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Villagers and Archaeologists: An Examination of Past Behaviors at the Barton Site (21GD02)

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Villagers and Archaeologists:
An Examination of Past Behaviors
at the Bartron Site (21GD02)

By

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This thesis paper has been examined and approved.

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I wrote this section first because I wanted to make sure I remembered everyone before my brain fried from processing mountains of information. I am sitting in front of my computer, thinking about what my research over the last year *means*. It is a daunting task because I am trying to make sure that the ideas I have thought about, observations I and others made in the field and the lab, and analyses I performed are important to someone other than me. That is, the ideas I have generated, compiled and "translated" are now mediated through my data, experience, and writings into something that (positively) adds *information* so others can operate with an informed perspective.

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ABSTRACT

VILLAGERS AND ARCHAEOLOGISTS: AN EXAMINATION OF PAST BEHAVIORS AT THE BARTRON SITE (21GD02)

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After a 40 year hiatus, excavations at the Bartron site (21GD02) resumed from May 2008 through June 2008 with new research questions. The primary impetus for this research was an investigation into the nature of the reported wall trench structure (Feature 13), one of the characteristics of the site previously cited as evidence of Mississippian contact or influence in the Red Wing Locality. This structure was hypothesized to be part of Pierre Charles Le Sueur's 1694/95 overwintering post on the southern end of Prairie Island. When excavated three centimeters below the previously excavated depth, the proposed wall trench structure was determined to be feature blur from the tops of at least three Oneota pits.

Contexts were separated into primary and secondary contexts. Primary context is defined as undisturbed soil and features; secondary context is defined as the backfill from the 1968 excavation unit (Feature 10) that encompassed the reported wall trench structure. An "interpretive garbology" theoretical framework was used to analyze both primary and secondary contexts for evidence of past behaviors with a focus on reclamation, loss, and discard behaviors. The Oneota pit features examined showed aspects of loss and refuse disposal of primary, secondary, and ad hoc refuse. Archaeological methods were used on the secondary context, which was generated by archaeological behavior in 1968 in the absence of explicit field methodology. It was determined that a half or one inch mesh screen was used to filter soil in 1968; this conclusion is preliminary because of the small sample size.

Other clarifications from the 2008 excavation include diagnostic pottery, a Late Woodland component, and radiocarbon dates. Diagnostic pottery from the 2008 excavations included a mix of Link and Bartron Phase pottery and the Angelo Punctated type. There was a larger than expected Late Woodland component, which remains unexamined. High precision radiocarbon dates place Feature Three/Five to circa cal. A.D. 1255 +/- 30 years and circa cal. A.D. 1280 +/- 30 years. Feature Seven dates to circa cal. A.D. 1260 +/- 30 years and circa cal. A.D. 1270 +/- 30 years.

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CHAPTER 1: INTRODUCTION

The hypothesized presence of Pierre Charles Le Sueur's 1694/95 overwintering post on Prairie Island was the impetus for this thesis. However, like others before me (Birk 1984, 1985), the fort remained elusive and still buried from public knowledge. The fort was hypothesized to be part of an anomalous feature, excavated in 1968 by Elden Johnson, at the Bartron site (21GD02) on the southern end of Prairie Island. As the overall project moved from the planning through the implementation stage, flexibility and open communication by all stakeholders was crucial in enabling research to progress during the 2008 field season. Because of the nature of the archaeological findings and the growing importance of communication as the field work progressed, project goals were modified. Nevertheless, the overarching goal of providing clarification to information from past excavations at the Bartron site remained intact.

The initial project goal was simple: investigate an anomalous feature to assist in the definition of a hypothesized historic component at the site. While looking through the original notes from Elden Johnson's 1968 and 1969 field work at the Bartron site for the University of Minnesota, Dr. Ronald Schirmer noticed inconsistencies in the field description of a feature at the site and its interpretation. Feature 13 was largely accepted in the literature (e.g., Gibbon 1979, 1991) as a possible Mississippian wall trench house corner but its dimensions were too wide and shaped differently to reasonably fit that classification. This feature was considered a possible diagnostic characteristic of Middle Mississippian contact or relatedness in the Red Wing Locality, though some authors called for confirmatory evidence before unquestioning acceptance (Gibbon and Dobbs 1991; Schirmer 2002:58).

The working assumptions behind the initial research questions were 1) a feature existed which may be a portion of a structure, and 2) a field investigation would reveal more information about the feature. If the feature was a part of a structure, the structure may be an atypical pre-Contact structure or a historic structure. Historic artifacts—"bits of brass," a clay pipe, and beads—had been found at the Bartron site in 1960 (St. Paul Dispatch, 13 July 1960; Red Wing Daily Republican Eagle, 14 July 1960; NSP News, September 1960), though the provenience and current location of the artifacts is not known. The presence of these early Historic artifacts evoked the possibility that the remnants of Le Sueur's post (Birk 1984, 1985) may be near or on the Bartron site.

The Bartron site spans at least two properties on the southern end of Prairie Island: a private landowner who farms that portion of the site and the Prairie Island Nuclear Generating Plant (PINGP). The site is situated near a complicated intersection of land ownership that involves the Milwaukee Railroad, a road owned by the state of Minnesota, and a road buffer owned by the Army Corps of Engineers. Though Feature 13 was located near the border of Section 8 and Section 9 (Township 113N, Range 15W in Goodhue County), initially determining who owned the land the one by five meter excavation unit (Feature 10) that encompassed the feature proved to be a challenge. Even with the availability of a published site map (Gibbon 1979) and student maps created in the 1968 and 1969 field seasons, the specific real world location of Feature 13 was unclear. Without the specific location for excavation, asking the proper landowner for permission to excavate was not yet possible.

In April 2007, Schirmer and a few anthropology graduate and undergraduate students from Minnesota State University, Mankato (MSU, M) who were conducting research in the Red Wing area visited with the Prairie Island Indian Community (PIIC) Tribal Council. Schirmer updated the Tribal Council on his field activities from the previous year, discussed the planned path of his future research, and asked for the Tribal Council's continued support of his research. The Tribal Council generously acknowledged Schirmer's contribution to archaeological knowledge in the Red Wing area. A general outline of my research was presented at this meeting, and the Tribal Council thought the feature was located on a private landowner's property. The landowner they proposed was a member of the PIIC who may be inclined to give permission for the excavation.

The search for the real-world location of the feature continued through the fall of 2007. The student-created field maps from 1968 and 1969 provided crucial clues to determining the real world location of Feature 13 at the Bartron site. Landscape features on two separate field maps—one from 1968 and one from 1969—tied together the politically drawn section line, a road, and the location of the targeted excavation unit. The combination of these two maps yielded more precise ground measurements than were previously available from other sources. Piecing together the information from the maps showed Feature 13 was located a few meters from the section line (noted as a fence on one student map) on property owned by the PINGP. The tangle of land ownership in this particular area of Prairie Island was resolved, and the landowner we needed to contact for permission was the PINGP.

In the fall of 2007, Schirmer and I contacted RaeLynn (formerly Jones-Loss) Asah and Jim Holthaus from the Environmental Review branch of the License Renewal Project at the PINGP. The nuclear plant's initial 40 year operating license was in the process of renewal by the Nuclear Regulatory Commission (NRC) and the plant was opening itself up for a rigorous audit. With a more heritage-conscious public (Shackel 2001) and louder voices from various national and local stakeholders, the plant's past and present relationship with archaeological work was a sensitive area in the license renewal process.

Schirmer, Asah, Holthaus, and I "walked down" the projected Feature 13 excavation unit location in October 2007. While walking in the densely overgrown brush and under tree cover, geometric depressions appeared on the ground surface that indicated past ground disturbance. We found the section line fence, but it was clear it and the tree line bordering the neighboring farm had moved in the interim between the 1960s archaeological work and our reconnaissance. I made a fortunate discovery near the section line fence that Schirmer had predicted may be present at the site: Johnson had sunk a two inch metal pipe in the ground as a permanent site datum marker. The field maps and notes and published map (Gibbon 1979) depicted the excavation units in reference to the now field verified site datum. At this point in time and space, the precise location of Feature 13 could definitely be reconstructed in the real world.

Despite the tricky political climate, members of the License Renewal Project team saw an advantage in allowing educational archaeological access to the Bartron site. Besides clarifying some aspects of Johnson's work in the 1960s, the planned field work was a chance for some employees to interact positively with some members of the PIIC.

The PIIC, as noted above, had supported archaeological projects conducted by MSU, M in the past and had indicated their support for the 2008 archaeology field season. Various state and federal agencies (the NRC, the Army Corps of Engineers, the State Historic Preservation Office, Minnesota Historical Society, and the Office of the State Archaeologist) were also interested in the PINGP's archaeological program and resources and thus can be considered stakeholders in this project.

As the planning process progressed from 2007 to 2008, it became obvious that the various interests, motivations, personalities, agency mandates, and history of interactions needed to be factored into the research design and methods. Two crucial factors that contributed to the success of the overall research design were Schirmer's and my dedication to investigating and communicating the scholarly intent and results of our research at the Bartron site, and the flexible approach we took in planning and implementing the field work. We were (and are) interested in presenting the most accurate and meaningful story of all of the components of the Bartron site. Archaeologists are concerned with presenting true and accurate results; the challenge is to make our interpretations meaningful to our audiences (Leone 1981).

Schirmer and I continued to consult with the site landowner to address various concerns through the first half of 2008. As the Principle Investigator for the 2008 field work, Schirmer brought a wealth of archaeological experience in and knowledge of the Red Wing Locality. In order to maintain a constant PINGP employee presence during the excavation, I was hired as an intern at the PINGP.

With this "inside" position I was able to answer plant employee questions, address concerns, and fulfill the myriad requirements needed within the PINGP site and

Xcel Energy company protocols to proceed with the archaeological dig. This involved consulting on the proper safety equipment and security procedures, coordinating brush clearing and other site maintenance, and securing proof of institutional insurance coverage. I also fielded questions from plant employees inquiring about the purpose behind the money and energy spent coordinating the archaeological dig. A "questioning attitude" is part of the "safety culture" at the PINGP (a fruitful avenue of research for another master's thesis). The two primary concerns the PINGP employees had were to ensure the safety of visitors, field school students, and plant employees and to maintain the security of the nuclear power plant (the security procedures were considerably strengthened under the 2001 USA PATRIOT Act (Public Law 107-56)). PINGP employees were also concerned with the impact the archaeological excavation would have on the PIIC and relations with the PIIC.

The employees at the PINGP who questioned the value and need of the planned Bartron site archaeological work were not the only ones on Prairie Island to ponder the value of the project. Members of the Tribal Council and some employees working for the PIIC had differing reactions to archaeological excavation at the nearby PINGP site. Keeping in mind there is a range of responses in each individual and across groups, the three main stakeholder communities (archaeologists, plant employees, and the PIIC) involved in this project focused on different concerns with the planned archaeological excavation. Two of the archaeologists from the archaeological community, Schirmer and myself, focused on listening and addressing the concerns of the stakeholders we were talking with while keeping a commitment to conduct rigorous scientific work. The PIIC, as voiced through the Tribal Council, were concerned that the proper respect would be given to the archaeological deposits/stories of the place/ancestors.

To address these concerns, Schirmer and I wrote a document (Schirmer and Hildebrant 2008) that laid out the reasons for the archaeological excavation and detailed a comprehensive set of field methods. Procedures outlined methods for notekeeping and data recordation, visitor conduct, and other anticipated actions so both the Tribal Council and the PINGP management felt the highest level of respect and safety were adhered to during field work. In addition, the artifact assemblage, soil samples, and site records were acknowledged as belonging to the landowner (Xcel Energy). As the plant did not wish to curate this material and was interested in the possibility of transferring ownership to the PIIC, a location was agreed upon for the temporary storage and analysis at MSU, M until a permanent curation agreement could be worked out.

The procedures specifically referred to the legal and ethical processes to be followed in the event of discovery of human remains. Human remains were not expected inside the Bartron site (and none were found), but both the Environmental Review PINGP employees and members of the Tribal Council wished to know what our response to such an occurrence would involve. The document was signed by the PINGP management, the Tribal Council representative after a vote of approval, and Schirmer as the project's Principle Investigator. After gratefully receiving permission from these stakeholders to continue the project and initiate archaeological excavation, the implementation portion of the project began only a week later than originally anticipated. All excavated artifacts and a sample of the feature soil samples were catalogued and analyzed at the Archaeology Lab at MSU, M according to the procedures outlined in Chapter Six.

The results from this excavation fulfill the original and overarching project goal of providing clarification to information from and about past archaeological excavations at the Bartron site. The material expressions of past behaviors enacted at the Bartron site are described in the following chapters. Because the behaviors of Oneota villagers in the 1200s and archaeologists in the 1960s created a part of the archaeological record of the site, both of these groups are considered "components" and aspects of the material traces from their activities are analyzed. Two features from the Oneota component are analyzed and demonstrate loss behavior and discard of primary and secondary refuse. The post-Contact component consisted of the artifacts that passed through the archaeologist's screens in 1968 and recovered in 2008. An analysis of the size of the artifacts proves it is possible to discern the screen size used in the past, and illuminates archaeological behavior as reclamation behavior. Overall, the excavation proved that the "wall trench structure" was instead blur from the tops of at least three deep Oneota pits (Schirmer 2008).

CHAPTER 2: THEORETICAL FRAMEWORK

This chapter outlines the theoretical framework that informs and supports the analyses performed with the data collected from the artifacts and deposits in 2008 at the Bartron site (21GD02). The following "interpretive garbology" perspective is a selective synthesis of Hodderian interpretive archaeology (Hodder 1991, 1995, 2003) and Schifferian behavioral archaeology (Rathje 1978, 1981; Rathje and McCarthy 1977; Schiffer 1987). This framework is behavioral and not mentalist because the goal is not to get inside of someone's head; rather, this framework examines the material patterns in artifact assemblages and begins to explain *why* there is variability in these patterns through a behavioral paradigm while withholding subjective assignations (Gould 1978; Hodder 1991; Schiffer 1987). Tracing behavior – material correlates is a necessary and basic information-gathering step before a more subjective paradigm can be constructed and applied to similar assemblages.

Pre-Contact archaeology and historical archaeology are subfields of archaeology, and though they have somewhat differing data sets and at times different research questions, both subdisciplines fall under the umbrella of anthropology. Pre-Contact archaeology and historical archaeology followed similar developmental trajectories from the 1960s through the present. Though there is some argument about the precise definition and appropriate subject matter of historical archaeology (Hall and Silliman 2006; Orser 1996), it is generally recognized that historical archaeology utilizes both archaeological and historical methods as a base for its own syncretic methodology.

Some historical archaeologists are still unashamedly particularistic, but many researchers see unique opportunities in the data and interpretations to enhance our anthropological understanding of humans (e.g., Rathje 2001; Rathje and McCarthy 1977) and make contributions to other disciplines and subdisciplines. The latter view is the one taken in this thesis. A brief summary of relevant developments in pre-Contact archaeology and historical archaeology is outlined, followed by the guiding principles used to clarify and situate the Bartron site data into information.

In the 1960s archaeologists began to transform archaeology from a descriptive science to a discipline with an explanatory basis that sought to delineate "processes." Lewis Binford (1962) and his historical archaeology counterpart, Stanley South (1977a, 1977b), formed the backbone of this processualist orientation. Processualist analyses evaluated data in regards to its function within a cultural system. Culture was conceived as exosomatic, patterned, and predictable; processes were "the operation and structural modification of systems" (Binford 1962:217). It was important for these researchers to frame research questions in terms of testable hypotheses, and ideally one would have independent data sources to provide multiple strains of evidence. Similar to Binford's early work (e.g., 1962, 1967), South (1977a, 1977b) foundered when trying to explain creativity and symbolism as functional patterned behavior or as the "patterned casting off of behavioral by-products" (South 1978:228). This uneasy explanation would be rectified with some of the more syncretic approaches of the 2000s (e.g., Van Buren and Wooten 2009).

Behavioral archaeology borrowed many of the processualists' concepts and emerged in the 1970s (e.g., Ferguson 1977; Gould 1978; Reid, Schiffer, and Rathje 1975; Schiffer 1977, 1987). Behavioral archaeology encompasses ethnoarchaeological (Castenada 2008; Gould 1978; Simpson and Williams 2008) and garbology (Rathje and

McCarthy 1977) approaches. The goal of behavioral archaeology is to examine past material culture to answer questions about human behavior in a particular place and time, with the eventual goal of generating the nomothetic laws about humanity desired by processualists. This is accomplished by examining the relationship between behavior and material culture, and testing this information across cultures and through time with the eventual goal of generating nomothetic laws (Reid, Schiffer, and Rathje 1975). Importantly, behavioral archaeology draws on the strengths of anthropological methods and makes use of the culture concept. Garbology in particular seeks to transform "archaeological data … from "historical curiosities" to an empirical foundation for understanding our current society" (Rathje 1981).

