park and not a state preserve. That is not to say that preservation efforts should be abandoned and barbecue grills should be installed. An attempt to maintain the site in its present state (archaeological and architectural) while encouraging public use is suggested and can be successful. Such an approach has been utilized in the past, rather successfully. Repairs and improvements can be made to the site in an effort toward stabilization, at the same time retaining the historic, archaeological, and architectural significance of Fort Atkinson. The following discussion and suggestions are the opinions of the author but draw heavily from the methods and philosophies expressed in the *Secretary of the Interior's Standards*

for Rehabilitation and Guidelines for Rehabilitating Historic Buildings and Preservation Briefs made available by the U. S. Department of the Interior, National Park Service.

Present State of Repair

Generally speaking, most needed repairs to Fort Atkinson buildings will not take a great deal of financial commitment and should not take an extraordinarily long time to accomplish. With regard to the foundations of now demolished buildings, in some instances it will be necessary to rebuild walls which are collapsing into the shallow basements. One might argue that the foundations represent ruins and, thus require no maintenance. However, an effort must be made to preserve the foundations intact so they may accurately represent the spatial patterning and layout of fort-period buildings. It is apparent that some of the foundation walls have begun to collapse inward and require reconstruction and future monitoring.

Also requiring maintenance is the North Barracks, which today houses the fort museum. From a visual inspection, it is apparent that the roof is in need of some repair. From the ground one can see wooden shingles which have come off. Because water is probably the most serious threat to the preservation of a building and its contents, first priority should be given to the professional inspection and repair (as needed) of the roofs of all preserve buildings. A second concern is the state of the exterior east wall of the North Barracks (Figure 44). Originally, the surface was an interior plastered wall with fireplaces centrally located on both first and second floors. Today, this surface is exposed to inclement weather, vandals, and pigeons, who have taken up residence in holes in the

wall. This wall is an important example of a fort-period interior and should be preserved. It is recommended that some sort of enclosure should be constructed to protect the surface. Ideally, the enclosure would be as unobtrusive as possible and would allow visitors to still be able to view the wall's features. Possibly a layer of Plexiglas could be used to cover the surface, preventing further deterioration and graffiti (Figure 45).

The south side of the North Barracks has a few problems as well. First, where five beams once existed to support the second story porch are now three remnants of beams and two holes from which limestone is falling out (Figure 46). It is suggested that these holes be rebuilt to their original dimensions and pieces of wood reminiscent of the ones still remaining be set into the holes, sealing the space from moisture penetration. The remaining remnants might benefit from some sort of wood restorer or sealer to prevent further rotting. However, a professional, such as a historical architect or one familiar with historic materials preservation, should be consulted before any original materials are treated. The area around the second story far right window also requires attention (Figure 47). Of all of the shuttered windows, this window's sill has begun to rot and should be repaired or replaced. The decision to replace the rotting sill should be contingent on whether the wood is original to the fort. Should further historical or archaeological investigation indicate the sill is original, every effort should be made to preserve and repair the feature. Also, noteworthy are the cracks in the stone lintel above the window and cracks traveling down from the lower right-hand corner of the sill. Most probably attributable to building settling, such cracks are probably not of great concern unless they continue to grow in the

future. If the cracks continue to grow, this would indicate possible structural problems, requiring the contracting of a structural engineer to inspect the state of the building's structural systems. Otherwise, if moisture is not penetrating the building, the cracks should be of minimal concern. If moisture does concentrate in the areas of the cracks, appropriate measures should be taken to patch them. Again, a professional and the Secretary of the Interior's Standards for Rehabilitation and preservation briefs should be consulted. Finally, discoloration probably due to moisture is apparent around the base of the North Barracks. To prevent further moisture damage it is strongly recommended that a gutter system be installed to the roof of the building so to direct water away from the building.

The two other original buildings are the Southwest Blockhouse and the Powder Magazine (Figures 2 and 3). Because both share almost identical states of repair they will be discussed together. In both cases there is substantial evidence for water damage along the base of each building (Figures 48 and 49). As in the case of the North Barracks, a gutter system should be installed to collect and direct water away from the structures. The base of the buildings should be cleaned of mold and the damaged limestone should be repaired, again following the Secretary of Interior's standards. A second, and alarming, problem is the condition of the buildings' doors. In each case, the doors are improperly sized and do not shut completely (Figures 50 and 3). The survey which this report highlights was conducted in March when snow was still on the ground. On inspection of the southwest Blockhouse one could see a rather sizable drift of snow extending in through

the large gap between the doors. High priority should be placed on resizing and refitting the doors so to properly seal the interior spaces during inclement weather.

Accessibility and Safety

If it has not done so, it is recommended that the Iowa State Preserves Advisory Board closely examine the Americans with Disabilities Act (ADA) and take into consideration the act's recommendations with regard to the Fort Atkinson Preserve. A few simple improvements will make the site safer for all visitors and more accessible for those whose mobility is restricted. Of first concern is the parking lot on the north side of the preserve (Figure 51). There have not been designated any parking places for disabled visitors. Though this may not be a problem most of the year because attendance to the preserve is typically sparse and parking places close to the main gate are usually available, it is imperative that such parking places must be reserved and meet designated dimensional requirements as stipulated by the ADA. A second potential problem with the parking facilities is the fact that the area is not paved, rather it is gravel. This is especially hazardous to those whose balance is impaired, who rely on a cane, or require the use of a wheel chair. It is recommended that parking places be reserved for mobility impaired visitors and that those parking places be paved along with a walkway leading to the front gate of the fort.

Once inside the fort gates a similar situation is presented. The entire fort grounds are grass covered, providing a rather unstable surface on which to walk (Figure 52). In wet conditions it may be impossible for those using wheelchairs or canes to safely navigate the

site. To remedy this situation it is suggested that a small sidewalk be installed, leading visitors past features at the site. Great care should be taken in the construction of the walkway because it is to be built on an archaeological site. Before construction takes place, a professional archaeological survey should be completed along the proposed sidewalk path in order to ensure that no subsurface features are impacted.

A final issue with regarding accessibility and safety concerns entrances to the fort structures. The North Barracks and both blockhouses have at grade entrances and require no modification. The Powder Magazine, however, requires visitors to step up one step (Figure 3). This entrance could be made accessible by either providing a ramp with an adequate slope ratio or by regrading the landscape so that the door was at grade. It is not advisable to regrade the area in front of the building, again, because Fort Atkinson represents a probably rich source of archaeological information. If it is decided to regrade, a professional archaeological survey should be employed. However, if a ramp is to be constructed, the construction and placement of such a ramp must be done in a way as to not detract from the aesthetic or historical quality of the site.

CHAPTER 6. ARCHAEOLOGY OF FORT ATKINSON

Previous Investigations

The first archaeological investigations conducted on the fort grounds lasted from 1939 to 1941 and were supervised by Sigurd S. Reque. Reque was a professor at Luther college and president of the Greater Winneshiek County League, a booster group organized to relieve unemployment in the county by promoting the area's historic and natural resources. Reque, who was also curator of the Norwegian-American Historical Associations, was assisted by Rolfe Haatvedt, a professor from Luther College's Classical Languages Department. The purpose of the work was to locate and expose the foundations of the buildings located inside the picketing for the benefit of visitors to the park. Another goal was to collect artifacts for display in a museum which was to be housed somewhere within the fort boundaries (Williams 1980:9). Due to a lack of archaeological training or knowledge of proper excavation and recording techniques, the recovered artifacts lack vertical provenience information. Thus, it is not known from which horizontal stratum each of the artifacts was recovered. Such a situation makes difficult any meaningful archaeological interpretation of the excavated artifacts. Further, Reque's work was never published.

In 1966, further archaeological investigations were supervised by then State Archaeologist of Iowa, Marshall B. McKusick. McKusick's investigations began with excavations outside of the stockade in an attempt to locate the bakehouse. He located the bake oven in the approximate location as indicated by Lieutenant Reynolds' sketch.

Though a few artifacts were recovered, most dated to a period after the fort's military abandonment in 1849. Soon after, McKusick moved excavations to inside the stockade, excavating the officers' privies (Figures 30 and 31). Excavated in 6 inch vertical levels, privy deposits were between 3.5 feet deep and 4.5 feet deep. The privies were places where the officers and their wives routinely discarded broken household objects. The excavations of the six privies recovered artifacts dating to the military occupation which are of considerable historical and archaeological interest (McKusick 1966c).

In 1981, an archaeological survey of the outbuildings of Fort Atkinson was completed by John N. Kean of the Office of the State Archaeologist of Iowa. The main purpose of the survey was to locate and identify the outbuildings associated with Fort Atkinson (Kean 1981). A soil probe (one inch diameter tube) and tile probes (a flexible steel rod with a tip that is slightly greater in diameter than the rest of the rod) were used in order to locate the buildings. More intrusive subsurface testing methods were not utilized because the remains of outbuildings are now located on private property and the survey crew did not have permission from landowners to excavate their property. The survey located eight of the outbuildings with the subsequent report recommending they be protected. This could be done through state acquisition of the property or by securing promises from the landowners to not disturb the archaeological features.

Fort Atkinson Material Culture

A total of 1536 artifacts was recovered by McKusick from the officers' privies at Fort Atkinson. Material recovered from the privies at Fort Atkinson included specimens

of ceramic, metal, leather, glass, bone, and wood. These artifacts were sorted first according to material type and then by functional type. Unfortunately, a number of artifacts including window glass, faunal remains, plaster, and undecorated ceramics has been discarded in previous years. In the past, the interpretive value of certain artifacts was not realized. Also, a number of artifacts are missing. Another complication that was encountered during the analysis of the artifacts was the condition of some of the specimens, especially those of metal. Numerous metal objects were recovered from the site, many of which are in a poor state of preservation and heavily corroded. Regardless of these setbacks, the privy assemblage from Fort Atkinson provides a good deal of information about those who used the materials in the 1840s. Before commencing with a description and interpretation of the privy artifacts, a brief discussion of ceramics and glass is given. Many artifacts recovered from Fort Atkinson's privies are made of glass and ceramics, necessitating such a discussion. Also, artifacts of these two material types are ideal temporal indicators. A more in-depth discussion of what is outlined below can be found in thorough discussion of ceramic and glass classification and manufacturing techniques by Siebert et al. (1997). Iron nails were more numerous than glass or ceramic artifacts, but only represent one functional category. Therefore, nails are discussed under the "Building Materials/Hardware" heading only.

Ceramics

Ceramic specimens were identified according to ware types. These types included whiteware, ironstone, porcelain, yellowware, redware, and stoneware. The ware types

were differentiated according to paste color, paste texture, glaze, and decoration, decoration being one of the best temporal indicators (Wagner et al. 1993:36). The minimum number of ceramic vessels was figured by assigning vessel numbers to ceramic specimens according to certain characteristics (Table 2). These characteristics include ware type, decoration, provenience, rim and body form, paste texture and color, and surface treatment (glaze or slip). Using this method, a number of ceramic sherds from various vessels likely were assigned a single vessel number because the sherds share certain characteristics. For example, one vessel number probably was assigned to a large group of undecorated whiteware sherds representing a number of actual vessels because the sherds shared certain traits. Finally, vessel numbering was influenced by provenience. It is assumed that a single vessel would not find its way into more than one privy, so, sherds that share identical traits and were recovered from different privies were given different vessel numbers. Simply, if two identical sherds were recovered from two different privies, they were assigned different vessel numbers.

Whiteware, Ironstone and Porcelain

Whiteware, or white pasted earthenware, and ironstone are sometimes difficult to separate. They share a similar paste composition and glaze color. Ironstone is defined as a highly fired, refined ware with a semi-vitreous paste. As early as 1813, the term “ironstone” was used to define some improved earthenware vessel. However, it did not gain widespread popularity until after 1840 (IMACS 1992:474). Generally, it does not stick to the tongue and cannot be scratched. Also, ironstone vessels tend to be thicker and

harder than those of whiteware. Whiteware, on the other hand, is fired at a lower temperature resulting in a more porous paste, which will stick to the tongue and will powder when scratched. It can have a white, cream or pale buff paste and most often has a clear glaze (Siebert et al. 1997:4). Problems can arise in distinguishing between early ironstone and whiteware because the paste of an early ironstone vessels can be as porous as whiteware or as non-porous as stoneware or porcelain.

Porcelain is a white, fine-grained, non-porous, extremely hard, and usually translucent ceramic ware that has been fired at high temperatures (Wagner et al. 1993:36). The porcelain market was fairly small during the early and middle nineteenth century, mainly because its was expensive and difficult to produce. For this reason, porcelain did not become popular in he United States until after 1875, when Germany and Austria began producing relatively inexpensive porcelain (Haskell 1981:23). After 1890, it came into wide use when the American porcelain industry began to produce it less expensively, making porcelain more marketable (Ketchum 1983:13).

Decorative Techniques Common to Whiteware, Ironstone, and Porcelain

Designs that are applied to with a brush or with the fingers are considered to have been hand painted (Figure 53 and 54). Such patterns can be irregular, with obvious brushstrokes present. Usually motifs include abstract, geometric, and floral patterns, of which floral are the most common (Siebert 1997:4). Nineteenth century hand painted designs were usually either monochrome (usually cobalt blue) (Figure 53) or polychrome (Figure 54).

Banding or annular banding refers to a decorative technique where a single or a series of concentric bands of varying width and color are applied by hand to a vessel (Figure 55). The bands may encircle the rim alone, or consist of a series of bands that encircle the body of the vessel. They may be red, black, blue, or green in color.

Mocha ware is decorated such that a broad band of color slip provides a background for a pattern (Figure 56). Though varied, patterns are often tree or fern-like. Other patterns may be geometric, marbled, or seaweed. Vessel forms decorated in the mocha style include porringers, butter dishes, jugs, coffeepots, and pictures.

Shell edged vessels are those which are decorated with a combination of embossing and hand painting around the rim (Siebert 1997:5) (Figure 57). Requiring only a few short brush strokes around the rim of a vessel, this decorative technique could be applied by a minimally skilled worker (Majewski and O'Brien 1984:38). Generally limited to flat wares, sauce boats, tureens, and butter boats (Miller 1991b:6), shell edged wares are most often edged in cobalt blue. However, green is sometimes used as well.

Decaling is a method that is characterized by colors that appear in slight relief when light is reflected off the surface of a vessel (Berge 1980; IMACS 1992:473.6). Like transfer prints, the design is comprised of hundreds of tiny, raised dots. Unlike transfer prints, the design is applied over the glaze (Figure 58)

Sponge wares were decorated by using a paint filled sponge to apply designs of decorative motifs onto the surface of vessels (Majewski and O'Brien 1984:33) (Figure 59). This sort of decorative technique was more common on table, tea, and toiletry wares

(Miller 1991b:6) and represent the cheapest available vessels with decoration (Finlayson 1972:118). Colors of decoration include blue, red, and green (Siebert 1997:5).

Spatter wares are characterized by decoration that is created by tapping a brush with paint onto the surface of a vessel (Figure 60). This technique results in several small, somewhat uniform, dots of color. Often spatter designs were made using stencils. The technique is more labor intensive and possibly required more skill than sponge decoration (Siebert 1997:5)

Involving several processes, transfer printing is one of the most costly decorative techniques (Siebert et al. 1997:5) (Figures 61 and 62). After being coated with ink, thin, engraved copper plates are pressed with nonabsorbent paper. The color is then transferred to a vessel by applying the paper to an unfired vessel and then rubbing it with a flannel rag (Majewski and O'Brien 1984:33). Flown transfer wares (i. e. flow blue) are misty or blurred where the ink has flowed into the glaze (Figure 63).

Vessels that were embossed or molded without any other decoration were introduced in the early 1840s and 1850s (Price 1981:41) and became very popular (Figure 64). These vessels tend to be thicker and heavier than painted or printed wares (Siebert et al. 1997:5). Motifs included hexagonal or Gothic Shape, ribs, scallops, fruits, and foliage (Wetherbee 1980:18).

Gold gilding was perfected on porcelain around 1723 (Hunt 1979:118) (Figure 65). The processes initially involved grinding gold and applying it over the glaze. In 1836, "liquid bright gold" was developed in Germany. This processed utilized acids to dissolve

the gold which, after being fired, did not need to be burnished, as was the case with the earlier method.

Finally, lusterware refers to ceramics that are characterized by a metallic sheen or shiny surface (Figure 66). The sheen is produced by adding metallic oxides to the glaze.

Stoneware

Stoneware is an earthenware that is fired at temperatures high enough to vitrify the clay, making the ware non-porous (Hughes 1963:89) (Figure 67). Usually used for the storage and processing of food or drink, stoneware vessels were identified as utilitarian wares in this study. Stoneware is usually characterized by cream to gray or brown colored pastes, though color variation can occur within a single vessel (Wagner et al. 1993:36). Such a variation in color is due to uneven firing within the kiln. Salt can be added during the firing process, producing a salt-glazed surface whose texture is similar to that of an orange peel (Ketchum 1971:50). Also used to decorate stoneware were slips which are thin mixtures of water and colored clays. Two different slips were sometimes applied to a single vessel to produce more ornate decoration.

Redware

Manufactured from red-burning surface clays found nationwide, redware is a porous earthenware (Ketchum 1971:3). It is extremely fragile, being the softest of the earthenwares (Majewski and O'Brien 1984) and may have dark purplish red to light orange and pink paste color. Usually treated with a lead based glaze, the surface of a redware vessels may be clear or of various orange, brown or green shades. Redware that is treated

with a green glaze is often referred to Galena ware, likely to have been manufactured at one of the potteries in Galena Illinois (Siebert 1997:3).

Yellowware

Lighter than stoneware and more durable than redware, yellowware is a soft pasted, unrefined earthenware (Majewski and O'Brien 1984; Siebert 1997:3) (Figure 68). The color of its paste can be any shade of yellow to a light buff or cream. Usually treated with a clear glaze, annular banding in brown, white, or blue is also common. A vessel may also be decorated with a colored slip or sponge decorated with a contrasting color. Popular in the nineteenth century was a brown tortoise shell decoration called Bennington/Rockingham style. This appearance was achieved by using a manganese or metallic salt based glaze. Commonly used for cooking and baking utensils (Siebert 1997:3), yellowware vessels were assigned to the storage/utilitarian ware categories for this study.

Glass

Like ceramics, glass specimens were assigned vessel numbers according to traits including form, color, thickness, and provenience (Table 3). Also like ceramics, glass provides a good deal of information concerning site chronology. Glass is produced from a combination of silica (usually sand) and alkali (ash, potash, soda, etc.) that is heated until molten (Siebert et al. 1997:6). Different colors of glass are produced when impurities are present in the sand. Prior to 1860 glass color was not considered to be important with the most common color been dark olive-green or "black glass" (IMACS 1992), though aqua and

amber colored glass are also natural. Decolorizing agents, including manganese and arsenic (McKearin and Wilson 1970:10), eventually came into use, creating clear or colorless glass. These agents represent colors opposite the natural glass colors in the light spectrum (Phillips 1981:237-238). Similarly, coloring agents can be added to produce colored glass. Such coloring agents include cobalt, copper, antimony, bohemian granite and calcined tin (Siebert et al. 1997:6-7).

All glass bottles and tableware are manufactured using a mold or they are free blown (Snow 1997a:45). Free blown bottles were manufactured by taking one end of a blowpipe and gathering a glob of glass from a glass kiln. The glob would be rolled on a flat surface to evenly distribute the glass on the pipe. A container would be formed by blowing, spinning and swinging the glass. Next, a pontil (iron rod) would be attached to the base of the container while the pipe was broken free. Holding the vessel by the pontil, the glassblower would complete the neck by applying additional molten glass or by finishing the lip with the existing glass. The vessel was then broken from the pontil which would leave a circular scar. The fact that no two glass bottles could be made exactly alike prompted the rise in mold-blown containers (Baugher-Perlin 1982; McKearin and Wilson 1978; Randall 1995; Snow 1997b:45-46).

Containers were blown into molds made of iron, wood, copper, brass, or ceramic. Mold-blown containers are symmetrical and usually have surface texturing as a result of contact between the hot glass and cooler mold. Mold seams indicate the type of mold used to manufacture a particular vessel (Figure 69). Although the mold seams on fine tableware

were often removed, making it impossible to identify the type of mold used. Various types of molds include the dip mold, two piece hinged should mold, two piece bottom hinged mold, turn mold, among others. These molds are discussed further by IMACS (1992), Randall (1995), Revi (1964), and Snow (1997b).

Functional Classification of Fort Atkinson Material Culture

The goal behind a functional organization of artifacts is to represent the artifacts in terms of actual use and not only in terms of material and manufacture. Functional categories include building materials, tableware, storage/utilitarian wares, recreational items, and transportation items, among others. Some functional categories contain artifacts of varying material type. For instance, the tableware category contains glass specimens such as tumblers as well as ceramic tableware and cutlery. Likewise, the storage/utilitarian category contains stoneware vessels as well as glass containers. Vessel form is the main determinant in identifying the function of ceramic and glass containers. Schemes for identifying vessel shapes are presented by Beaudry et al. (1991), IMACS (1992), and Miller (1991).

Building Materials and Hardware

Plaster and Mortar

According to McKusick's notes, nine fragments of plaster were recovered from the top 24 inches of Privy 4. Though the fragments were not located for analysis, a description was provided by McKusick. The fragments, which averaged .25 inches in thickness, had a smooth exterior surface that was whitewashed. Six other fragments of

plaster were recovered from Privy 1 and were available for analysis. They are identical to those described by McKusick. Four pieces of mortar were recovered from Privy 1. The specimens were dull white in color, coarse grained, and measured approximately 5 cm long by 1.5 cm long. One side was somewhat curved, the other toughed or concave.

Wood Fragment

A small fragment of wood measuring 3.01 cm long was recovered from Privy 6. The species of tree it was taken from was not identified.

Nails

A total of 453 nails were recovered from the Privies. Nail analysis was based on method of manufacture (Table 4), pennyweight (Table 5), and condition (clinched or unclinched). Specimens were first sorted into categories according to method of manufacture, a category that provides evidence for site chronology. These categories included hand wrought nails (n=1) (rectangular uneven tapering shank), modern machine cut nails (n=185) (uniform shank thickness with rectangular heads), early machine cut (n=1) (similar to modern machined cut with a handmade rose head) and wire or round nails (n=20) (Figures 70-72). 95 nails were identified as "square" nails, but were not assigned a method of manufacture, mainly because they were too heavily corroded to observe particular diagnostic traits, but not so corroded that they could still be identified as square. Square nails, hand wrought or machine cut, date after the late 1830s (IMACS 1992; Snow 1997b:90). One third (n=151) of the nail assemblage was so heavily corroded that it could not be identified.

The length of nails or pennyweight is useful in determining nail function.

Generally, 2d and 3d nails were used for securing lathe (Peterson 1996:63), 4d for shingling, 6d for clapboarding, 6d and 8d for finishing, 8d and 9d for flooring, 9d and 10d for boarding and sheathing, and 40d and larger for framing and plank construction (Blackall 1888; Fontana and Greenleaf 1962:56-57). Structures of log construction would require fewer nails (Fontana and Greenleaf 1962; Peterson 1996:63). Nails which were determined to be complete or near complete were measured (n=199 or 43.9% of the nail assemblage). Of the measured nails, 44 percent (n=88) were 9d and 10d, 20.1 percent (n=40) were 5d-7d, 8.5 percent (n=17) were 4d or smaller, and 26.6 percent were 10d or larger (n=53). Given the various methods of construction utilized at the fort it is expected to find such a variety of nails.

Finally, nails provide information on whether a structure was taken apart or left to dilapidate (Peterson 1996:65). A large amount of straight nails in a nail assemblage indicate that a building had been abandoned. Conversely, bent or clinched nails (Figure 73) indicate that the structure had been dismantled and the wood reused or disposed of. Four percent of the nails were too heavily corroded to judge whether they were straight or clinched. Of the 435 that were not too corroded, 331 (76.1%) were not clinched and 104 (23.9%) were clinched, indicating that structures, presumably privy structures, were left to dilapidate. Of course, since privies were filled with trash of all sorts, can not be known for certain whether the nails were used in privy structures or whether they were used elsewhere and discarded into the privies.

Spikes

A large, machine cut spike was recovered from Privy 4 (Figure 74). It is of the T-headed variety, with rectangular shanks and a pointed point. Made of iron, the spike measures 18.5 cm. Also found was an iron rod or spike that measures 24 cm. It is cylindrical and is not pointed (Figure 74).

Screw

One heavily corroded screw was identified from Privy 6. It was a flat-headed iron wood screw measuring approximately 2 cm. Wood screws are distinguished by threads extending about two-thirds of the way from the tip to the head. Also, the head is beveled toward the shank to facilitate counter sinking into wood (Lees 1986:102). Pointless wood screws were manufactured by mechanized screw lathes between the end of the eighteenth century and the late 1830s (Walker 1971:87). By 1846, pointed screws had taken the place of ones which were pointless. This specimen was too corroded to determine whether it had a point or not.

Stock-Lock

Recovered from Privy 1 was a plate stock-lock, made of iron and consisting of a locking mechanism attached to a flat sheet-iron plate (Figure 75). These locks were set into a block of wood and attached to the face of a door (Carlson 1979:103; Streeter 1970:251-55). On specimens recovered from other sites the sheet-iron plate is bent over the top or over on one end to receive one end of the bolt. The stock-lock is trapezoidal in outline and

measures 11.7 cm at its maximum width, 19.4 cm at its maximum length, and is 3.5 cm thick.

Keys

Also recovered from Privy 1 were two keys probably associated with rimlocks or mortise locks (Figure 76). The specimens were of the skeleton type, commonly used with door rimlocks and mortise locks in the nineteenth century (Reynolds 1983:267). They are iron and measure 3.9 cm and 5.4 cm in length.

Hinges

A portion of a hand wrought iron strap hinge was recovered from Privy 6 and measured roughly 10 cm long. Two holes measuring 0.5 cm were drilled through the specimen prior to the insertion of fastening nails. Another possible hinge was recovered from Privy 3. It was badly corroded and measured 11.7 cm at its maximum length.

Doorknob

One stoneware doorknob was recovered from Privy 3. The specimen has been treated with a dark brown slip. The inner face (the face toward the door) of the doorknob has a hole or depression that is threaded, allowing for the receipt of an iron or steel spindle. The doorknob measures 5.23 cm in diameter and is 2.5 cm thick.

Miscellaneous Hardware

Bolts

A total of four bolts were recovered from the Fort Atkinson privies (Figure 77). All were made of iron and had roughly 1.3 cm diameters. Three non-threaded bolts from

Privy 1 and Privy 6 measure 3.5 cm, 12.5 cm, and 9.3 cm. From Privy 7, the fourth bolt was threaded and was 14.51 cm long.

Brackets

This category describes several different forms of metal specimens that were most likely used to fasten pieces of wood together. It is likely that some items may have fallen into the “building materials and hardware” category. However, not being certain of the actual way these brackets were used, they have been placed within this category. A total of six artifacts were identified as miscellaneous brackets. One was recovered from Privy 2 and was made of tinned metal. It measured 3.2 cm wide by 11.5 cm long. Four other brackets came from Privy 4, one of which was made of iron and found deep in the privy deposits. The other three were made of iron or steel and had nail holes drilled through them, presumably to take nails. These three were recovered from the upper levels of the privy and may represent later use.

Brass Ring

One unidentified ring was recovered from Privy 6. The specimen is similar to the “harness rings” discussed below in that it is made of round, brass wire. However, its external diameter measures 12 cm, which makes it much larger than the harness rings discussed by Reynolds (1983:285-286).

Disk

A iron disk was recovered from the upper levels of Privy 7 (Figure 78). This item was probably utilized in farming or gardening activities on the site. It measures 19 cm in

diameter and has a 1.5 cm hole drilled through the center. Additionally, 4 holes measuring 0.4 cm were also drilled through the disk.

Handle

An iron handle, probably a bucket handle, was recovered from Privy 4. It is made of iron wire roughly 0.3 cm thick. It is bent into perpendicular sections, resembling three sides of a rectangle, with two parallel sides of equal length and one longer side connecting the two shorter sides. From the shorter sides, the wire is bent perpendicularly again, facilitating the reception of the handle into whatever was to be lifted.

Metal Straps

Six straps made from various materials and of varying sizes were recovered from Privies 1, 2, 4, and 7 (Figure 79). It is likely many represent barrel straps. One is made of copper and measures 6 cm wide. It has held its shape relatively well and has been figured to have had an 11 cm diameter. The various sections iron straps measure from 1.5 cm to 3.2 cm wide.

Pipe Fitting

One cylindrical piece of metal, probably a pipe fitting, was recovered from the surface of Privy 1. It is not clear what type of metal it is, perhaps brass or copper. It is likely the specimen represents a later occupation or use of the privy area than the military occupation.

Rivets

Two rivets were recorded as coming from Privy 3 and Privy 6 (Figure 80). Both were made of iron and measured 5.1 cm and 4.9 cm long. The relatively large size suggests they were used for joining wood to wood or metal plate to wood (Comer 1985:398).

Washer

One iron washer with a center hole was recovered from Privy 6. It is a circular, flat washer with a 3.6 cm exterior diameter and a 1.7 cm interior diameter.

Wire (Non-Electrical) and Barbed Wire

Five specimens of iron wire were recovered from Privies 1, 2, 3, and 4. They are examples of circular wire and typically measure less than half a centimeter in diameter. The specimens range in length from 4.8 cm to 16.9 cm. Also recovered from the surface of Privy 1 was a 6.7 cm section of barbed wire (Figure 81). It is of the double-stranded variety. An example of the barbs or ties was not preserved. Developed in the mid-nineteenth century, barbed wire probably was not associated with the military occupation of the fort.

Medical/ToiletryCeramic Vessels*Basins*

Two whiteware basins were recovered from the privies, one from Privy 1 and one from Privy 6 (Figure 82). These vessels have wide openings, convex sides, brims, and are of a greater width than they are deep. Such forms were used for washing, shaving, and,

in some cases, for dining (Beaudry et al. 1991:26). Both are undecorated. One is stamped on its base with a propeller-type mark.

Chamber Pots and Lids

Four chamber pots and three chamber pot lids were recovered from the privies. Two of the lids correspond to two of the pots. One lid does not have a mate. One pot from Privy 4 is decorated with blue, hand painted floral designs. Another from Privy 3 is undecorated. A chamber pot with a lid is from Privy 1 and is marked with a blue transfer print that reads, "RMW&CO," indicating that it was manufactured by Ridgeway, Morley, Wear, and Company of Shelton, U. K. between 1836 and 1842 (Godden 1968:113) (Figure 83). Another pot and lid from Privy 1 have handles that are molded into floral forms. The lone chamber pot lid from Privy 6 is gilded and hand painted with a polychrome floral design.

Soap Dish

Beaudry et al. (1991) do not offer a description or classification for a vessel similar to this. It is a whiteware dish approximately 4 cm deep and rectangular in shape. It is highly decorated with brown, transfer-printed, geometric patterns. Because of its similarity to modern soap dishes, it is identified as such (Figure 84).

Glass Bottles (Figure 85)

Vessel 38 is a fragment of a small, round bottle from Privy 3. It is made of olive glass and is broken at the neck and the base. Its diameter is $1 \frac{9}{32}$ of an inch.

Vessel 58 is represented by a neck/shoulder/finish fragment of aqua glass. Its finish is identified as that of a “wide prescription” finish (IMACS 1992:472.2B) (Figure X). Its flaring neck measures approximately 2.2 cm in diameter at its narrowest. The bottle’s finish measures 3.5 cm in diameter.

Vessel 17 is an aqua medicine bottle. It has an oval base and was blown-in-mold. Basal dimensions are $\frac{29}{32}$ of an inch at its narrowest by 1.5 inches at its widest. The base is embossed with the lettering, “J. R. PRESTON BOSTON”.

Vessel 88 is a panel medicine bottle represented by reconstructed aqua glass neck and base fragments. The base indicates that the bottle had slightly recessed sides and was rectangular in form. Its base measurements are $1 \frac{11}{16}$ inches by 1 inch.

A fragment of an aqua patent medicine bottle was recovered from Privy 4 (Figure X). It was blown in a two piece mold.

Vessel 83 is a rather large aqua chemical bottle represented by 42 fragments. It was blown-in-mold and is only partially restored. Because it is missing many crucial elements, proper measurements could not be taken.

Vessel 95 was probably a perfume bottle. It is aqua colored and has an almost square body. The specimen was blown-in-mold and measures 2.25 inches high with a $1 \frac{11}{32}$ inches by $1 \frac{13}{32}$ inches base, a $\frac{21}{32}$ of an inch outside neck diameter, and an $\frac{11}{32}$ of an inch neck openings. It is significant in that it indicates the presence of a female at Fort Atkinson. It is known that officers often brought their families to frontier posts with

them (Prucha 1953:200-201). However, little documentary evidence addresses the role or even existence of women at Fort Atkinson.

Vessel 101 is represented by a cylindrical aqua fragment. It is a free-blown glass vial that measures approximately 1 inch in diameter.

Five other vessels, 11, 16, 79, and 80, are represented by 11 aqua glass fragments. The fragments indicate that at least two were free-blown, with rough pontils.

Finally, a small clear glass stopper was recovered from Privy 5 (Figure 86). It has an oval “handle” that measures approximately 2.1 cm wide and is 0.8 cm thick. Overall, the stopper measures 3.5 cm long and has a cylindrical base that is narrower at the bottom than where it meets the handle. The stopper does not fit any of the recovered bottles and was given the vessel number, 85.

Clothing

Beads

A total of seven beads was recovered from Privies 3 and 4 (Figure 87). Functionally, they are considered to belong to the clothing category. However, they are also considered to be Native American trade items.