Ethnoarchaeology has lately grown introspective, and a branch is presently concerned with using its methods to examine "how archaeology addresses itself as a socially constructed and politically constructed agent that claims expert knowledge of and responsibility for, if not always stewardship over, the past" (Castaneda 2008:5). Current ethnoarchaeological analyses use ethnographic methods (e.g., observation, participant observation, and community engagement) at the sites of archaeological field and lab work to evaluate, among other goals, the efficacy of the archaeological work (e.g., Simpson and Williams 2008). Quantitative analyses of the efficacy of archaeological fieldwork are still largely lacking (but see Dibble et al. 2005).

Aspects of the archaeological community rigorously policed the processual theorists and the resulting post-processual critique emerged in the late 1970s and 1980s. Post-processualism, a term for some archaeological approaches that are loosely grouped together because of their affinity for processualist critique and examination of the social underpinnings of data generation and interpretation, flourished in the 1980s and 1990s (Patterson 1989; Raab and Goodyear 1984). Post-processualist approaches do have certain foci in common. Especially noteworthy are a focus on the individual as an actor in cultural transmission, and sustained inquiry into the structures of society and what influences those structures (Hodder 1991; Patterson 1989) such as examining the role the present has in creating interpretations of the past (Hodder 2003; Leone 1981; Leone and Potter 1988).

Both processualists and post-processualists, however, typically use the same field and lab methods (which were largely developed by the processualists in the 1960s through 1980s) and even the same general interpretive process (Kosso 1991). This process begins with lower-level observations, formed by background knowledge and initial observations. These lower-level observations are used to build testable hypotheses, which yield mid-level inferences that explain the observed variability in past behaviors and material traces. The mid-level inferences—statements about pattern recognition—are combined with general theoretical statements that yield higher-level generalizations about *why* the behavior exists (Kosso 1991; Schiffer 1987).

The following theoretical framework builds on these broadly outlined theoretical trends in archaeology. Central to this thesis is the idea that human behavior forms the cultural part of the archaeological record which undergoes natural and cultural formation processes, and emerges as patterned material traces on deposits and artifacts. Two broad analyses are performed in this thesis, and appear to be different because of their chronological distance. However, the analyses are both based on the present-day observations of past material culture and cultural deposits (as mediated through formation processes), and use these observations to attempt to identify and explain past behaviors. The analyses differ only in the portion of the overall picture they seek to explain; the analysis of the pre-Contact component illuminates aspects of the creation/systemic context (see below) while the analysis of the post-Contact component reflexively illuminates aspects of the entire contextualization process with particular emphasis on the interpretive/systemic context.

Rathje (2001:69-72) identified the behavior components archaeologists are particularly interested in reconstructing (which also may be useful for the study of the behaviors of contemporary cultures). The first component, contemporary behavioral observations, takes two parts: the emic or self-perception of behaviors, and the etic or direct observation of another's behaviors. Material observations are the second component, and this involves an examination of material traces on artifacts, artifact patterns, and biases in their presence/absence or other characteristic dimensions in the archaeological record. Studying formation processes is quite helpful in elucidating these biases. This second component is the usual starting place for archaeologists.

Behaviors are governed by these general cognitive rules and values (Rathje 2001:69), which are culturally and personally dependent. Behaviors leave material traces, and it is through a study of the extant material traces coupled with other sources that *generalizations* about human behaviors can be made. Cognitive pathways that govern behavior are arguably the component which directly manages behaviors. It is recognized in this framework that the original cognitive pathways are irretrievable; however, they may be partially reconstructed through material observations and behavioral correlates, and used as a basis for general cognitive rules and values. This approach avoids making specific statements about the mental status of the individual while still tracing general cognitive rules and values. Galloway (2006) used Actor-Network Theory (ANT) to visually diagram the relationships between behaviors and the contexts they operate within as linked representations or networks. An "actor" is an individual, "apparatus, objects of study, machines, and codified chunks of knowledge like theories and practices" (Galloway 2006:43).

Behavior occurs within and is shaped by various contexts (cf. Cote, McCullough, and Reilley 1985; Rathje 2001). The systemic context (Schiffer 1972), also termed the creation process by Galloway (2006), is the initial place where material culture interacts directly with behavior and is designated the creation/systemic context in this thesis. Next, material culture transitions or is "archived" (Galloway 2006) via natural and/or cultural formation processes such as discard, loss, caching, and abandonment (Rapp and Hill 2006; Schiffer 1987) into a suspension from human behavior in the archival/archaeological context. There is usually some kind of physical transformation that accompanies the archivization process. Material culture may then be retrieved or reclaimed, typically through a cultural activity such as archaeological excavation, and returns to the systemic (or Galloway's interpretive) context. Human behavior has the potential to modify material culture again in this interpretive/systemic context. In this thesis, a combination of Galloway's (2006) and Schiffer's (1972, 1987) terms for three broad contexts will be used: the creation/systemic, archival/archaeological, and interpretive/systemic contexts.

The creation/systemic context is composed of the contemporary actions of ancient peoples, corresponding activity areas, past environment, imagined worlds, and artifacts.

Actions in the creation/systemic context involve the creation, use, and initial deposition of artifacts and records. At their creation, objects and texts already have networks of meaning from their production (Schiffer and Skibo 1997), and are repeatedly enmeshed in multiple and overlapping "human patterns of practice that … reproduce the thoughtworld and lives of their creators and users" (Galloway 2006:44).

Self-reporting as a primary source occurs in the creation/systemic context, and becomes a reflexive component of interpretation when archaeologists engage in it in the interpretive/systemic context. Situation factors have implications for self-reporting; for example, the Garbology Project found that discarders underreported the amount of alcohol they drink by 40 to 60 percent. Importantly, this indicated that people understand enough about their immediate material reality to function in society but not enough to validly represent the quantitative aspect of their consumption (Rathje and McCarthy 1977; Rathje 2001). A control for this self-reporting example is the material record, which may be analyzed using archaeological field methods. Archaeologists self-report in their field notes and other records.

Unanticipated situational occurrences can also explain the disparity between the stated intention for anticipated behavior and actual behavior (Cote, McCullough, and Reilly 1985:188; Schiffer and Skibo 1997). This situationally influenced behavior has implications in examining historical records and personal narratives, where a close evaluation of the source is necessary to determine if the source can be taken literally. Material observations can help fill in the gaps from records or add information that clarifies questions generated from historical records (Ferguson 1977).

The material observation of traces may be best understood as remnants of human activities mapped onto artifacts during its use-life in the creation/systemic context. Artifacts have a predictable life cycle—or use-life—and figuring out where an artifact was in its life cycle when it was deposited helps to pinpoint the process responsible for its deposition. There are many situational factors in these steps in the life cycle (Schiffer and Skibo 1997) that influence the directionality and disposition of the use-life. Raw materials are procured and may be influenced by material accessibility. With the addition of energy and skill, these raw materials are manufactured into artifacts.

During manufacture, there typically is an ideal the creator is attempting to create. The "ideal" is mediated by situational factors in the real world: constraints with material access and properties, techniques, rate of production, composition of and feedback from the "social unit of production." Artifacts are transported and this may vary in the mode, distance, frequency, number in the lot moved, and the terrain types over which transportation takes place. Distribution and use have many forms and is especially influenced by situational factors. Storage and retrieval, maintenance and repair, reuse, curation behavior, and its terminal disposal are all part of the use-life of the artifact (Gould 1978; Schiffer and Skibo 1997:36-39). Archaeologists are most interested in the traces from these activities that are mapped onto artifacts.

Archaeologists generally do not directly deal with artifacts in the creation/systemic context although modern material culture, ethnoarchaeological, and garbology analyses also examine this context. Objects may re-enter the interpretive/systemic context via archaeological excavation or by other means, and may cycle between the interpretive/systemic context and archival/archaeological context (Schiffer 1987; South 1978).

All behavioral remnants have been subject to a series of events or formation processes that culminated in its presence or absence in the archival/archaeological record. The process of archivization (Galloway 2006:44), also called formation processes (Schiffer 1987:7,11), is defined slightly differently by these authors, but essentially means the selective retention and transformation of materials into a "*preserving* context" (Galloway 2006:44, emphasis in the original). This context eventually comes to characterize the past through interpretation in the present. The archivization or formation process may leave formally, spatially, quantitatively, and/or relationally patterned material traces on artifacts and records (Dibble et al. 2005; Dibble et al. 2009; Rathje and McCarthy 1977:261; Schiffer 1983, 1987; South 1977a, 1977b). These material traces have been removed from the systemic context and are out of the immediate and direct human interaction sphere.

An examination of the wide range of cultural (Schiffer 1987) and natural (Rapp and Hill 2006) formation processes that shape the archaeological/archival context exceeds the scope of this thesis. The cultural formation processes that are germane to the analyses presented in Chapters Seven and Eight are briefly summarized, below. It is important to note that most of the behaviors outlined here were initially defined ethnographically and applied to the past populations archaeologists study (e.g., Gould 1971). Through its use of ethnographic and archaeological methods and its focus on modern populations, garbology has demonstrated that many of these behaviors transcend chronological boundaries (Rathje and McCarthy 1977).

I suggest that the methods used to study and the theories constructed to understand behaviors of past populations can be used to study archaeological behavior in the recent past, which can be used to clarify archaeological interpretations. This thesis examines cultural formation processes to tie behaviors to two of the past behavioral components at the Bartron site: Oneota villagers and archaeologists. Specifically, Oneota villagers demonstrated curate, loss, and deliberate discard behaviors. Archaeologists exhibited reclamation behavior when they selected and retained or discarded specific materials representing the past. This archaeological behavior had an impact on incorporation and reincorporation of these objects into the scholarly interpretation of the past.

Cultural processes that form the archaeological record generally operate as discard and reclamation activities (among others). Disposal and loss are two discard activities, the former intentional and the latter unintentional. Artifacts are typically discarded and disposed of when their mechanical properties are irreparable. Contributing to artifact breakdown are chemical and physical properties, use-wear, and accruing deterioration. Artifacts may be provisionally discarded and may be retrieved for reuse (gleaning) or reclaimed. Locations, choice of artifacts, and other aspects of discard activities are influenced by social class, ethnicity, and associated symbolism (Schiffer 1987).

Refuse may be characterized as primary and secondary refuse. Primary refuse is discarded at its immediate location of manufacture or at its activity-related location. Secondary refuse is discarded in a different location than its original manufacture or activity area. During disposal, refuse may be variously treated including compaction, burning, and/or use as construction material (Schiffer 1987).

Factors that influence refuse behaviors include the degree of danger the items pose to occupants, tolerable size threshold, and types of maintenance activities. The tolerable size threshold generally is lower (smaller sized) in high activity areas. The surface of the area also influences the size threshold and amounts of refuse that will be tolerated. Maintenance is the start of the waste stream, and the types of maintenance include scheduled, ad hoc, frequent or infrequent. Provisional refuse areas may hold refuse from maintenance for various lengths of time prior to reclamation or disposal (Schiffer 1987:62-64, 162).

Understanding the flow of waste streams is necessary to understand artifact distribution patterns, including primary and secondary refuse patterns. Storage locations and timing of deposition can serve to concentrate secondary refuse. Disposal activities can disassociate or re-associate activity-related artifacts in secondary refuse deposits. The effort required to move objects is important to consider in activity and refuse areas (the Schlepp Effect) (Schiffer 1987:67-69).

Small, valuable objects or those still in good condition that have become accidentally disassociated from its current user are considered lost artifacts. In contrast to deliberate disposal activities (which are directly correlated with disposal mechanisms and amount of refuse generated), loss is accidental and thus does not lend itself easily to quantification. However, smaller (either in size or mass) artifacts are more likely to get lost than larger artifacts. Also important to consider is the nature of the ground surface area where the artifact was used, the mobility of the artifact, and whether the deposit is actually a cache and thus is a special kind of provisional storage (Ferguson 1977; Schiffer 1987:76-88).

Reclamation processes include curation, scavenging, salvaging, and collecting, and may lead to a re-incorporation of the artifact into the creation/systemic or interpretive/systemic context (Schiffer 1987). If formation and archivization processes transform the material record into a preservation state, reclamation processes begin to remove material from the archaeological/archival context and transition it into the interpretive/systemic context. Archaeological behavior, highlighted in reclamation processes but also evident in the previously mentioned archivization and formation processes, is patterned along the same general lines previously outlined for those populations archaeologists typically study.

Curate behavior is the "process of removing and transporting still-usable or repairable items from the abandoned activity area for continued use elsewhere" (Schiffer 1987:90). The distance to be traveled, amount of traffic and distance to transportation routes is a crucial factor in whether artifacts are reclaimed for the systemic context or abandoned into the archaeological context. Other variables important in curate behavior are the size, weight, replacement cost, remaining use-life, and function of the artifact as well as whether a return to the original site is anticipated (Schiffer 1987:89-98).

Scavenging, salvaging, and reincorporation are reclamation processes that add further variability to archaeological deposits. The artifacts involved in these processes typically have some level of remaining use-life. Scavenging takes place among accumulated deposits, and is confined to the close proximity of the settlement (an intrasite activity). It responds to local and possibly larger fluctuations in supply and demand. Salvaging is the reclaiming of abandoned artifacts and structures from earlier and different occupations (Schiffer 1987:104-106).

Collecting behavior moves artifacts from the archaeological/archival context to the creation/systemic or interpretive/systemic context. Collecting involves intersite artifact disturbance, reclamation, and movement of surface materials. Collected artifacts are defined as possessing no remaining techno-functional use-life, but may be transformed by collection into objects with an ideo-function. Collecting behavior is influenced by ease of access to the site and the portability (including size) of the artifacts (Schiffer 1987:99, 114-120).

Archaeologists themselves substantially influence the archaeological record in patterned traces through the disturbance and reclamation processes outlined above. Archaeological activities may impact the deposition, formation, and recovery of archaeological deposits (cf. Hodder 2000; Schiffer 1987:339). There has been little systematic past work examining this kind of impact (Schiffer 1987:355), though this has recently become a point of quantitative analysis (Dibble et al. 2005).

Archaeological behaviors consist of several processes that leave distinctive patterning in the archaeological record. Artifacts recovered from the archaeological context and brought into the interpretive/systemic context are part of salvaging (see above; this is *not* the same as salvage archaeology), collecting, and reincorporation activities. Archaeologists transform the function of artifacts from a techno-function to an ideo-function (Binford 1962), and this extends the artifact's use-life. These functions are not mutually exclusive and instead operate along a continuum. Archaeological activities generate deposits filled with disposed "refuse" (soil fill from screening activities which may contain small and/or microartifacts depending on the field methodology). Many of the same principles generated for pre-Contact populations are applicable to archaeological activities (e.g., the proximity to transportation (roads or paths) influences the location of backfill disposal areas and even if the site is excavated at all).

Schiffer (1987:339-364) laid out a general framework for assessing taphonomic bias in archaeological recovery and analysis with a focus on the regional scale. This type of study shall begin with examining site records—both past excavation field notes and regional histories—and thinking about aspects of the project under study. The site discovery process, project initiation and implementation, and the types and processes of recordation influence the data available for later analysis. Important questions to ask of any past archaeological project include: what were the project goals, and what recovery methods were employed in the field and the lab? Was surface collecting utilized at any time in the past at the site? Screen mesh sizes and feature exposure methods (mechanical versus hand) introduce variability and "[n]o recovery technique operates without bias" (Schiffer 1987:358). This information is needed to evaluate the data gathered from archaeological work.

Quantifiable archaeological data about archaeological activities may be obtained from examining the four dimensions of artifact variability (spatial, relational, formal, and frequency). Written records (field notes, data forms, photographs, etc.) furnish qualitative data. Past studies on the impact an archaeologist's behavior has on the material record at a site has been confined mostly to sampling procedures (e.g., Kintigh 1988; Lennstrom and Hastorf 1992; Lightfoot 1989; O'Neil 1993; Redman and Watson 1970) or faunal recovery (e.g., Cannon 2000; Reeder and Rick 2009). Surface collecting, intrasite sampling unit placement, fine- versus gross-scale recovery techniques, and collecting "the goodies" from a site all introduce bias into the representation of the archaeological record. In Minnesota, archaeology is a seasonal activity and thus this seasonality introduces variations in behavior. The site is eventually abandoned, with its accompanying abandonment activities such as re-filling excavation units (Schiffer 1987).

Only recently has a systematic, in-depth study focusing on excavator bias been performed at the Pech de l'Aze IV site (Dibble et al. 2005). This study compared artifacts in the curated museum collections, samples of the backdirt from the Francois Bordes excavation at the site, and samples from the modern excavation to assess biases in the retention rate. Bordes did not use screens, but the modern excavation did. Dibble et al. found that despite the lack of screens and past research goals, there was no significant bias in terms of size or type of artifact recovered. Additionally, a very small amount of artifacts (numbering 31) were found in the screened backdirt. These results are an important step in quantifying past archaeological behavior, and its impact on the interpretation of the past.

Also important to consider are the personalities involved in the excavation. What is the past experience of the excavator(s)? Archaeologists are "the greatest source of variability in the archaeological record. It is the archaeologist who determines what is found and what is not, what is saved and what is not, what is counted and what is not, and what is reported and what is not" (Schiffer 1987:362-363). This chain of events may be per the direction of the lead archaeologist, may reflect the individual's experience and training, the individual archaeologist's conscious decision that something is worth retention, and/or may reflect the individual's experience and training (Dibble et al. 2009).

Artifact handling in the field and the lab may introduce traces. Artifact processing and curation procedures should also be examined for bias potential. Selective retention and institutionalization, which introduce variability in the assemblage, comes from retaining only the "good stuff" or diagnostics from the field introduces variability and the "gradual attrition processes" (Schiffer 1987:360) in lab and storage locations. Dibble et al. (2009) triangulated between written sources, institutional knowledge, and information from the curated artifacts to evaluate curation bias in the Combe-Grenal site assemblage. They found that approximately 70% of the excavated artifacts could be attached to provenience information.

Texts and unwanted archaeological artifacts may similarly be discarded or never considered for (permanent) curation at museums or in archaeological field collections. This takes place in the field, lab, and storage locations (Dibble et al. 2005; Dibble et al. 2009; Galloway 2006). Just as other cultural processes operate to form the archaeological record in the ground, there is a winnowing process of discernment that forms the textual and artifactual record in the museum. Excavation bias is the focus of one of the analyses performed in this thesis, but any researcher who uses the artifacts from the 1960s excavations should be aware of the particular curation biases from the curation history of the assemblage.

Value is given to artifacts and records with metadata such as provenance and provenience information. Historical records are not created, retained, or preserved randomly, and we do not know "what kinds of samples they are of the universe of documents that were once available" (Galloway 2006:51). Curators (including archaeologists, archivists, etc.) translate—through a process of sorting, selection, classification, and collaboration—select pieces of prehistory and history from these archives as "evidence" to build interpretations.

Archives can become "fetishized" if they become "immutable mobiles," or a widely distributed metonym of the actors including concepts or specific findings. Immutable mobiles are pieces of primary evidence, such as Elden Johnson's original artifact catalogue from the Bartron site or Gibbon's (1979) interpretation of this catalogue, that "become obligatory points of passage in specific networks of knowledge" (Latour 1987 in Galloway 2006:52). This is a point to be cognizant of when constructing a metadata narrative or when examining any scholarly interpretation (cf. Dibble et al. 2005, Dibble et al. 2009), especially those with a rich interpretive history.

Archaeologists (or others) choose an object or text from the archive or archaeological context and construct an interpretation of the past; through this interpretation scholars add and institutionalize meanings associated with the objects and texts. Practicing reflexivity and maintaining a guardedly objective perspective help us to understand how our social and personal contexts intrude on the dialectical process of meaning generation and interpretation. As Hodder (1995:166) put it, the present and past are "different but dependent."

Information is created in the interpretive/systemic context through the process of triangulation (Galloway 2006; Rathje 2001). The observant interpreter moves between observations of texts, ecofacts, and artifacts and pre-existing knowledge and uses data from these sources to create an interpretation that is situated in a particular sociocultural milieu. Rathje (2001:73) particularly focuses on the potential of texts and the archaeological record to fill in gaps when only one of these sources is considered, as they may be considered two independent and testable strains of evidence (Ferguson 1977; Leone 1981). There may be dissonances or spaces between what may be gleaned from studying these sources (Van Buren and Wooten 2009) because of the nature of the evidence and the interference of formation processes. Dissonances may also exist because of the different production and retention of texts and objects (Galloway 2006:43), or, as Dibble et al. (2009:2544) put it, the interpretation of the assemblage may be thought of as a palimpsest or document that is constantly being revised though traces of the original is still evident.

Triangulation between the many types of evidence available to the historical archaeologist tightens the uncertain spaces (Galloway 2006:53, 60), though it does not eliminate them altogether. This method can be as simple as comparing texts and aspects of the archaeological record (as the potpourri assembly of behavioral and material records). Triangulation between many sources avoids "the circularity of both 1) nomothetic claims that depend upon uniformitarian assumptions and a socially constructed scientism and 2) ideographic claims that depend upon the hermeneutic circle of situated interpretation" (Wylie 2002 in Galloway 2006:60). These lines of evidence may be used to generate and test hypotheses, or to confirm or comment on conclusions (Galloway 2006).

Examining the process of meaning production in interpretation has been a dominant discourse in archaeology since the widespread introduction of critical archaeology and post-modernist approaches in the 1980s (e.g., Galloway 2006; Hodder 2003; Leone 1981). Recent discussions of the interpretive process focus on the social dynamics underpinning interpretation. Hodder (2003:59-62) discusses this "social side" of data construction and notes that without the social context explicitly documented in the knowledge production process, it is difficult to trace the paths of knowledge production in the field and the lab. This is evident to anyone who has had to reconstruct field activities based on an incomplete field notebook (e.g., Dibble et al. 2009). These silences, or dissonances, are areas that may be exploited to find additional interpretations and meaning.

Hodder (1991:10-13) cautions anthropologists about the need to recognize the guarded objectivity of data, or that data are created through a dialectical interaction of the presence of objective elements and the background history of the interpreter/observer. Without delving into too much abstract theory, there is no empirical data without an interpretive observer (Hodder 1991). One's position eliminates or obscures some interpretations and makes others more attractive; besides the influence wrought by broad societal factors and development histories, the individual and his/her idiosyncrasies also contribute to the interpretation. The data, of course, necessarily constrain the interpretation (Hodder 1991).

It is through reflexivity, or tracing the pathways of information creation, archivization, and interpretation, that archaeologists can examine the subjective and social effects of production processes on artifacts and texts (Hodder 1991, 2003, 2006; Potter 1991). Reflexivity is not merely "the examination of self" but instead recognizes "the value of multiple positions, and multivocality. It also involves a critique of one's own taken-for-granted assumptions, not as an egocentric display, but as an historical enquiry into the foundations of one's claims to knowledge" (Hodder 2003:58).

Adding other voices, or employing multivocality, to interpretive efforts is another method of triangulation that has recently been examined in archaeological work though much of it proceeds without a firm basis in theory (Zimmerman 2006). These "other" voices (descendant communities, peers in the peer-review process, other theoretical orientations or different backgrounds) can be seen as multiple working hypotheses (VanPool and VanPool 1999) or as integrated archaeology (Rathje 2001). The degree of engagement with others exists on a continuum of participation, ranging from collaboration to participation to resistance (Colwell-Chanthanphonh and Ferguson 2006). This particular thesis used a participatory approach, which sought input from various stakeholders on aspects of the research agenda and methods but was largely shaped by the archaeological research agenda. This approach can shed light on the archaeologist's taken-for-granteds, which may lead to richer and more accurate interpretations (Colwell-Chanthaphonh and Ferguson 2006; Hodder 2003; Van Buren and Wooten 2009).

Ultimately, the goal of this interpretation is an enhanced stewardship of the Bartron site: interpretation of the past leads to a greater understanding of that past, and when the past is better understood it may be further appreciated. This appreciation of the importance and context of the site lends to an attitude of stewardship (Sharon 2008). The Bartron site is critical for understanding the character of Oneota peoples in the Red Wing Locality but also has the potential to shed light on archaeological practices in the recent past from an unusual angle through a consideration of the process of contextualization through the creation/systemic, archival/archaeological, and interpretive/systemic contexts.

CHAPTER 3: ENVIRONMENTAL LANDSCAPE

The Red Wing Locality (Dobbs 1985), a culturally defined unit, is the northernmost North American location that shows evidence of Mississippian contact and interaction with local populations. The geographic boundaries of the Red Wing Locality encompass 400 square kilometers in the upper Mississippi River valley from the confluence of the Cannon River and the Mississippi River to Bay City, Wisconsin. The Locality is bounded by the Cannon River and Trimbelle River bluffs (Dobbs 1988; Schirmer 2002), and is in the eastern portion of Goodhue County (Minnesota) and the western portion of Pierce County (Wisconsin).

The geographic location of the Red Wing Locality—especially its north/southbound and east/westbound waterways—gave its inhabitants access to resources from the prairie, plains, northern Minnesota and Canada, and the western margin of Lake Superior (Wilford 1955). Interactions (of a currently undefined nature) with various communities spread across the Midwest and Plains are echoed in the presence of some of the associated ceramic complexes in refuse pits in the Red Wing Locality (Dobbs 1991). South-southeastern, western and southwestern Late Woodland and Plains Prairie groups were the prevailing influences in the Locality (Schirmer 2002:58).

This area of southeastern Minnesota and southwestern Wisconsin is called the "Driftless Area" because of its glacial history, which shaped the current landscape. The events of the Late Wisconsin and the early Holocene shaped the dramatic landscape in the Red Wing Locality. As the gigantic glacial masses of the Superior and Des Moines lobes in the north melted and sent water coursing down the Mississippi channel, glacial deposits laid down earlier were unevenly stripped and the Paleozoic bedrocks were exposed. Glacial terraces were left behind, as well as some surficial sediments of gravel and sand (Dobbs and Mooers 1991; Madigan and Schirmer 2001).

Prairie Island is one of the glacial terraces left behind in the Mississippi River valley and its elevation is 680 – 720 amsl. Prairie Island is bordered by the Vermillion, Mississippi, and delta of the Cannon Rivers. Surficial sediments at Prairie Island are sand and gravel, and a thin layer of river alluvium covers the edges of the island. Prairie Island, a large natural levee, separates the Mississippi River and the Vermillion River. Streams draining into the Mississippi River, bordered by steep cliffs, are a common sight in this portion of the Mississippi River (Dobbs 1987; Madigan and Schirmer 2001). In the Red Wing Locality, people choose to live and collect resources from glacial terraces, uplands, and the floodplains of Mississippi River tributary streams (Dobbs and Mooers cited in Madigan and Schirmer 2001:12).

Prairie Island is situated near several ecological settings with diverse and abundant natural resources. Europeans who arrived at Isle Pelee in the early 1600s encountered wet and dry prairie vegetation with "a fringe of floodplain forest" (Dobbs 1987:11). Schirmer (2002:62-68) defined four environments in the Red Wing area: dry and exposed uplands, less dry and protected uplands, exposed xeric lowlands, and moist-to-wet protected lowlands. These environments, all within close proximity to the Bartron site, provided different suites of natural resources to the Bartron site inhabitants (Gibbon 1979).

Xeric upland vegetation consisted of tall grass prairie and oak savanna. Some of the available resources in these environments are various *Quercus* species, *Prunus* species, and berry (*Rubus)* species (Schirmer 2002:62-64). A charred, broken stone of *Prunus americana* and a piece of a *Quercus* nut shell was found at the Bartron site (Bright 1979:392). Grass species are prevalent in prairie vegetation (50% or more prevalence) and thus compose a significant resource. Other prairie species include edible and other important plants (e.g., prairie-turnip, ground plum, sage). Bison, among other prairie and plains animals, were available to the Bartron site inhabitants (Dobbs 1987; Gibbon 1979).

Less dry and protected upland resources are predominantly oak woodland and oak forest vegetation. Similar to prairie vegetation, *Quercus* species are still important though the ratios of species are different. Ash, hickory, walnut, and other tree species begin to appear as the uplands start to trend towards lowlands (Schirmer 2002:64-65). Various berry species (e.g., gooseberry, chokecherry, elderberry, and raspberry) are also available. White-tailed deer were an important upland woodland resource in the Red Wing area (Dobbs 1987).

Xeric lowland vegetation is located in a small portion of the Red Wing area. Low and sandy terraces in the Mississippi River have dry prairie vegetation. Different grass species are present and trees are largely absent (Schirmer 2002:65).

The marshes, backwater sloughs, rivers, and other waterways of the moist-to-wet protected lowlands have small numbers of some trees species (e.g., paper birch, and white oak) and large numbers of American elm, slippery elm, green ash, bur oak, and silver maple. Black willow, cottonwood, and river birch trees frame these waterways; cottonwood fruits were commonly found at the Bartron site (Bright 1979:390-393). Sedges, cattails, and other species such as wild rice (*Zizania* sp.) compose lowland marsh vegetation. A grain of charred wild rice (*Zizania aquatica*) came from the 1969 Bartron site excavation (Feature 85) (Bright 1979:391-392). Communication and exchange are facilitated by waterway passage, and are thus important to consider in the Red Wing Locality and especially on Prairie Island.

The Bartron site (21GD02), one of the seven major villages mentioned above, is situated on the southern end of Prairie Island in Goodhue County, Minnesota. Prairie Island is bordered by the Vermillion River, Mississippi River, and the delta of the Cannon River.

Figure 1 Bartron Site (Image from Google Maps)

As it is currently defined (Gibbon 1979; Schirmer 2008), the Bartron site is constrained by an unnamed slough to the northwest and west, and sloping ground leading to the Birch Lake Mounds (21GD58/61). The Mississippi River Commission (MRC) mapped this slough in 1895, but its specific origins are unclear. It may be a remnant of the Vermillion River where it connected with the Mississippi River (Ronald Schirmer, personal communication 2009). In periods of high water, the slough would fill and thus separate the southern piece of Prairie Island from the rest of the landform (Ronald Schirmer, personal communication 2009). The construction of Lock and Dam No. 3 in the 1930s has raised water levels around Prairie Island approximately 10 feet, and no significant alluvial deposits are noted on Prairie Island since its formation (Dobbs 1987). Sturgeon Lake, a Mississippi River flowage that was created with the closing of the Lock and Dam No. 3, is north and northeast of the Bartron site.

The condition of the site is good, though there are some areas of disturbance. Johnson (Minnesota Historical Society [MHS] Field Notes, 1968) and Gibbon (1979:94) thought the site was interrupted by a recent borrow pit running north-south. There are some obvious older borrow pits and graded areas in the site, and these are likely from the construction of the access road that leads to the Nauer farm (Boden, Maki, and Jones in preparation).

CHAPTER 4: PRE-CONTACT CULTURAL LANDSCAPE

The Red Wing Locality, located along the upper reaches of the Mississippi River and situated at the confluence of the Cannon and Trimbelle Rivers, was densely occupied for a relatively short period of time from circa A.D. 1050 – 1300. At this point, the Locality experienced rapid population growth and cultural transformation. This area was one of intense interaction during late prehistory, and shows archaeological evidence of Middle Mississippian, Silvernale, Woodland, Oneota, and Cambria complexes.

Artifact assemblages in major villages (two and a half to eight hectares) and several smaller sites (less than two and a half hectares) demonstrate a large amount of variety. Some sites have more Mississippian-related artifacts and styles, while others have a significant tendency towards Oneota artifacts and styles (Dobbs 1991; Schirmer 2002). The ultimate meaning behind this variability and transformation in the Red Wing Locality is still mostly unclear, however (Schirmer and Dobbs, in preparation). After the Silvernale culture complex ceased to exist circa A.D. 1300—likely in response to the decline of Cahokia and its economic and religious network—the Red Wing Locality was home to transient groups until the Santee Dakota arrived in the seventeenth century (Gibbon and Dobbs 1991).

There are at least eight village sites dating to between A.D. 1050 and 1250 in the Red Wing Locality; major village sites are the Silvernale site (21GD03), the Bryan site (21GD04), the Mero site complex (47PI02), and the Adams site (47PI12). Smaller villages include the Energy Park site (21GD158), and the Double site (47PI81), and possibly the Belle Creek site (21GD72). Depending on the criteria, the Bartron site (21GD02) has been deemed either a major village site (e.g., Gibbon 1991) or a smaller village site (e.g., Gibbon and Dobbs 1991). The village portion of the site is approximately 12 acres. The Bartron site and the Adams site have predominantly Oneota components, while the rest of these sites are predominantly (either the dominant component or the sole component) Silvernale phase sites (Gibbon 1991; Schirmer 2002).

Other site types in the Red Wing Locality include outlying farmsteads, smaller habitation sites, smaller special purpose sites (characterized by a restricted artifact assemblage, pottery is largely absent, and a high number of cores and retouched or utilized flakes), and mounds and earthworks (Gibbon and Dobbs 1991). Madigan and Schirmer (2001:12) *conservatively* place the mapped number of earthwork and mound sites at 2,000 though the number of these sites was very likely quite large.

Radiocarbon Dating

Radiocarbon date sequences in and around the Red Wing Locality are still being refined (Dobbs 1993). Radiocarbon dates for three of the comparative sites are presented below. Note that 21GD02F5A and 21GD02F5B were two parts of one sample. The calibrated calendar dates for Feature Three/Five (70 – 75 cmbs) are ca. cal. A.D. 1255 +/- 30 years and ca. cal. A.D. 1280 +/- 30 years. The calibrated calendar dates for Feature Seven (23 – 25 cmbd and 30 – 35 cmbd) are ca. cal. A.D. 1270 +/- 30 years and ca. cal. A.D. 1260 +/- 30 years, respectively.