Hollow Cane Beads

From Privy 4, two of these beads are commonly referred to as “seed beads”. They are barrel or donut shaped and made of white glass. One measures .36 cm in diameter by .21 cm long, the other measures .33 cm in diameter by .31 cm long. They were manufactured by the hollow cane method, where a glob of molten glass is blown or folded

over to create a large bubble (Kidd and Kidd 1970:47-49; Van der Sleen 1967:22-26). An assistant attaches another iron rod and the bubble is pulled apart from the two ends into a long rod of glass. After cooling, the rod of glass is broken or cut into lengths. The rough edges are finished by reheating the bead sections in a mixture of sand and ash (Comer 1985:282).

One translucent glass faceted bead was recovered from Privy 3. The facets have been pressed or molded on the surface and are diamond-shaped. The body was also formed using the hollow cane method and the ends are hexagonal. The specimen measures .68 cm long and had an approximate diameter of .76 cm.

One elongated white bead was recovered from Privy 4. It has a highly polished white surface and was probably made using the hollow can method. It measures 1.4 cm long and has a .52 cm diameter.

Wire-Wound Beads

One conical-shaped bead and two similar fragments were recovered from Privy 4. The whole specimen is .9 cm long with a .85 cm basal diameter and a .51 end or top diameter. The specimens are blue-green in color and were probably manufactured using the wire wound or mandrel wound method. This method is similar to the hollow cane method except that no bubble is formed in the long glass rod (Comer 1985:283). After the thin, solid rod of glass is formed by two workers stretching the glass in opposite directions, the rod is cut or broken. The sections are then reheated and wound around a wire to form

beads. This sometimes creates a swirled pattern at the base of the bead, which is present on these specimens.

Buttons

Metal Buttons

Six metal buttons were recovered from the Fort Atkinson privies. First is a brass, Sanders-type button that was recovered from Privy 3. It has a flat back and still has its loop shank attachment. On the back is impressed, "Leavenworth" (Figure 88). The front is convex in shape and is decorated with an eagle grasping fig leaves and arrows in its talons. A crest adorns the eagle's chest.

A second brass, Sanders-type button was recovered from Privy 4. "W H. HORSTMANN PHILA" is impressed along the outer edge of the back of the button (Figure 88). Again, an eagle with a crest decorates the convex front of the button.

Three heavily corroded iron buttons were recovered from Privies 1 and 6. The buttons are of the sew-through type. They are circular disks that are perforated with four attachment holes. One measures 1.85 cm in diameter and is .45 cm thick. The others measure 1.82 cm in diameter and are .36 cm thick.

A heavily corroded brass button was recovered from Privy 6. It is identified as a shank button, but, it is too heavily corroded to determine the type of shank that was present. Its diameter is 1.93 cm.

Bone Buttons

A total of 10 bone buttons from Privies 1, 4, and 6 and one button blank from Privy 4 were recorded, all of which are sew-through buttons with one, four, or five holes present (Figure 89). They are all disk-shaped and most often have a recessed panel in which the holes are located. Three five-hole buttons were recovered, one of which still retains thread tied through its attachment holes. Its diameter is 1.08 cm and is .18 cm thick. The other two five-hole buttons measure 1.64 cm in diameter by .22 cm thick and 1.71 cm in diameter by .18 cm thick. A total of seven four-hole bone buttons were recovered. They range in diameter from 1.35 cm to 1.73 cm and range in thickness from .24 cm to .33 cm. One bone button blank was recovered from Privy 4. It does not have a recessed panel and is only pierced with one, centrally located hole. It measures .12 cm thick and has a .96 cm diameter.

Shell Buttons

A total of eight complete shell buttons were recovered from Privies 1 and 4 (Figure 90). Two shell button fragments were also recovered from Privy 4. All of the complete buttons are of the sew-through, four-hole variety. The specimens range from .88 cm to 1.47 cm in diameter and from .05 cm to .26 cm thick. Two had recessed panels where the holes were located. It was not determined whether the shell was marine or freshwater.

Ceramic Buttons

A total of 10 ceramic, or prosser, buttons were recovered from Privies 3, 4, and 6 (Figure 91). They are all of the four-hole variety and measure between .88 cm and 1.6 cm

in diameter and are between .25 cm and .30 cm thick. These buttons were produced by firing clays at high fired temperatures, resulting in a glass or vitrified appearance (IMACS 1992). Typical to this type of button is a pebbled or orange-peel surface on the back of each specimen (Sprague 1983:167-172).

Shoe Leather

Five pieces of what is thought to be shoe leather was recovered from Privies 1 and 4. The fragments are quite amorphous, but are pierced with nails holes, and in one case, pierced with a shoe nail.

Domestic Tools

Scissors

Two iron scissors blades were recovered from Privy 4 (Figure 92). They obviously belong to one pair of scissors, previously attached at the mid-section of the shanks. The have oval bows, for ones fingers, with the shanks attached to the edge of the oval.

Thimble

Also recovered from Privy 4 was a thimble made of brass or copper (Figure 93). The outer surface is covered with cross-hatched lines that encircle the most of the thimble. The specimen measures 2.6 cm in length and has an approximate diameter of 1.4 cm.

Personal Items

Pocketknives

One folding pocketknife, one pocketknife blade, and a blade fragment were noted Fort Atkinson's privy assemblage. Heavily corroded, the pocketknife from Privy 1 was

made of bone and iron. With the blade folded and corroded in place, the knife measures 9.4 cm long. No maker's mark could be discerned. Also, due to the poor state of preservation it is not known whether the specimen is a single, double, or multiple blade knife. An iron pocketknife blade was recovered from Privy 1 and measures 6.4 cm long. Another iron pocketknife blade was recovered from Privy 2 and measured 3.9 cm in length.

Recovered from Privy 6 is what appears to be a celluloid pocketknife handle fragment. Celluloid was a precursor to plastic and is made of nitrocellulose and camphor. Developed in 1869 (IMACS 1992), this specimen probably represents a post-fort period. The specimen is greenish in color and measures 3.32 cm long by 1.28 cm wide by .28 cm thick.

Styli

Two gray slate writing styli were recovered from Privy 6 (Figure 94). One is rounded in cross section, the other has a number of flattened sides. They are both fragments and do not represent an entire stylus. Their measurements are 1) 6.54 cm long with a .53 cm diameter and 2) 4.02 cm long by .52 cm at its widest by .45 cm at its narrowest. The writing ends are pointed with a dull, rounded tip.

Slate

One fragment of a writing slate was recovered from Privy 4. It is gray in color and measures 4.25 cm by 2.98 cm by .26 cm thick.

Recreation

Clay Tobacco Pipes

Large numbers of pipe fragments have been recovered from various fort sites (Carlson 1979; Comer 1985; Reynolds 1983). It is not surprising, then, that the cost of ceramic pipes was quite low, from \$.50 to \$1.20 per gross, as a result of the Industrial Revolution (Tobey 1974:5; Wilson 1961:123). Having been first introduced to Europe in the sixteenth century, by the time of the Industrial Revolution only a few manufacturers produced the large amounts of pipes.

Clay pipes were made of fine-grained plastic white clay, small globs of which were rolled into a cylinder to form the stem. The bowl was formed by another glob which was attached to the stem. After drying a bit, the clay would be put into a two-piece hinged mold. A long wire was inserted into the stem to create the bore and the mold was closed. A lever-operated oiled stopper was brought down to create the bowl cavity. After being removed from the mold, excess clay was scraped away with a knife and the pipe was fired in a kiln (Tobey 1974:5-6).

An analysis of clay tobacco pipes from Fort Atkinson was performed by Margaret L. Tobey in 1974. Though the pipes from the privies were examined again for this study, the following discussion and analysis is largely based on her methods and findings. Pipe bore diameter has been discussed as an indication of chronology (Binford 1962; Harrington 1954). Harrington notes that there is a consistent reduction of the size of pipe bores over time, allowing sites with substantial pipe assemblages to be dated rather accurately. Since

Harrington's discovery, however, Humphrey (1969:15) has concluded that the bore-date relationship falls apart after 1780. For this study, pipes were categorized according to decoration, maker's marks, bowl-stem angle, bore diameter, mold line treatment, and presence or absence of spurs (Figure 95).

T D Pipes

Three "T D" pipes were recovered from the Fort Atkinson privies. All are considered to be of the "Dublin" style, where the bowl is set at an obtuse angle to the stem. These pipes are characterized by the raised letters, T D, on the back of the bowl. Other designs may vary on this type of pipe. The history of the mark is long and confusing. It is thought the first T D pipes were manufactured by Timothy Dexter, born about 25 years before the Revolutionary War. However, examples of T D pipes have been recovered from sites which date before Dexter's birth (Wilson 1961:128). As early as 1704, a pipe maker in Bristol, England used the maker's mark, as did the firms of Thomas Denes and William White. Also, Jan Boms registered the trademark in Holland in 1734. So, tracking down the actual manufacturer of three T D pipes from the Fort Atkinson privies is impossible due to the number of manufacturers using the mark.

A glazed specimen found in Privy 6 is identical to the glazing found on particular T D pipe discussed by Smith (1972:155) (Figure 96a). Tobey (1974:18-19) considers this evidence enough to designate this specimen a T D pipe. The pipe discussed by Smith has raised T D surrounded by 13 six-pointed stars on the back of the bowl, a ring of stars around the bowl rim, a leaf design at the front mold line, an unmodified back mold line, and

spurs. The bore diameter is $\frac{4}{64}$ inches. The glaze is reddish gold-green and mottled. A second T D pipe fragment was recovered from Privy 4. This bowl fragment's T D letters are intersected by an unmodified mold line (Figure 96b). A final T D pipe fragment with a bore diameter of $\frac{5}{64}$ inches was recovered from Privy 5 (Figure 96c). Raised T D are located on the back of the bowl with short, raised lines radiating out from the letters in a circular sunburst pattern. A slightly raised line encircles the rim and a raised cross is present on one side of the bowl below the rim. Mold lines are scraped away and spurs are present.

Ribbed Pipes

A second type of pipe is the ribbed pipe, all of which are considered to be Dublin style. Three Type 1 ribbed pipes (Figure 97a) were found in Privies 1, 2, and 6. They are characterized by ribs that begin half way down the bowl, alternated in width, and terminate just beyond the spur in four parallel lines that encircle the stem. This type corresponds with Hanson's (1971) "Ribbed Variety A", which are identified as originating in England (Hanson 1971:94).

Another ribbed pipe from Privy 1 has alternating wide and thin ribs that begin midway down the bowl and extend onto the stem beyond the spur where it is stopped by a line and a set of two parallel lines (97b). A series of raised dots is present between the parallel lines. The fragment had a bore diameter of 5.64 inches.

Two ribbed pipe fragments from Privy 1 and Privy 5 have equally sized ribs that extending from below the rime to the spur. Leaves are present on the front and back mold lines, which are unmodified (Figure 97c). Bore diameters for this pipes are $5/64$ of an inch.

Another ribbed pipe fragment from Privy 1 is characterized by thick, tapering ribs of equal size which extend from the mid portion of the bowl to just past the spur. Below the rim, four thistle leaves are present on the front and back mold lines, which are otherwise unmodified (Figure 97d). The bore diameter measures $5/64$ of an inch.

Again, from Privy 1, another ribbed pipe was recover. This specimen has ribs of equal size that join at the mid portion of the bowl and form arches that extend down to the spur. A single rib is also enclosed in each arch. Two raised lines extend vertically to below the rim. Radiating upward and outward from these lines are thin raised lines that form a "menorah" pattern. The pipe had unmodified mold seams and spurs (Figure 97e). The bore diameter is $5/64$ of an inch.

Miscellaneous Decorated Pipes

Two pipe fragments from Privy 1 and Privy 5 are characterized by a thistle plant with six leaves on the right side of the pipe bowl, as the pipe is held by the smoker. The left side of the bowl has a thistle plant with two leaves (Figure 98a). The bore diameter is $5/64$ of an inch. One specimen from Privy 2 has a plain bowl with the letter "S" on the left side of the spur. The right side of the spur has a letter as well, but it is indistinguishable (Figure 98b). Its bore diameter is $5/64$ of an inch. From Privy 4, a gray clay pipe stem was recovered (Figure 98c). According to Tobey (1974:36), the artifact appears to be the

stem of a Chesterfield style pipe with a bore diameter of 0.8 cm. A pipe stem from Privy 1 is decorated with three parallel raised bands which encircle the stem and raise diagonal lines (98d). This specimen has a bore diameter of $\frac{5}{64}$ of an inch.

Undecorated Pipes

Privy 1 contained three undecorated pipe stems with bored diameters of $\frac{4}{64}$ of an inch and $\frac{5}{64}$ of an inch. Privy 2 contained five undecorated stem fragments with bore diameters of $\frac{5}{64}$ of an inch. Privy 3 contained one undecorated pipe stem with a bore diameter of $\frac{6}{64}$ of an inch. Privy 4 contained three undecorated pipe stem fragments with a bore diameters of $\frac{5}{64}$ of an inch. One Dublin-style pipe bowl with scraped mold seams was also recovered. Privy 5 contained four undecorated pipe stem fragments with bore diameters of $\frac{5}{64}$ of an inch. Two Dublin-style pipe bowl fragments with scraped mold seams were also recovered. Privy 6 contained 26 undecorated pipe stem fragments. Four specimens have bore diameters of $\frac{4}{64}$ of an inch. 22 specimens have bore diameters of $\frac{5}{64}$ of an inch.

Dominos

Eight hand made bone dominos were recovered from Privies 1 and 5. The measure approximately 4 cm long by 2 cm wide by 0.4 cm thick. Each whole specimen is divided into two equal halves by a carved line. A series of carved dots representing numbers one through six are present on most of the sections.

Jew's Harp

An iron Jew's harp or jaw harp was recovered from privy 2. This instrument is characterized by a lyre-shaped metal frame that is held between the teeth and by a steel tongue projecting past the length of the frame shanks that is plucked to produce a soft, twanging sound (Figure 99). Known in the Middle Ages as the "trump", the possessive, "Jew's", was first noted in the sixteenth century (Crane 1982:29). It is not clear how the instrument gained its Judaic affiliation. Often mentioned is the theory that it acquired its standard English name from the Jewish peddlers that sold them. Given that the Jews were forced from England in 1290 and did not return in any numbers until the middle of the seventeenth century, this theory is questionable. Crane (1982) suggests that most other theories likewise are speculative at best. A more detailed discussion of trump or Jew's harp etymology is provided by Crane (1982).

Toys/Children's Items

Marbles

Four roughly spherical marbles were available for study. All were recovered from Privy 6. The first is a specimen made of a calcareous stone, that is, a chalky stone composed of, containing, or characteristic of calcium carbonate, calcium, or limestone. It is dull gray in color and measures approximately 1.66 cm in diameter. Three clay marbles were also recovered. Their approximate average diameter is 1.5 cm. Six other marbles from Privy 6 were reportedly loaned to the State Historical Society of Iowa, Museum Bureau,

for display purposes. They are not on display, are not being curated, and presumably have been lost.

Miniature Tea Pot

A miniature tea pot was recovered from Privy 6 (Figure 100). It is missing its handle and lid, but is otherwise complete. The specimen is made of porcelain and is decorated with gold gilding, and a hand painted scene. It measures approximately 3.5 cm tall.

Storage/Utilitarian Wares

Ceramic Containers

Bowl

A rim fragment of a yellowware bowl was recovered from Privy 4. It is decorated with hand painted annular bands. Yellowware was used mainly in the preparation, baking, and storage of food (Siebert 1997:3). For this reason, this specimen is considered to be a utilitarian ware for this study and is probably a rim from a mixing bowl or colander.

Crocks

Fragments of at least two stoneware crocks were recovered from Privy 4. The are undecorated and wheel thrown. Beaudry et al. (1991) define the form of this vessel as pot or butter pot, indicating that it was used for souring cream or storing butter, lard, or other cooking-related products.

Flower Pot

One redware flower pot was recovered from Privy 4. It is now on display at the State Historical Society of Iowa Museum in Des Moines. It is roughly seven to eight inches tall, footed, and had a flaring brim. The specimen is glazed with either a clear or lead-based glaze.

Ink Bottles

One porcelain ink bottle was recovered from Privy 6. The specimen is decorated with gold gilding. Another ink bottle is on display at the State Historical Society of Iowa Museum in Des Moines. It is not know what ware type it is. The specimen is decorated with a brown slip on the interior and purple and white slips on the interior.

Unidentified Stoneware and Yellowware

A minimum of 11 stoneware vessels was recovered from Privies 1, 2, 4, 5, and 6. A minimum of 6 yellowware vessels were recovered from Privies 2, 3, 4, 5, and 6 (Figure 67 and 68). The vessel forms for these could not be ascertained because of the fragmentary nature of the sherds. In most cases, vessel form is crucial to the identification of ceramic vessel function. However, stoneware and yellowware vessels most often were used for storage or cooking purposes, thus their inclusion in this category. Four of the stoneware vessels have been treated with an Albany slip on the interior. Originally made from rich clays found near Albany, New York, this slip is dark brown in color. Five of the vessels have been treated with a salt glaze. Typified by a pitted, orange peel surface texture, this technique utilized salt that was thrown into the kiln when it was at its hottest. One of the

salt glazed vessels was also treated with a Bristol slip on its interior. Originally developed by potters in Bristol, England, this technique produces a light, cream-colored surface. Another salt glazed vessel been treated with a gray slip. Two stoneware vessels were treated with what seems to be a lead glaze. Lead glazes tend to have dark dots or specks of unmelted lead in them. Also, a green tint is produced if the lead glaze is arsenic-based. Such is the case with these two vessels. At least seven of the stoneware vessels show signs of being wheel-thrown. Utilized until the 1880s in the Midwest (Ketchum 1983), this manufacturing technique creates small ridges and valleys on the interior of a vessel.

A least six unidentified yellowware vessels were recovered from the privies. Three of the vessels are undecorated. Three others have been decorated with hand painted annular bands.

Container Glass

Condiment Bottle

An aqua bottle represented by two fragments was recovered from Privy 6 (Figure 101). The bottle is approximately 6 1/2 inches tall with eight sides, sloping shoulders, and a tapered neck. Its finish has a rolled-over collar. Morphologically similar bottles in an 1880 bottle catalog are identified as mustard or horseradish shape (Whitall et al. 1971). However, identical bottles recovered from the Bertrand, a steamboat that sank in the Missouri River in 1865, contained ground black pepper. These bottles were blown in a two-piece mold, have flat bottoms, and have fluted or depressed sides.

Olive Oil Bottles

Five complete and nearly complete olive oil bottles were recovered from Privy 1 and Privy 4. They are free blown, have high basal kick-ups, and pontil scars. Their almost cylindrical bodies are smaller in diameter at the bases than at the shoulders, which slope upward to the cylindrical necks. The necks are terminated by smooth, flat-lipped collars that are slightly larger in diameter than the necks (Figure 102). Four bottles are made of olive-colored glass, one is of aqua glass. Two bottles have applied medallions at the base of their necks which read, "HUILE D'OLIVE BORDEAUX SURFINE CLARIFIEE" (Figure 103), indicating that they contained olive oil from the Bordeaux region of France that was clarified to a "superfine" (surfine) degree. The aqua bottle is stamped with the French words, "Huile/Surfine" (superfine oil) and is also assumed to be of French origin.

Jar

Represented by 13 fragments, a large, thin-walled glass jar was recovered from Privy 6 (Figure 104). The jar is made of clear glass and has straight sides that flare in at the shoulder. The body measures approximately 10.5 cm in diameter. The rim is approximately 7.5 cm in diameter.

Vegetable Bottle

Recovered from Privy 4 was an almost complete culinary bottle. It is made of aqua glass and may have held pickles or pickled vegetables (Figure 105). The specimen was blown in a two piece mold and has a rolled-over collar and pyramidal shoulders.

Double Oil or Mineral Finishes

Three fragments of bottles, represented by Vessels 1, 84, and 94, are made of olive glass. Their finishes are identified as “double oil or mineral” finishes (Figure 106). It is possible that they are finish fragments from three ale/stout bottles or whiskey bottles.

Brandy Bottles

Olive glass fragments representing five separate brandy bottles were recovered from Fort Atkinson. Typically, these bottles stood nine and a half inches tall, had rounded shoulders, a collared neck, a 3 and a half inches basal diameter, and a two and a half inches tapered neck (Figure 107). Most specimens were identified as blown-in-mold. One specimen, Vessel 91, has basal lettering that reads, “H. RICKETS & C GLASS WORKS BRISTOL”, indicating its English origins. Lettering on the shoulder reads, “PATENT”. An English law was passed in 1855 which required the designation, “LTD” (limited liability) to follow the, “Co” or “C” (company) (Wiltfang 1974:5). This specimen does not have such designation, and thus, dates to before 1855.

Champagne Bottles

Eight champagne bottles were recovered from Privies 1, 3, and 4. Seven of the specimens were of olive glass, one was clear glass. Three of the specimens were identified as being blown in mold and rotated while the glass was still molten (Wiltfang 1974:2). The clear bottle was identified as being free blown because of its lack of mold marks.

Specimens that have bases present have high basal kick-ups. Vessel 24 is what is known

as a “split”, meaning that it can hold approximately half the volume of a full sized bottle, about 12.5 ounces instead of 24 ounces.

Wine Bottles

A total of five wine bottles were recovered from the south half of Privy 4, two aqua glass bottles and three olive glass bottles. Another aqua bottle was recovered from Privy 6. All of the specimens are characterized by the applied neck ring that forms the “wine neck finish”. Three of the vessel are identified as having high basal kick-ups and a large, rough pontil. At least two of them have been free-blown. One aqua bottle from Privy 4 has a rather shallow kick-up and a clean pontil.

Ink Bottle

An aqua colored ink bottle was recovered from Privy 5. It was blown-in-mold and has a rough pontil scar. Its dimensions are 5 inches high, with a basal diameter of 2 1/8 inches.

Unidentified Bottles

Vessel 65 is an unidentified intoxicant bottle. It is made of olive glass and has an eight-sided base and body. A diagonal mold seam extends across its base, indicating that the specimen was blown in a two piece mold. It is 9.5 inches high, has a 3 1/16 inches by 2 1/16 inches base, and a 1 1/16 inches in diameter neck. Five aqua glass bottle fragments could not be identified. They were assigned vessel numbers 82, 86, 90, 98, and 100. One unidentified olive glass bottle fragment was assigned vessel number 97.

Metal Containers

Twenty-eight fragments of metal containers or cans were recovered from all of the privies, excluding Privy 6. Three of the fragments represent lids to cylindrical cans, two of which have 8 cm diameters, the other having a 9 cm diameter. Privy 7 contained a rectangular can measuring 8.4 cm wide by 11.41 cm long and was roughly 2 cm thick (Figure 107). This specimen is possibly a tobacco can, the manufacture of which began in 1892 (Berge 1980:261-261). However, McKusick's field notes indicate that this privy was not excavated very deeply and that the materials he recovered from this provenience represent a later time period.

Tableware

Ceramic Tableware

Bowls

A minimum number of two porcelain and five whiteware bowls were recovered from Privies 1, 4, 5, and 6. Beaudry et al. (1991:26) defines a bowl as an open vessel with convex sides that terminate in a rim or brim. The two porcelain bowls are decorated with 1) blue hand painting and 2) very dense flow blue. The whiteware bowls range from being undecorated to being decorated with a purple transfer print (Figure 108), polychrome floral hand painting, and a molded floral pattern.

Soup Tureen or Caudle Cup

Soup tureen or caudle cup (Figure 109) was recovered from Privy 6. The specimen had two handles, one of which is missing. It is decorated with crudely applied, blue, hand

painted designs. Caudle cups were used for making and serving fermented gruel (Beaudry et al. 1991:25). The *American Heritage Dictionary* (1996) indicates that tureens were often used to serve soups or stews. A separate lid was also recovered from Privy 6. It is molded and decorated with blue hand painting.

Cream Pitchers

One cream pitcher was recovered from Privy 1, and another from Privy 3. Cream pitchers are small, handled vessels with bulbous bodies and flaring necks with a gutter. They were used primarily for serving dairy (Beaudry et al. 1991:24). One specimen is a whiteware vessel, decorated with polychrome, hand painted annular bands. The other is a brown earthenware, lusterware pitcher with white banding.

Pitchers

At least four whiteware pitchers were recovered from Privy 4. Similar to, but larger than, cream pitchers, these pitchers are single handled vessels with bulbous bodies. They have flaring neck with a gutter. One is decorated with a brown transfer print (Figure 110), another with a red transfer print. The third is a blue-slipped, mocha ware pitcher. The fourth is a mocha ware pitcher with green and black banding, a yellow-slipped body, and hand painted tree motifs.

Cups

A total of ten cups were recovered from Privies 1, 2, 5, and 6. Five cups are porcelain (Figure 111), four are whiteware, and one is ironstone. Cups are defined by Beaudry et al. (1991:22) as small, handled drinking vessels that can hold less than a pint of

liquid. These specimens range from undecorated to decorated with transfer prints, annular banding, hand painting, and gilding.

Mugs

A total of two whiteware mugs were recovered from Privies 4 and 6. They are single handed, straight sided drinking vessels that are taller than they are wide (Beaudry et al 1991:23) (Figure 112). One is decorated with hand painted blue banding. The other is characterized by a green, transfer printed maker's mark that reads, "vermicelle J&R," that indicates it was manufactured by Jon and Robert Godwin between 1834 and 1866 at Cobridge, Staffordshire, U. K.

Plates

A minimum number of 14 plates were recovered from the Fort Atkinson privies. Three are porcelain from Privies 3 and 4, one is ironstone from Privy 2, and eleven are whiteware from Privies 3, 4, 5, and 6. Plates are defined as eating vessels from 7 to 10 inches in diameter, with or without a footring, and shallow or deep in form (Beaudry et al. 1991:26). Many different decorative techniques are represented by the plate assemblage. Techniques include hand painting, annular banding, shell edge, decaling, flow blue, transfer printing, and molding (Figures 113-115). Two of the plates have maker's marks. One indicates manufacture by William Ridgway, Son, and Company and dates between 1838 and 1848 at the Church Works or the Cobden Works, U. K (Figure 116). The other is a planter and anchor motif with the characters, "W. P. S. & C." printed on the bottom of the plate.

Saucers

A minimum number of 15 saucers were recovered from the privies. Saucers are defined as vessels less than 7 inches in diameter, with or without a footring (Beaudry et al. 1991:26) (Figure 117). They were typically used for serving condiments, thus the name "sauce"er, or as small plates. Two specimens from Privies 3 and 4 are porcelain, eleven specimens from Privies 1, 3, 4, 5, and 6 are whiteware, and two specimens from Privies 4 and 6 are ironstone. Decorative techniques used on these saucers include annular banding, flow blue, hand painting, the Willow pattern, molding, and transfer printing. A saucer decorated with the Willow pattern is marked, "T WALKER, SCINDE IRONSTONE," indicating that it was manufactured between 1845 and 1851 at Tunstall, Staffordshire, U. K. Another saucer's mark states, "G F Filley, St Lous, MO by TJJ mayers Longport (Eng)", indicating that the specimen was imported by G. F. Filley from the Mayer company at Dale Hall Pottery, Burslem, U. K. Two other saucers are marked, "Thomas, John, and Joseph Mayers," indicating they were manufactured between 1843 and 1855 at the Dale Hall Pottery, Burslem, U. K as well. Two saucers are stamped, "WEDGWOOD" and "J. WEDGWOOD," were manufactured after 1829. Since no terminal date is indicated for these particular stamps (Godden 1968), it is possible they were manufactured during the 1840s. Wedgwood has had potteries at Burslem, Etruria, and Barlaston, Staffordshire, U. K. since 1759. A final saucer is marked, "Angling," with a red transfer print.

Serving Dishes or Platters

Two serving dishes or platters were recovered from Privy 4. One was recovered from Privy 5. Typically, serving dishes are large vessels with or without a footring and made in shallow and deep forms (Beaudry et al. 1991:26) (Figure 118). These specimens were whiteware and measured roughly 4 cm deep. Two were decorated with blue transfer prints. The other was decorated using the flow blue technique.

Gravy Boat

A porcelain gravy boat was recovered from Privy 3 (Figure 119). It has one handle, a flat bottom, and is decorated with hand painting and a blue transfer print. The printed pattern is identified as the “Willow” pattern, which depicts a bridge crossing a river with willow trees along its banks. Two birds are depicted and represent two lovers escaping from an angry father (IMACS 1992:473.7). Copied from Chinese patterns, the pattern was first produced by the English in 1780 and is still in production today (Barclay 1976).

Glass Tableware

Tumblers

A minimum number of 16 lead glass tumblers were recovered from the Fort Atkinson Privies 1, 3, 4, and 6 (Figure 120). These 16 vessels were represented by a total of 149 specimens, some of which were tiny, while others were whole vessels. A tumbler is defined as a glass without a stem, foot, or handle, and having a flat base. Most vessels measure roughly 9 cm tall and have a 7.5 cm rim diameter, though at least one vessel is roughly three quarters that size. The tumblers are characterized by eight flat sides that

extend from the base of each tumbler. Each side is terminated by an arch whose apex is either 1.5 cm from the rim or 4.5 cm from the rim, depending on the specimen. Another specimen found in Privy 4, Vessel 73, is an exact copy of the tumblers, but is approximately a third larger than them. Presumably, it served as tableware, like its smaller cousins.

Stemware

Seven stemware fragments were assigned seven separate vessel numbers. Six were recovered from Privy 4, one from Privy 6, and all were made of clear glass (Figure 121). One is a wine glass bowl fragment is of the same design as the glass tumblers, previously discussed. One stem fragment and four base/stem fragments were recovered which are decorated with one or more knobs, or ornamental knobs. One knob is located where the stem joins the foot, the other below the bowl. A sixth specimen is comprised of half the stem and some of the bowl. The bowl has a much smaller diameter than the other wine glass bowl, and is thus thought to be a champagne flute.

Handles

Three clear glass fragments representing two glass mug handles were recovered from Privy 1. Other fragments belonging to the mugs were not recovered or identified, however. One other fragment of a small glass handle was recovered from Privy four. It is made from clear glass and is probably a fragment of a tea cup.

Cutlery

One identified handle was recovered from Privy 4. It is 8.8 cm long and made of bone and iron. Another handle made of bone was recovered from Privy 6. It is approximately 5 cm long and is engraved with two series of parallel lines that slant down toward the base from the center to the border of the handle.

A pewter or silver spoon was recovered from Privy 4. It measures 14.5 cm long and is considerable wider at the base of the its handle than at the midsection of its handle. On the wide handle base is engraved the letters, "M Dc Mc".

Tools

Chisel

An iron chisel was recovered from Privy 1 (Figure 123). It measures 16.8 cm long and has a 1.3 cm wide blade. Its handle is missing and may have been made of wood.

Transportation

Boot Spur

One boot spur was recovered from Privy 6 (Figure 124). Spurs attach to the heel of a horse rider's boot and are used to urge a horse forward. This specimen is made of iron and is missing both one arm that would have attached it to a boot as well as a spiked wheel which was attached in the slotted portion of the end of the spur.

Hame Knob End

One hollow brass ball, opened on one side, was recovered from Privy 6 (Figure 125). Similar to one identified by Reynolds (1983:286-287), this specimen was most

likely to be an ornamental metal ball which may have been attached to the top of a hame.

Ornamental hame balls were mostly made of brass, as is this particular hame ball, but were also made of tinned or plated (Berkebile 1978:434).

Harness Buckles

Two iron buckles, similar to buckles recovered from Fort Scott, Kansas (Reynolds 1983:285-286), were recovered from Privy 1. One buckle is longer than it is wide. It measures 3.5 cm by 3 cm and is of the roller buckle variety (Figure 126). Roller buckles have a cylinder of iron, a roller sleeve, attached to one side of the buckle. They normally have one loose tongue pivoting on the side opposite the roller sleeve. The other specimen is significantly larger, measuring 10.7 cm square, and is made of iron as well.

Harness Rings

Two circular, metal rings, probably rings for the attachment of harnesses were recovered from Fort Atkinson's Privy 1 and Privy 3. These specimens are similar to those recovered from Old Fort Scott, Kansas (Reynolds 1983:285-286). One harness ring is made of solid brass round wire. It has an external diameter measuring 3.3 cm. The other is of iron and has an external diameter that measures 3.9 cm.

Horseshoe

One horseshoe fragment was recovered from Privy 4 (Figure 124). The fragment comprised roughly three quarters of the original horseshoe and was too corroded to determine the location of the fuller, or crease. Horseshoe nails are still attached to the specimen.

Horseshoe Nails

Two iron horseshoe nails were recovered from Privy 1 (Figure 124). It is likely that more than two were deposited into the privies. However, the poor state of nail preservation probably presented such specimens from being identified. Similar to Comer's (1985:360) Style 2 horseshoe nails, these two specimens have heads which flare out only slightly from the thickness of the shank (figure X). Such horseshoe nails have been identified as countersunk nails (Berge 1980:243-244). They measure 3 cm and 3.4 cm in length.

Utility (Lighting, Heating)

Lamp Chimney Glass

Only three fragments of lamp chimney glass were recovered from Fort Atkinson. The clear glass specimens came from Privy 1. Lamp chimney glass is usually very common to historic artifact assemblages (Buckles et al. 1978:429; IMACS 1992:472). This type of glass is fragile curved glass that is easily broken into very small pieces.

Faunal Materials

Unfortunately the majority of the faunal remains recovered from Fort Atkinson are missing or have been discarded. The privy materials in the possession of the Office of the State Archaeologist of Iowa contained only four bone fragments which were recovered from Privy 1. The specimens were too small to determine species. However, they were thick enough to be considered larger mammal bones (Jason Titcomb, personal communication, 1998). According to a loan agreement between the OSA and the State

Historical Society of Iowa, the Historical Society's Museum Bureau took on loan a bag of 95 bones, among other Fort Atkinson materials. Upon contacting museum personnel, it was indicated that all materials taken on loan had been included in a Fort Atkinson display (Jerome Thompson, personal communication, 1998). However, only four bone specimens are on display at present time. The location of the remaining materials is unknown. Of the four specimens on display, a mandible from Privy 6 appears to be that of a domesticated cow (*Bos*). A second specimen is a butchered portion of a long bone, which is thick enough to be cow as well. The remaining two specimens are large vertebrae which may be cow also. Two clamshell fragments from Privies 2 and 4 and one complete half of clamshell from Privy 3 were recovered. The fragments measure 2.3 cm long by .55 cm wide and 3.1 cm long by 2.12 cm wide. The half shell measures 5.96 cm long by 3.57 cm wide. It was not ascertained whether the specimens were of marine or freshwater origin.

Amorphous Artifacts

Metal Fragments

A total of 191 unidentified iron fragments were recovered from the Fort Atkinson privies. They are typically very thin, less than 0.1 cm and are of various sizes and shapes. It is likely that many of these specimens are pieces of numerous metal containers. Also recovered were 5 metal fragments made of brass or copper. Roughly the average size and shape of the iron fragments, it is not clear what these specimens might have been.

Leather

Five small pieces of unidentified leather were recovered from Privy 4.

Unidentified Non-Amorphous Artifacts

Ceramics

A total of 97 vessel numbers was assigned to ceramic fragments including rim, body, and base sherds, whose form could not be ascertained. Because form is a clear indicator of function, most of these vessels could not be placed in functional categories above. Exceptions are stoneware (n=11) and yellowware (n=6) vessels which most often were used as utilitarian wares, and thus, are included in the discussion of storage/utilitarian wares. Excluding the stoneware and yellowware vessels of unknown form, vessels were not assigned functional categories. Of these, 79 vessels are whiteware, porcelain, and ironstone vessels that are characterized by various decorative techniques including hand painting, transfer printing, and annular banding, among others. Undecorated sherds are also present. One redware vessel was identified. It is characterized by a salt glazed interior and a lead glazed exterior.

Container Glass

Included in this category are container glass fragments whose function are unknown. In some cases vessel numbers were assigned to these specimens when their color, decoration, or form warranted it. It was considered to include such containers into a category, "household containers" or "decorative glass". However, it is possible that some of the specimens may have been used as tableware or for other purposes. Since actual function is not known, these specimens are listed as unidentified.

Fragments whose function are not known include 52 pieces of olive glass. One specimen from Privy 5 is embossed with the letters, "LFE". 29 fragments of aqua container glass were also recovered. Two aqua glass specimens from Privy one were embossed with the letters, "TE" and "SI". Two specimens from Privy 4 were molded. A total of 33 pieces of clear glass were recovered from the privies, one of which, from Privy 1, was molded. Cobalt blue glass recovered numbered 77 specimens. Finally, a fragment of amethyst container glass was recovered from the upper level of Privy 6. This specimen has a molded, scalloped pattern encircling the rim. It also has a mold seam present which extends to the rim. Of these unidentified fragments, 23 vessel numbers were assigned.

Glass Disks

Two unidentified aqua glass disks were recovered from Privy 4 (Figure 127). One measures .12 cm thick with a 4.38 cm diameter. The other measures .10 cm thick with a 4.35 cm diameter. The specimens resemble aqua glass lenses of some sort.

Metal

One thin, boss-like specimen was recovered from Privy 4 (Figure 128). It is a circular, disk that may have served as a decorative element on a harness.

Another metal disk was recovered from Privy 4. It is also made of iron, but is oval in shape and has fabric fragments attached to what is presumed to be its back side (Figure 129). Although it lacks any decoration, it may have been attached to an individual clothing.

A copper or brass disk was recovered from Privy 6. It measures 5.4 cm in diameter, has a hole drilled through its center, and has several circular striations cut into it.

A small, brass cylinder was recovered from Privy 6. It is one centimeter long and one centimeter in diameter. One end of the object is closed, the other open and flares outward. It is shaped similarly to a Musket or top-hat style percussion cap, as discussed by Comer (1985:344). However, the brim or flared portion of musket percussion caps are comprised of at least three split sections, where this specimen's brim is continuous around its base. Also, the specimen is larger than any percussion caps discussed by Comer.

Leather and Wood

Three circular-shaped pieces of leather were recovered from Privy 4 (Figure 130). The measure 5.82 cm in diameter, 7.72 cm in diameter, and 6.92 cm in diameter. Each has an axle-like piece of iron through its center and a series of approximately 1.9 cm wooden pegs perforating its edge. Three other fragments of leather were also recovered and contained identical wooden pegs. 19 similar wood pegs were recovered as well (Figure 131). One washer-shaped leather fragment and one similar leather fragment were recovered. The specimens had a 3.49 cm external diameter and a 1.63 internal diameter.

Chert

A greenish-tan fragment of chert or flint was recovered from Privy 5. It measures 2.91 cm at its longest point and is .77 cm thick at its thickest point. The edges on the specimen are rather worn and it is likely to be non-cultural.

Cylinder Fragment

An unusual specimen was recovered from Privy 1. The material is dark brown in color, very hard, very dense, and heavy. At best guess, it is made of something highly fired

clay. It seems to be a fragment of a slightly tapering cylinder that measures approximately 3.19 cm high.

Discussion of Fort Atkinson Material Culture

As mentioned previously, decorative treatments and motifs are some of the best indicators of temporal ranges of ceramics. Utilizing South's (1977:217) formula, mean ceramic dates were calculated. The formula is based on the known period of manufacture of each ceramic type within the assemblage, with the median manufacture date defined as the midpoint between the beginning and the end of manufacture. The mean ceramic date is figured by multiplying the median date of a decorative motif by the number of sherds of that type. The sum of the types are calculated and then divided by the total number of sherds. Though various studies have figured mean ceramic dates by strictly adhering to South's use of sherds (Carlson 1979; Comer 1985; Wagner et al. 1993), for this study, mean ceramic dates for the privies were calculated using the number of vessels of a particular decorative type or trait. This was done to avoid the underrepresentation of certain vessels which have been wholly or partially reconstructed and to avoid the overrepresentation of those vessels which have by chance or by nature broken into more pieces than other vessels. A mean ceramic date of 1863.97 was calculated for the privies overall, a date at least 14 years after the U. S. Army abandoned the post. Such a discrepancy can be explained by the wide time range in which most ceramics date. For instance, undecorated whiteware, which constitutes 28.7 percent of the ceramic assemblage (Table 7) dates after 1820 (Rogers 1992). Having been acquired by the State of Iowa in

1929 and presumably no longer occupied domestically after that date, the fort site was given a terminal date of 1929. Thus, undecorated whiteware represents a time range from 1820 to 1929 and has a median date of 1874.5, significantly later than the military occupation of Fort Atkinson. Regardless, the great majority of artifact date ranges overlap with the military occupation of Fort Atkinson (1840-1849). Further aiding in the dating of the privies at Fort Atkinson was manufacturer information such as makers' marks, which in all cases provides temporal ranges that are significantly tighter than those ranges indicated by decorative technique alone. A maker's mark from Privy 1 dates from 1836-1842. Five vessels from Privy 4 had maker's marks providing ranges of 1843 to 1855, 1840 to 1860, and 1845 to 1851. Finally, a maker's mark from Privy 6 indicates a date between 1838 and 1848.

A functional analysis of the Fort Atkinson privy materials indicates a rather diverse artifact assemblage, though one dominated by a few functional categories. The minimum number of ceramic and glass vessels was utilized for figuring the distribution of functional categories, as was the case with figuring mean ceramic dates. Using a minimum vessel count, similarly decorated sherds from a particular privy are identified as one specimen, reducing the total number of specimens assigned to functional categories to eight-hundred thirty-four. These specimens are distributed among the seven privies into 14 functional categories (Table 6). For the most part, the percentage of each functional category is similar for each privy. The exception is Privy 7, which was not excavated fully and yielded only 11 specimens.

It is likely that each privy was frequented by particular individuals while they lived in the officer's quarters. Specifically, it is probable that particular officers and their families used the privy directly behind their quarters. For instance, Privy 1, is considered to have been the commanding officer's latrine (McKusick 1975). Likewise, it is probable that each of the other privies was used by particular officers and their families. Such a situation should create discrete privy assemblages that represent materials deposited by individuals representing particular households. It is interesting, then, to note that the distribution of functional categories in each privy is quite similar, the exception being Privy 7, as mentioned.

Building materials and hardware comprised the majority of the cultural material from the privies (57.6 percent of specimens). The percent of building materials from each privy ranges from 53.2 percent (Privy 5) to 67.7 percent (Privy 2). The main contributor to the high percent of building materials and hardware was the large number of nails recovered from each privy. The next most frequently represented categories are tableware, recreational items, and storage/utilitarian wares, constituting only 10.7 percent, 8.4 percent, and 7.1 percent of the total number of specimens respectively. Glass and ceramic vessels make up the majority of the tableware and storage/utilitarian ware categories. The surprisingly small percentages represented by these two categories can be explained by the fact that a minimum number of glass and ceramic vessels was utilized for the functional analysis. Had the total number of sherds and shards been used instead of a minimum number of vessels, tableware and storage/utilitarian wares would have made up a more

significant portion of the privy assemblage. Likewise, building materials and hardware would constitute a lesser portion of the total privy assemblage. Also surprising is the rather variable distribution of recreational items, represented by smoking pipes mostly. Minimally, recreational items constitute only 1.4 percent of Privy 3's artifact assemblage, but represent 29 percent of Privy 5's artifact assemblage. Such variation may be linked to the smoking habits of the users of each privy. Clothing, mostly represented by buttons, constitutes 5.8 percent of the total privy assemblage, with miscellaneous hardware representing 3.4 percent and medical/toiletry representing 2.4 percent. The remaining functional categories each constitute less than 2 percent of the privy assemblages.

Similarities between the privy assemblages have become apparent through a functional analysis of the material culture of each privy. However, differences in socio-economic status come to light through an examination of ceramic decorative types and the diversity of artifacts in each privy. Studies of late eighteenth and early nineteenth century Euro-American sites have indicated that decorated ceramics predominate in higher status deposits (Miller 1980; Scott 1989; Stone 1974). The majority of ceramics recovered from the Fort Atkinson privies are transfer printed or undecorated. The process involved in transfer printing utilizes several steps and, thus, is one of the most costly decorative techniques (Siebert 1997). Conversely, undecorated ceramics represent the least expensive wares available (Miller 1993). Presumably, the amount of expensive transfer printed wares found in the privies of enlisted men would be less than what has been recovered from the officers' privies. Likewise, undecorated wares in enlisted privies would be more numerous

that those found in the officers' privies. This theory cannot be tested until the enlisted men's privies are located, however. For this study, the occurrence of particular decorative techniques or the absence of decoration was noted for each vessel. A total of 13 techniques were noted (Table 7). Overall, transfer printing occurs 20.4 percent of the time, hand painting occurs 16.6 percent of the time, and undecorated ceramics occur 28.7 percent of the time. The remaining decorative techniques each represent less than 8.3 percent of the total occurrences of decorative techniques. Privy 5 and 6 are characterized by the lowest occurrences of undecorated ceramics, 23.5 percent and 20.4 percent of each ceramic assembly, respectively. Privies 1, 3, and 4 share similar occurrences of undecorated ceramics (33.3 percent, 35 percent, and 32.6 percent respectively). On the other hand, the occurrences of transfer printing (the most costly decorative technique) from Privies 1, 4, 5, and 6 the privies are similar (between 23.5 percent and 27.4 percent). Transfer printing ceramics accounted for 60 percent of the ceramics from Privy 7, a result that is probably skewed due to the small number of artifacts recovered from that privy. However, Privy 2 is characterized by an undecorated ceramic component equaling 45.5 percent of its ceramic assemblage and a transfer printed component equaling 9.1 percent. Privy 3 has no transfer printed wares to speak of. Such percentages of undecorated and decorated ceramics suggest that those people frequenting Privies 5 and 6 were of a higher socio-economic standing than others, and that those who frequented Privies 2 and 3 were of a lower standing. Such a conclusion is surprising because it most likely that the commanding officer at an Army fort would be of the highest socio-economic standing. In this case,

Privy 1, the presumed commanding officer's privy, is somewhere in the middle of the privy rankings. Of course, the difference in pay between a commanding officer and other highly ranked officers may not be great, or the unusual ranking may just reflect the spending habits of a particular individual. Also, it may have been that the commanding officer curated his possessions more carefully or that he did not have children, who might tend to break items more often than adults.

One other indicator of socio-economic status is the diversity of archaeological deposits, where more diverse assemblages indicate a higher social and economic status (Stachiw 1978). Generally, the diversity of material culture, especially luxury goods, is characteristic of greater purchasing power and more wealth (Scott 1989:30). In this case, Privy 1 contains the most diverse assemblage, represented by 12 of the 14 functional categories. Privy 4 and 6 are represented each by 11 of the 14 categories. However, this trend is most likely caused by the total number of artifacts recovered from each, and is not necessarily an indication of status. The most diverse privy deposits at Fort Atkinson also contained the most artifacts, suggesting that the greater the number of artifacts recovered from a privy, the more diverse the artifacts from that privy.

Still, it is worthwhile to examine the privy assemblage as a whole not only to define status but to understand more clearly the lives of the officers. Overall the material culture of Fort Atkinson's privies is quite diverse. Though it is predominated by building materials, a wide array of materials was recovered representing 14 functional categories. Such diversity indicates that the officers may have been of a higher status than most

nineteenth century Euro-Americans (Stachiw 1978). Ceramic artifacts also suggest such a high socio-economic standing. Only 28.7 percent of whiteware, porcelain, and ironstone was undecorated, with the rest decorated in various manners. Definite indicators of status, such as imported goods, were recovered. French olive oil and champagne were consumed by the officers at Fort Atkinson. German marbles were imported for the children of officers.

As indicated by historic documents, informal recreational activities included smoking, drinking, and gaming. Recreational items recovered from the privies corroborate such activities. Williams (1982) suggests that enlisted men might have been more prone to indulge in such activities because some frontier commanders complained of such activities. However, the presence of pipes, intoxicant bottles, and dominos suggests that the officers of Fort Atkinson did not necessarily feel constrained to avoid such activities. Music was also most likely present at Fort Atkinson. Though it is not likely that an organized band was present, post returns indicate a musician was enlisted at the fort. Further, the recovery of a Jew's harp indicates that music was something that filled the leisure time of an officer or his family.

A final question concerning the interaction between the military occupants of Fort Atkinson and the Winnebago can be addressed. Historical documents pertaining specifically to Fort Atkinson do not mention interaction between the two groups outside of instances when the Army was removing, containing, or forcibly returning the Winnebago to the Neutral Ground. This is not necessarily surprising because of the fact that the

Winnebago occupied the area around the Turkey River Subagency, approximately five miles from the fort. Having received their annuity payments at the subagency, there was probably little incentive for the Winnebago to venture up to the fort. Still, it is possible that the two groups would interact at times other than when the soldiers were policing the Winnebago. Evidence for trade between the two groups is represented by beads that were recovered from Privies three and four. Though a tiny portion of the privy assemblage, the trade items suggest that the Winnebago and the soldiers might have had minor relationships beyond those of constable and ward. Also, a number of beads may not have been recovered during the excavation of the privies. Having not utilized water flotation methods in an attempt to recover minute artifacts, beads could very well have passed through dry screens unnoticed.

CHAPTER 7. SUMMARY AND CONCLUSIONS

The focus of this study has been the archaeology, history, architecture, and preservation of Fort Atkinson (13WH57), an 1840s United States Army post in northeast Iowa. The goals of this study were based on methods and theories of historical archaeology and historic preservation. One goal has been to model past lifeways of those military inhabitants living at Fort Atkinson in the 1840s utilizing documentary evidence and material culture, including architecture, portable artifacts, and features. The second goal of this study was to provide an architectural description of Fort Atkinson, examining relevant preservation issues and providing recommendations on how the preservation and interpretation of preserved structures and features may be improved. In order to reach these goals it was necessary to provide a thorough description of the artifact assemblage from the privies as well as architectural descriptions of extant and non-extant fort-period buildings.

This study is significant in that it has provided an analysis and interpretation of an artifact assemblage which has gone unreported for over 30 years. The analysis of the artifact collection, fort buildings, and historic documents has allowed for a more complete and accurate depiction of the lives of those who inhabited the site in the 1840s. The study serves to supplement Iowa history, Winnebago history, United States Military history, and the histories of the City of Fort Atkinson and of Winneshiek County. Finally, this research has presented new interpretations of fort-era happenings that may not have been

accurately or completely portrayed in the historical record or understood by the public at large.

The methods utilized and environmental setting were discussed early in this thesis in order to provide the background needed to proceed with this study. Methods utilized were grounded mainly in the subjects of historical archaeology, architectural history, and historic preservation. Although each of the three databases utilized for this study (the historical record, the architectural record, and the artifactual record) are characterized by particular biases, the complementary and contradictory nature of the three allow for more complete and accurate interpretations of the lifeways of Fort Atkinson's military inhabitants. Various historical sources made possible a discussion of the environment of nineteenth century Winneshiek County and Iowa. Such a discussion was included in the study in order to establish the environmental context in which Fort Atkinson was founded and occupied. A number of indigenous plant and animal species were available to those living at the fort and were probably exploited for subsistence to some extent. Characterized by numerous springs and streams, the region provided the troops with adequate drinking water. Also abundant were building materials including limestone and timber that were necessary to construct such a post. Finally, climatic data indicate that, much like today, Iowa weather not only provided an adequate growing season for crops in the fort's garden plots but also plagued the site with sometimes extreme weather conditions to which the inhabitants were forced to adapt.

Historical context was based on data that was obtained from a variety of primary and secondary sources. Influential to the establishment and operation of Fort Atkinson was the presence of the U. S. Army in the Upper Mississippi Valley as well as the Winnebago people and the United States' policy towards Native Americans. Between 1809 and 1817 the number of military establishments on the American frontier had grown from 27 to 73. By the 1820s, approximately 60 percent of the U.S. Army was stationed on the western frontier. This expansion was driven by an effort to control Native American populations and to encourage Euro-American settlement on the frontier.

Like many other posts, Fort Atkinson was built ultimately to control a group of Native Americans. Specifically, the existence of the fort is tied directly to the Winnebago people and to an effort to remove them from east of the Mississippi River into Iowa and then to keep them from returning to their homelands. The Winnebago, a Siouan-speaking people, were first encountered by Europeans in 1634 at Red Banks on the east shore of Green Bay. By the early nineteenth century the U.S. government had begun efforts to remove the Winnebago from Wisconsin in order to make way for Euro-American Settlers. In 1840, one of two groups of Winnebago moved into the Neutral Ground, a 20-mile-wide strip of land located in present-day northern Iowa that was created to separate two hostile native groups, the Santee and the allied Sauk and Meskwaki. Nervous about this arrangement, the Winnebago were reassured that they would be protected and Fort Atkinson was established. The general history of Fort Atkinson is characterized by efforts to construct the post, to control the Winnebago, and to expel Whites from the Neutral

Ground. A series of military units, of both Army regulars and volunteers, served at the post. From 1840 to 1846 the post was garrisoned by federal troops including infantry and dragoons (mounted infantry). Troops were withdrawn from the fort at the onset of the Mexican-American War in 1846. From this time until 1848 Fort Atkinson was garrisoned by a force of Iowa volunteers. Regular Army troops returned in 1848, staying until 1849, the year the fort was abandoned by the military. The Winnebago had been removed from Fort Atkinson in 1848 and moved to Minnesota. In 1862, the Winnebago were moved to Crow Creek, South Dakota. Once there, most of the Winnebago left Crow Creek to establish themselves among the Omaha in Nebraska or to return to Wisconsin. Eventually, in 1865, a Winnebago reservation was established adjacent to the Omaha reservation, south of Sioux City, Iowa, where it still exists today.

Life at Fort Atkinson was modeled using primary fort correspondence and secondary sources, and by analogy to daily life, health, and diet at other nineteenth century military and civilian settlements. A soldier's life was governed by a set routine and was probably monotonous at times. Officers most likely spent their time completing paperwork, supervising and training the troops, and policing the fort. At times, the repetition of post life was broken by mail, courier, and purchasing assignments that allowed officers to leave the post for a period. Many officers brought their families with them to the frontier, as did officers at Fort Atkinson. Though little record exists concerning the families of officers at Fort Atkinson, wives of the officers probably spent their time supervising the children, gardening, and performing domestic tasks including

cooking and sewing. Children probably spent a hearty portion of their weekday in the schoolroom in the South Barracks. At other times, children may have helped with domestic chores or spent time playing.

An enlisted man probably spent his days performing duties assigned according to skill or past experience. Between 1840 and 1842 much of an enlisted man's time must have been spent constructing the fort. Apart from construction duty, a soldier might be assigned to cut firewood, gather and prepare food, care for the animals, stand guard, or ride patrol. Patrol duty might have been a welcome change from a soldier's regular duties. Though often physically taxing, patrol duty allowed men to leave the fort for a time to help prevent the Winnebago from returning to Wisconsin and to remove Euro-Americans who were in the Neutral Ground illegally.

Major factors affecting life on the military frontier were health and diet. Compared to other frontier populations who were not as financially secure, military populations probably enjoyed a more varied and reliable diet. Not only were foodstuffs including salt pork, flour, beans, and vinegar purchased for the fort, fort gardens provided the soldiers with produce. Though they probably enjoyed a diet superior to those of other frontier populations, the men at Fort Atkinson are likely to have suffered disease at a rate similar to or greater than civilian populations. Diseases such as cholera, tuberculosis, and typhoid flourished in the close-quartered living that characterized military posts on the frontier. Fort Atkinson did staff a surgeon; however, nineteenth century medical practices rarely did little more than treat the symptoms of an illness. Also affecting the general health of

soldiers were trauma and physical activity. Garrison life contained periodically stressful and/or dangerous activities. Activities such as felling trees, horseback riding, quarrying stone, or cutting ice very likely resulted in both traumatic injuries from time to time and degenerative physical changes through time, ultimately affecting the lives of those soldiers participating in such activities.

The discussion of the architecture and preservation of Fort Atkinson was also reliant on primary and secondary sources, as well as on previous studies concerning the site. Furthermore, an on-site architectural survey also provided a good deal of information about the architecture, preservation, and interpretation of the Fort Atkinson State Preserve. Detailed architectural descriptions of fort-period buildings, both extant and non-extant, have been presented in this study. Also included has been a discussion concerning preservation issues including past preservation efforts, the present state of repair of the site, accessibility and safety, and how the fort might be administered more effectively.

First, the site is administered as if it is a state park and not a state preserve, which is its official designation. Access is often limited to a preserve in order to maintain the site in a certain state. However, people are encouraged to visit Fort Atkinson, especially during an annual rendezvous. That is not to say that the site should be treated as a preserve and be off limits to the public. The site represents a significant cultural resource and should be used to inform the public of this important period of history. The most sensible remedy would be to transfer control of Fort Atkinson from the Preserves Board to the Parks Board in order for the site to be administered as a state park.

Second, a policy of preventative maintenance should be adopted by those who administer the site. The present state of repair of Fort Atkinson indicates that there are certain problems concerning the preservation of the site. Problems include water damage to buildings, poorly fitted doors, and collapsing foundations of non-extant buildings. In order to preserve the site in its present state, certain repairs must be made and the condition of the buildings must be monitored in the future. Realizing that funds are likely restricted, it will be necessary to prioritize needed repairs, completing them when money becomes available. One problem that should be addressed as soon as practicable is water damage to the structures. A thorough inspection of the roofs of fort structures should be made to ensure that they are in good repair and are shedding water appropriately. Also suggested is that gutter systems be installed on the structures in order to direct water away from the buildings. True, gutters are not original to the buildings. However, water damage is evident on certain areas of the foundations of the buildings and will become worse through time if the problem is not treated. Once the problem of water damage is corrected, focus may shift to other needed repairs including re-hanging doors, reconstructing collapsed foundations, and restoring rotted wooden window sills.

Third, philosophies outlined in the Americans with Disabilities Act (ADA) should be incorporated into the administration of Fort Atkinson. Suggested improvements include the reservation of accessible parking spaces in the lot north of the site. The accessible parking spaces, if not the entire parking lot, should be paved, making it easier to navigate for those whose mobility is impaired. The fort grounds are characterized by an uneven,

grass-covered surface, which might also be difficult to navigate for seniors or those who are impaired. Such individuals might benefit from a paved path leading from one feature to the next. Such a path could also be used to direct the public along a self-guided tour of the site planned by fort staff. Finally, the entrance to the Powder Magazine requires an individual to take one step up. A small ramp would make the entrance more accessible.

A final recommendation concerning the site is that steps be taken to better secure the preserve. Vandals have carved and drawn graffiti on buildings, most notably on the exterior east wall of the North Barracks and on the interior walls of the Powder Magazine. Again, funds are probably not available to provide security staff year round. However, a fence might be erected in sections where the stockade was not reconstructed, possibly providing a deterrent to potential vandals. A security system or motion activated flood lights might also serve to protect the site.

Archaeological data utilized for this study is represented by the artifacts recovered by Marshall B. McKusick during his excavations of the fort privies in 1966. One thousand, five hundred, thirty-six artifacts made of ceramic, metal, leather, glass, bone, and wood have been described and analyzed in this study. Analysis was based on a functional classification of privy artifacts, where specimens were assigned to categories including building materials/hardware, tableware, storage/utilitarian wares, and recreational items. Because each privy was arranged so that it was directly behind the quarters of a particular officer's quarters, it was theorized that each privy represented a household. It was expected that differences between the privies, and thus households, would become

apparent when the privies were compared in terms of frequency of artifacts from each functional category. Save for Privy 7, which only yielded 11 specimens, the privies share a rather similar distribution of functional types. One exception is in the distribution of recreational items, the majority of which are smoking pipes. Recreational items represent 29 percent of Privy 5's total artifact assemblage, but only represent 1.4 percent of the Privy 3 assemblage. Such variation may reflect the smoking habits of the users of each privy. Slight socio-economic differences between privy users are indicated by an analysis of decorated ceramics. Studies of late eighteenth and early nineteenth century Euro-American sites indicate that expensively decorated ceramics predominate in higher status deposits (Miller 1980; Scott 1989; Stone 1974). Privies 5 and 6 are characterized by lesser percentages of undecorated whiteware (the least expensive type of whiteware) than the other privies. The percent of transfer printed wares (the most expensive decorative technique) from each privy is similar (between 23.5 and 28.3), with three exceptions. Sixty percent of occurrences of decorative techniques from Privy 7 ceramics were transfer prints. Such a unusual result is expected because of the small number of artifacts were recovered from the privy. Of the ceramics recovered from Privy 2, only 9.1 percent were transfer printed. Privy 3 had no transfer printed ceramics at all. This may indicate that those using Privies 2 and 3 may have been of a lesser economic standing than other fort inhabitants. In fact, the location of Privies 2 and 3 directly to the east of the center section of the East Barracks (Figure 6) suggests that both Privies may have been used by the same household.

Lieutenant Reynolds' 1842 map identifies Privy 3, but not Privy 2. It is possible that Privy 3 became full over time and Privy 2 was dug as a replacement.

An analysis of the overall privy assemblage indicates that the officers at Fort Atkinson had access to imported goods such as English ceramics, French olive oil, and German marbles. Not surprisingly, these artifacts indicate that the officers could afford rather expensive ceramic wares, such as those decorated with transfer prints and hand painting. The diversity of the privy goods and the presence of expensive ceramic wares and imported goods suggest that the officers enjoyed a higher socio-economic standing than most people living in nineteenth century America. Pipes, dominos, musical instruments, and intoxicant bottles recovered from the privies indicate that the officers partook in leisure activities that in some cases may have been frowned upon (e.g., drinking). Documentary evidence suggests that officers on the frontier complained about enlisted men who drank. However, Fort Atkinson's privy assemblage indicates that drinking was part of the lives of officers, too. Physical evidence for the presence of women and children at Fort Atkinson was characterized by women's toiletry items and by children's toys such as marbles and miniature tea sets. Finally, a small number of trade beads from the privies indicates a minor trade relationship between the Winnebago and the soldiers. Interaction between the two groups is not discussed in the historical record outside of incidences where the military was sent out to police the Winnebago. It may be that the Winnebago had little incentive to venture to the fort, some five miles from the Turkey River Subagency where they lived and received their annuity payments. However, it is possible that the two groups traded

regularly and that a larger number of beads were not recovered during the 1966 excavations of the privies because of the recovery techniques employed at that time.

Recommendations for Future Research

Fort Atkinson's potential to provide further architectural, archaeological, and historical data and knowledge is far from exhausted. Additional subsurface features very likely exist within the vicinity of the site. Yet to be located are the enlisted men's privies, a fort midden, and other structures and features not included on Lieutenant Reynolds' 1842 map of the site. The area outside of the fort stockade, which is now under private ownership, may be an especially rich source of archaeological and architectural data. Much of the area has been impacted by farming, road construction, and house building. However, Kean's (1981) survey located the foundations of many of Fort Atkinson's outbuildings. Yet to be excavated, these buildings might provide valuable data concerning the lives of those at the post.

Finally, interpretations based on data presented in this study are by no means plenary. It is likely that varied and numerous interpretations of fort life may be derived from the data presented here; such interpretations are welcomed. Comparative studies between Fort Atkinson and other forts on the frontier are potentially fruitful in increasing what is known of life at nineteenth century military posts. Also, comparisons between Fort Atkinson and associated, contemporaneous sites such as the Turkey River Subagency will increase what is known of local variations in cultural and socio-economic phenomena.

APPENDIX A. FIGURES

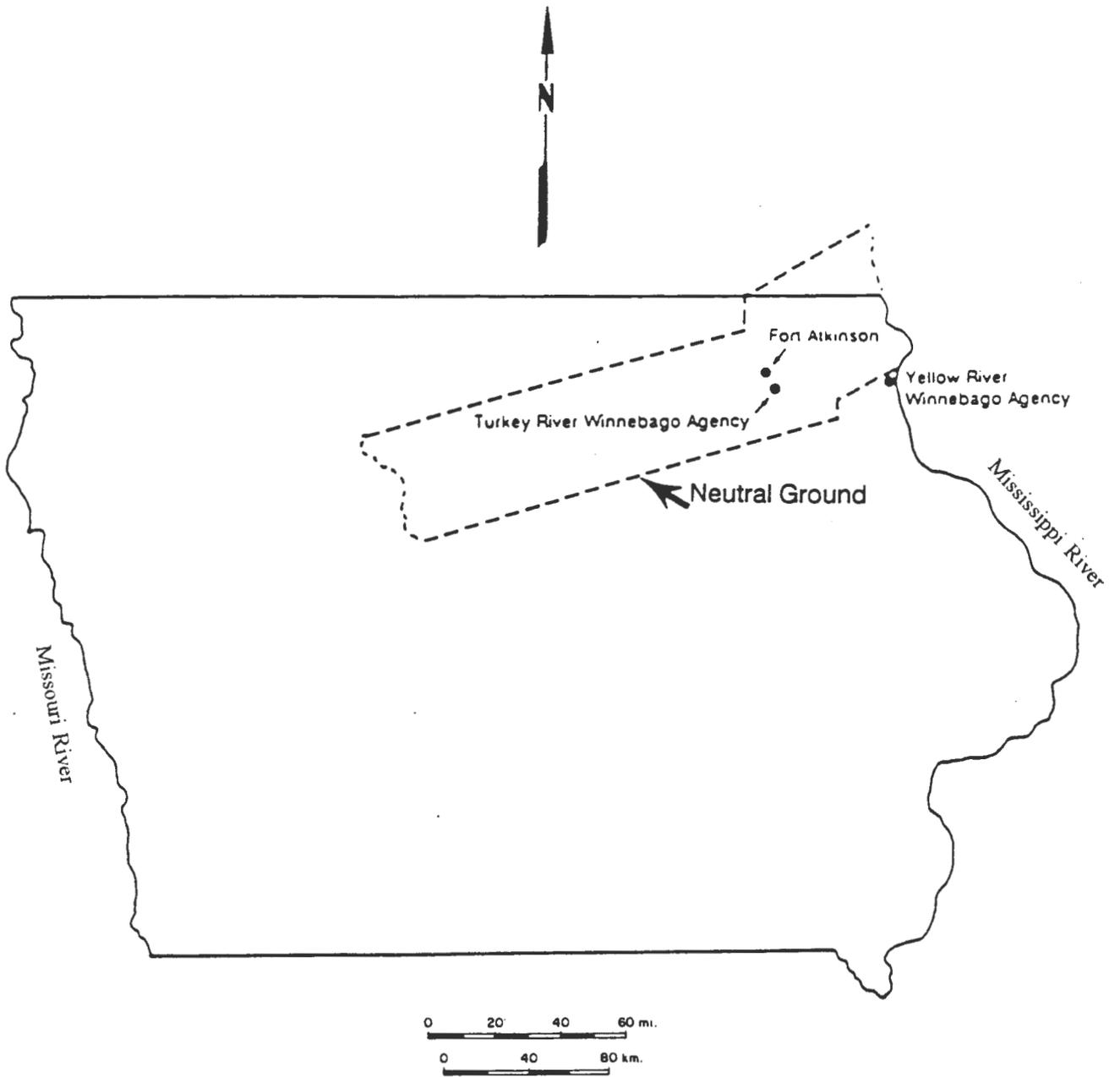


Figure 1. Location of the Neutral Ground in northeast Iowa (from Merry and Green 1989).



Figure 2. West-facing view of Southwest Blockhouse.



Figure 3. East-facing view of Powder Magazine.



Figure 4. North-facing view of North Barracks



Figure 5. Northeast-facing view of reconstructed Northeast Blockhouse.