Table 1 Radiocarbon Dates for the Bartron, Armstrong, and Sheffield Sites (Calibrated with CALIB 6.0 http://intcal.qub.ac.uk.calib/calib.html)

Site	Provenience	Conventional Radiocarbon Age (BP) in Years	One Sigma (68.3% probability)	Two Sigma (95.4% probability)	Lab Number and Published Reference
Bartron (21GD02)	2008 Feature 3/5, 70 - 75 centimeters	795 +/- 30	A.D. 1222 - 1261	A.D. 1206 - 1277	21GD02F5A Beta – 270097 (Schirmer, unpublished data)
		785 +/- 30	A.D. 1225 - 1264	A.D. 1208 - 1281	21GD02F5B Beta – 270098 (Schirmer, unpublished data)
	2008 Feature 3/5, 70 - 75 centimeters	725 +/- 30	A.D. 1265 - 1287	A.D. 1227 – 1298	21GD02F5C Beta – 270099 (Schirmer, unpublished data)
Bartron (21GD02)	2008 Feature 7, 23 – 25 centimeters	760 +/- 30	A.D. 1251 – 1277	A.D. 1219 - 1282	21GD02F7A Beta – 270100 (Schirmer, unpublished data)
	2008 Feature 7, 30 – 35 centimeters	780 +/- 30	A.D. 1225 - 1268	A.D. 1213 - 1280	21GD02F7B Beta – 270101 (Schirmer, unpublished data)
Bartron (21GD02)	1969 Feature 36, 30 centimeters	595 +/- 125	A.D. 1280 - 1435	A.D. 1176 - 1525	GX-7034 (Shane 1981)
Bartron (21GD02)	1969 Feature 39, 40 centimeters	890 +/- 55	A.D. 1148 – 1213	A.D. 1027 - 1228	WIS-434 (Bender, Bryson, and Baerreis 1971)
Bartron (21GD02)	1969 Feature 76, 20 centimeters	850 +/- 55	A.D. 1155 – 1258	A.D. 1117 – 1269	WIS-423 (Bender, Bryson, and Baerreis 1971)
Bartron (21GD02)	1969 Feature 85, 20 - 40 centimeters	405 +/- 130	A.D. 1416 – 1642	A.D. 1288 - 1691	GX-7035 (Shane 1981)
Armstrong (47PE12)	---	975 +/- 105	A.D. 977 – 1185	A.D. 866 - 1268	S-802 (Hurley 1978)
Armstrong (47PE12)	---	860 +/- 115	A.D. 1146 – 1261	A.D. 968 - 1313	S-801 (Hurley 1978)

Armstrong (47PE12)	---	835 +/- 115	A.D. 1148 – 1276	A.D. 986 - 1321	S-799 (Hurley 1978)
Armstrong (47PE12)	---	830 +/- 105	A.D. 1150 – 1277	A.D. 1012 - 1313	S-800 (Hurley 1978)
Armstrong (47PE12)	---	795 +/- 110	A.D. 1151 – 1293	A.D. 1021 - 1327	S-803 (Hurley 1978)
Sheffield (21WA03)	---	650 +/- 180	A.D. 1155 – 1464	A.D. 988 - 1658	I-784 (Hurley 1978)

Most of the radiocarbon dates from the Bartron, Armstrong, and Sheffield sites are problematic because of the large ranges associated with the samples and the relatively short duration of the florescence in the Red Wing Locality (ca. A.D. 1050 – 1300). The Sheffield and Armstrong sites were probably occupied at relatively close points in time (A.D. 1300 (+/- 180 years) and A.D. 1120 (+/- 105 years), respectively), but it is difficult to say definitely because of the large ranges (Hurley 1978). There are no reported dates for the Adams site complex, though because of the demonstrated affinities with the Armstrong site it is assumed the two were roughly contemporaneous.

The previously obtained dates for the Bartron site (Schirmer 2002:56) cluster in the late 1000s (1060 A.D. +/- 55 years and 1100 A.D. +/- 55 years) and in the late portion of the Red Wing Locality florescence, or even after the majority of the Silvernale Phase had concluded (A.D. 1355 +/- 125 years and A.D. 1545 +/- 130 years). These dates suggest that 1) the Bartron site was likely occupied earlier and/or around the same time as the Sheffield, Adams, and Armstrong sites and probably re-occupied at a later date, or 2) the early or later dates for the Bartron site are spurious and the site was only occupied at the end or after the Silvernale Phase villages (Holley, in preparation; Schirmer 2002).

The most recently acquired dates from an analysis conducted by the Beta Analytic laboratory suggest that Feature Three/Five (70 – 75 centimeters) dates between ca. cal. A.D. 1255 +/- 30 years and ca. cal. A.D. 1280 +/- 30 years. Feature Seven likely dates to ca. cal. A.D. 1265 +/- 30 years. These newly acquired dates suggestion that occupation at the Bartron site overlaps with other sites (e.g., Bryan) in the Red Wing Locality.

The radiocarbon dating sequence for these sites needs to be refined (and is the subject of a chapter in Schirmer's forthcoming book about the Red Wing Locality). Any analysis involving these sites needs to proceed with the above information as a caveat.

Late Woodland

The Late Woodland sites discussed in this thesis are those within or in very close proximity to the Red Wing Locality. Because of its unique geographical location, the Red Wing Locality may have been a natural meeting point for several nearby and resident Late Woodland complexes (Schirmer 2002:246). Late Woodland peoples may best be thought of as regional and sub-regional groups whose heterogeneous archaeological presence indicates a variety of interacting culture complexes with characteristics that varied through space and time, but shared some general characteristics. Around circa A.D. 800 – 900, local Late Woodland groups transformed into "different, widespread, [and] coordinated entities" (Schirmer 2002:246). Material culture analyses point to Late Woodlanders on Prairie Island possessing significant local knowledge as well as extensive trade networks (Kelly 2009).

In Minnesota, these complexes are best known (and usually defined) in terms of grit tempered pottery, though some lithic raw material preferences can be traced. Grit tempered pottery wares and types are Effigy Mound culture complex/Madison ware, Linn Ware and Grant ware, Great Oasis pottery, Lake Benton phase and Onamia-like, St. Croix Stamped series and Onamia series, Kathio/Clam River wares, Lane Farm ware, Minott Cord Impressed ware, and the poorly known Angelo Punctated type (Boszhardt

1996; Dobbs 1988; Kelly 2009; Schirmer 2002:246). The inhabitants of the Dike site (21GD148) used Madison Ware; Prairie Island is at the northern end of the distribution range for this pottery. Kelly also identified pottery types (Onamia-like and Clam River Cord Stamped) at this site that point to southward movement from locations to the north of Red Wing. Angelo Punctated pottery has been found in the Red Wing Locality at the Mosquito Terrace site.

Late Woodland lithic raw material preference was for Prairie du Chien chert, a regional resource though they had access to foreign sources (Kelly, in preparation). Late Woodlanders on Prairie Island used imported lithic raw materials such as Grand Meadow Chert, Cedar Valley Chert, Hixton Orthoquartzite, Tongue River Silicified Sediment, Galena Chert, and Burlington Chert (Kelly 2009:85-89).

Generally, the village in the lowlands was the primary unit of a Late Woodlander's warm weather experience. Village life in the warm weather months included small scale crop production (e.g., maize in the "late Late Woodland" from circa A.D. 800/900 – 1000) (cf. Kelly 2009:6)), and venturing out of the base village to perform seasonal (and gender specific—see Whelan 1990) tasks such as collecting shellfish. Smaller family groups would disperse to more sheltered uplands in the cold weather months. Hunting and gathering remained the largest portion of Woodland subsistence procurement, with an emphasis on white tailed deer (Schirmer 2002:33-36; Whelan 1990). Late Woodland sites were typically situated near water, but there is little evidence Late Woodlanders extensively utilized aquatic resources (Kelly, in preparation).

Late Woodland sites in the Red Wing Locality range from lithic scatters to mound/earthwork sites to habitations. These sites include the Kenneth Anderson site

(21GD111), the Sargent site (21GD116), the Cannon River Drive site (21GD182), the Silvernale West Terrace site (21GD254), the Mosquito Terrace site (21GD260), the Plum Creek Bridge site (47PE38), the Mero complex at Diamond Bluff (47PI02, 47PI132, 47PI133), the Snapping Turtle site (47PI92), the Trimbelle site (47PI93), 47PI134, the Wind River site (47PI135), the Trimbelle River site (47PI162), the Plum Creek site (47PI203), the Isabelle Creek site (47PI237), the Rush River site (47PI241), the 47PI320 site, the Hunting Club site (47PI448), the Painted Turtle site (47PI452), the 47PI546 site, and the 47PI547 site (Kelly 2009; Madigan and Schirmer 2001; Wendt, in preparation). Late Woodland sites are most densely concentrated on the Mero terrace and the southern end of Prairie Island (Kelly 2009:39-40).

It is important to note that Late Woodland components (as defined by the presence of the Late Woodland defined pottery types) are small or absent at the Bartron (21GD02), Bryan (21GD04), and Silvernale (21GD03) village sites (Gibbon and Dobbs 1991). The Bartron site has a Late Woodland component that was represented by two rim sherds (Gibbon 1979). At the Silvernale, Bryan, and Mero village sites Late Woodland artifacts are often found mixed with Silvernale Phase artifacts. Whether this patterning results from interactions between these groups or mixed deposits is unclear (Kelly 2009:41).

The Late Woodland sites in closest proximity to the Bartron site to the south are the Nauer Mound Group (21GD01) and the Pickerel Slough site (21GD181), with the Dike site (21GD148) to the north. The nearby Birch Lake Mound Group (21GD58/61) had Upper Mississippian-related lithic artifacts in the fill of Woodland mounds (Johnson, Peterson, and Streiff 1969), which raises interesting questions about possible relationships in this location.

The Late Woodland presence in the Red Wing Locality has been incompletely documented for a number of reasons. Late Woodlanders led a relatively mobile and dispersed lifeway which means they left a smaller and more diffuse presence on the landscape (Gibbon and Dobbs 1991; Kelly 2009; Wendt, in preparation). The site locations Late Woodland peoples chose may also have influenced the relatively poor preservation of Late Woodland sites. Late Woodland sites in the Red Wing Locality are found in the uplands as well as on glacial outwash terraces, river islands, and "on the lower reaches of nearly every tributary to the major rivers" (Wendt, in preparation). Excluding the upland sites, these sites may be subject to riverine disturbances such as inundation (e.g., the Pickerel Slough site (21GD181) (Kelly 2009).

Additionally, Late Woodland components may have not yet been fully recognized at larger sites because a completely diagnostic local material culture profile has not yet been developed for the Red Wing Locality. General characteristics of Late Woodland sites in the Red Wing Locality are thin-walled and grit tempered pottery, notched and unnotched small equilateral and isosceles triangular points, a large number of scrapers, and the nearby presence of earthworks/mounds (Kelly 2009). However, small triangular points are common on Late Woodland sites in the Red Wing Locality and are also present at Mississippian-related and Oneota sites. Therefore, these points cannot be considered especially culturally diagnostic.

Structural features considered diagnostic of Late Woodland peoples elsewhere are, most noticeably, mounds (including effigy mounds) and earthworks. In the Red

Wing Locality, mounds were built by many groups of peoples including Late Woodlanders, Silvernale Phase villagers (e.g., the Silvernale Mound Group (21GD17)) and Oneota groups. Late Woodland mound groups typically ranged from two to 15 mounds and were conical, linear, and effigy-shaped (Bergervoet 2008; Dobbs 1988; Gibbon and Dobbs 1991). Some of the effigy mound shapes in the Red Wing Locality are those of snakes near Spring Creek a muskrat at the Mero complex (Bergervoet 2008). Bergervoet's (2008) work discusses mounds and cairns in the Red Wing Locality in more depth.

Cultural component clarification is on-going at Red Wing sites and has the potential to answer larger questions; as Madigan and Schirmer (2001:124) noted, "Late Woodland and Oneota components consistently occur together in sites designated as Late Woodland mound groups" (e.g., the Birch Lake Mounds (21GD58/61). One key observation of the 2008 excavations and artifact analysis was the larger than expected Late Woodland presence at the Bartron site, using recovery methods geared towards smaller materials than those employed at the same site in the 1960s. Sherds of the provisional Angelo Punctated type (Boszhardt 1996), indicative of Late Woodland groups, were recovered in 2008 from the Bartron site. This pottery type is also present at the Mero complex (Fleming 2009:144,146; Wendt, in preparation). Angelo Punctated ware is poorly dated and needs temporal refinement.

Because much of the activity in the Red Wing Locality occurred within a few hundred years, tightly constructed temporal frameworks are needed to delineate the relationships, sequences, and activities of Late Woodlanders, Oneota peoples, and Silvernale Phase villagers. For example, no Late Woodland contexts have been radiocarbon dated in the Red Wing Locality so the Late Woodland can only be roughly dated to circa A.D. 700 – 1100 (Kelly 2009). Constructing temporal frameworks for the Red Wing Locality is on-going, and will be the subject of a chapter in an upcoming volume entitled "Mounds, Villages, and Feasts" (edited by Schirmer).

Oneota

Several basic and far-reaching questions surround Oneota peoples in the upper Midwest, and the relationships of Oneota groups in and to the Red Wing Locality are no exception. Briefly, questions of general Oneota origins, lifeway, site types, structural features, and material culture will be explored here.

The term "Oneota" is generally misleading and has been over-applied in the past. I follow Schirmer's example (2002:5) and use "Oneota" as "an Upper Mississippian cultural manifestation with several cultural and locational organizational subdivisions through time and a variety of social and material attributes with an observable, if irregular central tendency." The Oneota tradition has been characterized as a "bridging culture," located in the Prairie Peninsula that links culture complexes in the eastern Woodlands and the Plains (Henning 1998:345).

Oneota cultural characteristics seem to emerge in Wisconsin and the Red Wing Locality (Holley, in preparation), among a few other early sites in the upper Midwest. Characteristics consistent with Oneota culture/s are first seen in eastern Wisconsin in the early A.D. 900s. The Oneota tradition appears in the Red Wing Locality circa A.D. 1050 – 1100, and *may* pre-date the Silvernale/Mississippian-related complex, but this has yet to be conclusively demonstrated (Gibbon and Dobbs 1991; Madigan and Schirmer 2001). Tight chronological frameworks in the Red Wing Locality are still being constructed, and the Bryan site (21GD04) is the only site to have a chronological framework with a series of high precision radiocarbon dates (Dobbs 1993), though two dates have recently been obtained for the Bartron site (see above). Further high precision radiocarbon dates throughout the Red Wing Locality will help clarify relationships between the inhabitants.

Schirmer (2002:10-16) loosely divides Red Wing Locality Oneota origin theories into "ethnogenesis" and "interaction" models. These models agree that the local Oneota tradition emerged from local Late Woodland peoples in the Red Wing Locality (Gibbon and Dobbs 1991), and the continuance of specific lithic raw material procurement strategies supports this point (Wendt, in preparation). Mississippianization or Mississippian cultural expansion was only one of several cultural processes in the Red Wing Locality, which also included concurrent crop production intensification (Gibbon and Dobbs 1991).

The differences in these models center on the timing, degree, type, and implications of Late Woodland and Oneota interaction with Middle Mississippian peoples. Ethnogenesis models postulate that long-term Mississippian influence prompted local peoples to emphasize their foreign (Mississippian) affiliation in order to increase lineage and individual prestige and power. Interaction models postulate that Oneota emergence was one of the results of a number of *concurrent* "social transformation processes operating throughout the Midcontinent independently of Middle Mississippian input," (Schirmer 2002:13) such as tempering pottery with shell instead of grit and crop production intensification.

Another point of contention is "the degree to which elements of Mississippian-related social and material culture were active, local social processes" (Schirmer

2002:10). Among others, Benn (1995) warns against a preoccupation with the Cahokia site, though the Cahokia cultural system (Gibbon and Dobbs 1991) shall be kept in mind in all Oneota origin models (see Benn 1995:91-92). It is crucial to keep the transition to a horticultural lifeway—which the Oneota tradition seems to represent—separate from the postulated Mississippianization process in the Red Wing Locality (Gibbon and Dobbs 1991).

After A.D. 1200, Oneota sites are found in portions of the northeastern Prairie Peninsula (Michigan, Indiana, Illinois, Wisconsin, Minnesota, Iowa, South Dakota, North Dakota, Kansas, Nebraska, Missouri, Ontario, and Manitoba) (Gibbon 1991; Henning 1998:352). A non-location specific and general Oneota chronology by Henning (1998) outlines an Emergent horizon (circa A.D. 900 – 1000), Developmental horizon (circa A.D. 1000 – 1350), Classic horizon (circa A.D. 1350 – 1650), and Historic horizon (circa A.D. 1650 – 1775) (see also Hollinger 1995). In Minnesota, Blue Earth Oneota is often associated with the Emergent and Developmental horizons, while Orr Oneota is associated with the Classic and Historic horizons (see below) (Henning 1998:352-353; Madigan and Schirmer 2001).

Recent radiocarbon dates place the Oneota component of the Bartron site in the Developmental horizon, though other radiocarbon dates from the site span the Emergent horizon through the Classic horizon. Oneota peoples variously interacted and were contemporaries with Middle Mississippians, Woodlanders, and other peoples. Using the Direct Historical Approach, scholars have traced Oneota peoples to the historically known Chiwere speakers (Winnebago, Ioway, Oto, Missouri) and Dhegiha speakers

(Kansa, Osage, Omaha), possibly Miami and later on, Mdewakanton Dakota (Henning 1998; Hollinger 1995:141).

In the past, the Bartron site has been termed a Blue Earth Phase Oneota site (e.g., Gibbon 1979) or Blue Earth-like (Henning 1998) because of its stylistic links with Oneota sites, especially the Blue Earth Phase types sites (Humphrey site (21FA1) and the Vosburg site (21FA2)) in the Blue Earth River region in southern Minnesota (Anfinson 1979). The exact relationship between the Blue Earth Phase Oneota sites in the Red Wing Locality and those in the Blue Earth River region is presently unclear. There was also probably a vague link between Blue Earth Oneota to the Correctionville Phase in northwestern Iowa but this relationship is also currently unclear (Dobbs 1988).

Current analysis by Henning, Dobbs, Holley, Schirmer, and Fleming (Schirmer (ed.), in preparation) disagrees with the assignment of the Bartron site with Blue Earth Phase Oneota. Instead, the materials at the Bartron site are considered by these researchers to belong to a local series provisionally termed "Bartron Phase" Oneota (ca. A.D. 1200 – 1275). The provisional Link Phase (ca. A.D. 1175 – 1200) proceeds the Bartron Phase. Other sites that are included in the provisional Bartron Phase Oneota are the Adams (47PI02) and Armstrong (47PE12) sites; Bartron Phase Oneota pottery may be related to a later variant (St. Croix Oneota) that includes the Sheffield site (21WA03) and a late component at the Mero site (Ronald Schirmer, personal communication 2009).

Oneota villages were seasonally occupied and generally located on terraces strategically positioned near several ecosystems. Oneota villagers procured shellfish, bison and deer; as well as cultivating (maize, squash, beans, tobacco, sunflower, and little barley) and gathering plants (acorn, hickory, walnut, fruits and berries, and wild rice). In general, Oneota groups were hunters, gatherers, and fishers though the particular resource emphasized varied across space. Regardless of the particular emphasis, Oneota groups hunted bison. Bison scapulae and other bison remains occur on most Oneota sites in the Red Wing Locality, though often as tools instead of obvious subsistence remains (Gibbon 1995:182; Madigan and Schirmer 2001:96; Schirmer 2002). Bison are represented at the Bartron site only by scapulae (Gibbon 1979).

Regional studies (e.g., Madigan and Schirmer 2001) show that there are very few single component Oneota tradition mound sites; instead, Oneota components frequently appear on Late Woodland and/or Silvernale Phase mound sites. Oneota components are present at some of the large village sites (e.g., Bryan and Silvernale) but there are several single component Oneota habitation sites (e.g., Adams). The material culture at the Bartron site is overwhelmingly Oneota, though there is also a Late Woodland component and a small amount of Silvernale Phase material. In the Red Wing Locality (and some other locations—see Harvey 1979), mounds were not the sole purview of Late Woodland peoples. Some mounds in the Red Wing Locality have shell tempered ceramics indicative of Silvernale Phase or Oneota peoples.

Oneota house forms, size, and organization vary through time and are usually indicated by postmolds. Posts were regularly set into the ground to support building walls. Houses took the form of small to large ovoids (e.g., the Grant site in Iowa) or were small square basin/post structure (Madigan and Schirmer 2001; McKusick 1971). Oneota sites typically have deep storage/trash pits (Gibbon 1995; Henning 1998) and these may overlap if a site was occupied for a longer span of time or re-occupied, as occurred at the

Bartron site. Semi-subterranean houses were reported from the Bartron site during the 1969 field season (MHS, Field Notes, 1969).

Measurements of the living floor space in houses may be able to predict or support additional cultural information about Oneota peoples. Through an examination of global cultural information in the Human Relations Area Files and using the Direct Historical Approach, Hollinger (1995) postulated a move from a patrilocal post-marital residence pattern during the Emergent (circa A.D. 900 – 1150) and Developmental (circa A.D. 1150 – 1400) horizons to a matrilocal post-marital residence pattern (Classic horizon, circa A.D. 1400 – 1650). Hollinger based his analysis on changes in spatial organization and size of habitations. The Bartron site radiocarbon dates span these horizons, and recent geophysical work suggests a largely untested habitation area (Johnson 2008). Perhaps future testing in this area could test this hypothesis, however, that that is a topic for another thesis.

Oneota peoples used bone awls and projectile points, bison scapula hoes, and antler picks, which are all part of the characteristic bone-tooth-antler complex that is oriented to Plains resources (Gibbon 1991:211; Gibbon and Dobbs 1991). This complex is also found at the Bryan site, and there are less varied forms of this complex at the Silvernale site (Gibbon and Dobbs 1991). Lithic tools include a relatively high number of end and side scrapers, drills, and triangular projectile points. Though the exact timing of its initial use in the Red Wing Locality is unknown, later (Classic horizon) Oneota peoples used catlinite tablets, plaques, and other forms (Anfinson 1979; Gibbon 1979; Gibbon 1995; Henning 1998; Madigan and Schirmer 2001:96).

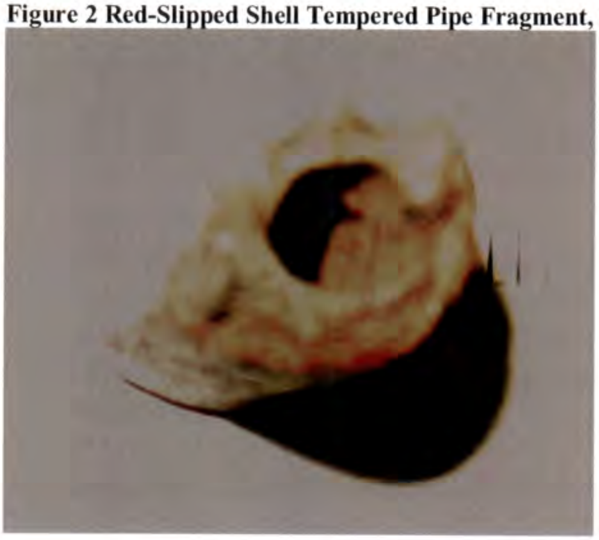
The Oneota tradition was initially defined as a pottery culture by Ellison Orr in the early 1900s, and Oneota components are still largely defined by its distinctive pottery characteristics. Very little else of the Oneota artifact assemblage (e.g., lithics) in the Red Wing Locality is specifically diagnostic as "Oneota." Oneota potters made large globular pots that were shell tempered with distinctively high or outward flaring rims and frequent tool impressions on the rims, and occasional rim notches. Chevron decorations on Oneota pottery are made with trailed lines that range from broad to narrow (Anfinson 1979; Gibbon 1995; Holley, in preparation; McKusick 1971).

The Sheffield site (21WA03), Armstrong site (47PE12) and the Adams site (47PI02)

The Sheffield site (Gibbon 1973) is a three to five acre multi-component site located on a terrace above the St. Croix River. The components present are Middle Woodland, Late Woodland, Oneota, and early historic; the Oneota component is a summer hunting-fishing base camp. Because of the homogeneity of the Oneota ceramic assemblage, the site was probably occupied between 10 – 20 years and may have been a community moving north during a seasonal hunt (Gibbon 1973:22).

Large, globular shell tempered jars with round bases and out-slanting rims were the most common pottery form at the Sheffield site, followed by grit tempered jars. Pottery analysis was hindered by selective retention practices (of 169 reported grit tempered sherds, 43 were available for study in 1973). A possible shell tempered pipe bowl was also reported. Some shell tempered sherds were decorated on both the interior and exterior; decorations took the form of punctates, tool impressions, and trailed lines. Grit tempered decorations and surface treatments at the Sheffield site included cordmarking, cord-wrapped paddle on rim, cord-wrapped stick on rim, dentate stamping on rim, incised lines on rim, and punctates over cordmarking on rim (Gibbon 1973). Shell tempered sherds from the Bartron site were similarly decorated (cf. Gibbon 1979 but see also Holley, in preparation), and a red-slipped shell tempered pipe fragment was excavated from Feature 17 in 1968.

Figure 2 Red-Slipped Shell Tempered Pipe Fragment, MHS 662-43



The lithic raw material profile (of tools) from the Sheffield site were 42% chert, 36% quartzite, and 22% "other" (low quality blue-gray and white) chert. The 2008 excavation results are in line with Gibbon's (1979:103) broad study of lithic raw material types at the Bartron site, where cherts were the most predominant material used. When comparing the Sheffield site to the Bartron site, it is clear that cherts were used more frequently than quartzite The types of tools reported for the Sheffield site were similar to the Bartron site and include unnotched triangular points, stemmed and notched points, gravers, gouges, wedges, manos, metates, hammerstones, etc. (Gibbon 1979).

Faunal materials from the Sheffield site largely conform to the bone-tooth-antler complex, which is also present at the Bartron site (Gibbon 1979). Specifically, diamond-headed bone shuttles (used in the production of fabric and/or mats) were found at both the Sheffield site and the Bartron site. By weight of meat supplied, bison, white-tailed deer, beaver, and black bear (in descending order) make up the assemblage. Compared to the Bryan site, the assemblage at the Sheffield site demonstrated more bison and white-tailed deer elements (Gibbon 1973). There were many beaver skeletal elements represented at this site (Gibbon 1973:34), unlike the Adams and Armstrong sites (see below).

The Armstrong site (Crawford and King 1978; Hurley 1978; Savage 1978) is a single component 11 1/2 acre Oneota village with a second (and separate) Oneota concentration to the north (47PE07). These two sites are located at the south end of Lake Pepin and south of Hicks Valley Creek, which enters the Chippewa River from the west. Similar to the Bartron site, the Armstrong site is located on the east end of a flat terrace covered with tall grass prairie. Hurley called the Armstrong site a stable farming community, and like the other sites in the Red Wing Locality, it had access to multiple and varied resources (Hurley 1978).

Along with the Adams site (below), the Armstrong site has a large percentage of quartzite lithic tools (over 90% of triangular projectile points were quartzite). Most of the triangular projectile points were unnotched, and a minority had corner or side notching. Other tools are similar to the assemblages of Oneota sites in the Red Wing Locality, including a large number of scrapers (Hurley 1978).

Faunal materials from the Armstrong site included bison, black bear, white-tailed deer, and American elk (in descending order by weight of meat supplied). Bones, teeth, and antlers were all used as tools. Beaver elements were mostly represented by teeth and skull fragments, like the Adams site and unlike the Sheffield site (Hurley 1978; Savage 1978).

Though there are no reported radiocarbon dates from the Adams site complex (Wendt 2001), it has a very close relationship with the Armstrong site as has been demonstrated by pottery and lithic form and metric studies. This site complex is centered around a nine acre village; 26 sites (clusters of associated artifacts such as shell tempered sherds, end scrapers, triangular points, and orthoquartzite material) are on the Trenton Terrace within two kilometers of the Adams site. These sites show discrete resource procurement and processing activities, including fishing, hunting and hide processing, river mussel collecting and processing, agriculture, and procurement of raw materials. Discrete activity areas were also identified within the central village area.

The Adams site is a single component site with no obvious Mississippian or Late Woodland components or artifacts. Mounds surround the complex, and may have provided territorial boundaries (Wendt 2001). At the time of its occupation, the Adams site sat on a terrace at the north end of Lake Pepin.

The pottery from the Adams site consisted predominantly of Oneota high rims with no rolled rims. Tool impressions decorated the inner rims, and decorated sherds include narrow trailed lines, bordered by circular tool impressions or punctates. The most common motif was vertical trailed lines that fill the space below one, two, or three diagonal lines or chevrons (and some had circular punctates that bordered the lines). According to Wendt (2001), the rim forms, metrics, and decorations were all statistically similar to the Armstrong and Sheffield sites, and very different from the Mero site complex and the Bryan site.

Unnotched projectile points were the most common tool type found at the Adams site. Most points showed some serration. The majority of the lithic raw material was orthoquartzite (a non-local material) and the rest of the assemblage was Prairie du Chien (local material) and Grand Meadow cherts (a non-local material). This is a similar profile to the Armstrong site, and is more (weakly) similar to the Sheffield site. A sheet copper ornament in the shape of a wing and chunky stones were also found at this site, as well as a 5.0 gram chunk of galena.

Aspects of the bone-tooth-antler complex were represented at the Adams site, though only one bison bone was recovered. Fish (by weight) probably made up most of the food consumed at the site. Beaver were represented almost entirely by teeth, which is similar to the Armstrong site but contrasts the assemblage at the Sheffield site.

Mississippian and Mississippian-related

South of the Red Wing Locality in the American Bottom region, Late Woodland peoples transitioned from more dispersed and small groups located primarily in the uplands to more socially organized and larger groups who primarily lived in the lowlands (Schirmer 2002). These transformed peoples, called Emergent (circa A.D. 700 – 1000) and later Middle Mississippian (circa A.D. 1000 – 1400) peoples, also had a far-reaching "extraction and magico-religious network" (Gibbon and Dobbs 1991). Following Schirmer (2002:5), "Middle Mississippian" or "Mississippian" refers to the culture complex centered in the American Bottom region, while "Upper Mississippian" refers to cultures during this period located along the upper reaches of the Mississippi River (Jeske 1992:470) such as Oneota villagers in the Red Wing Locality. Mississippian-related cultures are those that demonstrate degrees of relatedness with the Middle Mississippian culture complex, such as the Silvernale Phase villagers.

Mississippian culture influenced, transformed, and touched the lives of many peoples in the Mississippi River valley (Wilford 1955). The degree of this influence varies through time and space. In some areas (e.g., the Spoon River Focus in Illinois), there are many Mississippian-related artifacts and structures and it is clear that Mississippian culture transformed local peoples. In other areas, such as the Red Wing Locality, the relationship between Mississippian people and the local inhabitants is less clear. Interaction with Cahokia and other Mississippian centers clearly had an impact on the material culture (and social organization?) in the Red Wing Locality, but the exact nature of this impact is unknown (Madigan and Schirmer 2001).

The Silvernale Phase, a Mississippian-related culture complex, begins to appear in the Red Wing Locality circa A.D. 1050. Silvernale Phase sites occur only in the Red Wing Locality, and this phase is the dominant or sole component at the Silvernale, Bryan, Belle Creek, Double, Energy Park, and Mero sites. Silvernale pottery is found in smaller quantities at the Bartron and Armstrong sites, though Armstron is technically outside the Red Wing Locality (Gibbon 1991; Gibbon and Dobbs 1991; Schirmer 2002:54).

The Bartron site has been held as an example of an Oneota village that also displays some possible Middle Mississippian characteristics (e.g., Gibbon 1979, 1991; Gibbon and Dobbs 1991). These characteristics are: scroll motifs on some sherds, vessels had high Oneota rims, some vessels had angular shoulders, one tri-notched Cahokia projectile point, side notched triangular projectile points, chunkey stones, possible wall trench house, a nearby Woodland mound group (21GD58/61) with Mississippian-Oneota artifacts, nearby (reported) circular flat topped mound.

These characteristics have been held as evidence to support various interaction and ethnogenesis scenarios (cf. Schirmer 2002), namely, did Oneota emerge from a local Late Woodland base because of interaction with Middle Mississippian peoples? What was the timing of Oneota emergence in the Red Wing Locality? What exactly is the relationship between Oneota, Late Woodland, and Mississippian peoples, and what influence did other cultures have on Oneota identity formation? Mississippian material culture characteristics that have been interpreted as being in the Red Wing Locality will be outlined below.

Silvernale Phase pottery has distinctive curvilinear designs, high necks, and rolled rims (Holley, in preparation; Wilford 1955). Classic Silvernale Phase pottery is best described as exhibiting "a distinctive appearance that is neither purely Mississippian nor purely non-Mississippian" through its amalgam of local and Mississippian-derived styles (Schirmer 2002:59). Oneota was one of those local styles (Gibbon and Dobbs 1991). Silvernale Phase pottery cannot be simply described as Mississippian because the potters did not closely adhere to Cahokia's pottery standards. However, some form of inclusion in the Cahokia world-sphere was still important because Silvernale potters did copy some Cahokia designs (Holley, in preparation).

Some lithic points in the Red Wing Locality may support Mississippian contact or trade, although the evidence currently is inconclusive. Cahokia points are elongated, tri-notched isosceles triangles (notched on both sides and the base). A point matching this description has been found at the Energy Park site made from a non-local material.

Cahokia points may also be side notched with no basal notch, but side notches are also found in Plains complexes so this characteristic cannot be considered especially diagnostic (Gibbon and Dobbs 1991) (see also Chapter Eight). Besides possibly the Cahokia point and the side notching characteristic, other Mississippian lithic types have not been found in the Red Wing Locality.