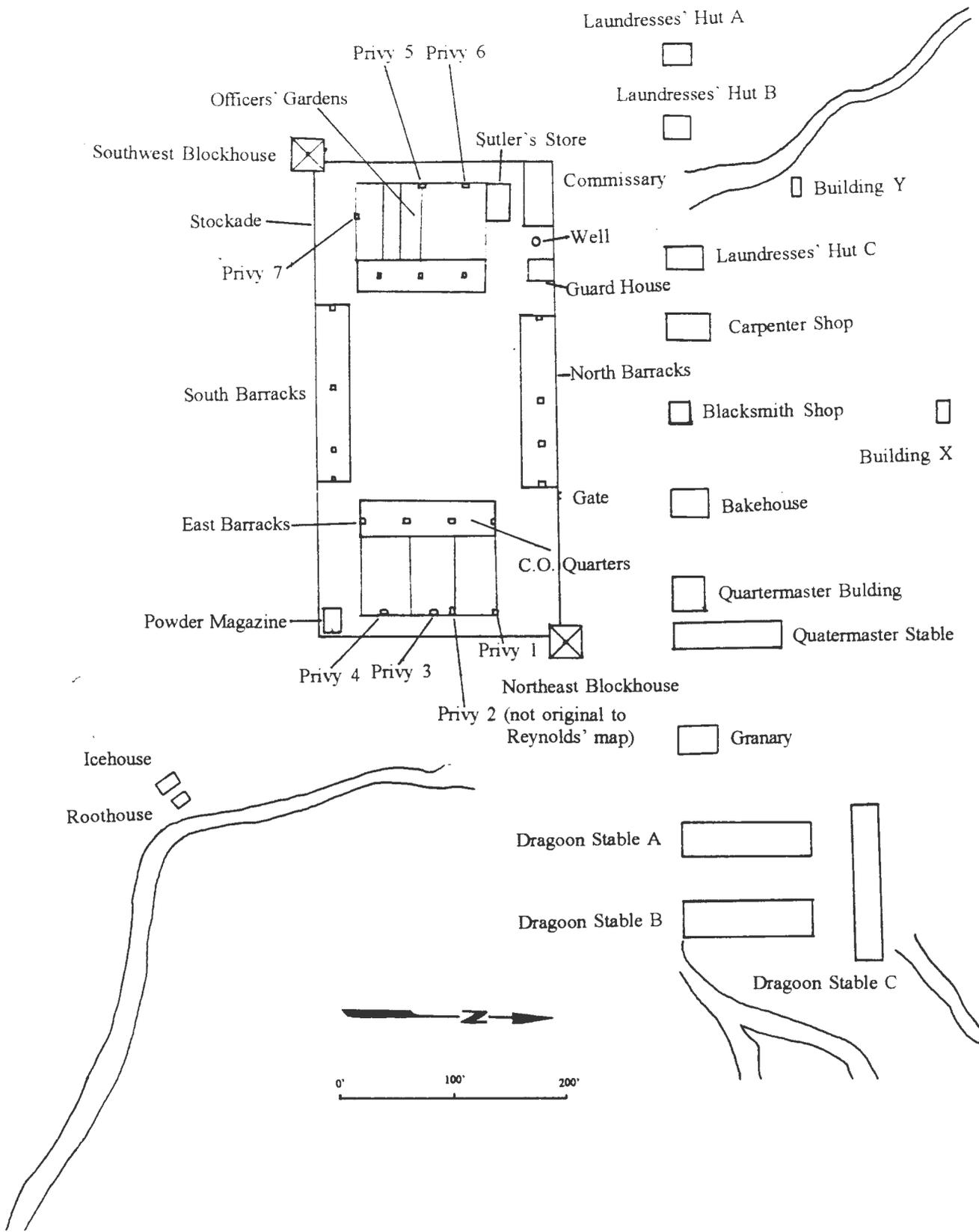


Figure 6. Map of Fort Grounds redrawn from Lt. Reynolds' 1842 sketch.

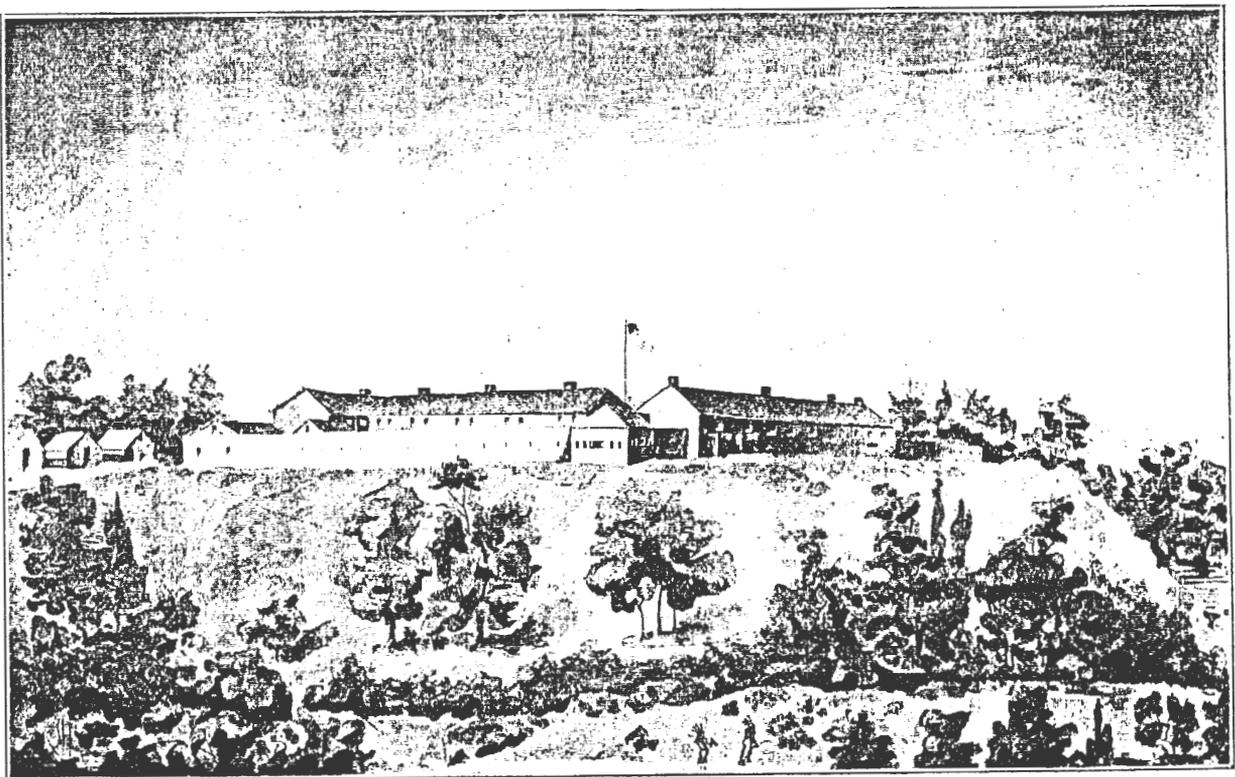


Figure 7. Northeast-facing drawing of Fort Atkinson by Lt. Reynolds (1842).

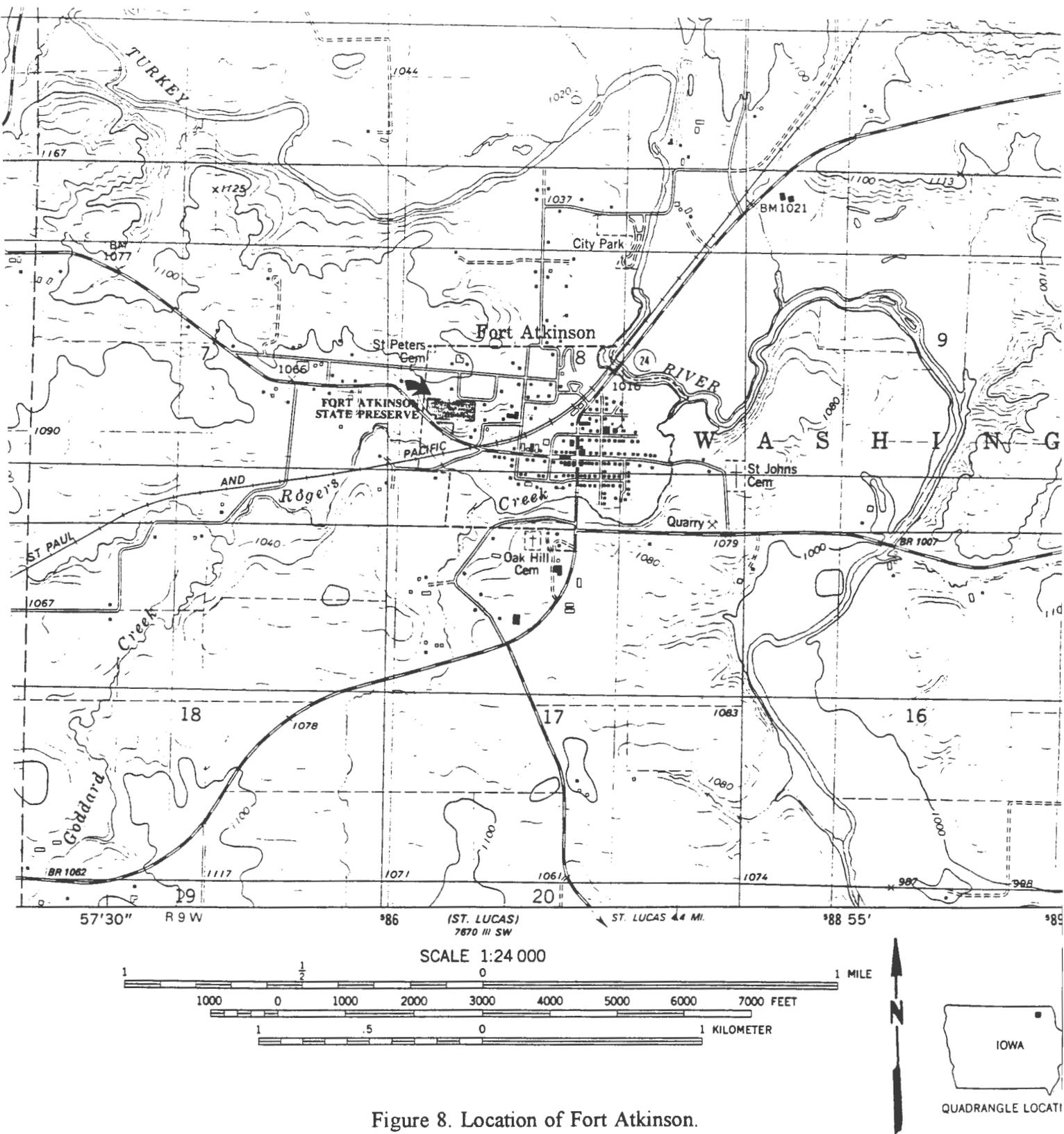


Figure 8. Location of Fort Atkinson.



Figure 9. Views of Fort Grounds.

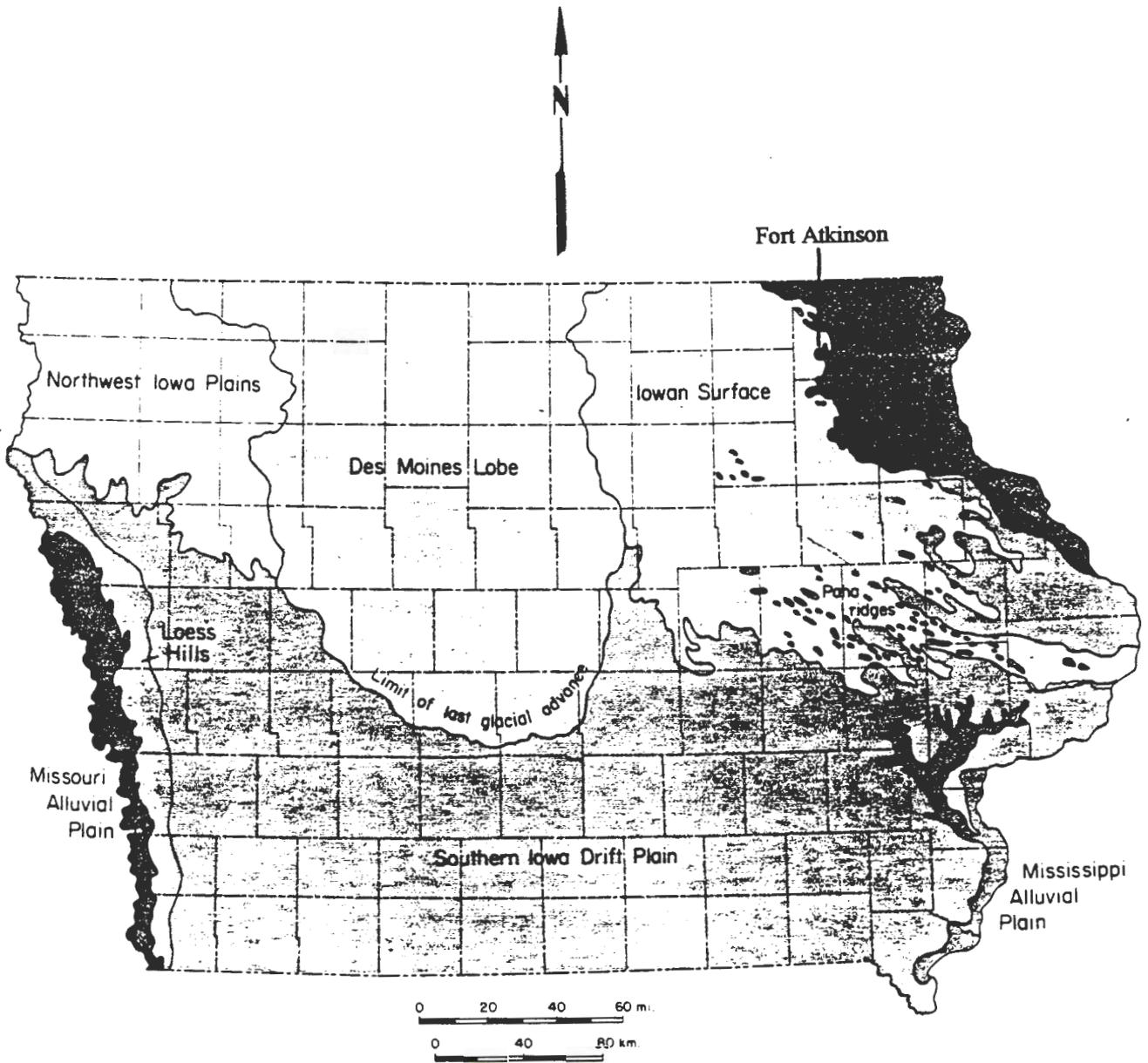


Figure 10. Landforms of Iowa (from Prior 1991).



Figure 11. Fort Atkinson Quarry.

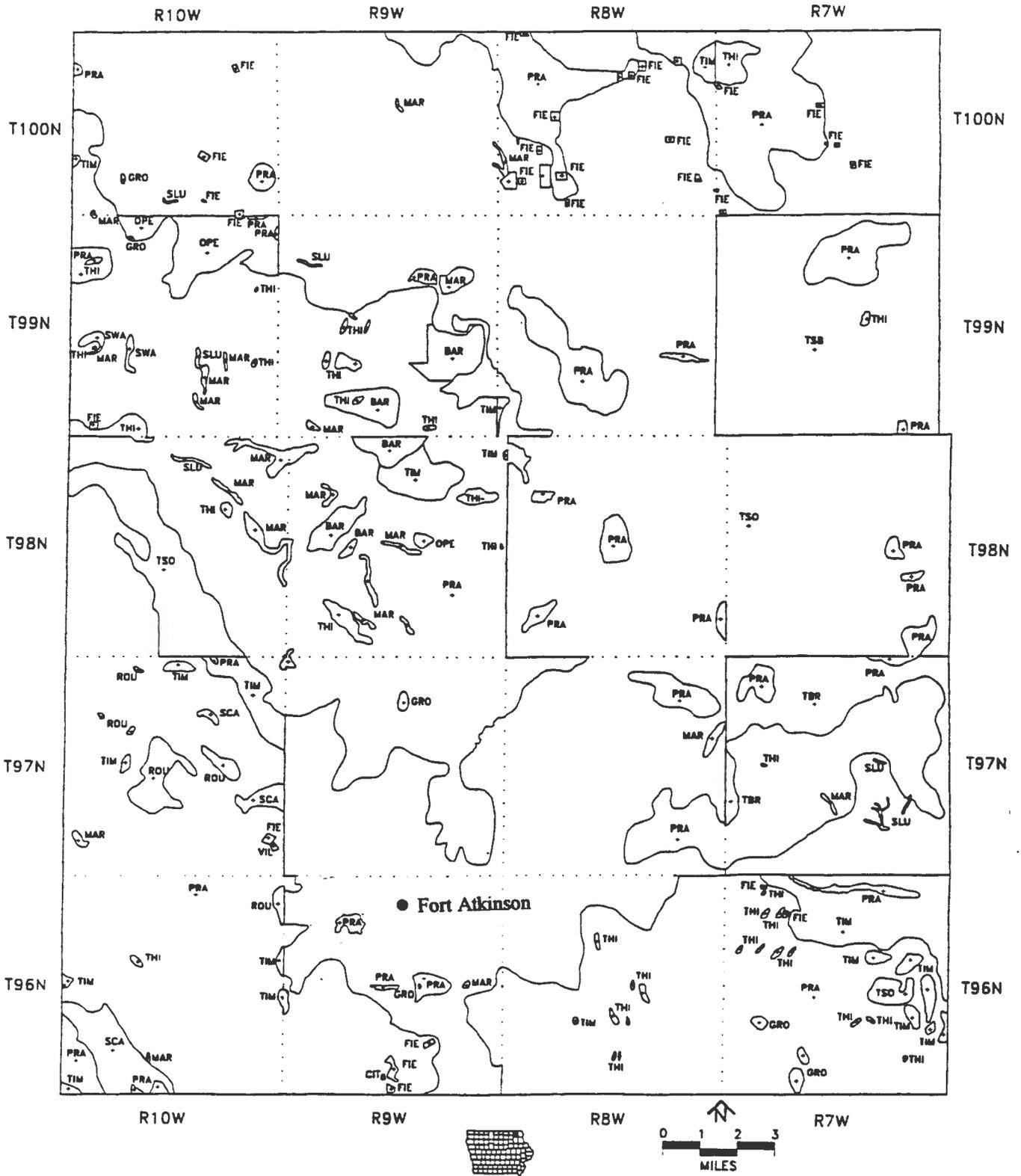


Figure 12. Vegetation of Winneshie County, Iowa, digitized from 1832-1859 General Land Office Township Plat Maps (from Anderson 1996).



Figure 14. Northwest-facing view of North Barracks.



Figure 15. View of North Barracks from outside the Stockade.

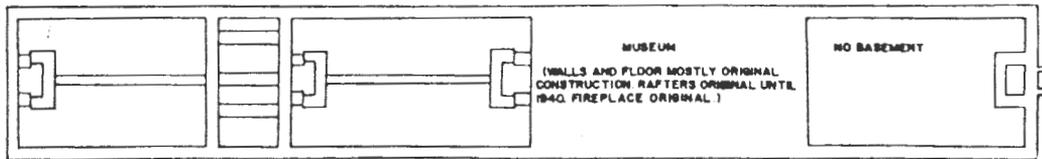


Figure 16. Plan of North Barracks (from McKusick 1966b).



Figure 17. Historic photograph of North Barracks prior to stabilization efforts.



Figure 18. Northwest-facing view of partial reconstruction of North Barracks.



Figure 19. West cement block wall of North Barracks.

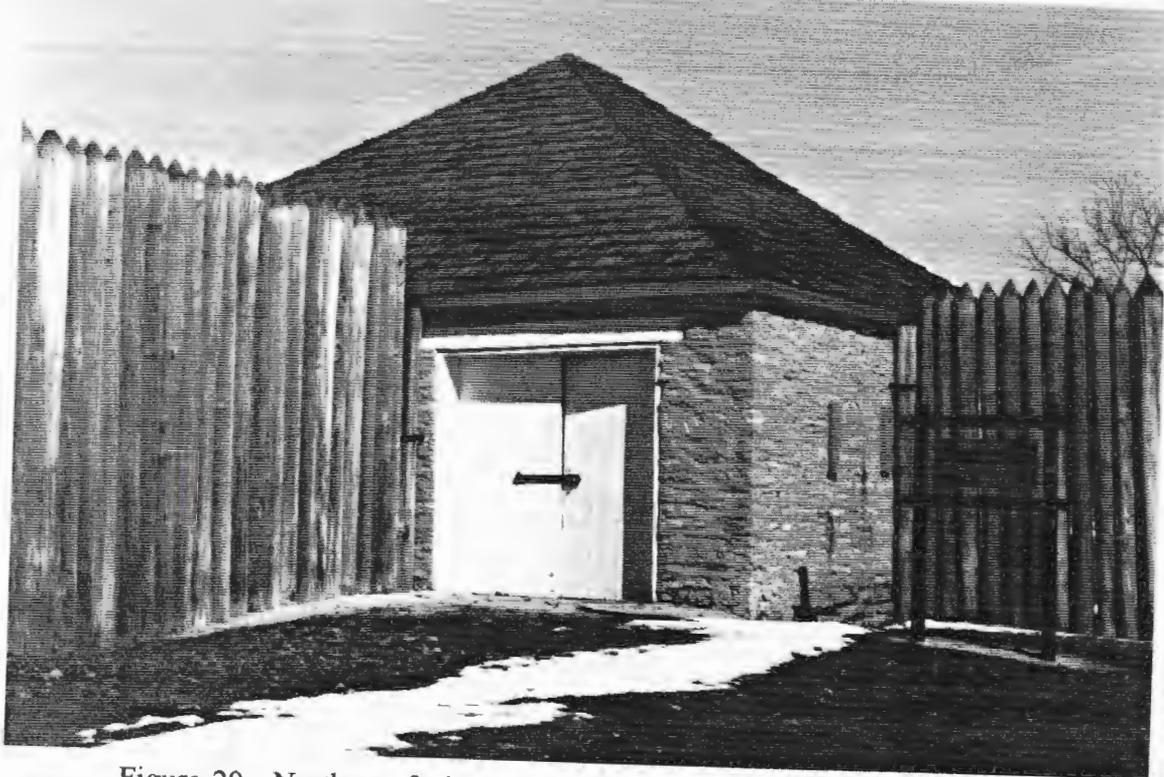


Figure 20. Northeast-facing view of reconstructed Northeast Blockhouse.



Figure 21. Southeast-facing view of reconstructed Northeast Blockhouse.

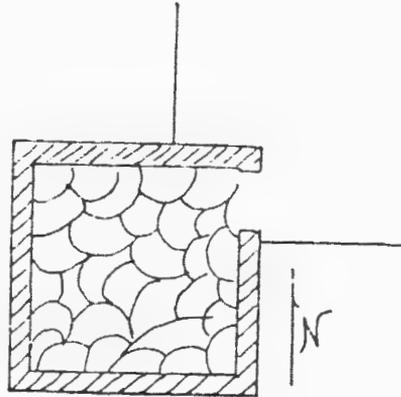


Figure 22. Plan of reconstructed Northeast Blockhouse (from McKusick 1966b).



Figure 23. Roughly east-facing view of Powder Magazine.

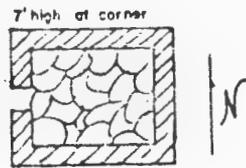


Figure 24. Plan of Powder Magazine (from McKusick 1966b).



Figure 25. West-facing view of Southwest Blockhouse.

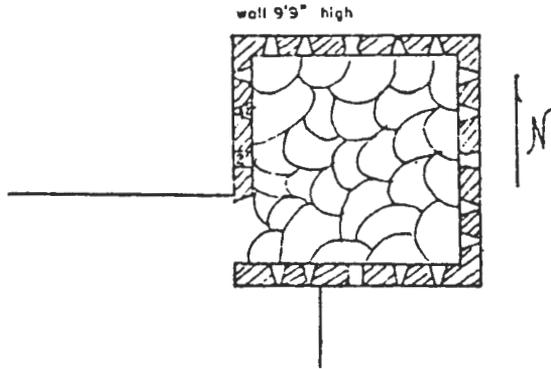


Figure 26. Plan of Southwest Blockhouse (from McKusick 1966b).

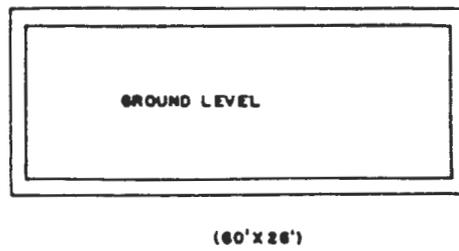


Figure 27. Plan of Commissary (from McKusick 1966b).

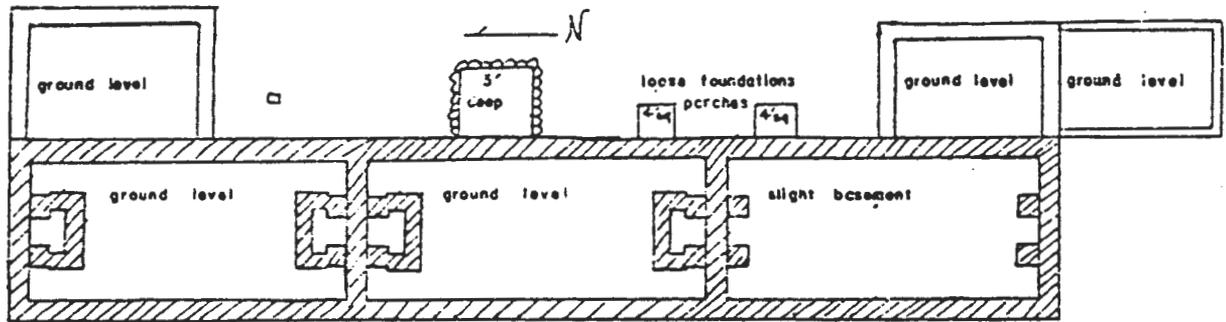


Figure 28. Plan of East Barracks (from McKusick 1966b).

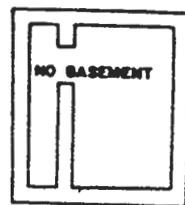


Figure 29. Plan of Guardhouse (from McKusick 1966b).

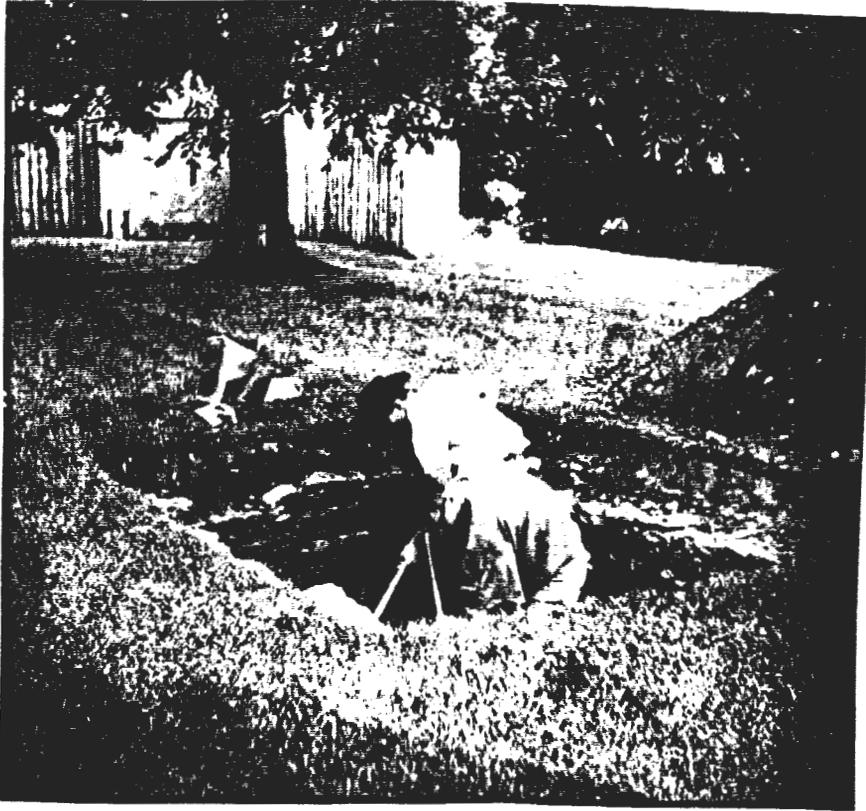


Figure 30. Photograph of 1966 privy excavations.



Figure 31. Photograph of 1966 privy excavations.

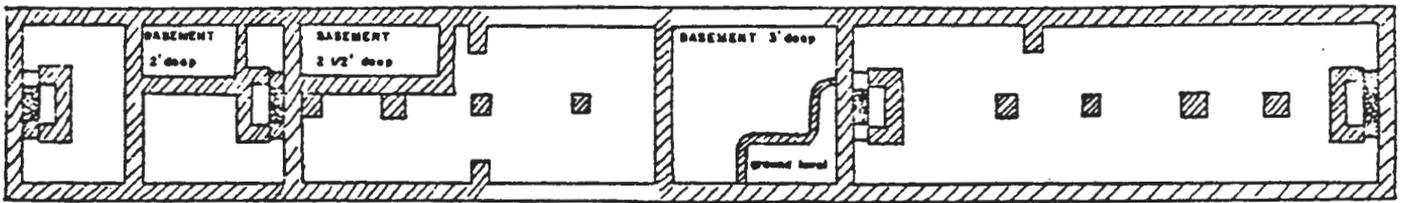
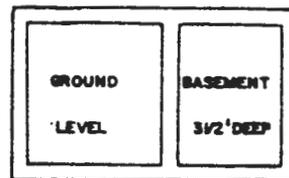


Figure 32. Plan of South Barracks (from McKusick 1966b).



(36' x 22')

Figure 33. Plan of Sutler's store (from McKusick 1966b).



Figure 34. Modern structure sheltering fort-period well.

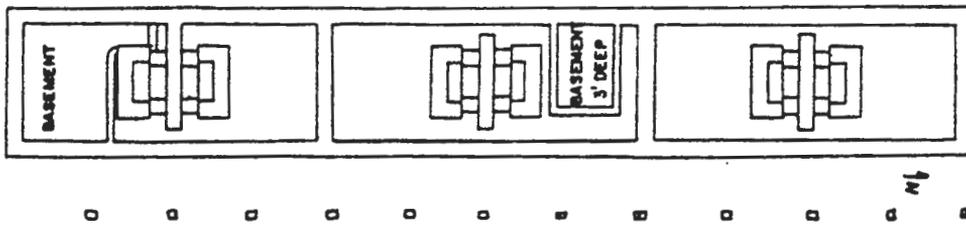


Figure 35. Plan of West Barracks (from McKusick 1966b).

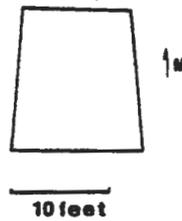


Figure 36. Plan of bakeoven (from Kean 1981).

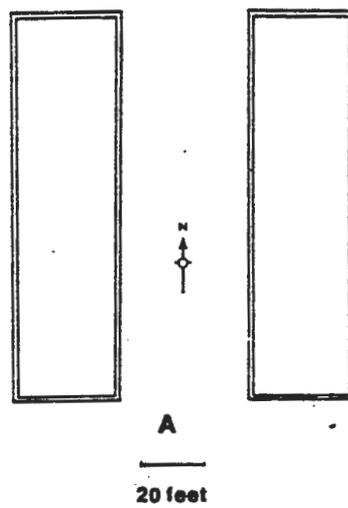


Figure 37. Plans of Dragoon Stable A and B (from Kean 1981).

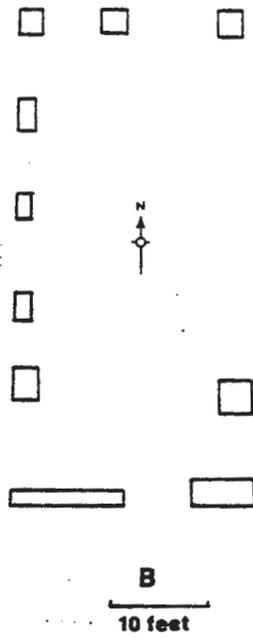


Figure 38. Plan of Granary (from Kean 1981).

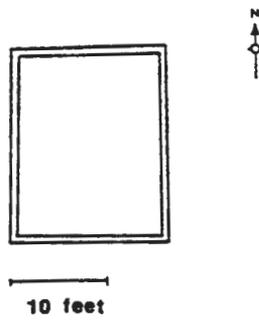


Figure 39. Plan of Laundresses Hut A (from Kean 1981).

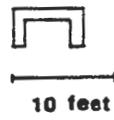


Figure 40. Plan of Fireplace from Laudresses Hut B (from Kean 1981).

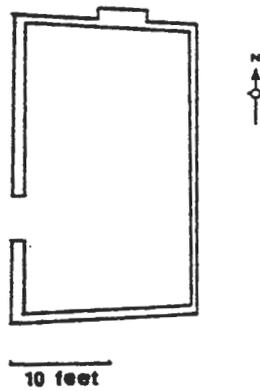


Figure 41. Plan of Quartermaster's Building (from Kean 1981).



Figure 42. Reconstructed main gate.



Figure 43. Partially reconstructed Stockade.



Figure 44. East wall of North Barracks.



Figure 45. Damage to east wall of North Barracks.



Figure 46. Remnants of second story porch beams, south wall of North Barracks.



Figure 47. Window with rotting sill and cracks in wall, south wall of North Barracks.



Figure 48. Water damage to corner of Southwest Blockhouse.



Figure 49. Water damage and mold growth on Powder Magazine.



Figure 50. Poorly fitted doors to Southwest Blockhouse.



Figure 51. Gravel parking lot with no accessible parking places.



Figure 52. Grass covered fort grounds.