One Mississippian ground stone artifact type present in the Red Wing Locality in large numbers is the discoidal, or chunkey stone. Chunkey stones likely indicate organized game behavior. Discoidals have been recovered from a Silvernale Phase site (the Silvernale site, 21GD03) as well as at Oneota sites (the Bartron and Adams sites) (Fleming 2009; Gibbon 1991:208, 220; Schirmer 2002). Interestingly, Fleming (2009:242) notes that more chunkey stones have been found in the Red Wing Locality than other locations in the upper Mississippi River valley. Chunkey stones have variants, and are not exclusively Mississippian (Ronald Schirmer, personal communication, 2010).

Galena, a non-local mineral possibly used for white pigment (Fleming 2009), shows that villagers in the Red Wing Locality participated in a wide-reaching trade network. At least five galena cubes have been recovered from the Energy Park site (21GD158), a Silvernale Phase site located between the Bryan and Silvernale sites. Schirmer's ongoing work at the Silvernale site (21GD03) has recovered at least seven galena cubes (Ronald Schirmer, personal communication 2009). Recent excavations at and a brief re-examination of the artifacts from the Bartron site also demonstrate that more galena was present than previously reported (see Chapter Seven).

Mississippian structures were roughly square to rectangular shaped and roofed with thatch. They were constructed of vertical posts set in the ground; the posts were often set in a wall trench instead of individually excavated postholes. The width of the wall trench was often as wide as a stone hoe. Walls were plastered with wattle and daub construction (Muller 1997). Feature 13 at the Bartron site was tentatively interpreted as a portion of a Mississippian wall trench structure (e.g., Gibbon 1979; Gibbon and Dobbs 1991; MHS, Field Notes, 1968), and this evidence supported some of the interpretations outlined above.

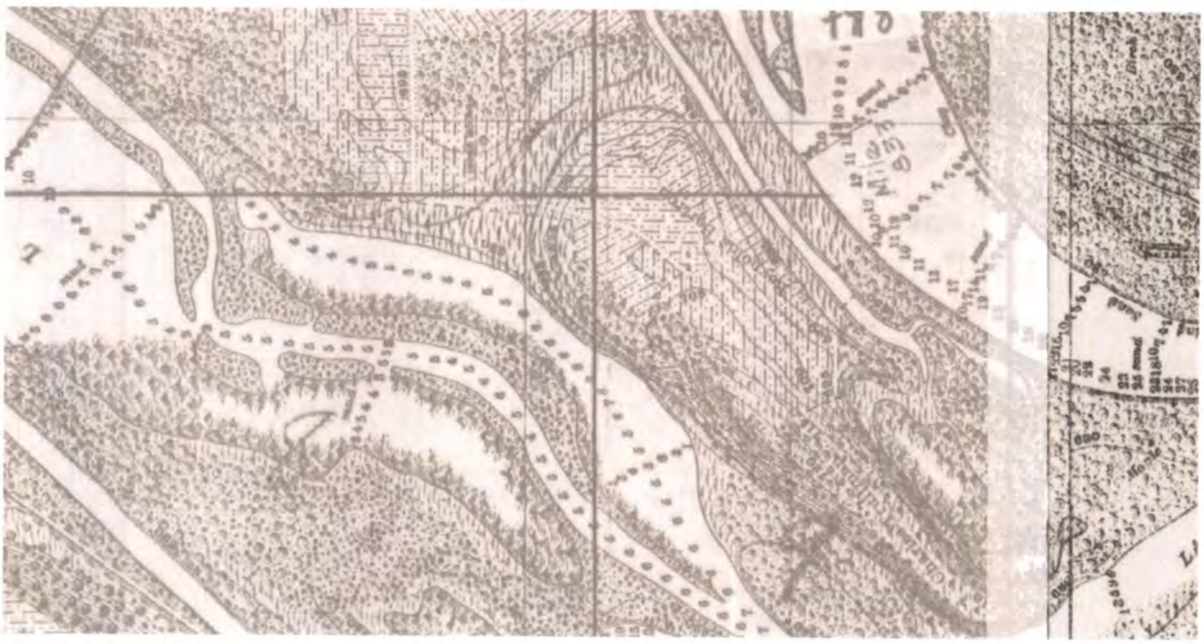
Archaeological Context

The Bartron site has been "on the archaeological map" since the late 1800s. Theodore Hayes Lewis, Alfred Hill's project partner for the Northwestern Archaeological Survey in the mid-1880s, surveyed and mapped mounds, earthworks, and the remnants of some prominent archaeological sites on Prairie Island (among other locations). Newton H. Winchell (1911) acquired Lewis' notes and published the material—along with submitted information and original research—as the *Aborigines of Minnesota* (Dobbs 1997; Gibbon and Dobbs 1991).

Jacob V. Brower, Dr. William M. Sweney, and Edward Schmidt also contributed some information about the Bartron site with their explorations of the Red Wing Locality in the early 1900s. These men recorded a great number of mounds in the Red Wing Locality and several archaeological village sites. This included the Bartron site and its surrounding mound groups (the Cooling Tower Mounds (21GD59) and the Nauer Mound Group (21GD01). The work by Brower, Sweney, and Schmidt was more impressionistic than Lewis (Ronald Schirmer, personal communication 2008) and therefore their information should be used carefully. However, they were the first to document the presence of the Bartron site in written form.

As part of a plan to "improve" the Mississippi River, the Mississippi River Commission (MRC) surveyed and produced maps of the Mississippi River in the 1890s. This map shows "Indian Mounds" located where the Cooling Towers site (21GD59) was excavated, but makes no mention of the Bartron site (21GD02) or the Nauer Mound Group (21GD01). With the building of Lock and Dam No. 3 in the 1930s, the local landscape was significantly modified and Dobbs (1987:12) estimates the water surrounding Prairie Island rose approximately 10 feet. This alteration renders Lewis' information and maps, some of the site locations Brower and Sweney recorded, and the MRC map quite useful in projecting ancient landforms and land use.

Figure 3 Mississippi River Commission Map of the Southern End of Prairie Island



Lloyd Wilford, a professor at the University of Minnesota (U of M), initiated a long-running relationship between the U of M and the Bartron site in 1948. Wilford annually surveyed for and conducted excavations of archaeological sites in Minnesota during the U of M spring semesters and summer breaks. He also talked with landowners and local collectors to gather information on the presence and condition of archaeological sites (Dobbs 1997). Wilford surveyed the Bartron site in 1948, 1954, and 1957 (Minnesota Historical Society Archaeology Archives, Fort Snelling, Minnesota [MHS], Wilford Survey Notes, 1948, 1954, 1957). He named the site after the then-current landowner, Guy Bartron.

Over a period of two weeks in 1948 Wilford excavated seven ten-foot squares at the site in Section 9 (MHS, Wilford Field Notes, 1948). Out of the nine storage/refuse bell-shaped pits excavated, the average depth of the pit was one and a half feet (McKusick 1953:5). Though Gibbon (1979:229) indicated that locational information for the excavation block is unknown, the site map and accompanying notes are tied in with the section corner which was relocated in the 2008 field season (Ronald Schirmer, personal communication 2009). Using the information from the 1948 excavation, Marshall McKusick (1953) wrote a master's thesis about the material culture of the Bartron site, and Wilford (1955) linked the site with the Blue Earth Oneota sites in southern Minnesota.

O. Elden (Elden) Johnson succeeded Wilford in 1959 at the U of M and the next year began his own professional relationship with the Red Wing Locality. In 1960 Johnson surveyed Prairie Island with a student at the request of the Northern States Power Company (NSP) (Anonymous, n.d.; Red Wing Daily Republican Eagle, 1960; St. Paul Dispatch, 13 July 1960). With this work, Johnson sought to build a partnership between private industry and archaeologists (NSP News, June 1960). Excavating dozens of test trenches on Prairie Island, Johnson re-affirmed the richness of past habitation and activity in the Red Wing Locality. The precise location of the survey notes and artifacts from this work is currently unknown.

Johnson announced his survey and excavation findings to local newspapers (Anonymous, n.d.; Red Wing Daily Republican Eagle, 1960; St. Paul Dispatch, 13 July 1960). There is no academic write-up of this survey work, though if the artifacts and notes could be found they have the potential to contribute to the archaeological record of the area. Importantly, Johnson found "small bits of brass," part of a clay pipe (St. Paul Dispatch, 13 July 1960), and a portion of a catlinite pipe (NSP News, September 1960).

In 1967, Johnson returned to the southern end of Prairie Island to survey and conduct limited excavations for NSP along the Mississippi River prior to major construction activities for the Prairie Island Nuclear Generating Plant (PINGP). Along with David Nystuen, Gordon Lothson, and Dennis Dickinson, Johnson (MHS, Field Notes, 1967) excavated a three by three meter unit which was extended out (by one meter to one and a half meters) to encompass a pit feature with an associated fire hearth. The storage location of the artifacts (listed as lithic debitage, sherds, an Oneota loop handle, several knives, a scraper, and a projectile point) is currently unknown. These units were tied in with a temporary NSP benchmarker that cannot currently be re-located (Bill Pasch, personal communication 2009).

The Bartron site was intensively excavated in 1968 and 1969 by Johnson and U of M students, along with other sites (e.g., the Birch Lake Mound Group (21GD58/61) on Prairie Island. At the time of excavation, a part of the Bartron site was under cultivation (Section 9), while a portion was then in pasture (Section 8). The pastured area appeared to be mostly undisturbed, which was a rare occurrence with the rich farmland on Prairie

Island. Many archaeological sites in the Red Wing Locality have been plowed extensively or otherwise disturbed (e.g., the Bryan site).

Field activities in 1968 at the Bartron site including setting a permanent datum, mapping using an alidade, and excavating a series of test trenches to delineate the site boundaries. It is important to note that the site datum (a two inch metal pipe) and the excavation units stakes placed in 1968 was knocked down in the interim between the field seasons. It had to be replaced and re-set in 1969 (MHS, Johnson Field Notes, 17 June 1969). This site datum successfully weathered 40 years and is still in place.

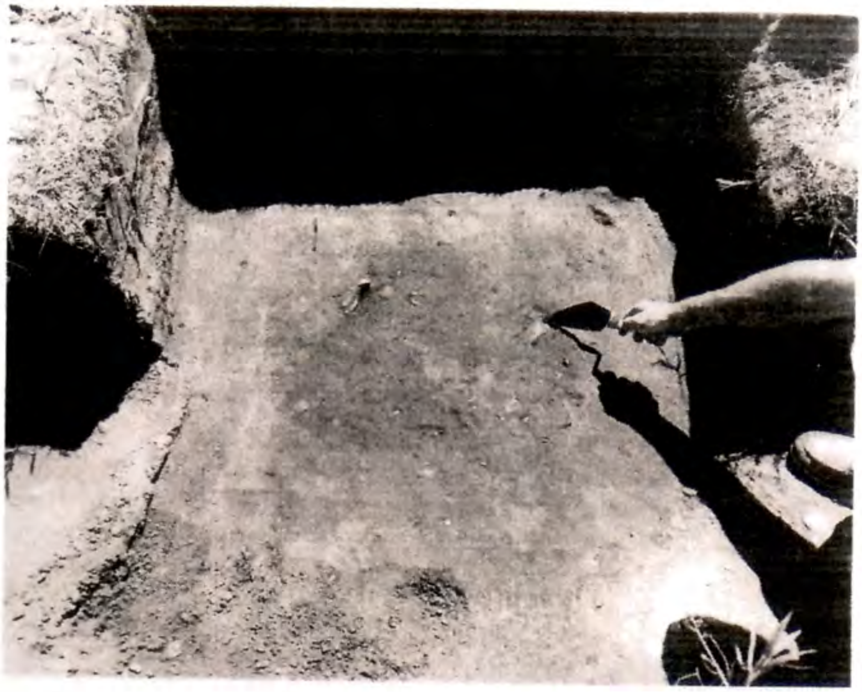
Johnson termed both excavation units and feature soil as "features," though current archaeological practice separates the two contexts. He excavated 13 units and 14 features in 1968. Archaeological features from the 1968 and 1969 seasons included fire pits, deep storage/refuse pits, shallow (<1 meter deep) circular basin-shaped pits, postmolds, a possible palisade at the north end of the site (Feature 26), a possible house floor (Feature Seven) and a possible house corner (Feature 13, located in Feature 10). The term "Feature 10" is continued here to keep the 2008 Excavation Unit 10 separate from the 1968 excavation unit but it is important to keep in mind that "Feature" may mean "Excavation Unit." Feature 10 encompasses Features 12 and 13.

There is no indication if Johnson's feature excavation methods differed from unit excavation methods. Students shoveled the topsoil from a series of trenches to expose features. After *all* of the exploratory trenches were opened, students *then* began feature excavation. All unit fill was screened after the topsoil was removed, though no screen size is mentioned in the field notes (MHS, Johnson Field Notes, 1 July 1968). No measurement is given for the topsoil depth. No mention is made of the depth range of many of the excavation unit levels, though the excavation followed natural stratigraphy levels.

Stratigraphy in some areas of the site was complicated. Some features overlapped and intruded on each other, such as Features 20, 21, and 25. Feature 20 was actually two large oval pits that intruded into Feature 25, a deep bell-shaped pit. Feature 21, a small rock and sand pit, also intruded into Feature 25 (MHS, Johnson Field Notes, 17 July 1968).

Feature 13, the targeted location for the 2008 excavation, was first noted on July 8, 1968 as a dark humus band on the excavation unit floor that measured one meter wide. The feature was clearly apparent against the reddish sandy and rocky soil. It was also apparent in the excavation unit (Feature 10) side walls. At the time, Johnson speculated that the feature could be the middle section of a very large pit or possibly a section of a wall trench house (MHS, Johnson Field Notes, 8 July 1968).

Figure 4 1968 Feature 12 in Feature 10, Facing South (MHS Negative Number 2677)



Extensions were laid out to follow the projected outline of Feature 13; the outline continued in the north excavation unit extension but was non-existent in the south extension. However, "there is some indication in the south wall that the disturbance persists – possibly indicating a corner with the wall continuing east. A fairly large post mold with charcoal is located in the intrusion at this possible corner" (MHS, Johnson Field Notes, 9 July 1968). The excavation reached 40 centimeters below the surface.

By July 9, Johnson noted that the excavation unit floor was not very clear because the excavation had gone too deep. After July 9, the field notes indicate no further work was done on Feature 13. At the same time, concurrent excavations at the Cooling Towers site (21GD59) needed more labor and Johnson shifted some students from the Bartron site to the Cooling Towers site. He decided to leave Feature 13 largely unexplored and unexplained, intending to return to it in 1969. It was possibly left open without being backfilled in 1968, but were filled by the end of the 1969 field season (MHS, Johnson Field Notes, 17 July 1968 and 18 July 1968).

Work in the 1969 field season focused on house structures and a series of test trenches at the north end of the site. Thirty-six excavation units and 33 features were excavated in 1969; four of the excavation units were noted as "X Unit Grade Stripped" (MHS, Johnson Field Notes, Index). Features included postmolds, fire pits, storage/refuse pits, a clam shell deposit, and two possible rectangular-shaped house floors. The houses measured 5.5 by 4 meters and 9.5 by 9 meters. Johnson noted that several of the pits in and surrounding one of the houses (Features 65, 66, and 68) were superimposed (MHS, Johnson Field Notes, 7 July 1969).

The field methods used in 1969 were noted in greater detail than those employed in 1968. Students excavated in 10 centimeter levels, and floor maps were made at five centimeter levels. Soil from the excavation was screened, though if all soil was screened is not clear. Screen size was also not mentioned in the field notes. Trowels were used when cultural features were exposed, but whether trowels were always used at these levels is unknown. The site was surveyed and mapped using a transit. Johnson employed soil flotation at the Bartron site in 1969, which was one of the first times this method was used in Minnesota. Flotation in the field showed a large quantity of fish bones, among other materials, that came from the pits (MHS, Johnson Field Notes, 2 July 1969).

In the 1969 field season Johnson brought in a front loader a few times to remove the topsoil from several areas at the Bartron site, and to move some of the soil backfill piles. Soil was removed from a backfill pile and adjacent (west) to Feature 32. Another area was stripped and divided into three excavation units (65, 66, and 68), which were then shoveled to expose pit and postmold features (MHS, Johnson Field Notes, 30 June 1969).

A road grader was later brought in to remove the topsoil from a 20 by 20 meter area over a probable house feature, which roughly uncovered some features. Johnson noted that

> [u]nfortunately the grader operator would not strip but insisted on removing deep cuts. Subsoil is sandy and very wet so that the wheels of the machine dug in and did not allow a clear exposure of subsoil. Staked the area at 5 m. intervals and will clear with shovels to even it off (MHS, Johnson Field Notes, 7 July 1969).

Additional information can be gleaned from the 1969 field notes. Out of the numerous pages generated from the 1968 and 1969 field seasons, only two pages from 1 July, 1969 (MHS, Field Notes, 1969) indicates what materials were saved and what were discarded. L. Jarvenpa, perhaps a student at the field school, noted that diagnostic artifacts such as worked lithics and rim sherds were saved while chert flakes were discarded. Whether this was a directive from Johnson or the selective retention practice of this particular student is unknown. The specific location of discard is similarly unknown.