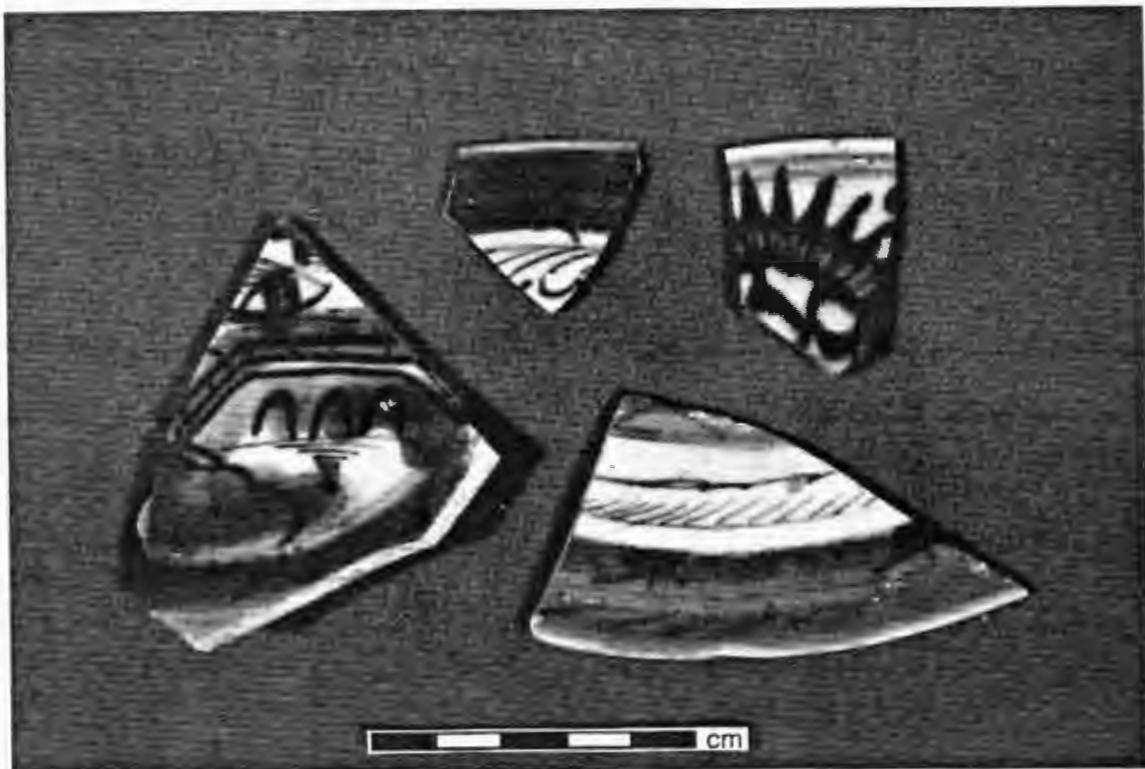


Figure 53. Monochrome hand painted ceramics.



Figure 54. Polychrome hand painted whiteware.

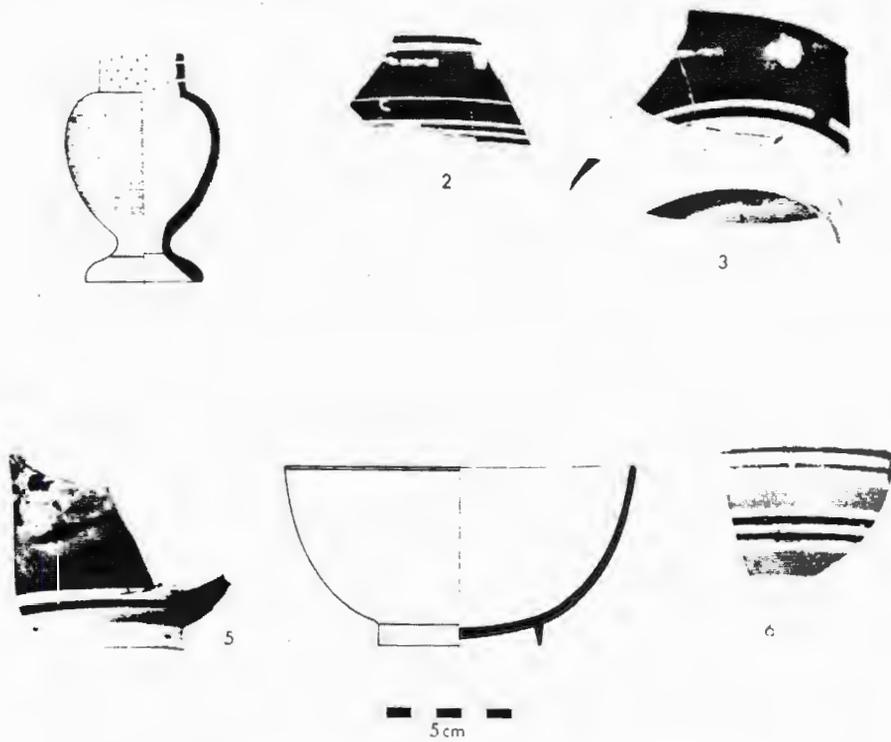


Figure 55. Annular banded wares (from Carlson 1979).

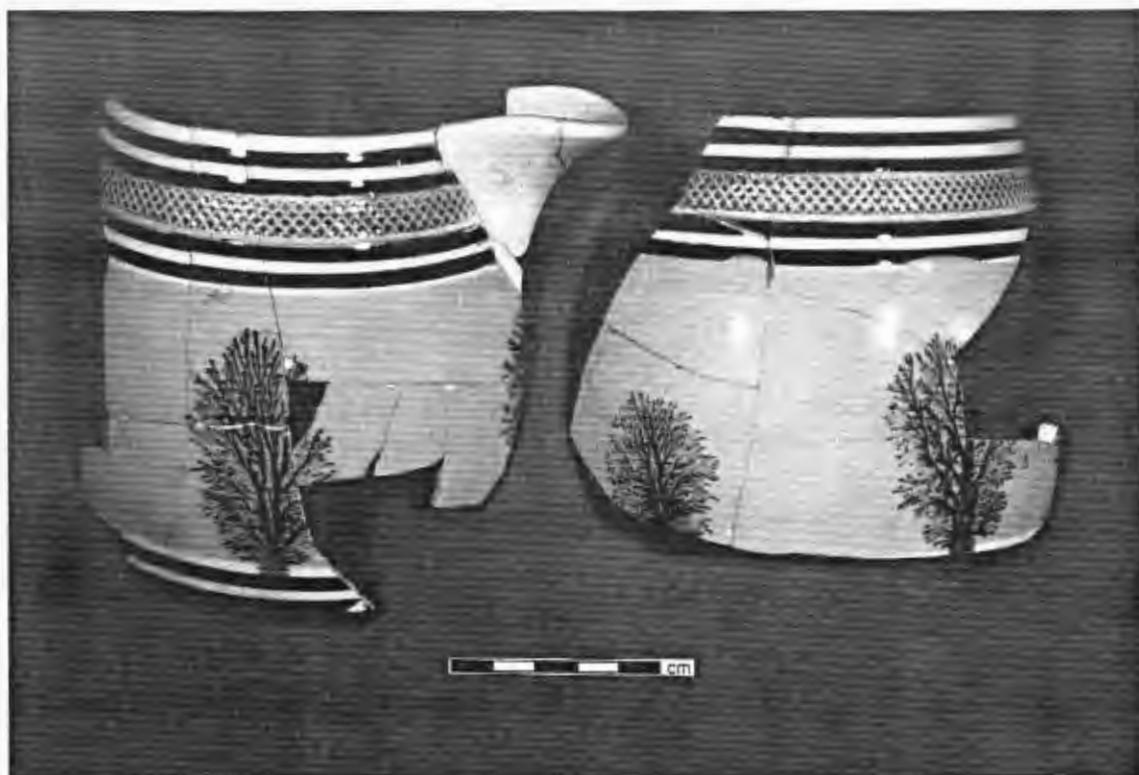


Figure 56. Mocha decorated pitcher.

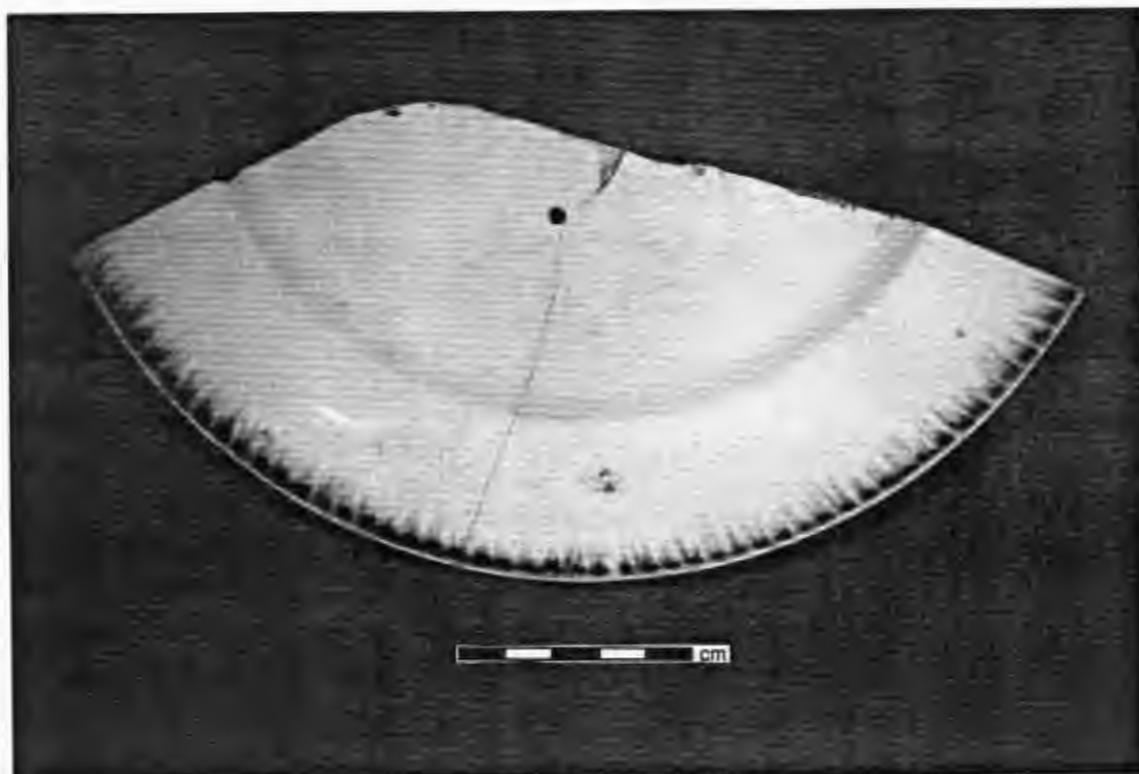


Figure 57. Shell edged plate.



Figure 58. Decaling on porcelain cup (right).



Figure 59. Sponged decoration.

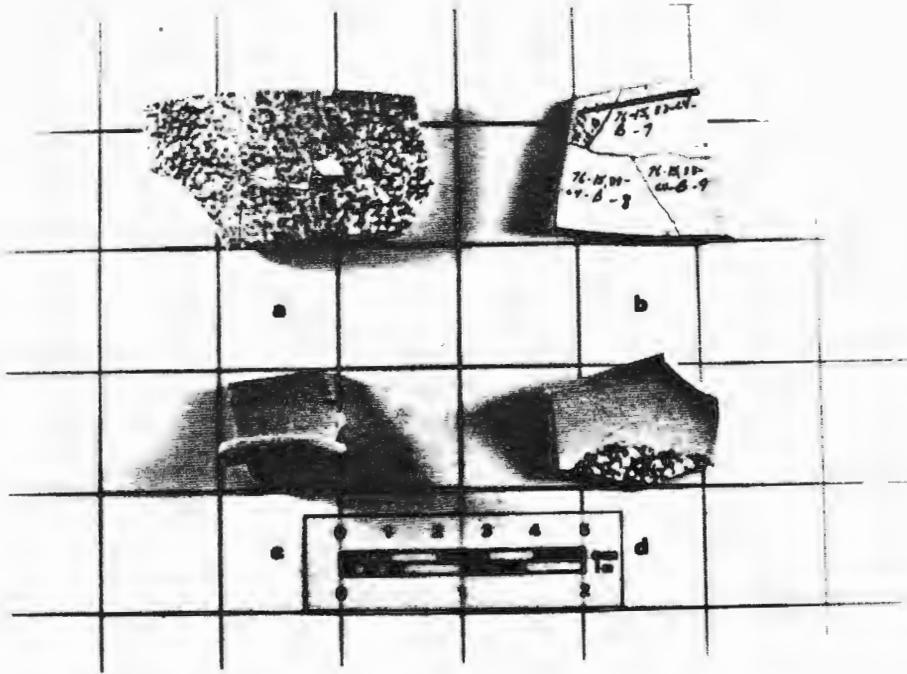


Figure 60. Spatter decorated ceramics (from Comer 1985).

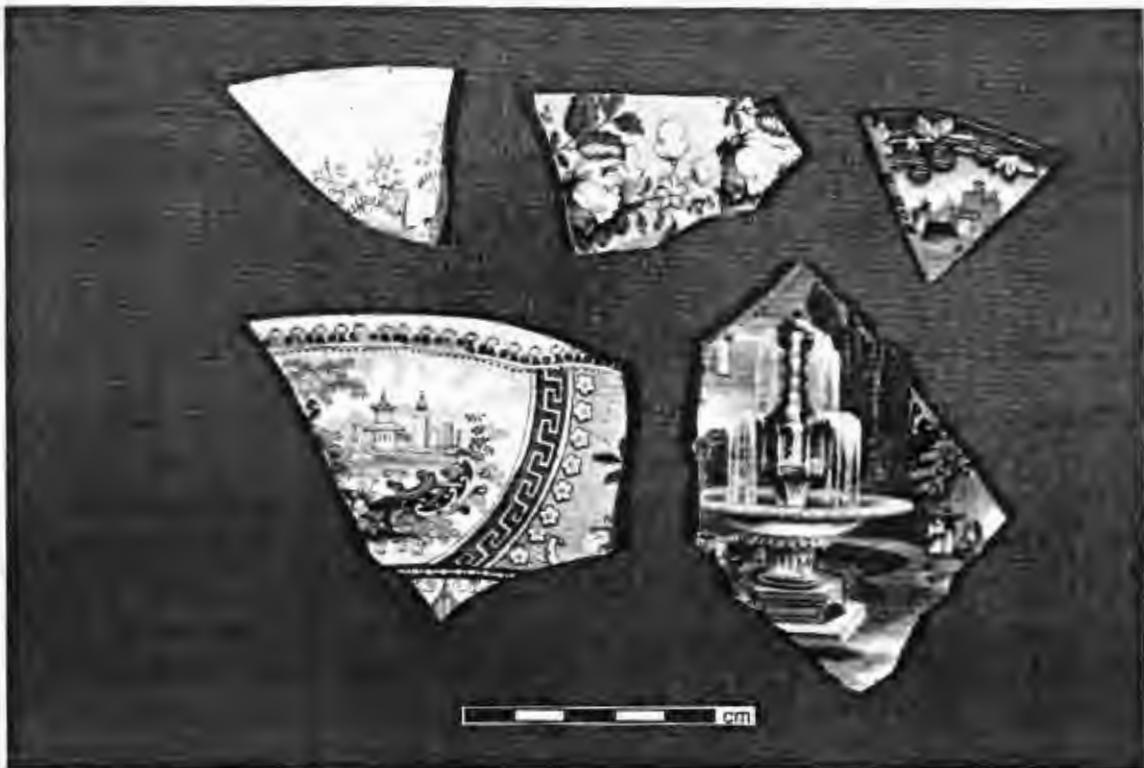


Figure 61. Blue transfer printed ceramics.

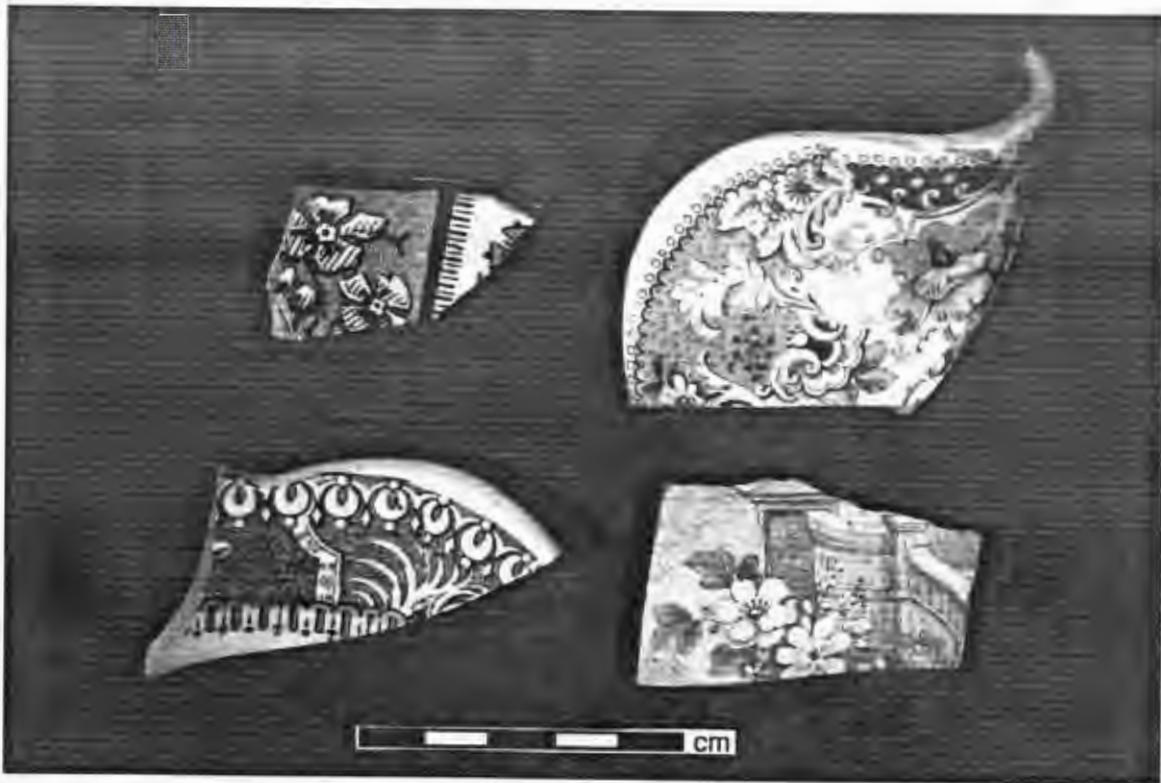


Figure 62. Purple, black, and red transfer printed ceramics.



Figure 63. Flow decorated ceramics.



Figure 64. Chamber pot with molded lid handle.



Figure 65. Gilding on miniature tea pot.

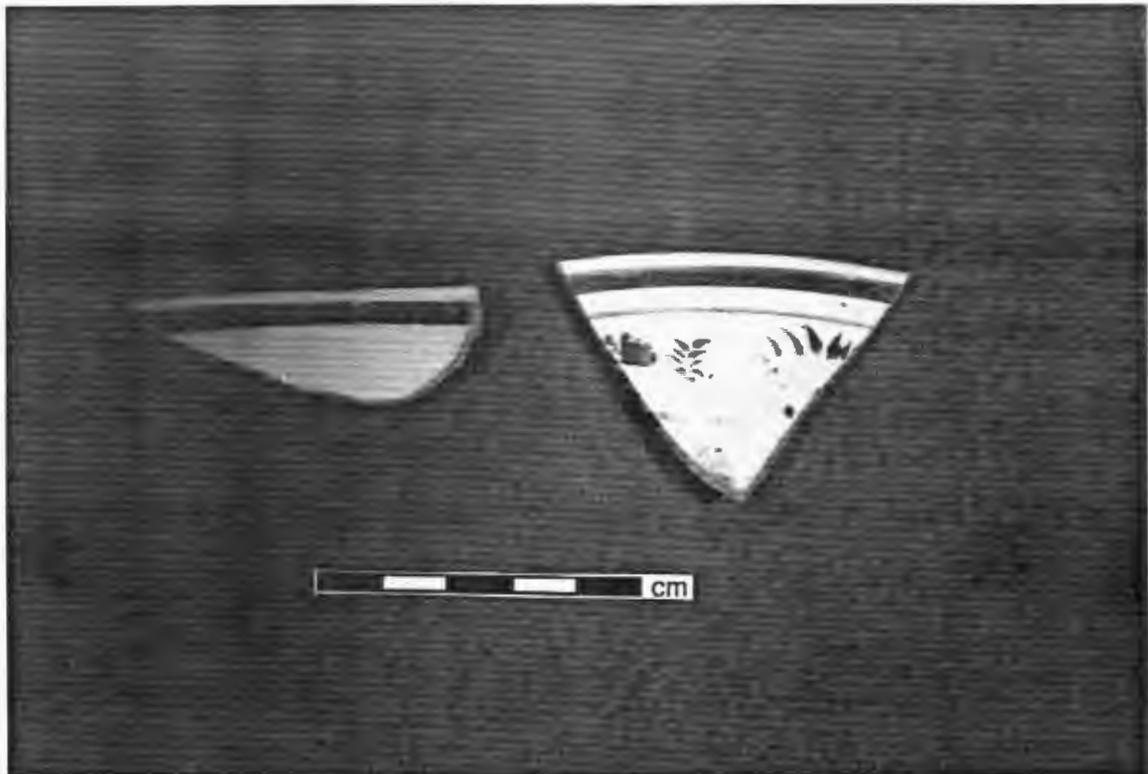


Figure 66. Luster decorated ceramics.



Figure 67. Stoneware.

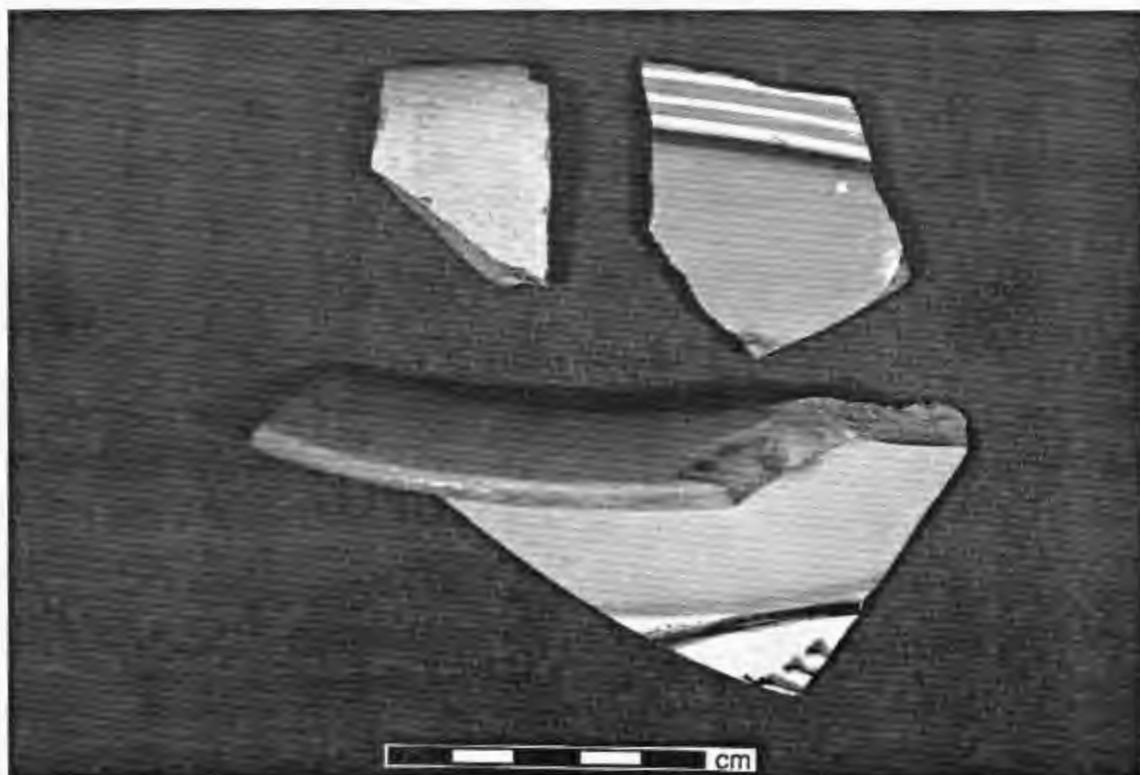
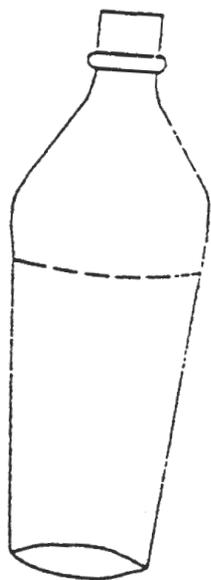
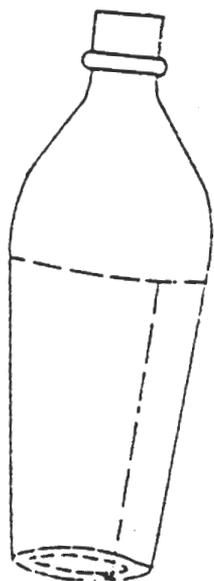


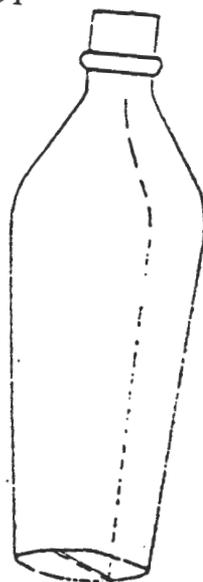
Figure 68. Yellowware.



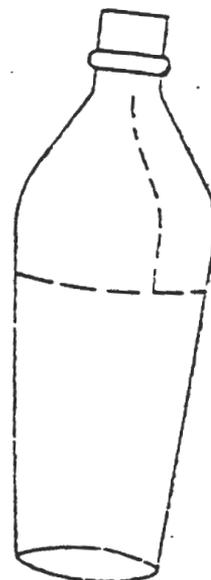
DIP MOLD



HINGED SHOULDER -
HEIGHT MOLD



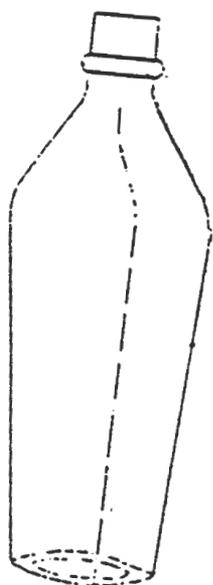
BOTTOM - HINGED
MOLD



THREE PART
DIP MOLD



THREE - PART
LEAF MOLD



POST - BOTTOM
MOLD



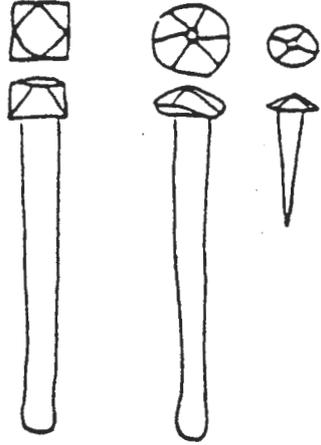
CUP - BOTTOM
MOLD



AUTOMATIC BOTTLE
MACHINE

Figure 69. Mold seams characteristic of historic glass (from IMACS 1992).

HAND WROUGHT NAILS
17th - 19th C.
T head Rose head

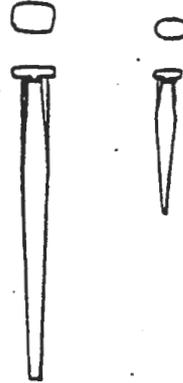


EARLY MACHINE CUT
with handmade head
Ca. 1790 - mid 1920s
Common nail



Shanks often have a
beveled facet on one
side caused by pressure
from die

EARLY MACHINE HEADED
CUT NAILS
Ca. 1815 - late 1830s

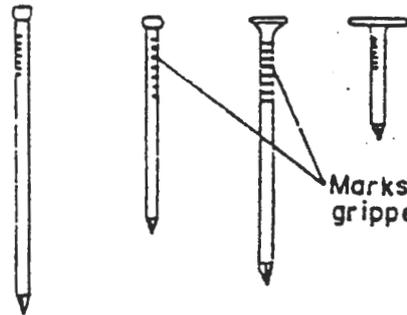


MODERN MACHINE
CUT NAILS
Late 1830s - present



MODERN WIRE NAILS
Ca. 1850 - present

Flooring brads Finish Common Roofing



Marks of
gripper die

Usually have a 4-facet point
caused by cutter die

Figure 70. Historic nails (from IMACS 1992).



Figure 71. Modern machine cut nails.



Figure 72. Wire or round nails.

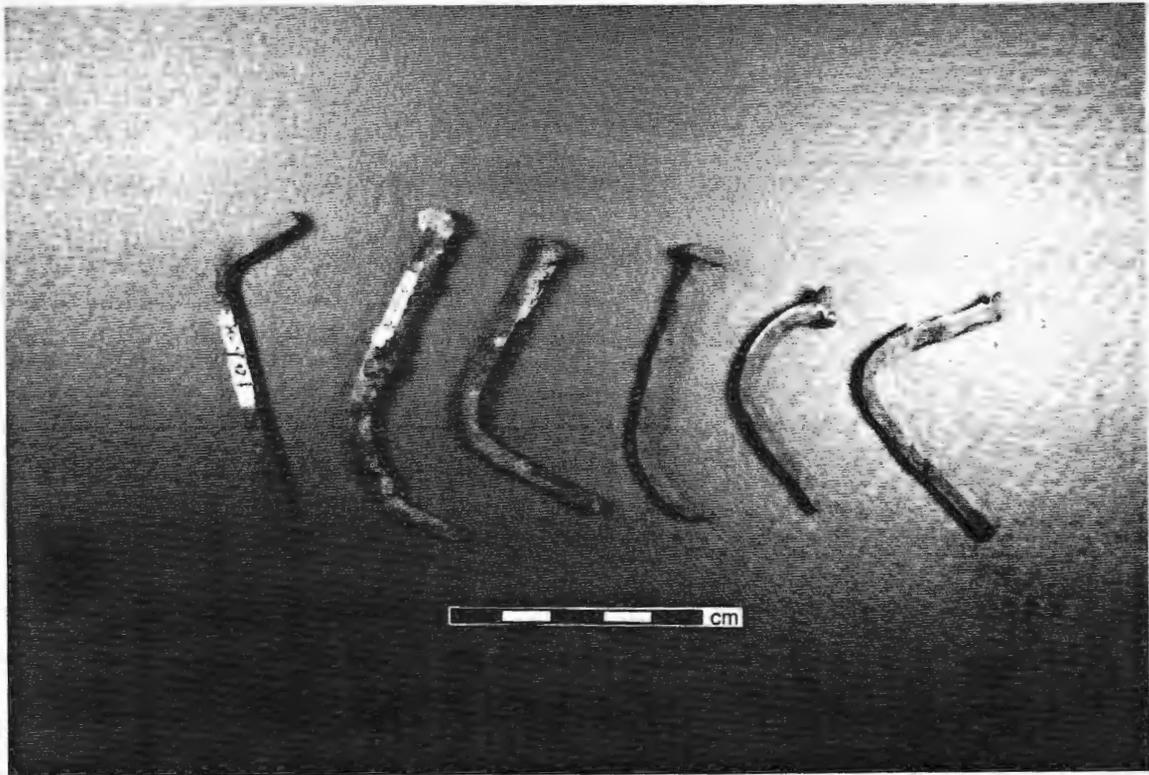


Figure 73. Clinched nails.

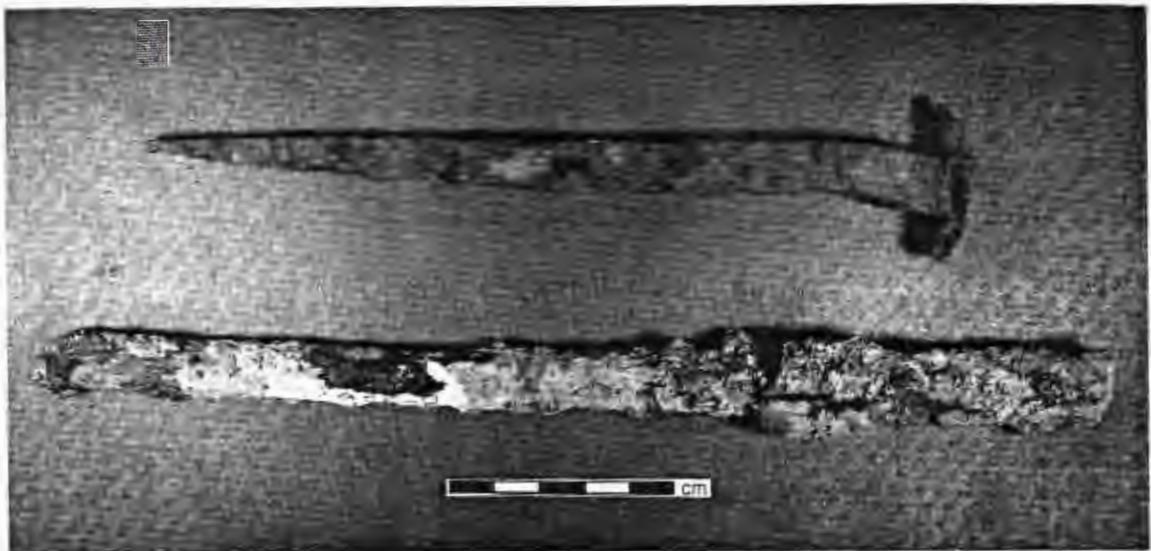


Figure 74. Spike and Rod or Spike.

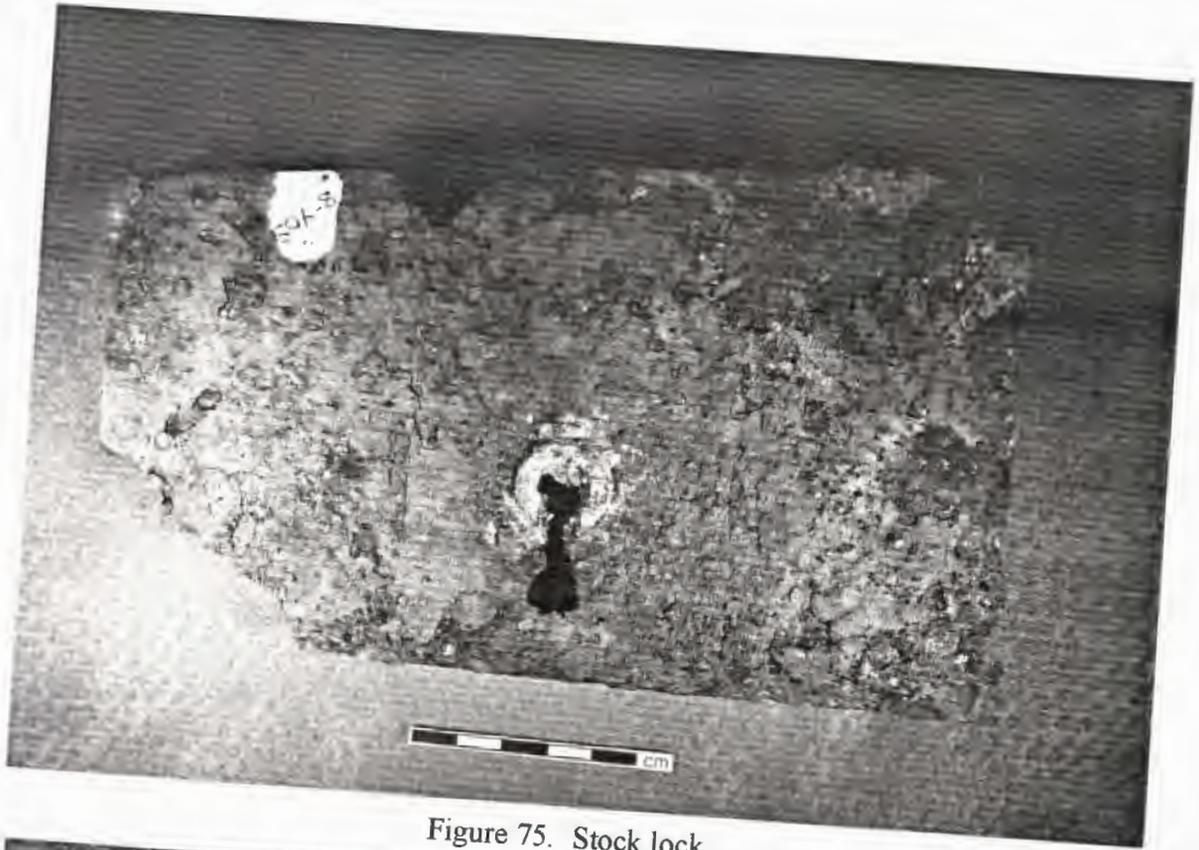


Figure 75. Stock lock.



Figure 76. Keys.



Figure 77. One of four bolts recovered from Fort Atkinson Privies.

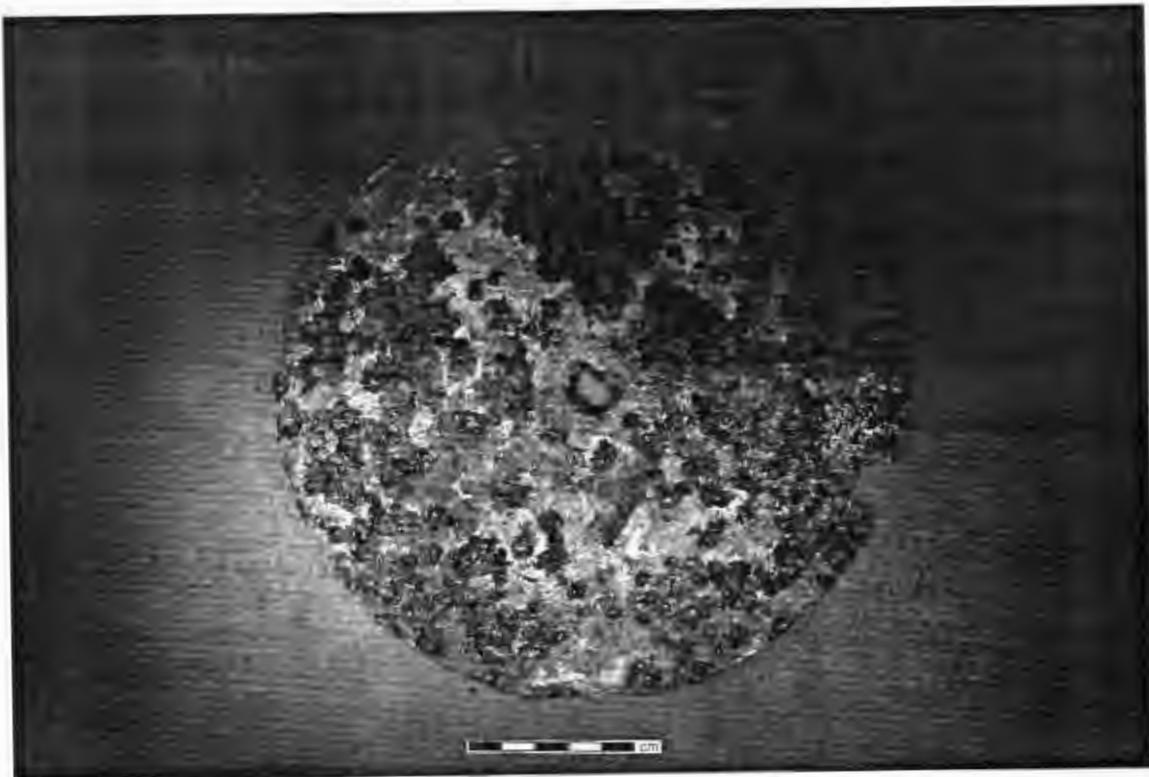


Figure 78. Iron disk.

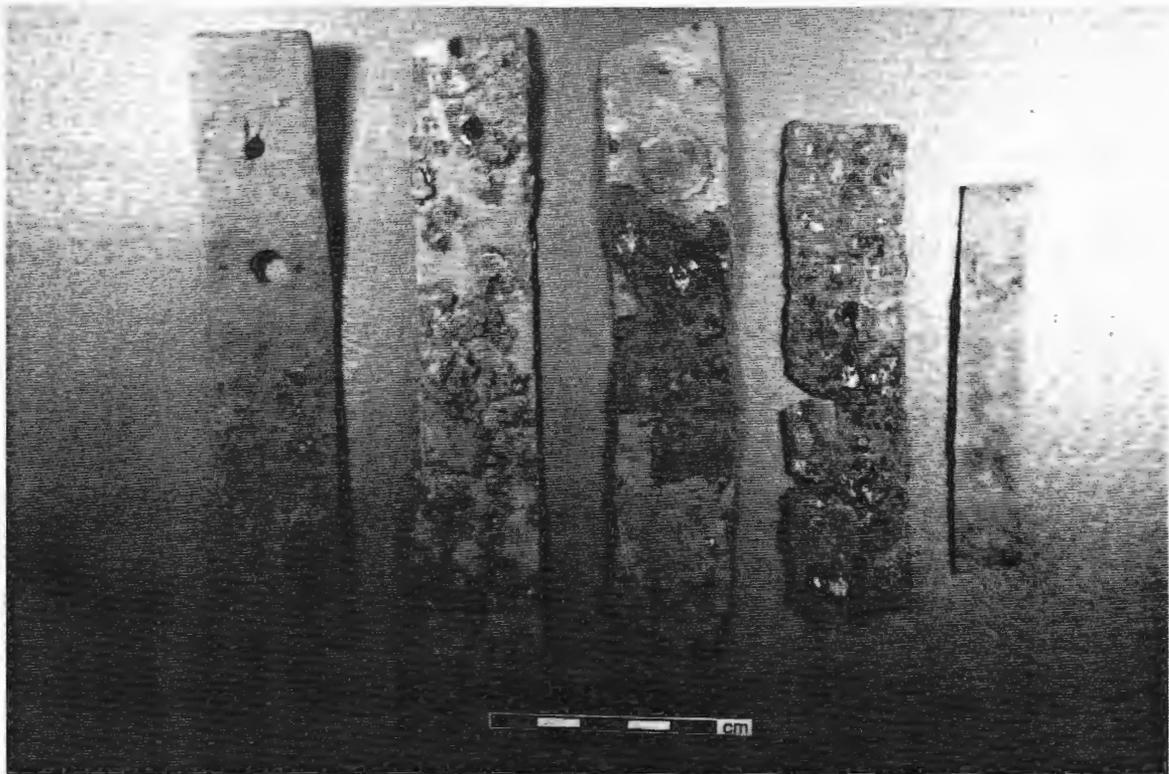


Figure 79. Iron straps.



Figure 80. Rivets.

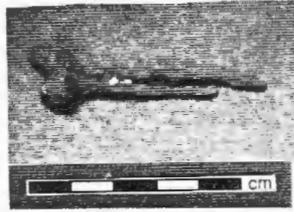


Figure 81. Barbed wire.



Figure 82. Basins.



Figure 83. Chamber pot.



Figure 84. Soap dish.



Figure 85. Medical/Toiletry bottles.

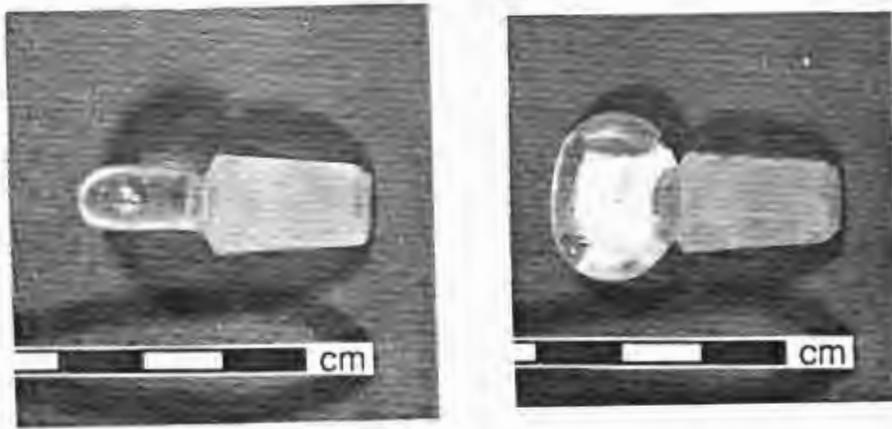


Figure 86. Clear glass stopper.



Figure 87. Beads.



Figure 88. Loop shank buttons.



Figure 89. Bone buttons.

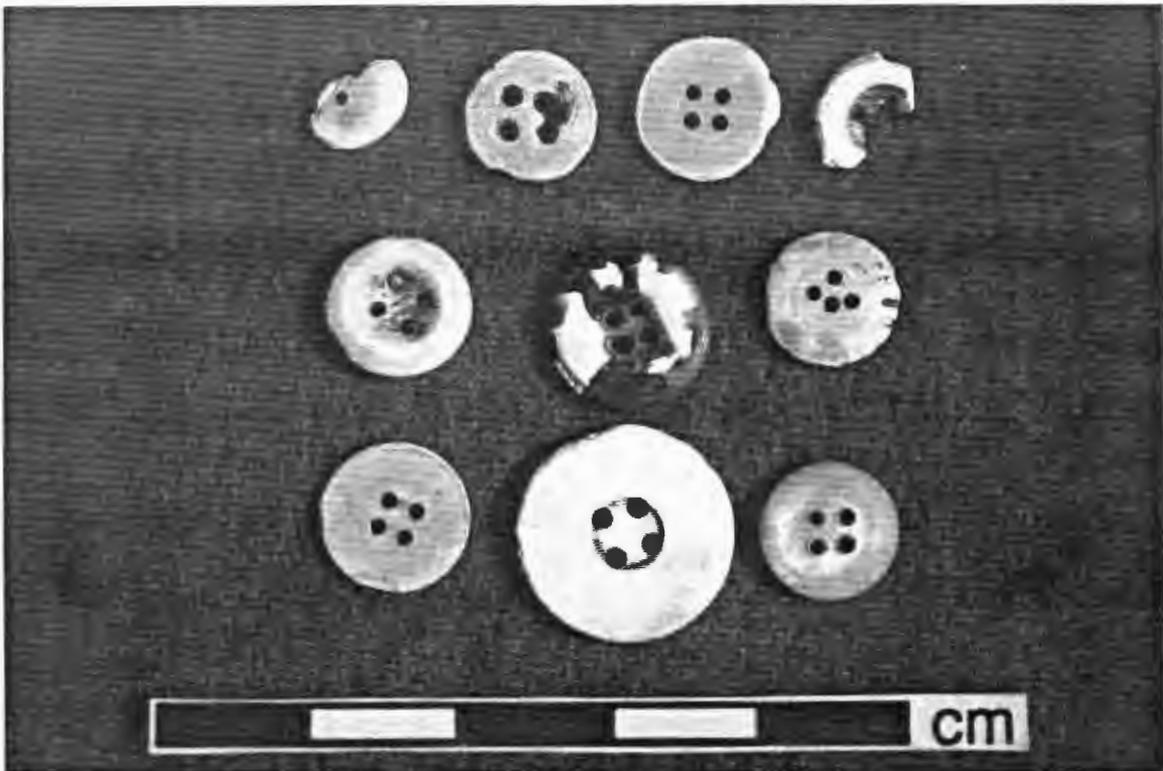


Figure 90. Shell buttons.

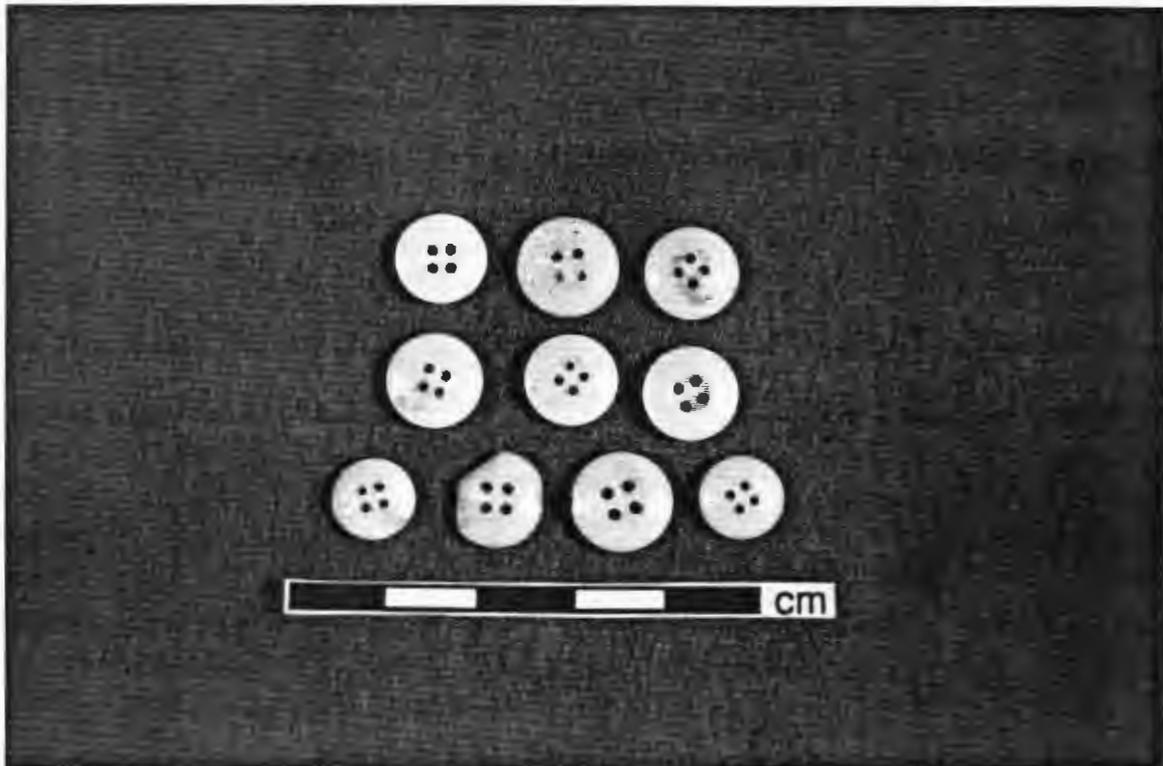


Figure 91. Ceramic buttons.

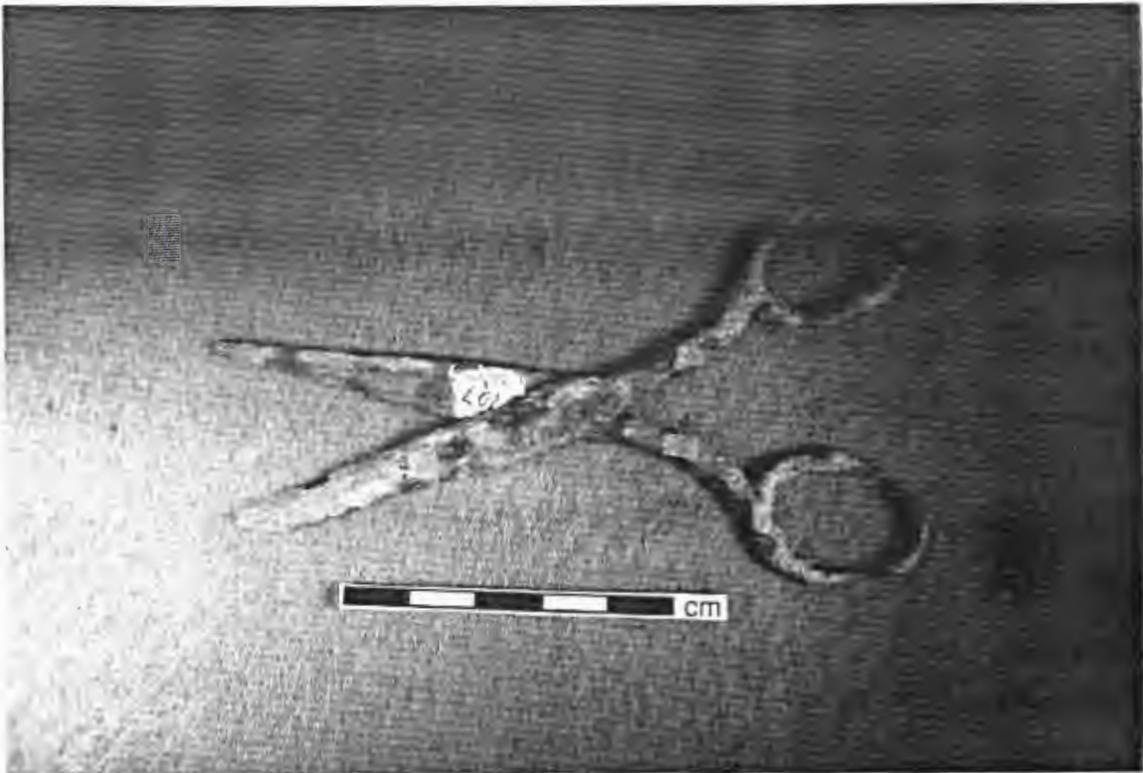


Figure 92. Scissors.



Figure 93. Thimble.



Figure 94. Styli similar to those recovered from Fort Atkinson privies.

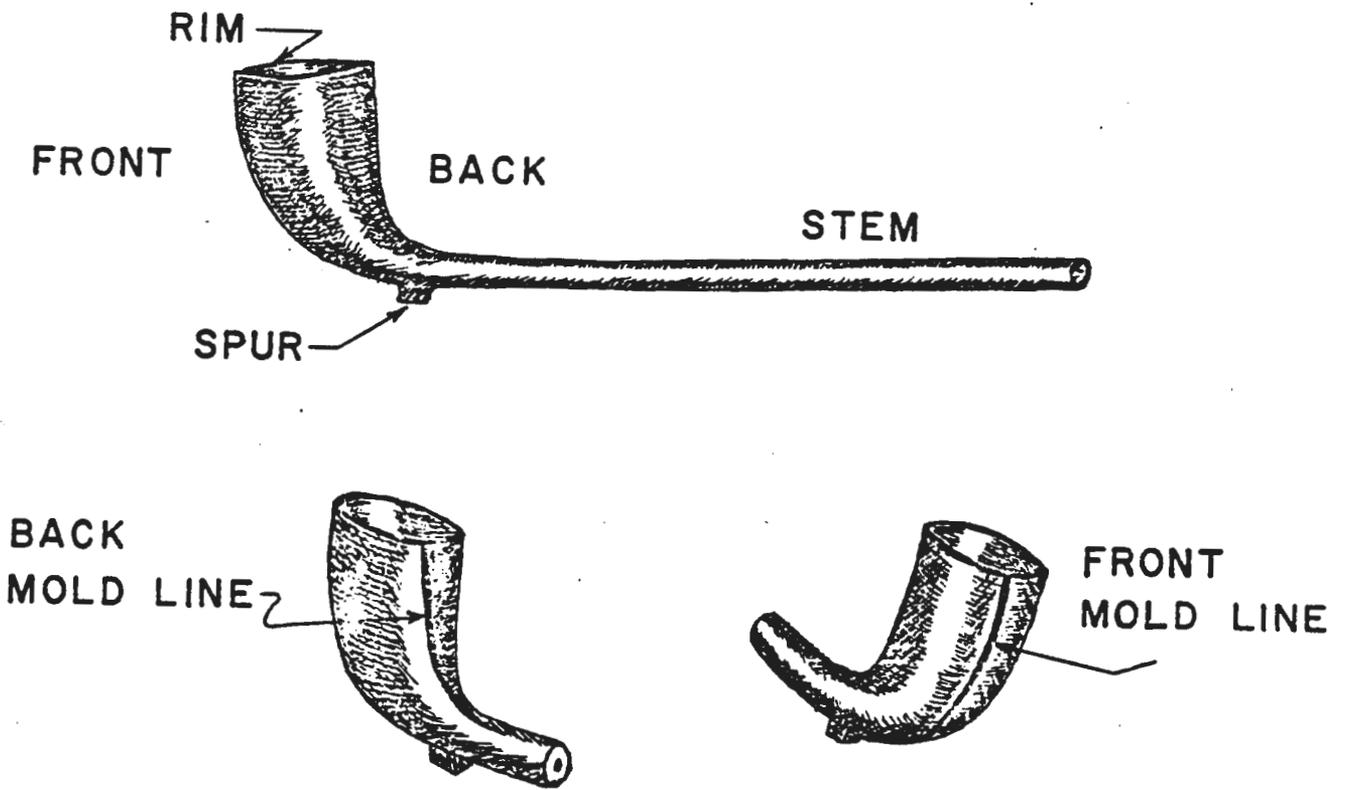


Figure 95. Pipe terminology (from Tobey 1974).



Figure 96. T. D. pipes.

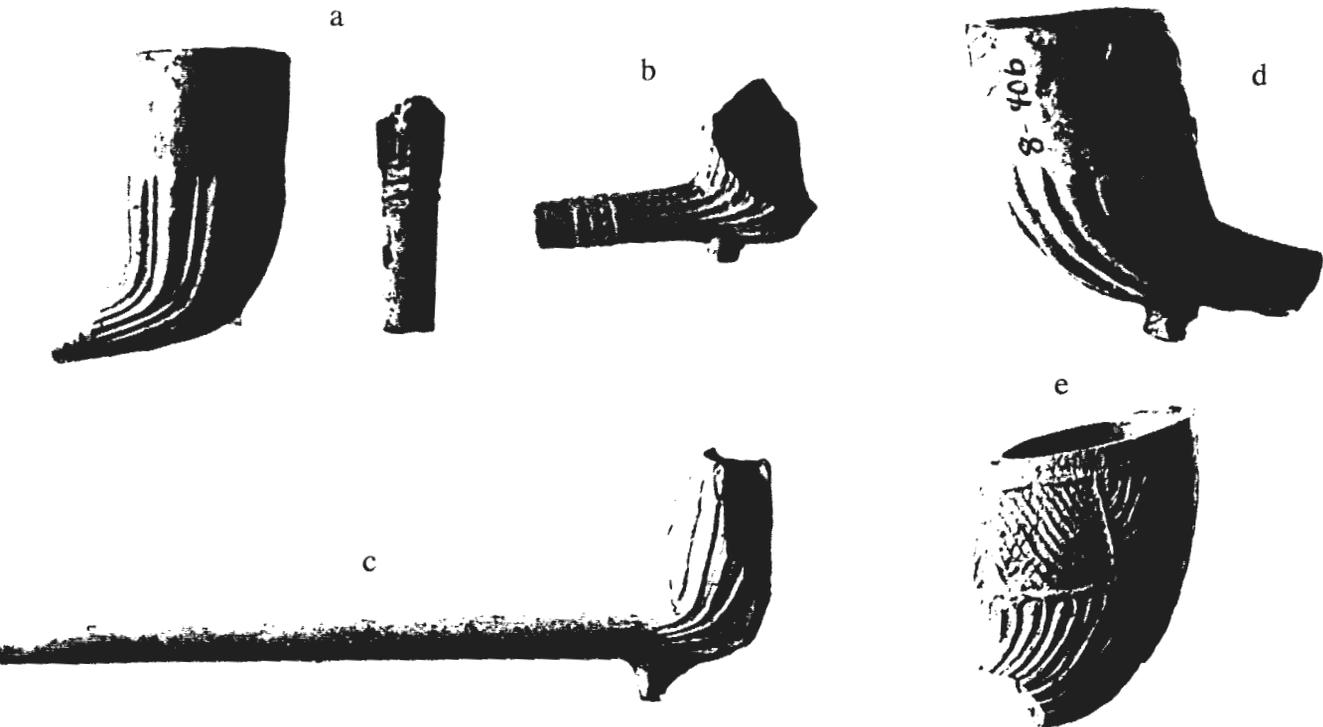


Figure 97. Ribbed pipes.

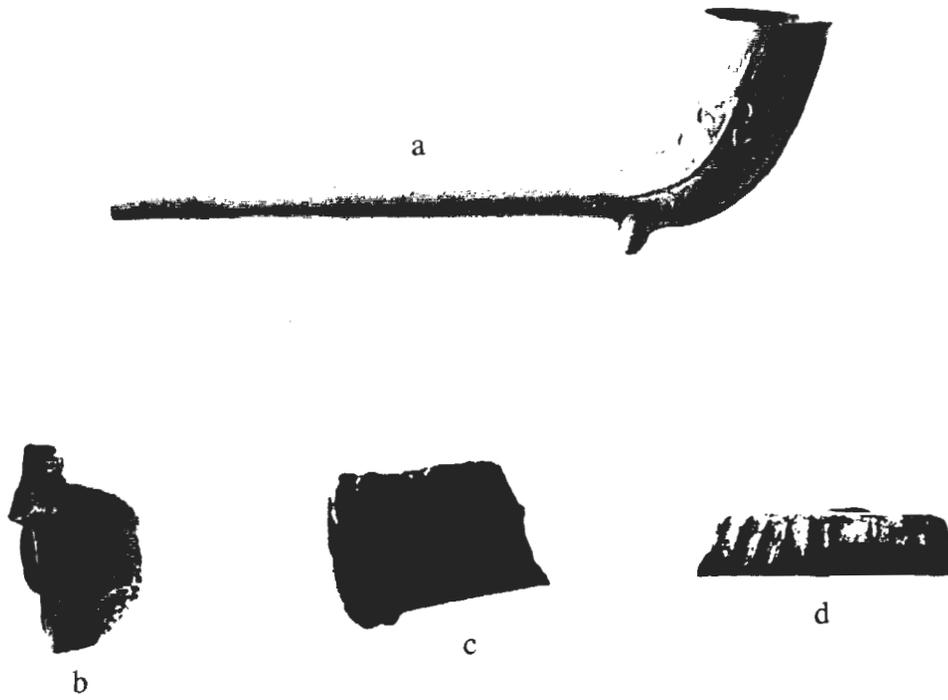


Figure 98. Miscellaneous decorated pipes.

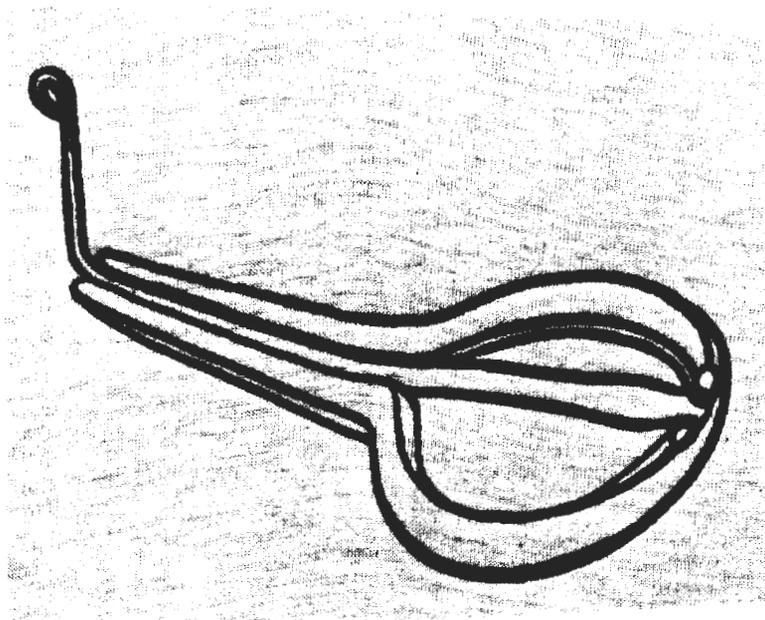


Figure 99. A Jew's harp similar to one recovered from Fort Atkinson privies.



Figure 100. Miniature teapot.



Figure 101. Condiment bottle.

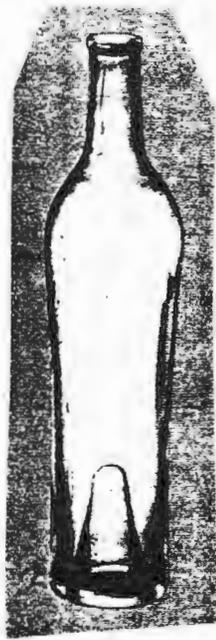


Figure 102. A typical olive oil bottle (from Switzer 1974).



Figure 103. Olive oil bottle medallion.



Figure 104. Jar fragments.



Figure 105. Vegetable bottle.

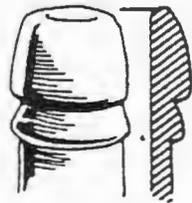


Figure 106. Double oil or mineral bottle neck finish (from IMACS 1992).



Figure 107. Probable tobacco can from Privy 7.



Figure 108. Purple transfer printed bowl.



Figure 109. Soup tureen or caudle cup.



Figure 110. Brown transfer printed pitcher.



Figure 111. Porcelain cup.



Figure 112. Mugs (from Beaudry et al. 1991).

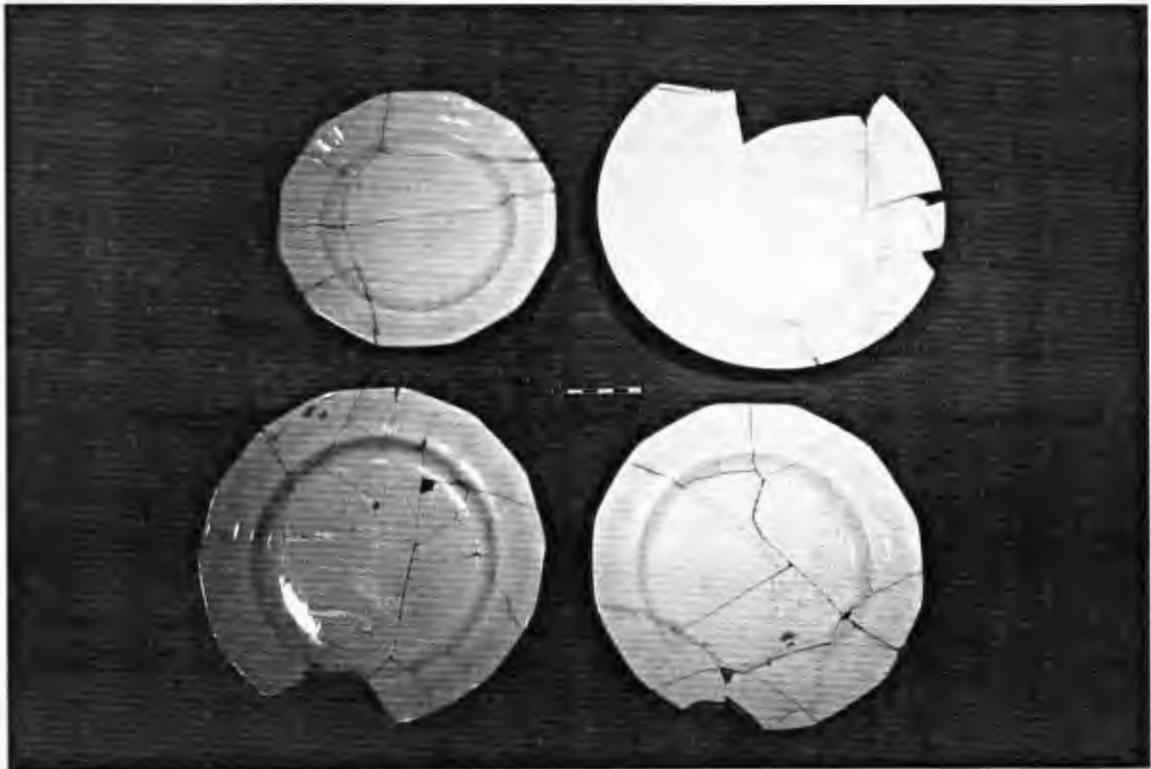


Figure 113. Undecorated plates.



Figure 114. Blue transfer printed plates.