At the end of the 1969 field season, subsequent archaeological investigations of the Bartron site were small-scale until the 2008 field season. The Bartron site was placed on the National Register of Historic Places in October 1970. David Nystuen surveyed and possibly excavated the Bartron site for a proposed change to the nearby Trunk Highway 61 (Nystuen 1971). Johnson returned to the Bartron site in the fall of 1980 while conducting a compliance survey and Phase III mitigation excavation on another site

(21GD148) on the PINGP property. He noted the site condition and possibly performed some limited excavation at the Bartron site.

After the Bartron site was excavated in 1968, the field notes, forms, artifacts, and soil samples were processed and catalogued at the University of Minnesota under accession number 662. Some soil samples from the 1960s field seasons still remain unprocessed. Accession 662 also includes materials from other sites Johnson excavated on Prairie Island in the summer of 1968 (21GD58/61, 21GD59). The artifacts from Feature 10 were catalogued as 662-39. Gibbon (1979) wrote the results of the Wilford and Johnson excavation at the Bartron site in *The Mississippian Occupation of the Red Wing Area.*

There may some confusion regarding the house features at the Bartron site in Gibbon's publication, specifically the wall trench structure, which was the target of the 2008 excavations. Block quotes are used below to demonstrate how a careful reading of an archaeological interpretation is needed to avoid a series of mis- and over-interpretations that are subsequently incorporated into the archaeological literature (Schirmer 2008). At places in the summary (e.g., Gibbon 1979:117) the possible wall trench structure is correctly placed in Feature 10 as Feature 13. On the next page, the wording is slightly unclear and could be read as implying the wall trench structure is in the block of excavation units (Features 65, 66, and 68), which contained the best evidence of Middle Mississippian influence. Compare the two direct quotes, below:

> The distribution of artifacts and ceramic attributes that might be considered Middle Mississippian-related is much more limited in extent. With the exception of a notched triangular point in E-1 [Wilford's 1948 excavation unit], an angular shoulder on a pot from P9 (1948), and the wall-trench structure in unit 10, the remainder of these items come from the unit 65-66 complex. Scroll motifs on pots are found in units 33, 65,

> and 68, a notched triangular point is in unit 65, and pots with angular shoulders come from units 32 and 68. Angular shoulders on ceramic vessels and notched triangular points occur at other Oneota sites in equally low proportions and probably cannot be considered traits necessarily derived from Middle Mississippi influence (Gibbon 1979:117).

> Evidence of possible Middle Mississippi influence is confined primarily to the unit 65-66 complex. This evidence includes a wall-trench structure, possibly notched triangular projectile points, and a few ceramic attributes, although the low rims typifying the Bryan and Silvernale ceramic assemblages … are absent (Gibbon 1979:118).

An examination of the field notes (MHS, Johnson Field Notes, 1968 and 1969) shows that the only possible wall trench structure was Feature 13, excavated in 1968. The other house features—the two houses excavated in 1969—were postmold houses with depressed floors (Gibbon 1979:99; MHS, Johnson Field Notes, 1969). The field notes also point out that Johnson labeled Feature 13 as, variously, 1) a "dark pit" that ran diagonally through Feature (Excavation Unit) 10, 2) "it may be a section of a trench + post house wall," 3) a "section of a large pit," 4) an intrusion "possibly indicating a corner with the wall continuing east," 5) "F-13—possible house corner" (MHS, Johnson Field Notes, 1968). Gibbon (1979) did not similarly couch his terms (Schirmer 2008).

1968 Feature 10 Assemblage

Currently, the field notes and other documentation from the Bartron site are available at the Minnesota Historical Society (MHS) (Archaeology Division). The artifacts from this site are also curated at the MHS in partially inventoried boxes, primarily separated by artifact type instead of provenience. This separation makes verification and comparison of the reported results difficult. Artifacts were visually inspected for this study, though all artifacts from Feature 10 could not be re-located at this time. There were no recorded artifacts from Feature 13 (either in field notes, accession books, or in a brief examination of the curated artifacts).

Gibbon (1979:109, 279, 311-317) reported 18 artifacts and four rocks from Feature 10. There were 15 lithic artifacts: two primary decortification flakes, four secondary decortification flakes, eight unworked flakes, and one tool (a chert chopper). The ceramic artifacts recovered and kept for analysis were two rim sherds and one handle.

There is a hypothesized Historic component at the Bartron site, although this has yet to be located and described. One of the contenders for this component is Pierre Charles Le Sueur's Prairie Island post, which is discussed in the next chapter.

CHAPTER 5: CONTACT CULTURAL LANDSCAPE

After the Red Wing Locality was intensively occupied from circa A.D. 1050 to 1300, transitory groups moved through the Locality. Santee Dakota settled in the area around the time the French entered Minnesota in the mid-1600s. France had four pieces to its colonial empire: Acadia (North American maritime areas), New France (St. Lawrence River Valley and Great Lakes region), Louisiane (lower Mississippi River Valley and the Gulf Coast region), and the West Indies (Caribbean) (Keene 1991). The focus in this thesis is on New France because it contains the Red Wing Locality, but it is important to keep in mind the local and global nature of colonialism. People and materials frequently moved between these regions. For example, Pierre Charles Le Sueur himself moved frequently between Europe and all four components of the French colonial empire during his lifetime. Le Sueur's life also illuminates aspects of French colonial policy, trade interactions, and movements of individuals.

Relationships varied between Europeans, European Americans, and American Indian groups depending on the particular confluence of global and local political contexts, and personal and group characteristics (Jaenen 1976). These relationships operated within a framework of constraints and freedoms (Trigger 1991), and in Minnesota during the Contact era multiple actors engaged in relationships that may or may not have involved economic activities (cf. Pickering 1994). These actors were at times aggressive, acting independently but also enmeshed in group relations, and both accommodating and actively shaping economic and other transactions.

Native groups frequently positioned themselves to take advantage of economic circumstances even before the physical arrival of Europeans in the local area (Anderson

1994; Mazrim and Esarey 2007). This positioning took advantage of the extractive nodal economic networks in place, as well as the networks France built in North America. Furs, lead, and copper (among other resources) were obtained by the French from the North American hinterlands through direct extraction or trade with Native American groups and various middlemen. These resources were compiled at outposts (often called "forts") and shuffled down the line to larger forts, where they were sent through a few main routes to France or other destinations.

Extraction and nodal transportation into the world market was French colonial policy, but encouraging extensive permanent white land settlement was not. Never very numerous, the French population in the Mississippi River Valley likely numbered under 200 by 1711 and most were located along the Gulf Coast (Walthall and Emerson 1991). The French presence in the North American interior was maintained by explorers/soldiers, priests, and coureurs de bois (independent traders). Coureurs de bois often operated outside official French colonial licensing structures, and largely (though not completely) bypassed many of the official down the line steps to trade directly with Native groups. Thus, many of their activities are incompletely documented.

European colonial policy in the Contact era (mid-1600s – 1702) was typically fort-based (Nassaney et al. 2002-2004; Walthall 1991). Forts or outposts in North America operated as official socioeconomic centers and were key in maintaining alliances and preventing conflicts between American Indian groups. The French generally focused on minimizing conflict because it disrupted trade routes and the flow of supplies, and interfered with profit-making. However, the French could encourage conflict between Native groups if it suited French interests.

French colonials initially entered the western Great Lakes region during the Contact era, usually from settlements in lower Canada but occasionally from settlements on the southerly reaches of the Mississippi River. The Contact era is the first time French and Native individuals encountered each other in face-to-face cross-cultural exchanges. Nicollet, Marquette, Joliet, La Salle, Radisson, des Groseilliers, and Hennepin were some of the first French explorer/traders in the Western Country, which the French defined as the western Great Lakes and the Mississippi River basin (Walthall and Emerson 1991). Radisson and des Groselliers were the first documented French traders to venture into Minnesota when they attended a large Native rendezvous possibly located in the Snake River Valley circa 1660 (Birk 1997; Miller and Stone 1970).

French exploration proceeded along water routes, moving north on the Mississippi River and southwest from the Great Lakes. After building a post near Thunder Bay and working to achieve peace between the Ojibwe and Dakota, Dulhut visited Dakota villages in the Mille Lacs Lake area in 1679. Approaching Minnesota from another direction in this same year, La Salle launched an exploratory expedition—Hennepin was initially included in the party, but was captured by Dakota warriors—from the Illinois River up the Mississippi River (Little 1985:148; Wedel 1974). The *Description de la Louisiane*, ostensibly drawn from Hennepin's experiences as a captive, was widely published in 1683 and served as an information source for further expeditions.

The French began gathering more precise details about the Minnesota area prior to establishing a more permanent presence. In the 1680s, central Minnesota began to appear on many more maps than it had previously. Accuracy in depictions of this region increased in the 1690s to 1700s (Birk 1997). Concurrently, coureurs de bois expanded their market and began to edge out Native middlemen in trade networks (Mazrim and Esarey 2007). Fort St. Antoine situated on Lake Pepin (Wisconsin) was the first semi-permanent post established by Perrot in 1685 in the Red Wing area. His presence in this area was tenuous and he was immediately threatened by Native groups from Wisconsin. However, Perrot managed to maintain a residence in the area until 1689 (Little 1985).

To facilitate north-south communication and to hold back the ever-encroaching English, the French built a series of forts at key locations in the North American interior after 1700 (Walthall and Emerson 1991). The Mississippi and St. Lawrence Rivers were essential for communication between Louisiane and Canada, and thus forts such as Fort St. Joseph (centered at key communication locations) were erected and functioned as both military and commercial centers (Nassaney et al. 2002-2004).

Le Sueur's relatively short career illustrates many key components of the Contact era. He moved around the world, interacted with French colonial administration, French mapmakers, and skirted the lines of legality. His early activities give us an idea of the otherwise largely undocumented coureurs de bois activities, and his later and more official activities demonstrate facets of French colonial policy in the upper Mississippi River valley. The French government ordered Le Sueur to build posts in certain areas to fulfill overall colonial objectives, such as promoting or maintaining peace between Native groups. This kept areas open for trade movements. Le Sueur accomplished or attempted to accomplish these objectives while also fulfilling his own personal purposes, such as trading for furs at Fort l'Huillier.

Twenty-four year old Pierre Charles Le Sueur was imprisoned in Montreal and fined for illegally participating in the fur trade in the Sault Ste. Marie region. He was released in 1681 and resumed trading illegally, this time probably with the Dakota, from 1682 to 1689 (Little 1985:148). Le Sueur probably traveled the Mississippi River for the first time in 1683 as part of Dulhut's convoy from Green Bay (de la Harpe in Buisson et al. 1861:95; Wedel 1974). He also alluded to participating in war parties against the English and Iroquois, which probably happened in the 1680s. By his own recollection, Le Sueur helped build Fort Perrot (or Fort St. Antoine) in 1686 near Trempealeau and upstream from the Chippewa River (Wedel 1974:160). He was present in May 1689 at Fort St. Antoine at the lower end of Lake Pepin when Perrot arranged trade alliances and delivered his *Prise de Possession* (Wedel 1974).

In the 1690s Le Sueur's movements are still mostly a matter of speculation and conjecture, but it is known that he moved frequently between Canadian settlements (Montreal) and the hinterlands. He was married in Montreal in 1690, and the next year he portaged around St. Anthony's Falls on the Mississippi River, likely to reach the Mille Lacs Lake region and its Dakota villages (Wedel 1974). In 1692 Le Sueur returned to Montreal and cycled back to the "upper country" by at least 1693 to construct a post on Madeline Island in the Chequamegon Bay at the direction of the Governor General of New France (Comte de Frontenac). This post was built to keep the area between Michilimackinac and the upper Mississippi River open for trade by maintaining peace between the Ojibwe and Dakota (Wedel 1974:159). At times in the 1690s, Le Sueur noted that the Ojibwe and Dakota shared the trade good proceeds from beaver skins the Dakota had hunted on Ojibwe hunting grounds (Wedel 1974:164).

Le Sueur was on the St. Croix River in 1694, and in either late 1694 or early 1695 built a post on Prairie Island as ordered by Frontenac. The following statement is the largest piece of direct, written information about the Prairie Island post. This fort was

> on an island in the Mississippi, more than 200 leagues above the Illinois, in order to effect a peace between the Sauteurs [Ojibwe] nations who dwell on the shores of a lake of five hundred leagues circumference, [Lake Superior] one hundred leagues east of the river and Scioux, [Sioux] posted on the Upper Mississippi (de la Harpe in Buisson et al. 1861:90).

This was his second post on the Mississippi River, and Le Sueur had a blacksmith at this location "to repair fusils and other equipment" (Wedel 1974:161). Besides its obvious utility for Europeans in a fort setting, gun and equipment repair was a valuable skill and needed in the hinterland by Natives and Europeans alike (Nassaney 2007). Though his official governmental mandate was to promote peace between the Dakota and Ojibwe, Le Sueur managed to continue trading for furs (Birk 1997:18; de la Harpe in Buisson et al. 1861:90; Wedel 1974:160-161).

In the summer of 1695 Le Sueur left the Prairie Island post and traveled with Chinagouabe (Ojibwe), Tioscate (Santee Mantanonwan chief), a party of Ottawa, and four other Frenchmen. They went first to Michilimackinac (where they added Ciouse, the wife of a Dakota chief) and then to Montreal. Le Sueur and his party arrived in Montreal in the middle of July 1695 (Wedel 1974:160-161). It was to Frontenac that Tioscate asked "that a road be opened between his people and the French colony" and formalized an alliance of the Dakota with France (Little 1985:149; Wedel 1974:160).

When Le Sueur left the fort at Prairie Island in 1695, several other traders were still in residence. The peace Le Sueur had worked to build was beginning to fragment and the traders were "harassed by Algonquians from the Green Bay-Illinois River area who were going north to attack the Dakota" (Wedel 1974:161). These traders shortly abandoned the fort and, together with other traders they met in the region, ascended the Mississippi River above St. Anthony's Falls. These traders established another post, which was likely near the Dakota in the Mille Lacs Lake area (Wedel 1974:161). However, Prairie Island did become a frequent place of rendezvous between the Dakota and French (and probably other Native groups) by 1700 (Birk 1997).

The glutted fur market (Innis 1956:67-75) affected Le Sueur's trading activities in 1696 when King Louis XIV ordered the fur trade to cease in the upper Great Lakes (Miller and Stone 1970:8). It was not until portions of this act were modified that it was actually enforced (Wedel 1974:161). Probably to get around this order, Le Sueur asked for a license in 1696 to mine the green and blue (and presumably mineral-laden) earth he had previously discovered. This more modest request was granted after he initially asked for "command of the Chequamegon Bay post on Lake Superior, for full trading privileges for 10 years in the upper Mississippi area, and for a crew of 40 or 50 men, many of whom where to work mineral deposits" (Wedel 1974:161).

After a brief tenure as a British prisoner of war in 1697 when his boat was captured on its way from France to Canada, Le Sueur was released and given a new commission by Louis XIV in 1698. While in France Le Sueur organized his mining expedition to the Blue Earth River, and was engaged in some political intrigues involving Louis XIV and the Jesuits (Wedel 1974:161). He returned to the Blue Earth River region in 1699 via the Lake Ponchartrain portage near New Orleans to work the earth, and just happened to get a little (illegal) trading in beaver, bison, and deer on the side (de la Harpe in Buisson et al. 1861:89-90; Wedel 1974:162). Fort l'Huilllier (also known as Fort Vert) took two weeks to build, and was occupied for two years (Wood and Birk 2001:31).

Le Sueur's activities from 1700 to 1702 are better known because he kept journals about his activities on the Mississippi River at the behest of Frontenac. Le Sueur also collaborated with mapmakers during his visits to France. Le Sueur discussed firsthand and secondhand (from Native informants) information with mapmakers Jean-Baptiste Franquelin, Claude Delisle and his son, Guillaume Delisle (Wedel 1974; Wood and Birk 2001). This increased documentation was in response to a request by the French colonial government (Wedel 1974). Events and relationships recorded by Le Sueur, especially at Fort l'Huillier, can provide some examples of behaviors that may have also occurred just a few years prior at Fort Le Sueur on Prairie Island. For example,

> LeSueur [sic] would have liked to gather the Dakota villages around his fort. He promised the chiefs of two Eastern Sioux groups "all the corn which will be necessary for them to sow their lands" in the hope that they would adopt a more sedentary, horticulturally oriented way of life. He stressed that the "hunt which caused them to separate out in various little bands exposed them to being killed by their enemies (Delisle [1702]:53, 54 cited in Wedel 1974:170).

This relationship was not one-sided; the Mdewakanton asked Le Sueur to move his post in the Blue Earth River region closer to them (de la Harpe in Buisson et al. 1861; Wedel 1974:170-171).