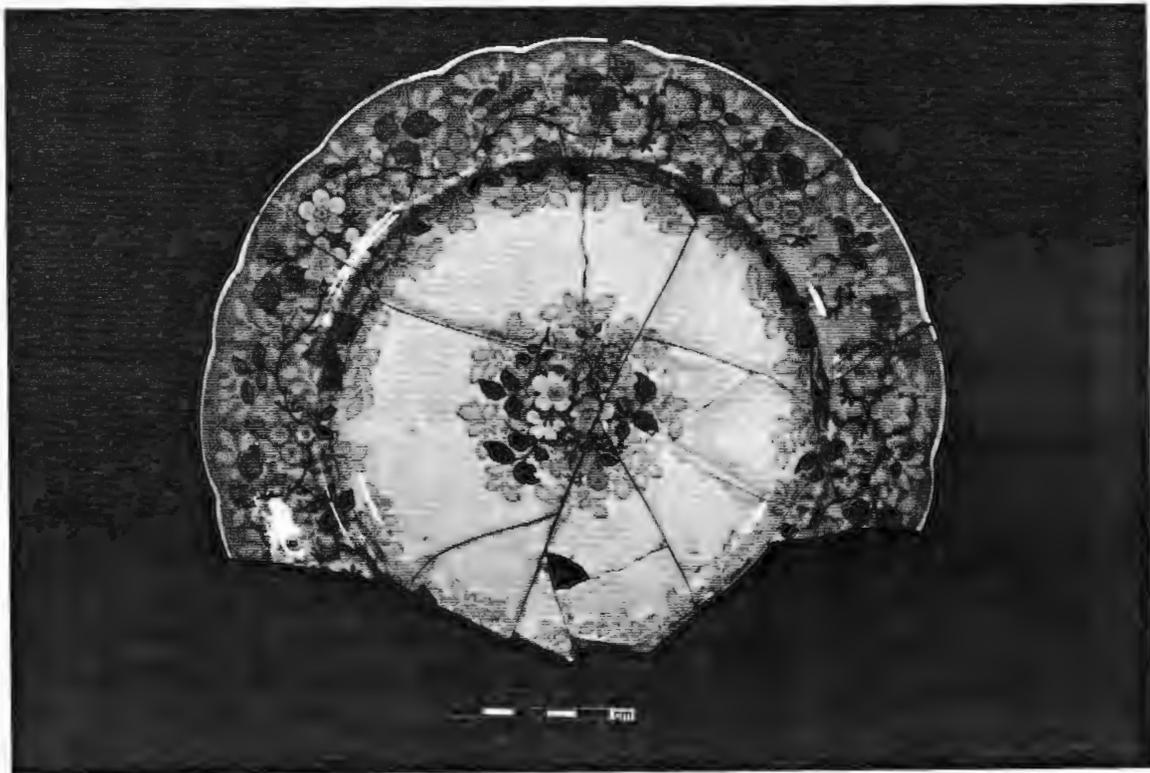


Figure 115. Blue transfer printed plate with hand painted details.



Figure 116. Maker's mark by Ridgway, Son, and Company.

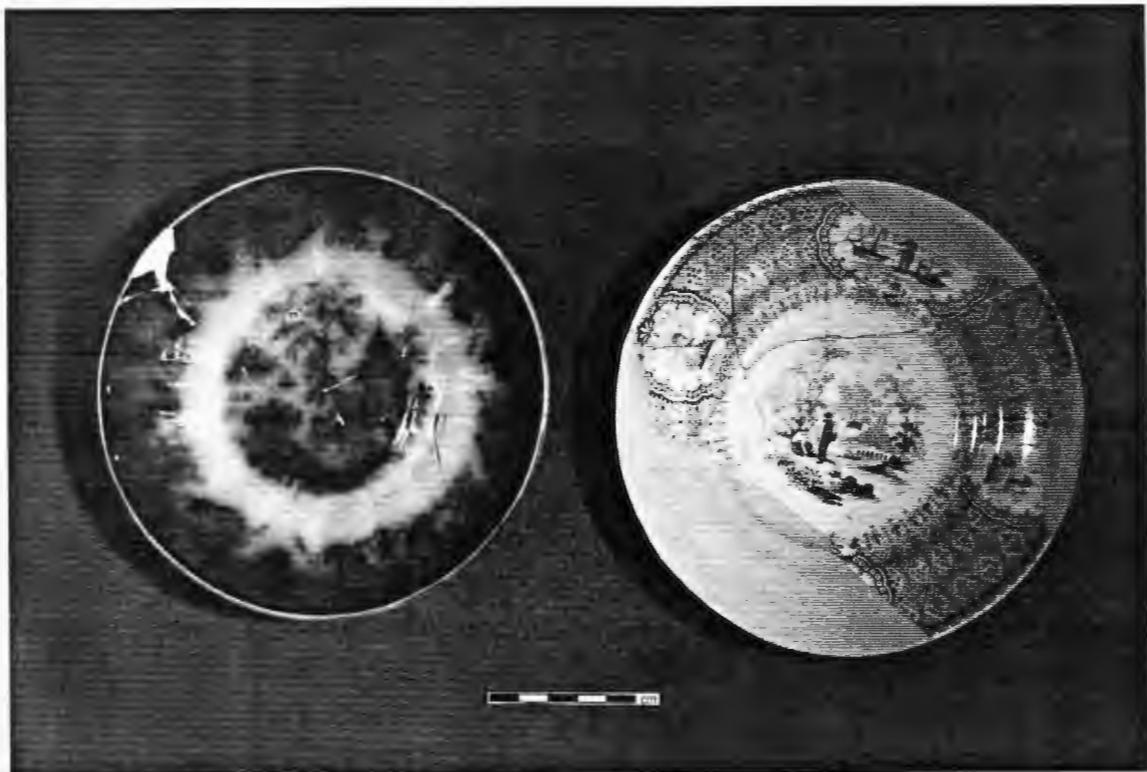


Figure 117. Flow blue (left) and red transfer printed (right) saucers.



Figure 118. Serving dishes (from Beaudry et al. 1991).

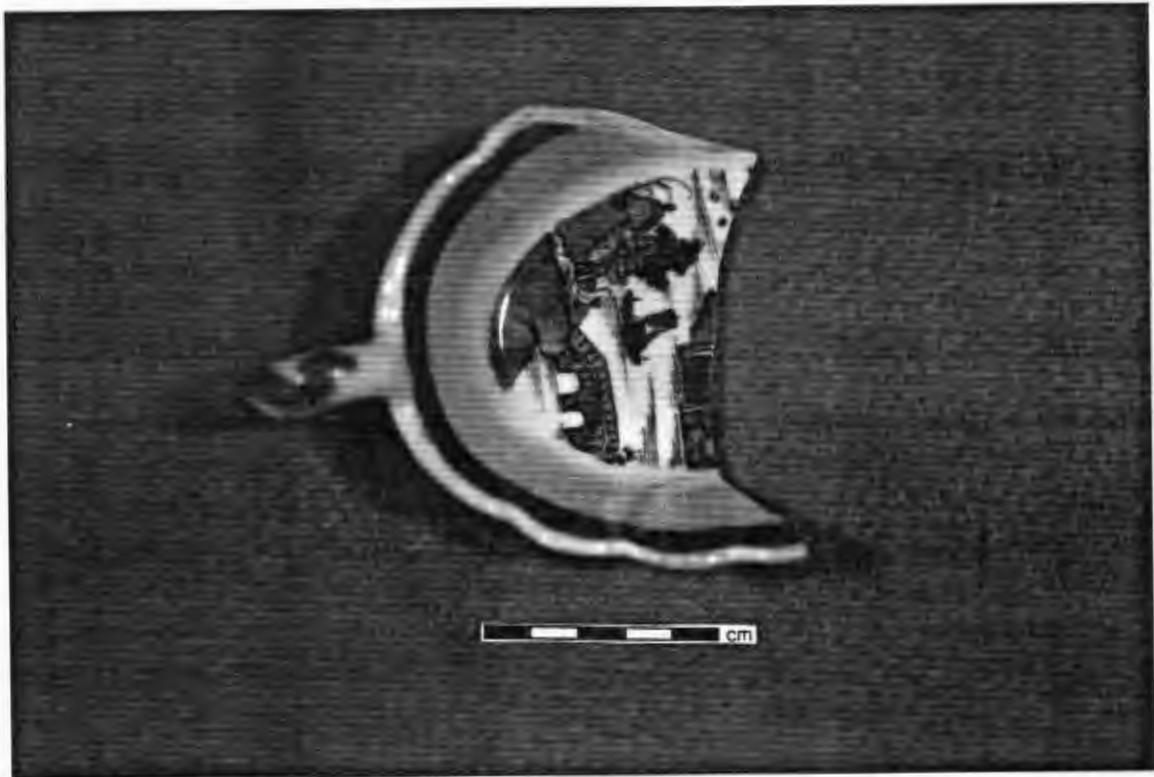


Figure 119. Willow patterned gravy boat.

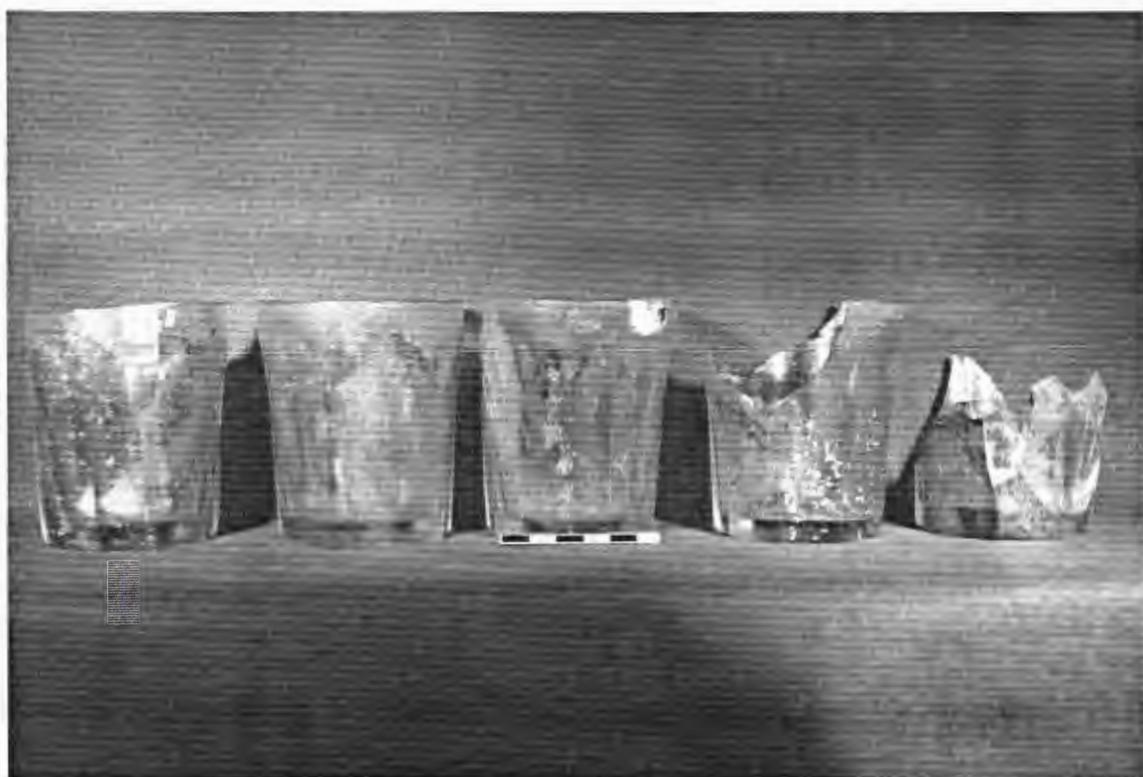


Figure 120. Tumblers.

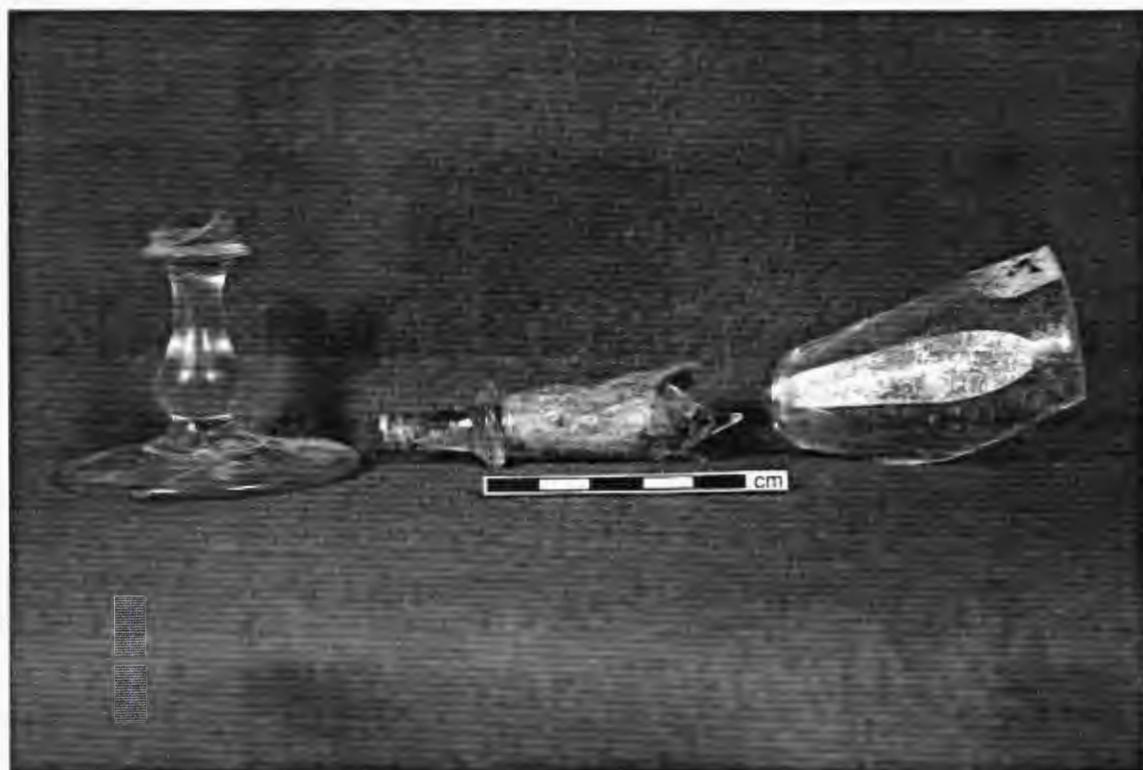


Figure 121. Stemware.

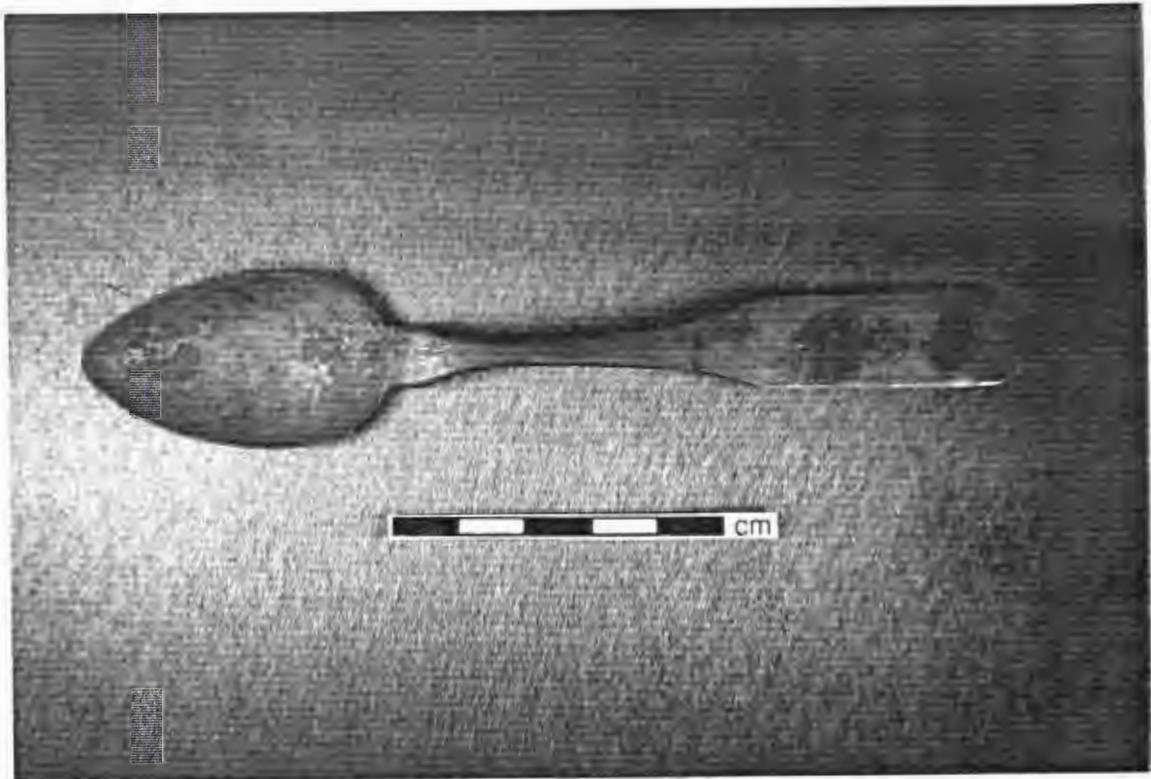


Figure 122. Spoon with engraved handle, "M Dc Mc".

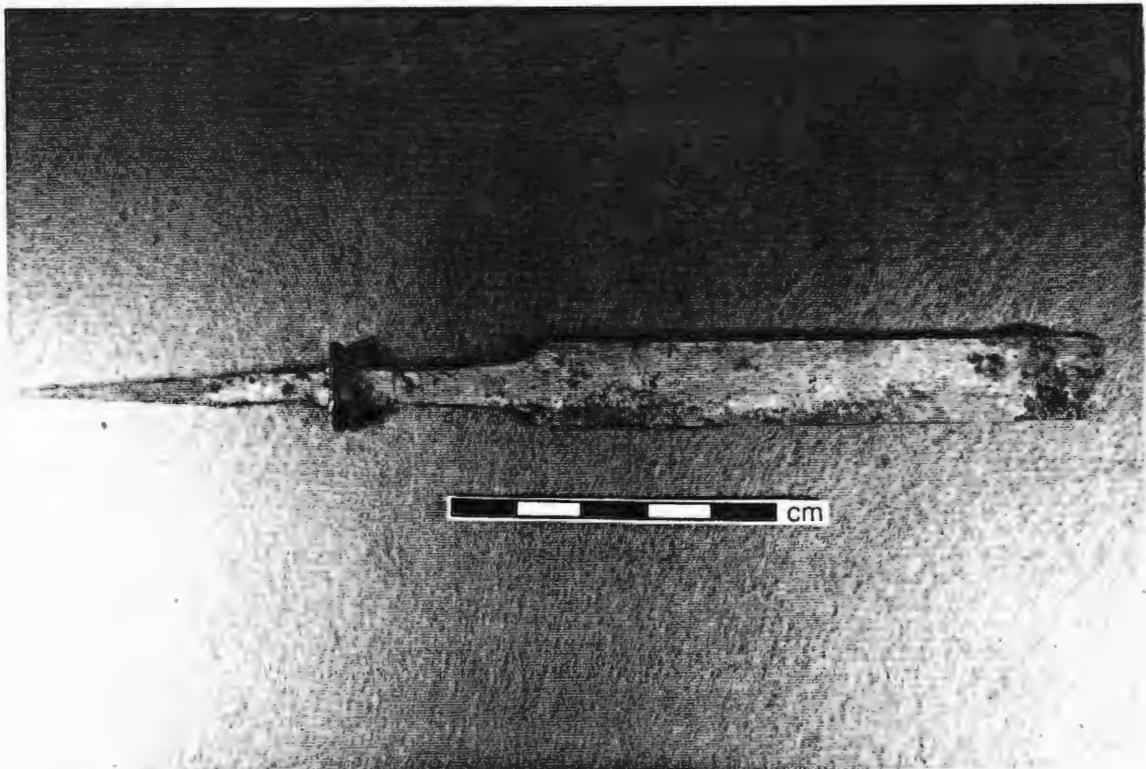


Figure 123. Iron chisel.



Figure 124. Artifacts from the transportation component (boot spur, horseshoe nail, horseshoe).



Figure 125. Hame (from *American Heritage Dictionary* 1996).



Figure 126. Iron roller buckle.



Figure 127. Unidentified aqua glass disks.

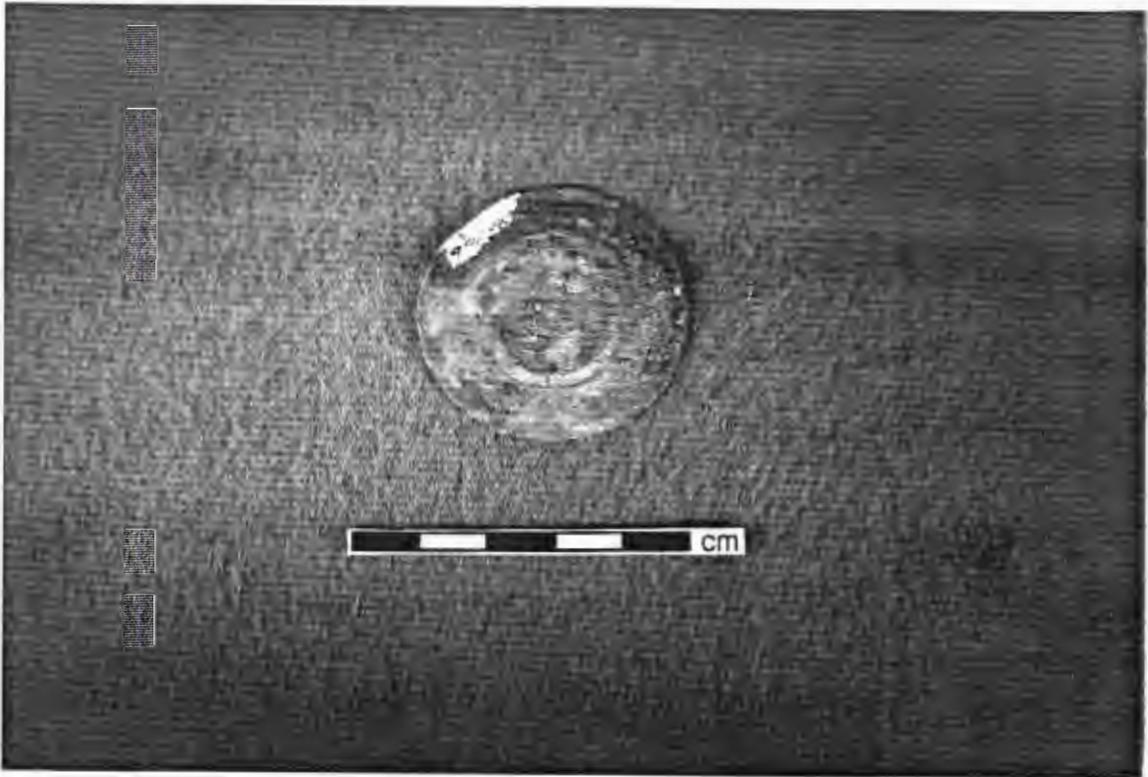


Figure 128. Unidentified boss-like specimen.

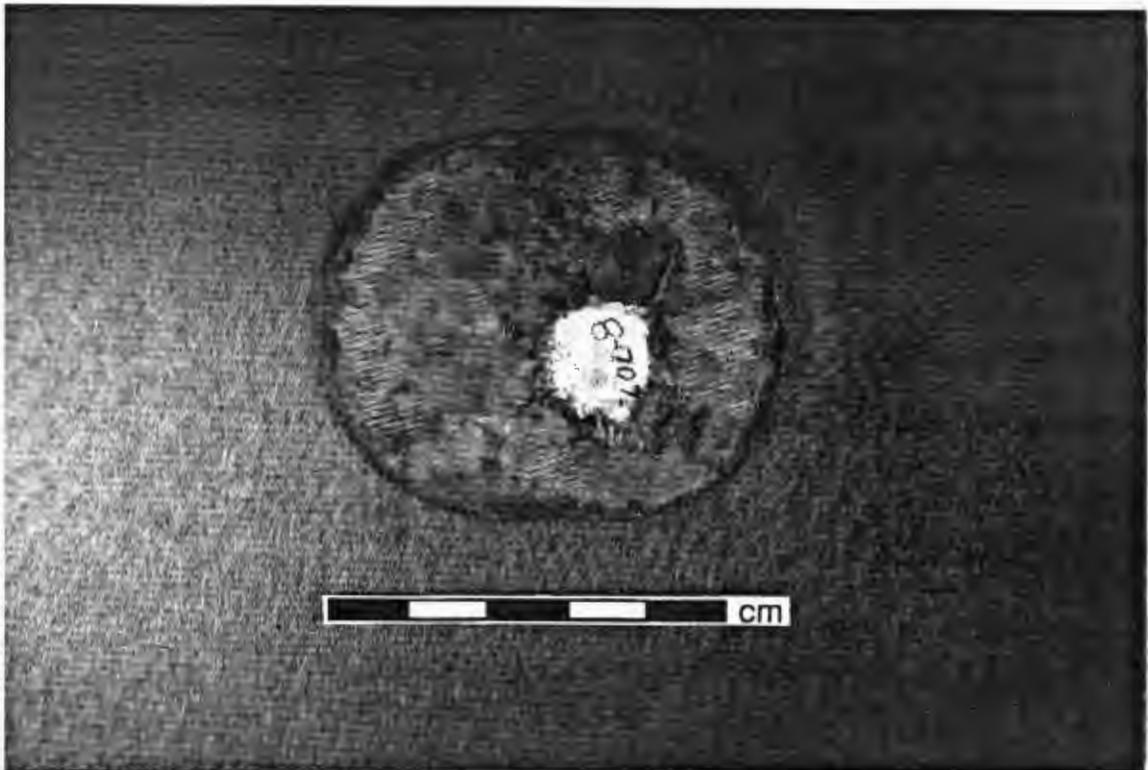


Figure 129. Unidentified iron specimen with attached fabric.

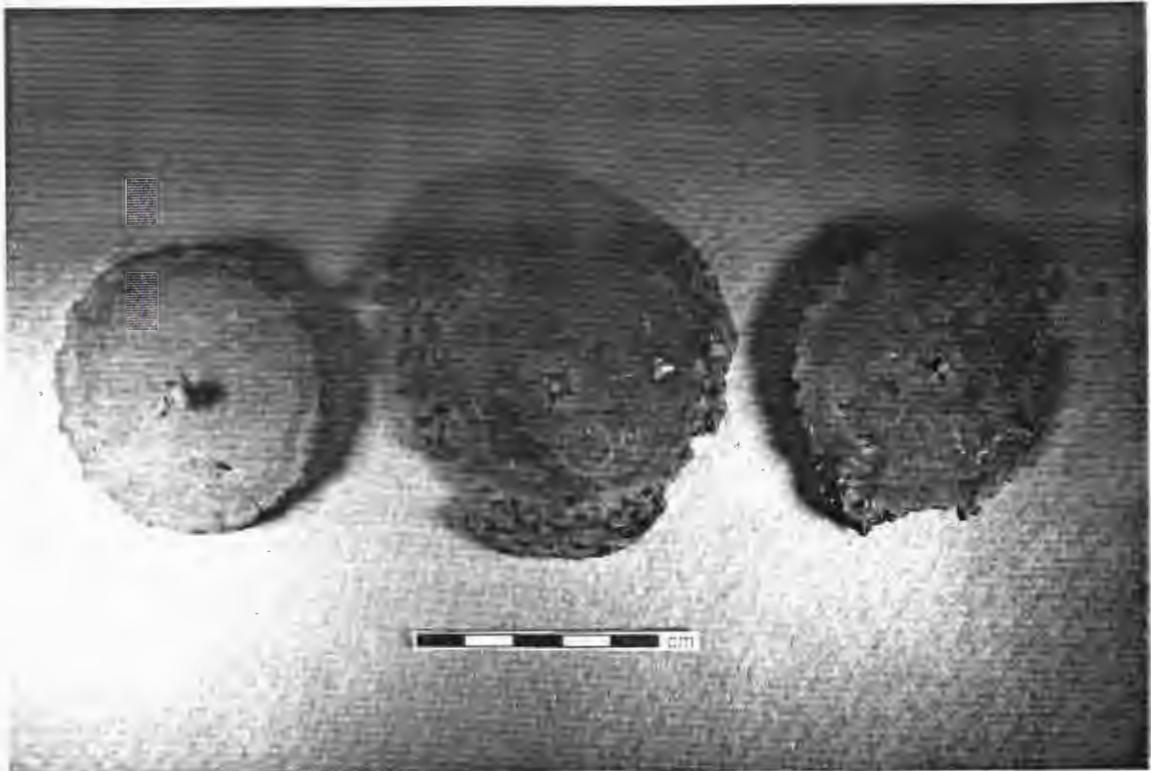


Figure 130. Unidentified leather "wheels".



Figure 131. Unidentified wood "pegs".

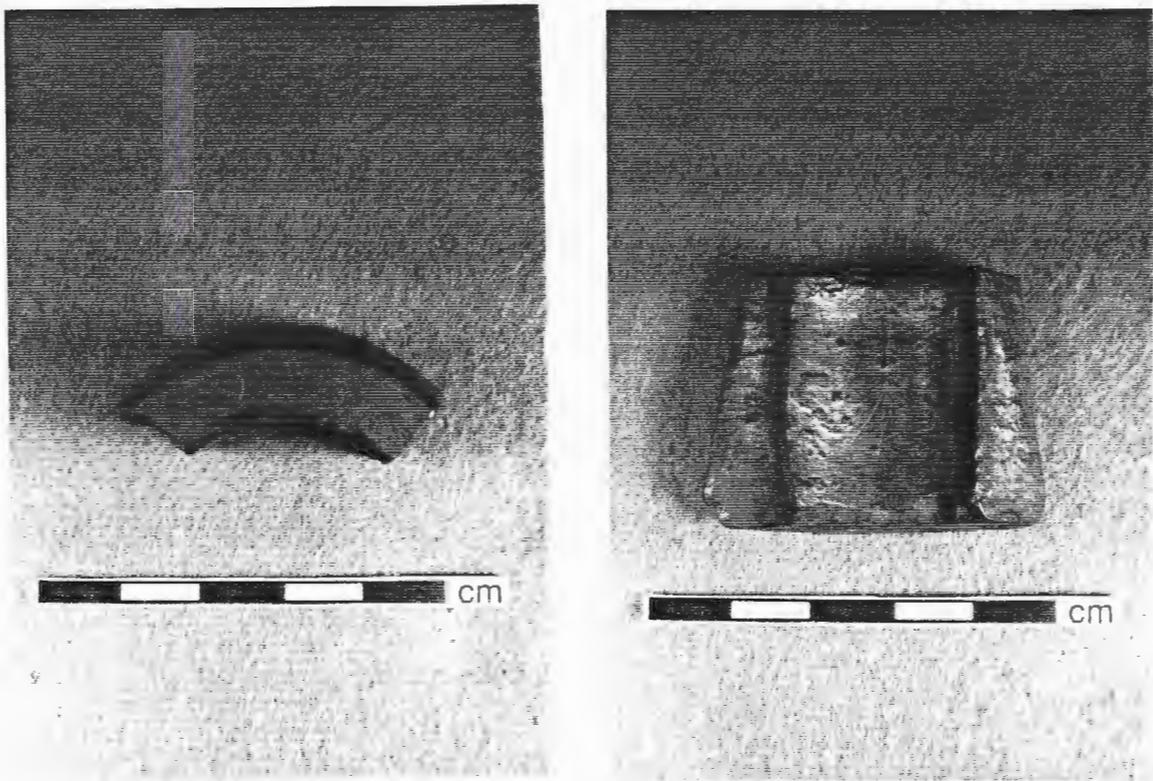


Figure 132. Unidentified cylinder fragment.

APPENDIX B. TABLES

Table 1. Deaths associated with the Military Occupation of Fort Atkinson.

Individual	Association	Dates*
Gideon Post	Co. K 1st Infantry	Aug. 31 and Oct. 31, 1841
Leo W. Wallask	Co. K 1st Infantry	Aug. 31 and Oct. 31, 1841
Alfred Weir	Co. K 1st Infantry	Aug. 31 and Oct. 31, 1841
Execkael O'Leary	Co. K 1st Infantry	Aug. 31 and Oct. 31, 1841
John Ule Lane	Co. K 1st Infantry	Oct. 31 and Dec. 31, 1841
John Faltersan	Co. K 1st Infantry	Aug. 31 and Oct. 31, 1841
William Thompson Jr.	Co. K 1st Infantry	Mar. 30 and Jun. 30, 1842
Robert Murray	Co. K 1st Infantry	Aug. 31 and Oct. 31, 1842
William Williams	Co. K 1st Dragoons	Aug. 31, 1844
Corneleius Blej	Co. K 1st Dragoons	Feb. 28 and Apr. 30, 1846
John Montgomery	Co. A 1st Iowa Volunteer Infantry	Nov. 6, 1846
Joseph Madden	Co. A 1st Iowa Volunteer Infantry	Aug. 4, 1847
Titus Owen	Co. A 1st Iowa Volunteer Infantry	Oct. 29, 1847
Philip Watts	Co. C 6th Infantry	Aug. 31 and Oct. 31, 1948
James Garrtly	Co. C 6th Infantry	Dec. 31, 1848 and Feb. 28, 1849
Howard (only name given)	Teamster	Oct. 1840

*Note: It is not clear why two dates were listed on the original document (State Historical Society of Iowa, Iowa City, Fort Atkinson Research File Ms 173).

Table 2. Ceramic Vessels from Fort Atkinson Privies (13WH37).

Vessel #	Functional Code	Catalog #	Count	Privy	Ware Type	Vessel Type	Description	Dates	Reference
1	UTL	401	1	1	stoneware		Albany int; wheel thrown	post 1805	Tanenhaus 1982
2	TBL	401	1	1	whiteware	bowl	molded (floral design)	post 1840	Majewski and O'Brien 1984
3		401, 402	2	1	whiteware		brown transfer	1825-1915	Rogers 1992
4		401, 403	8	1	whiteware		undecorated	post 1820	Rogers 1992
5		404, 405, 406	5	1	whiteware		undecorated	post 1820	Rogers 1992
6	UTL	402	1	1	stoneware		salt glaze ext; gray slip	pre 1910	Tanenhaus 1982
7		403	1	1	whiteware		multi-colored sponge	1840-1860	Lofstrom et al. 1982
8	UTL	404	1	1	stoneware		lead or clear glaze; wheel thrown	pre 1880s	Ketchum 1983
9		406	2	1	whiteware		green transfer; blue handpainted	1840-ca.1860	Majewski and O'Brien 1984
10		406, 407	4	1	whiteware		blue transfer	1830-1860	Lofstrom et al. 1982
11	TBL	408	3	1	whiteware	bowl	undecorated	post 1820	Rogers 1992
12	TBL	409	1	1	porcelain	handled cup	undecorated	post ca.1826	Ketchum 1983
13	TOI	416, 418	2	1	whiteware	chamber pot and lid	molded lid handle (floral design)	post 1840	Majewski and O'Brien 1984
14	TOI	417	2	1	whiteware	chamber pot and lid	blue transfer; maker's mark: "RMW&CO" Ridgeway, Morley, Wear & Co.	1836-1842	Godden 1968
15	TOI	419	1	1	whiteware	basin	undecorated; "propeller"	post 1820	Rogers 1992

Table 2. (continued)

Vessel #	Functional Code	Catalog #	Count	Privy	Ware Type	Vessel Type	Description stamp	Dates	Reference
16	TBL	421	1	1	earthenware (brown)	cream pitcher	Luster; white banding	post 1830s	Bagdade 1991
17	TBL	422	1	1	whiteware	saucer	molded; blue hand painted	popular 1880-1930	Ketchum 1983
18	TBL	501	1	2	porcelain	bowl	blue hand painted	popular 1880-1930	Ketchum 1983
19	TBL	501	1	2	porcelain	bowl	flow blue (dense coloration)	1835-1850s	Bagdade 1991
20		501	2	2	porcelain		undecorated; hard pasted	post 1826	Ketchum 1983
21	UTL	501	1	2	yellowware		annular banding	1827-1940	Rogers 1992
22	UTL	501	1	2	stoneware		Bristol slip ext; salt glaze ext.	pre 1910	Tanenhaus 1982
23	UTL	501	1	2	stoneware		wheel thrown	pre 1880s	Ketchum 1983
24	UTL	501	1	2	stoneware		Albany slip int; salt glaze ext	post 1843	IMACS 1992
25		501	7	2	whiteware		undecorated	post 1820	Rogers 1992
26	TBL	501	3	2	ironstone	plate	undecorated	post 1830	Wetherbee 1985
27		501	2	2	ironstone		molded (floral design)		
28		501	1	2	ironstone		undecorated	post 1830	Wetherbee 1985
29		501	1	2	porcelain		undecorated; hard pasted	post ca.1826	Ketchum 1983
30		501	1	2	whiteware		green transfer; hand painted	1840-ca.1860	Majewski and O'Brien 1984
31		501	1	2	whiteware		blue hand painted (floral design)	1840-1860	Rogers 1992
32		501	1	2	whiteware		blue annular banding	1830-1860	Deiss 1988; Majewski and O'Brien 1984

Table 2. (continued)

Vessel #	Functional Code	Catalog #	Count	Privy	Ware Type	Vessel Type	Description	Dates	Reference
33		601, 604	3	3	whiteware		undecorated	post 1820	Rogers 1992
34		601	1	3	whiteware		undecorated	post 1820	Rogers 1992
35		601	1	3	whiteware		undecorated	post 1820	Rogers 1992
36		601	1	3	porcelain		molded; gilded	post 1836	Miller 1987 (gilding)
37	UTL	601	1	3	yellowware		undecorated	1827-1940	Rogers 1992
38		602	1	3	whiteware		undecorated	post 1820	Rogers 1992
39		603	1	3	whiteware		red spatterware	1810-1840	McConnell 1990
40	TBL	603	5	3	porcelain	saucer	blue annular banding (hand painted); bluish glaze		
41	TBL	603, 604	2	3	porcelain	plate	blue hand painted		
42	TBL	604	1	3	porcelain	plate	blue annular banding (hand painted); bluish glaze		
43	TBL	604	1	3	porcelain	gravy boat	blue transfer; blue hand painted; Willow pattern	post 1790	Miller 1991
44	TBL	604	1	3	whiteware	saucer	green hand painted	ca.1780-1865	Ingalls 1995:3
45	TBL	604	4	3	whiteware	cream pitcher	annular banded; polychrome hand painted	1840-1860	Rogers 1992
46	TBL	604	1	3	whiteware	plate	decaling	post 1860	IMACS 1992
47	TOI	604	1	3	whiteware	chamber pot	undecorated	post 1820	Rogers 1992
48	UTL	704, 706	3	4	stoneware	butter pot	undecorated		
49		704	1	4	whiteware		transfer; handpainted	1840-ca.1860	Majewski and

Table 2. (continued)

Vessel #	Functional Code	Catalog #	Count	Privy	Ware Type	Vessel Type	Description	Dates	Reference
									O'Brien 1984
50		704	1	4	ironstone		undecorated	post 1830	Whetherbee 1985
51		704	3	4	whiteware		undecorated	post 1820	Rogers 1992
52		704, 706	8	4	whiteware		undecorated	post 1820	Rogers 1992
53		706	1	4	porcelain		undecorated	post ca.1826	Ketchum 1983
54	TBL	706, 707	2	4	whiteware	plate	blue shell edge	1830-1860	Lofstrom et al. 1982
55	TBL	706, 740	3	4	porcelain	cup	purple annular banding; luster	post 1830s	Bagdade 1991
56	TBL	706, 707	6	4	whiteware	pitcher	mocha	1820-1900	Rogers 1992
57	UTL	707, 708, 719, 740	10	4	stoneware	butter pot	wheel thrown	pre 1880s	Ketchum 1983
58		707	1	4	whiteware		mocha; blue annular banding	1820-1900	Rogers 1992
59	UTL	707	1	4	yellowware	bowl	annular banding; hand painted	1827-1940	Rogers 1992
60	TBL	707	1	4	whiteware	saucer	molded; maker's mark "Thomas, John, and Joseph Mayers"	1843-1855	Godden 1968
61	TBL	707, 708	2	4	whiteware	saucer	molded; maker's mark "Thomas, John, and Joseph Mayers"	1843-1855	Godden 1968
62		707	3	4	whiteware		undecorated	post 1820	Rogers 1992
63		707	1	4	whiteware		undecorated	post 1820	Rogers 1992
64		707	4	4	whiteware		undecorated	post 1820	Rogers 1992
65		707	2	4	whiteware		undecorated	post 1820	Rogers 1992

Table 2. (continued)

Vessel #	Functional Code	Catalog #	Count	Privy	Ware Type	Vessel Type	Description	Dates	Reference
66		707, 708	2	4	porcelain		undecorated	post ca.1826	Ketchum 1983
67	TBL	707	2	4	whiteware	pitcher	red transfer	1828-1850	Majewski and O'Brien 1984
68		707	1	4	whiteware		brown transfer	1820-1915	Rogers 1992
69		707, 708	4	4	whiteware		blue transfer; polychrome hand painted	1840-ca. 1860	Majewski and O'Brien 1984
70		707	1	4	whiteware		black hand painted, crudely applied	popular 1840-1870	Majewski and O'Brien 1984
71	TBL	707, 713	2	4	whiteware	platter	blue transfer	1830-1860	Lofstrom et al. 1982
72		708	1	4	whiteware		brown transfer; blue hand painted	1840-ca. 1860	Majewski and O'Brien 1984
73	TBL	708, 717	1	4	porcelain	plate	undecorated	post 1826	Ketchum 1983
74	TBL	709	1	4	ironstone	saucer	molded, "NS"; maker's mark "G F Filley, St Louis, MO by TJJ mayers Longport (Eng)"	1843-1855	Godden 1968
75	TOI	711	1	4	whiteware	chamber pot	blue hand painted; floral design	1820-1860	Rogers 1992
76	TBL	712	1	4	whiteware	mug	blue annular banded	1830-1860	Deiss 1988
77	TBL	714	1	4	whiteware	plate	blue transfer; polychrome floral hand painted; maker's mark, planter and anchor motif "W. P. S. & C."	1840-ca. 1860	Majewski and O'Brien 1984
78	UTL	715	1	4		ink bottle	brown slip ext/purple and white slip int.		
79	TBL	717	1	4	whiteware	saucer	flow blue; willow pattern; maker's mark "T WALKER, SCINDE IRONSTONE"	1845-1851	Cushion 1994
80	TBL	718	2	4	whiteware	pitcher	brown transfer	1820-1915	Rogers 1992
81	TBL	718	1	4	whiteware	plate	blue transfer; polychrome	1840-ca. 1860	Majewski and

Table 2. (continued)

Vessel #	Functional Code	Catalog #	Count	Privy	Ware Type	Vessel Type	Description	Dates	Reference
							hand painted		O'Brien 1984
82	TBL	720	1	4	porcelain	saucer	undecorated	becoming popular ca. 1826	Ketchum 1983
83	TOI	721	1	4	whiteware	soap dish	brown transfer	1820-1915	Rogers 1992
84	TBL	722	7	4	whiteware	dish	blue transfer	1830-1860	Lofstrom et al. 1982
85		728	1	4	whiteware		brown annular banding	1830-1860	Deiss 1988
86	UTL	737	1	4	redware	flower pot	clear or lead glaze		
87	TBL	738	1	4	porcelain	cup	gilded; polychrome floral hand painted	post 1880	Miller 1987
88	UTL	740	1	4	stoneware		wheel thrown	pre 1880s	Ketchum 1983
89	UTL	740	1	4	yellowware		annular banded	1827-1940	Rogers 1992
90		740	2	4	whiteware		flow blue	1835-1850s	Bagdade 1991
91		740	1	4	whiteware		green floral hand painted	1840-1860	Rogers 1992
92	TBL	740, 742	5	4	whiteware	cup	annular banded	1830-1860	Deiss 1988
93		740	1	4	porcelain		gilded; polychrome transfer	post 1880	Miller 1987
94		740	1	4	whiteware		black transfer	popular 1830-1850	Majewski and O'Brien 1984
95		740	1	4	porcelain		undecorated	post ca. 1826	Ketchum 1983
96		740	1	4	whiteware		molded; gilded	post 1855	Majewski and O'Brien 1984
97	TBL	740	2	4	whiteware	bowl	green maker's mark, indistinguishable	post 1820	Rogers 1992
98		740	2	4	porcelain		undecorated	1830-1969	IMACS 1992

Table 2. (continued)

Vessel #	Functional Code	Catalog #	Count	Privy	Ware Type	Vessel Type	Description	Dates	Reference
99	TBL	803, 804	2	5	porcelain	plate	undecorated	post ca. 1826	Ketchum 1983
100		804	3	5	whiteware		undecorated	1830-1969	IMACS 1992
101		804, 808	3	5	whiteware		blue transfer	1830-1860	Lofstrom et al. 1982
102		804	1	5	porcelain		blue hand painted		
103	UTL	804, 808	2	5	stoneware		lead glaze; wheel thrown	pre 1880s	Ketchum 1983
104	TBL	805	1	5	whiteware	saucer	red transfer; maker's mark "ANGLING"	1828-1850	Majewski and O'Brien 1984
105		807	1	5	porcelain		undecorated	post ca. 1826	Ketchum 1983
106		807	1	5	porcelain		blue hand painted		
107	UTL	808	1	5	yellowware		clear glaze	1830-1900	IMACS 1992
108		808	1	5	whiteware		red transfer	1828-1850	Majewski and O'Brien 1984
109	TBL	808	1	5	whiteware	plate	blue feather edge	1820-1860	Deiss 1988
110		808	1	5	whiteware		green feather edge	1830-1860s	Miller 1980
111	TBL	808	3	5	whiteware	cup	polychrome floral hand painted	popular 1840-1860	Rogers 1992
112	TBL	808	2	5	whiteware	bowl	polychrome floral hand painted	popular 1840-1860	Rogers 1992
113	TBL	808	3	5	whiteware	plate	flow blue	1835-1850s	Bagdade 1991
114	TBL	808	1	5	whiteware	dish	flow blue	1835-1850s	Bagdade 1991
115		808	5	5	whiteware		blue transfer	1830-1860	Lofstrom et al. 1982
116		808	10	5	whiteware		undecorated	post 1820	Rogers 1992
117		808	1	5	whiteware		molded	post 1840	Majewski and O'Brien 1984

Table 2. (continued)

Vessel #	Functional Code	Catalog #	Count	Privy	Ware Type	Vessel Type	Description	Dates	Reference
118		901	3	6	whiteware		undecorated	post 1820	Rogers 1992
119	UTL	901	1	6	stoneware		Albany slip int; salt glaze ext; wheel thrown	post 1843 pre 1880s	IMACS 1992 Ketchum 1983
120		901, 905, 906, 907	19	6	whiteware		undecorated	post 1820	Rogers 1992
121	UTL	901	1	6	stoneware		Albany slip int/ext	post 1805	Tanenhaus 1982
122	TBL	901, 905	3	6	whiteware	plate	flow blue	1835-1850s	Bagdade 1991
123		901	1	6	whiteware		red hand painted, crudely applied	popular 1840- 1870	Majewski and O'Brien 1984
124	UTL	905	1	6	yellowware		blue annular banding	1827-1940	Rogers 1992
125	UTL	906	1	6	yellowware		undecorated	1830-1900	IMACS 1992
126		906	3	6	whiteware		undecorated	post 1820	Rogers 1992
127		906	1	6	whiteware		undecorated	post 1820	Rogers 1992
128		906	1	6	whiteware		blue and green annular banding	1830-1860	Deiss 1988
129		906	1	6	whiteware		blue transfer	1830-1860	Lofstrom et al. 1982
130		906	1	6	whiteware		polychrome floral hand painted	1830-1860	Deiss 1988
131		906	1	6	whiteware		blue transfer; red hand painted	1840-ca. 1860	Majewski and O'Brien 1984
132		906	2	6	whiteware		red transfer	1828-1850	Majewski and O'Brien 1984
133		906	1	6	whiteware		purple transfer	popular 1830- 1860	Majewski and O'Brien 1984
134		907	1	6	porcelain		undecorated	post ca. 1826	Ketchum 1983

Table 2. (continued)

Vessel #	Functional Code	Catalog #	Count	Privy	Ware Type	Vessel Type	Description	Dates	Reference
135		907	1	6	porcelain		undecorated	post ca. 1826	Ketchum 1983
136	TBL	907, 910	1	6	porcelain	tea cup	polychrome floral hand painted		
137	UTL	907	1	6	stoneware		salt glaze ext; wheel thrown	pre 1880s	Ketchum 1983
138		907	1	6	ironstone		undecorated	post 1830	Wetherbee 1985
139	TBL	907	1	6	ironstone	saucer	molded	post 1830	Wetherbee 1985
140		907	2	6	ironstone		undecorated	post 1830	Wetherbee 1985
141		907	1	6	whiteware		black transfer	popular 1830-1850	Majewski and O'Brien 1985
142		907	1	6	whiteware		green transfer	1830-1969	IMACS 1992
143		907	2	6	whiteware		brown transfer	1820-1915	Rogers 1992
144	TBL	907	1	6	whiteware	saucer	polychrome floral hand painted	1830-1860	Deiss 1988
145	TBL	907	1	6	whiteware	plate	blue annular banding	1830-1860	Deiss 1988
146	TBL	907	1	6	whiteware	saucer	hand painted, crudely applied	popular 1840-1870	Majewski and O'Brien 1985
147		907	1	6	whiteware	lid	molded; blue hand painted	1830-1880	Lofstrom et al.
148	TOI	907	1	6	whiteware	chamber pot lid	gilded; polychrome floral hand painted	1830-1860 post 1855	Deiss 1988 Majewski and O'Brien 1985
149		907	2	6	whiteware		blue banded; mocha	1820-1900	Roger 1992
150		907	1	6	whiteware		green hand painted (leaf design)	1840-1860	Rogers 1992
151		907	1	6	whiteware		blue and brown hand painted	popular 1840-1870	Majewski and O'Brien 1985
152		907	2	6	whiteware		gilded; green hand painted	post 1855	Majewski and

Table 2. (continued)

Vessel #	Functional Code	Catalog #	Count	Privy	Ware Type	Vessel Type	Description	Dates	Reference
							green		O'Brien 1985
153	TBL	908	1	6	whiteware	plate	molded	post 1840	Majewski and O'Brien 1985
154		907	1	6	whiteware		molded	post 1840	Majewski and O'Brien 1985
155		907	1	6	whiteware		blue transfer	1830-1860	Lofstrom et al. 1980
156	TBL	909	1	6	whiteware	saucer	undecorated; Wedgwood	post 1759	Godden 1968
157	TBL	910	1	6	porcelain	tea cup	polychrome hand painted		
158	TBL	912	1	6	whiteware	mug	green transfer; "vermicelli J&RG" (Jon & Robert Godwin)	1834-66	Cushion 1994
159	UTL	913	1	6	porcelain	ink bottle	gilded	post 1855	Majewski 1984:39
160	TBL	917	1	6	whiteware	saucer	molded; stamped "J. WEDGWOOD"	post 1929	Godden 1968
161	TBL	917	1	6	whiteware	caudle cup/pot or soup tureen	blue hand painted, crudely applied	popular 1830-1860	Majewski and O'Brien 1984
162	TOI	915	1	6	whiteware	basin	undecorated	post 1820	Rogers 1992
163	TBL	919	1	6	whiteware	plate	blue transfer; maker's mark, William Ridgway, Son, & Co.	1838-1848	Godden 1968
164	TBL	921	1	6	whiteware	bowl	purple transfer	popular 1830-1860	Majewski and O'Brien 1984
165	TBL	921	1	6	whiteware	saucer	red transfer	1828-1850	Majewski and O'Brien 1984
166	CHI	924	1	6	porcelain	miniature tea pot	gilded; polychrome hand painted	post 1855	Majewski and O'Brien 1984

Table 2. (continued)

Vessel #	Functional Code	Catalog #	Count	Privy	Ware Type	Vessel Type	Description	Dates	Reference
167	TBL	925	2	6	whiteware	cup	blue transfer	1830-1860	Lofstrom et al. 1982
168		926	1	7	whiteware		blue transfer	1830-1860	Lofstrom et al. 1982
169	TBL	926	1	7	whiteware	plate	blue transfer	1830-1860	Lofstrom et al. 1982
170	TBL	926	3	7	ironstone	cup	undecorated	post 1830	Wetherbee 1985
171		926	1	7	whiteware		molded	post 1840	Majewski and O'Brien 1984
172	TBL	926	3	7	whiteware	cup	brown transfer	1820-1915	Rogers 1992
173	UTL	926	1	7	redware		salt glaze int; lead glaze ext	ca. 1800-1850s	Ketchum 1983

Table 3. Glass Vessels from Fort Atkinson (13WH57)

Vessel #	Functional Code	Catalog #	Privy #	Count	Description	Material Type	Manufacturing Technique
1	UTL	401	1	1	double oil or mineral bottle	olive	
2	UTL	401	1	1	champagne bottle	olive	
3		401	1	1	container glass; embossed "TE"	aqua	
4		401	1	1	container glass	aqua	
5	CON	401	1	1	container glass; molded	clear	
6		401, 402	1	2	container glass	olive	
7		401	1	1	container glass	clear	
8	UTI	403	1	3	lamp chimney glass	clear	
9		404	1	1	container glass; embossed "SI"	aqua	
10	TBL	405	1	10	tumbler; molded	clear	
11	TOI	405	1	4	perfume bottle	aqua	free blown
12	TBL	406	1	13	tumbler; molded	clear	
13	TBL	406	1	3	tumbler; molded	clear	
14	CON	406, 407	1	39	container glass	cobalt blue	
15	CON	406, 407	1	32	container glass	cobalt blue	
16	TOI	406	1	5	perfume bottle	aqua	free blown
17	MED	406	1	11	medicine bottle; embossed "J P PRESTON BOSTON"	aqua	mold blown
18	CON	406, 407	1	21	container glass	clear	
19	UTL	406	1	1	brandy bottle	olive	
20	TBL	407	1	1	mug handle	clear	
21	TBL	407	1	2	mug handle	clear	
22	TBL	407	1	1	tumbler	clear	
23	TBL	407	1	18	tumbler	clear	
24	UTL	411	1	1	champagne bottle	olive	blown-in- mold
25	UTL	413	1	1	champagne bottle; stamped "Huile/Surfine"	aqua	free blown
26	UTL	415	1	1	champagne bottle	olive	
27		501	2	7	container glass	olive	
28		501	2	1	container glass	aqua	
29		501	2	3	container glass	cobalt blue	
30		601	3	1	container glass	olive	

Table 3. (continued)

Vessel #	Functional Code	Catalog #	Privy #	Count	Description	Material Type	Manufacturing Technique
31		601	3	1	container glass	olive	
32	UTL	602	3	1	brandy bottle	olive	
33		602, 603	3	4	container glass	olive	
34	TBL	602, 603, 604	3	29	tumbler	clear	
35	UTI	603	3	1	candle stick holder	green	
36	UTL	604	3	2	champagne bottle	olive	
37	UTL	604	3	28	champagne bottle	olive	
38	TOI/MED	604	3	1	bottle	olive	
39	UTL	703	4	1	champagne bottle	olive	blown-in- mold
40		704, 706, 707	4	15	container glass	aqua	
41		704	4	1	container glass	olive	
42		704, 706	4	2	container glass	olive	
43		706	4	2	container glass	cobalt blue	
44		706	4	6	container glass	olive	
45	TBL	706,707	4	41	tumbler	clear	
46	UTL	706,707	4	1	wine bottle	olive	free blown
47	UTL	704, 707	4	2	champagne bottle; clean pontil	clear	free blown
48	TBL	707	4	7	tumbler	clear	
49	TBL	707	4	1	small handle	clear	
50	TBL	707	4	1	wine glass base	clear	
51	TBL	707	4	1	wine glass base	clear	
52	TBL	707	4	1	wine glass base	clear	
53	TBL	707	4	1	wine glass stem fragment	clear	
54	MED	707	4	1	patent medicine bottle	aqua	two piece mold
55		707	4	4	container glass	aqua	
56	UTL	707	4	1	wine bottle; shallow kick up; clean pontil	aqua	
57	UTL	707	4	4	wine bottle; deeper kickup; larger pontil	aqua	
58	UTL	707	4	1	bottle; flaring neck; bead finish	aqua	
59	UTL	707	4	1	olive oil bottle; applied medallion "HUILE D'OLIVE	olive	free blown

Table 3. (continued)

Vessel #	Functional Code	Catalog #	Privy #	Count	Description	Material Type	Manufacturing Technique
BORDEAUX SURFINE							
CLARIFIEE"							
60	UTL	707	4	1	olive oil bottle	olive	
61	UTL	707	4	1	wine bottle; high kickup, large pontil	olive	
62	UTL	706, 707	4	25	wine bottle; high kickup, large pontil	olive	
63	UTL	710	4	1	vegetable bottle	aqua	rolled over collar; blown in mold
64	UTL	708	4	1	olive oil bottle	olive	
65	UTL	708	4	2	unidentified intoxicant bottle; 8-sided base and body; diagonal seem across base	olive	mold blown 2 piece mold
66	UTL	708	4	6	brandy bottle	olive	
67	TBL	708	4	4	champagne flute	clear	
68	TBL	708	4	1	wine glass; molded similarly to tumblers	clear	
69		715	4	1	unidentified bottle	aqua	
70	TBL	716	4	1	tumbler; molded	clear	
71		732	4	1	champagne bottle	olive	blown-in-mold
72	TBL	733	4	2	tumbler; molded	clear	
73	TBL	733	4	1	unidentified container; molded similarly to tumblers, but larger	clear	
74	TBL	734	4	1	tumbler	clear	
75	TBL	735	4	1	tumbler	clear	
76	TBL	736	4	1	tumbler	clear	
77	TBL	740	4	1	tumbler	clear	
78	TBL	740	4	1	tumbler	clear	
79	TOI/MED	740	4	1	small bottle; rough pontil	aqua	
80	TOI/MED	740	4	1	small bottle; rough pontil	aqua	
81		740	4	1	container glass; molded	aqua	
82	UTL	804	5	1	unidentified bottle	aqua	
83	UTL	804	5	42	unidentified bottle	aqua	

Table 3. (continued)

Vessel #	Functional Code	Catalog #	Privy #	Count	Description	Material Type	Manufacturing Technique
84	UTL	804	5	1	double oil or mineral finish bottle	olive	
85		808	5	1	stopper	clear	
86	TOI/MED	901	6	1	unidentified bottle	aqua	
87	UTL	907	6	1	brandy bottle	olive	
88	MED	905	6	1	panel medicine bottle	aqua	
89	TBL	905	6	1	tumbler	clear	
90	UTL	905	6	1	unidentified bottle	aqua	
91	UTL	906, 907	6	1	brandy bottle; embossed "H.RICKETS & C GLASS WORKS BRISTOL"	olive	
92	UTL	906, 907	6	13	jar	clear	
93	UTL	906, 907	6	1	wine bottle	aqua	
94	UTL	906	6	1	double oil or mineral finish bottle	olive	
95	TOI	906, 916	6	2	toiletory bottle	aqua	
96	UTL	906, 923	6	2	ground pepper bottle; type 3 base (Switzer 1974:63)	aqua	
97	UTL	907	6	1	unidentified bottle	olive	
98	UTL	907	6	1	unidentified bottle; larger than a wine bottle	aqua	
99	TBL	907	6	2	tumbler	clear	
100	MED	926	6	1	unidentified bottle	aqua	
101	MED	907	6	1	vial; cylindrical	aqua	free blown
102		907	6	1	container glass; molded triangles banded around specimen	amethyst	
103	TBL	920	6	1	stem wine glass	clear	

Table 4. Distribution of nails according to method of manufacture.

Method of Manufacture	Privy 1	Privy 2	Privy 3	Privy 4	Privy 5	Privy 6	Privy 7	Total
Modern Machine Cut	45	21	10	80	9	18	2	185
Wire	10	1		5		4		20
Hand Wrought	1							1
Early Machine Cut					1			
Square	27	13	10	8	9	28		95
Unidentified	14	9	24	22	14	66	2	151
Total	97	44	44	115	33	116	4	453

Table 5. Distribution of complete or nearly complete nails according to pennyweight.

Pennyweight	Privy 1	Privy 2	Privy 3	Privy 4	Privy 5	Privy 6	Privy 7	Total
2d								
3d	1			5		1		7
4d	2		2	2	1	3		10
5d		1		1		2		3
6d	2	1	6	19		3		31
7d		2		1	1	2		6
8d	9	2	5	2	3	4	1	26
9d	13	2	13	24	1	9		62
10d	12		1	6	2	5	1	27
12d	2	6	2	1	1	1	1	14
16d				1				1
20d	2			5	2			9
30d					1			1
40d	1							1
Total	44	14	29	67	12	30	3	199

Table 6. Distribution of functionally defined specimens.

Functional Category	Privy 1		Privy 2		Privy 3		Privy 4		Privy 5		Privy 6		Privy 7		Total	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Building Materials/ Hardware	110	62.5	44	67.7	46	67.6	125	53.9	33	53.2	11 8	53.6	4	36.4	480	57.6
Miscellaneous Hardware	7	4.0	4	6.2	2	2.9	7	3.0			5	2.3	3	27.3	28	3.4
Medical/ Toiletry	6	3.4			2	2.9	5	2.1			7	3.2			20	2.4
Clothing	8	4.5			3	4.4	24	10.3			13	5.9			48	5.8
Domestic Tools							3	1.3							3	.4
Personal Items	2	1.1	1	1.5			1	.4			3	1.3			7	.8
Recreation	9	5.1	8	12.3	1	1.4	6	2.6	18	29.0	28	12.7			70	8.4
Toys/ Children's Items											6	2.7			6	.7
Storage/ Utilitarian Wares	9	5.1	4	6.2	4	5.9	21	9.1	5	8.1	15	6.8	1	9.0	59	7.1
Tableware	12	6.8	3	4.6	8	11.8	38	16.4	6	9.7	19	8.6	3	27.3	89	10.7
Tools	1	.6													1	.1
Transportation	6	3.4			1	1.4	1	.4			2	.9			10	1.2
Utility (Heating and Lighting)	1	.6			1	1.4									2	.2
Faunal Materials	5	2.8	1	1.5			1	.4			4	1.8			11	1.3
Total	176		65		68		232		62		22 0		1 1		834	

Table 7. Distribution of Occurrences of Decorative Techniques on Ceramics.

Decorative Technique	Privy 1		Privy 2		Privy 3		Privy 4		Privy 5		Privy 6		Privy 7		Total	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Hand Painted	1	6.7	2	18.2	2	14.3	4	8.7	4	23.5	13	26.5			26	16.6
Molded	2	13.3	1	9.1			2	4.3	1	5.9	5	10.2	1	20	12	7.6
Transfer Printed	4	26.7	1	9.1			8	17.4	4	23.5	12	24.5	3	60	32	20.4
Undecorated	5	33.3	5	45.5	5	35	15	32.6	4	23.5	10	20.4	1	20	45	28.7
Sponge	1	6.7													1	.6
Transfer Printing with Hand Painting	1	6.7					5	10.9	1	2					7	4.5
Flow			1	9.1			1	2.2	2	11.8	1	2			5	3.2
Luster	1	6.7													1	.6
Annular			1	9.1	3	21.4	6	13			3	6.1			13	8.3
Gilded					1	7.1	3	6.5			4	8.2			8	5.1
Spatter					1	7.1									1	.6
Willow					1	7.1	1	2.2							2	1.3
Decal					1	7.1									1	.6
Shell Edge							1	2.2	2	11.8					3	1.9

APPENDIX C. POST RETURNS

Year and Month	Number of Men Stationed at Fort Atkinson	Number of Sick	Number of Men in Confinement	Number of Desertions	Number of Recruits Required
<u>1840</u>					
June	79	0	3	7	14
July,	80	0	0	0	13
August,	91	5	3	0	2
September	87	5	0	2	7
October,	82	4	0	4	12
November	81	5	2	6	13
December	76	4	2	1	17
<u>1841</u>					
January	71	6	0	0	23
February	69	7	0	1	25
March	66	3	3	4	28
April	62	1	2	2	34
May	60	6	2	2	35
June	127	8	2	0	41
July	126	10	3	0	42
August	133	10	3	1	36
September	115	11	0	1	56
October	113	10	4	0	57
November	138	11	0	0	33
December	138	8	1	0	33
<u>1842</u>					
January	138	10	0	0	33
February	138	15	0	0	33
March	137	9	0	0	35
April	157	5	0	3	37
May	158	14	1	0	0
June	156	15	0	1	14
July	136	11	1	18	33
August	196	7	3	6	47
September	191	14	8	5	7
October	142	13	1	0	7
November	124	15	2	0	7
December	121	1	0	0	0
<u>1843</u>					
January	122	3	0	0	7
February	121	10	0	1	7
March	120	7	0	8	8
April	169	3	0	0	16
May	121	4	0	1	9
June	110	4	0	1	10
July	169	10	13	3	15
August	161	4	0	2	20
September	106	3	0	1	14
October	103	5	23	0	18
November	104	1	3	0	16
December	100	3	2	3	20
<u>1844</u>					
January	100	8	0	0	20
February	98	1	1	0	22
March	97	6	2	0	24
April	91	4	0	1	30
May	96	8	1	0	26
June	121	11	0	0	10

Year and Month	Number of Men		Number of Men in Confinement	Number of Desertions	Number of Recruits Required
	Stationed at Fort Atkinson	Number of Sick			
July	112	2	0	0	10
August	112	3	2	3	13
September	109	7	1	2	15
October	107	5	3	0	16
November	124	6	3	2	6
December	124	8	0	0	5
<u>1845</u>					
January	122	4	0	0	5
February	123	4	1	1	4
March	128	8	1	1	6
April	128	8	0	0	0
May	126	15	0	0	0
June	120	1	1	1	3
July	116	2	3	3	7
August	115	4	0	0	8
September	59	0	1	1	7
October	58	4	0	0	8
November	66	4	1	1	0
December	67	3	0	0	0
<u>1846</u>					
January	66	1	0	1	0
February	64	2	2	1	1
March	61	2	0	1	3
April	57	13	0	2	8
May	60	2	2	3	5
June	2	0	0	0	0
July	74	7	0	0	0
August	74	7	1	0	0
September	150	19	2	1	0
October	146	13	0	3	0
November	67	1	0	2	0
December	67	4	0	0	0
<u>1847</u>					
January	65	3	3	1	0
February	66	0	0	0	0
March	66	4	0	0	0
April	66	0	0	0	0
May	66	0	0	0	0
June	66	5	0	0	0
July	144	8	0	0	0
August	78	0	0	0	0
September	78	0	0	0	0
October	77	0	0	0	0
November	77	0	0	0	0
December	77	0	0	0	0
<u>1848</u>					
January	89	0	0	0	0
February	93	0	0	0	0
March	93	0	0	0	0
April	92	0	0	0	0
May	91	0	0	0	0
June	12	0	0	0	0
September	54	4	0	0	0
October	53	1	0	0	0
November	56	3	0	1	0

Year and Month	Number of Men Stationed at Fort Atkinson	Number of Sick	Number of Men in Confinement	Number of Desertions	Number of Recruits Required
December <u>1849</u>	54	6	0	1	1
January	54	6	0	0	0

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