An episode reported by de la Harpe (de la Harpe in Buisson et al. 1861:96-97) in September of 1700 provides an example of Le Sueur's diplomacy skills and the tenuous nature of life along the upper Mississippi River. After his group saw some Indians who had

> plundered them; sentinels were placed in the woods, for fear of a surprise from the land, and when they were within hailing distance, the party called out to them, that if they came any nearer they would fire on them. They ranged themselves

> along the island, within half gunshot. Soon after four of the most distinguished in the band advanced in a canoe and asked whether we had forgotten that they were our brethren, and why we had taken up arms when we perceived them. Mr. Le Sueur told them in reply that after what they had done to the five Frenchmen, who were present, he had reason to distrust them. Yet for the security of his trade, being under the absolute necessity of being in peace with all the nations, he would not make reprisals for the robbery which they had committed; he only added that the King their master and his, wished all his subjects to travel on that river without receiving any insult; that therefore they should take care of what they were doing. The Indian who had been spokesman seemed confounded and made no reply; another merely said that they had been attacked by the Scioux, who had forced them to abandon all their baggage, and that if he did not take pity on them by giving them a little powder, they could not reach their village. Consideration for [the safety of] a missionary who was to go up to the Scioux, and whom these Indians might meet, made him give them two pounds of powder (de la Harpe in Buisson et al. 1861:96-97).

In 1701 Le Sueur left Fort l'Huillier (also called Fort Vert) for Fort de Mississippi (near the mouth of the Mississippi River), taking with him loads of the blue-green, furs, and bison and deer skins. He left 10 to 12 men behind, and in 1702 these men abandoned the fort after a Fox – Mascouten war party killed three of their compatriots (Wedel 1974:162-163). By 1702 Le Sueur was briefly in France, and then back on his way to Louisiana. Iberville saw a new role for Le Sueur, one that capitalized on his relationships and previous experiences with Native groups. Iberville's plan was to relocate upper Mississippi River Native groups to locations more convenient for French trade and harassment of the English (Wedel 1974:163). Le Sueur headed back to Louisiana in 1704, caught a fever in Havana, and died at 47 on Dauphin Island near Mobile Bay (present day Alabama) (Wedel 1974:163).

At the end of the Contact era the French were beginning to settle the Louisiana territory in the lower Mississippi Valley. Because of the increasing uncertainty with Native hostilities or friendliness, Canada and Louisiana rose to greater prominence after the Contact era. The upper Mississippi River—which Le Sueur had worked so hard to maintain as a viable commercial space—was increasingly regarded as unsafe and unprofitable.

During the Contact era, Le Sueur participated in some of the broader events in North America. He fought against the English and Iroquois in the 1680s. He was present when Perrot claimed the upper Mississippi River for France. Le Sueur worked on establishing and maintaining peace between the Ojibwe and Dakota, as well as other groups. While in the hinterlands Le Sueur also was instrumental in moving European trade goods to Native middlemen, and directly to Natives. His presence, along with other French traders and soldiers, influenced and was influenced by Native movements.

Le Sueur's exploits demonstrate how dependent the French in America were on Natives for supplies, information, and safety (Jaenen 1976). Material culture and technologies were exchanged between these groups, and neither would be the same after initial indirect and subsequent direct contact. As Jaenen (1976:192) put it, "[c]ooperation and intercourse resulted in a certain degree of interdependence and created an impression of successful accommodation and acculturation." At the end of the Contact era, the Dakota were increasingly changing their economy to a meat-and-fur extractive economy. For example, in 1701 it took a week for Le Sueur to complete a barter trade at Fort l'Huillier involving at least 3,600 beaver pelts, brought by *one* group of Dakota (Birk 1997).

Dakota groups in this period of initial French contact were present from the lake region of the Mississippi River headwaters, along the Minnesota River to Lac des Tintons, and across central Minnesota from the St. Croix River Valley to the Lake Traverse-Red River Valley (Johnson 1985; Wedel 1974). The French first heard of a large and "war-like" people west of Lake Superior in 1640, and probably were in direct contact with the Dakota as coureurs de bois and others fanned through the region in the 1660s-onward (Birk and Johnson 1992:211).

At some point (or at a series of points) in the late 1600s or early 1700s the Mdewakanton Dakota left the Mille Lacs Lake region and relocated along the Mississippi and Minnesota Rivers (Whelan 1990:55). Established residences in the early nineteenth century were located at Shakopee, Kaposia, Red Wing, and Wabasha (Mdewakanton), and Little Rapids (Wahpeton) (Birk and Johnson 1992:233; Spector 1985, 1993). Little (1985:150) places the beginning of this movement in the 1680s. Various authors emphasize different reasons for this rearrangement, but Birk (1991:245) offered the most comprehensive explanation: "[t]he final catalyst for Dakota withdrawal may have been the French presence, which often served to enhance tribal differences, stimulate territorial movements, and deplete animal resources." The Mdewakanton Dakota were among the Native groups Le Sueur encountered on Prairie Island in the mid-1690s (Wedel 1974).

During the Contact era, Dakota groups also began residing in their summer villages, generally located in the forest-prairie ecotone, for longer durations than they had previously. This changed the seasonal round slightly. These villages often served as points of departure or meeting places with fur traders (Johnson 1985:162; Madigan and Schirmer 2001:97; Whelan 1990) and as a base to exploit resources from the forest, prairie, and the forest-prairie ecotone (Johnson 1985:162). However, as a general statement, "the patterns of Native American land use did not appreciably change before their ultimate removal and displacement by European American settlers" (Madigan and Schirmer 2001:97).

How do these broad and sweeping social movements, French colonial policy, trade interactions, and the movements of an individual translate into the archaeological record? What additional information is hidden in the ground about Le Sueur, and what can we learn about his entourage? How are interactions between French traders and Native groups in Minnesota recorded archaeologically?

Site types in the southeast Minnesota area likely include all of the following categories of French colonial sites: fortified entrepots (e.g., Fort Le Sueur, Fort Beauharnois, and Fort La Jonquiere), temporary but probably fortified outposts, habitation areas in Indian villages that hosted Frenchmen, special activity areas, and canoe accident sites or other locations with lost articles (Birk 1991:246; Gibbon 2006). The first two site types have a greater presence on the landscape. There are probably numerous short-term sites from rendezvous activities on Prairie Island, especially around the late seventeenth and early eighteenth centuries (Birk 1997:18).

Any decision matrix of fort site location in Minnesota needs to be water-based. Fort locations were chosen "with regard to resources, transportation lanes, exchange opportunities, and defense" and with a consideration of the locations of Native peoples (Birk 1991:240). Desirable resources were access to navigable water, game, and rendezvous centers. Because the French in America emphasized water transportation, western Minnesota with its grasslands was part of "a sort of physical and psychological barrier to French movement" (Birk 1991:240). The Mille Lacs Lake region, though connected to the Mississippi River by a water route, is not as easily accessible as other areas because of a long portage necessary to reach it. After initial French exploration it was largely ignored (Birk 1991).

Table 2 French Posts in the Red Wing Locality, Lake Pepin, and Trempeleau Regions (adapted from Brik 1994b: Figure 5)

Post	First Commandant	Dates of Occupation	Projected Location
Wintering Quarters	Nicolas Perrot	1685 – Spring 1686	Trempeleau
Fort St. Antoine	Nicolas Perrot	1686 – After 1689	Southeast shore of Lake Pepin
Fort Bon Secours	Nicolas Perrot (or Le Sueur?)	Late 1600s – By 1695?	Opposite the delta of the Chippewa River
Fort Le Sueur (Isle Pelee)	Pierre Charles Le Sueur	1694/5 – By 1700	Prairie Island (near the mouth of the St. Croix River)
Fort Beauharnois	Rene Boucher de la Perriere	1727 – 1729	Low ground at Lake Pepin
Lintot's Sioux Post	Rene Godefroy de Lintot (Linctot)	1731 – By 1736?	Trempeleau (more than one site?)
Saint-Pierre's Sioux Post	Jacques Legardeur de Saint-Pierre	1736 – 1737	Lake Pepin
Fort La Jonquiere	Paul Marin de la Malgue (la Marque)	1750 – Mid-1750s	Southeast short of Lake Pepin?

Besides water access, Native politics and opinions need to be factored in to French fort site locations. Contested areas were largely ignored in fort situation, and contributed to many fort abandonments (Birk 1991). In two recorded cases, the "Sioux of the West" (Wahpekute and Yankton) moved their villages to be nearer to Fort Vert (Wedel 1974:166, 170). Le Sueur himself had several interactions with the Mdewakanton Dakota, and at times they asked him to move his posts nearer to their location (Wedel 1974:170-171). Le Sueur built his post at Chequamegon in part to cement an alliance between the Dakota and Ojibwe (and also because the Brule – St. Croix River transportation route to the Mississippi River avoided the "politically tumultuous" Fox-Wisconsin River route) (Birk 1997:12).

Structures and architectural features of a fort site give a tangible sense of how the French ordered their world. Fort structural patterning varied through time and space

(Walthall 1991); detailed renderings—either archaeologically derived or written—of smaller-sized forts are virtually unknown (but see Birk and Poseley 1977). The official guidance for these smaller-sized fort builders, such as Sebastien Le Prestre de Vauban's principles of fortification, and general patterns of French fort structure and features are known. However, the actual implementation of these ideas has not been systematically studied, especially for structures in Minnesota.

As France's preeminent military engineer in the late seventeenth century, Vauban's (1633 – 1707) engineering principles were widely deployed in the construction of colonial North America in forts and fortified towns. For example, La Salle used Vauban's fortification principles in his 1682 temporary wooden Fort Prudhomme (Heldman 1991; Walthall 1991) and these principle are evident in the plans for Fort Beauharnois (1727) and Lintot's Sioux Post (1731) (Birk 1994b; Birk and Poseley 1977). Generally, Vauban's plans for smaller forts like Fort Le Sueur were square or rectangular structures and fortified with palisades that had four corner bastions. Key to Vauban's design was the ability to adapt fortification plans to particular geographical characteristics (Heldman 1991; Kornwolf 2002; Walthall and Emerson 1991).

Knowing the typical characteristics of European fortifications and habitation structures can be crucial in identifying the difference between Native American (either pre-Contact or later) and European structures. In some circumstances, characteristics signifying ethnic differences between the structures are readily apparent such as Newell Fort near St. Louis (Hall 1991), and at the St. Louis mission and Huron village in Canada (Jury and Jury 1955). Generally, palisades constructed with regularly sized posts from the same type of tree are French while irregularly sized posts constructed out of different types of wood are indicative of Native construction. Both the French and Native Americans charred the bottoms of the poles before placing them in the ground to protect against insect damage (Jury and Jury 1955; Walthall 1991:51). French palisades may have had two to four bastions (Birk 1994b; Birk and Poseley 1977). The French palisade trench reached almost one meter in width and three in depth at Fort Massac.

French forts in the American hinterlands were typically built of wood and most of the buildings were of *poteaux en terre* (logs in earth) construction. At Michilimackinac ecclesiastical buildings were the only ones to use *piece sur piece* (log on log) construction (Heldman 1991:209). No elaborate stone forts like Fort de Chartres (Walthall 1991) were built in Minnesota; though Marin was directed to select a site to build a "stone fort" in the mid-eighteenth century there is no evidence he actually built it (Fort La Jonquiere) with stone (Birk and Poseley 1977). Forts originally designed to be built with stone could be built with wood and earth instead, such as the hastily built Fort Massac (1756) which used a double row of palisades for extra fortification (Walthall 1991).

Fort Massac and 21MO20 (possibly Fort Duquesne (1752 - 1753), located along the Mississippi River in Morrison County, Minnesota), used *poteaux en terre* construction. This mode of construction is assembled by first digging narrow trenches that outline the basic building shape. Logs are placed upright in these trenches and are joined at the top by hewn sills. Chinking is placed between the logs, which may be of various materials. 21MO20 used fine river sediments and plant material (Birk 1991), while Fort Massac used rocks and lime mortar (Walthall 1991:52-53). *Poteaux en terre* buildings are marked archaeologically by a continuous soil stained band (the trench) and is punctuated by circular or square soil stains (postmolds). This is the pattern observed by Johnson in the 1968 Feature 10.

Fireplaces were typically at the ends of the structures or placed in the middle of walls, and were made of stone with *bousillage* (wattle and daub) chimneys (Nassaney et al. 2007). Postmolds strung along a building's central axis probably supported a steep hip or gable roof (which was also reported at 21MO20). The roofs at Fort Massac were covered with thatch or shingles; one of the 21MO20 structures was at least partially roofed with birchbark. Only the exterior walls at 21MO20 were plastered, and it appears floor boards were used in at least a portion of one structure (Birk 1991).

Feature types resulting from discrete activity areas in fort sites in Minnesota are largely unknown. A blacksmith was reported at Le Sueur's 1694/5 post on Prairie Island, artifact type and distribution profiles can be generated using information from forts that did have a blacksmith (Light and Unglik 1973; Noble 1991). Metal and metalworking artifacts will be better represented than at some other fort sites because of the blacksmith (Wedel 1974:161). Artifacts associated with metalworking are lead balls, shot, and sprues as well as pieces of scrap metal. Scrap metal with cut marks, kettle lugs, rolled rivets, and kettle patches are associated with kettle repair (Nassaney et. al 2007:11-12), a service the blacksmith could have performed.

European sites generate a large amount of trash (Birk 1991), so middens and refuse pits are two additional feature types that are expected in a French fort setting. Keene's (1991) extractive economy model posed that most of the processing of extracted resources probably occurred in the fort settlement. (Given the small size of many of Minnesota's forts this may be an interesting assertion to test.) Natural dips in the surface may accumulate debris as well. Other feature types are probably subsistence-related such as meat processing camps and bark-lined storage pits (Birk 1991).

Though recent work by Gibbon (2006) illuminates the need for a refined French colonial artifact chronology in Minnesota (cf. Mazrim and Esarey 2007; Quimby 1966), some general French colonial artifact characteristics are known. Le Sueur's recorded trade inventory provides an outline for expected goods: Le Sueur declared he was bringing 5,000 *livres* (one *livre* is equal to approximately 3/4 of an English pound) of trade goods in the early 1690s to Chequamegon Bay and was supplied with a much smaller amount of gifts for the Ojibwe and Dakota (Wedel 1974:159-160). Le Sueur brought guns and associated equipment (five fusils, five pistols, balls, powder, goose shot, blonde gunflints, bayonets), cutting tools (hatchets, butcher knives, *couteaux flatins* (pocketknife with a horn case)), tobacco, clothing (shirts, hose, overcoats) and blankets, and other adornment items (vermillion and brushes, beads, thread) (Wedel 1974:159).

In addition to the goods Le Sueur brought to his Madeline Island (Chequamegon Bay) post C-bracelets, copper wire including wire coils, copper tubes, metal bells, metal kettles, Jesuit rings, and tinkling cones were found at the Mille Lacs sites (Birk and Johnson 1992). Early French sites also contain European ceramics (faience and other refined wares), white clay smoking pipes, buttons, hinges, worked bone and antler artifacts can be expected at early French sites (Nassaney et. al 2007).

After an examination of the Montreal Merchant's Records (1715 – 1760) and archaeological sites in the upper Great Lakes, Anderson (1994) demonstrated that goods brought into the American hinterland were not all intended for Native trade or use. For example, files were used primarily by Europeans while Native groups had a greater interest in finished clothing and the materials to make clothing. Items for adornment, both relatively easy to transport and typically used in small quantities, were also popular both for traders and Native consumers. This study should "temper the perspective that, for Native peoples, the fur trade was an increasingly imperative quest for European metal goods" (Anderson 1994:113). These records are useful in generating a more complete inventory of material goods that make their way into archaeological artifact assemblages (Birk 2007).

Archaeological Context

Historical archaeology of the fur trade began in Minnesota in the 1850s, but it was not until 1982 that the Institute for Minnesota Archaeology initiated the state's first systematic and statewide program investigating the French presence in Minnesota (Birk 1991). In Minnesota, there are *no* archaeologically confirmed French Contact era sites. Two sites from the French Expansion phase have been archaeologically excavated. Fort St. Charles, one of the two French Expansion phase sites, was originally excavated in 1908 (Birk 1982). 21MO20 (Fort Duquesne?) (Birk 1991) is the only new French fort site identified in Minnesota in the last 100 years and excavated with modern archaeological methods.

Fort St. Charles was the longest-occupied French post in Minnesota, dating from 1732 to the mid-1750s (Birk 1982). This "depot-trade-habitation-mission complex" (Birk 1982:117) is located on the west side of the Lake of the Woods in Minnesota's Northwest Angle. La Verendrye (the elder) established Fort St. Charles with the permission of the New France government, but with no governmental assistance. Instead, he was guaranteed a trade monopoly. Fort-building was held up for about a year because of a hostile political climate (Dakota war parties) and tough field conditions. A palisade with two gates and four bastions provided an enclosure for living quarters (log cabins or row houses), storage areas, and a mission site (Birk 1982). Though no exact date is given for its abandonment, it was no longer part of New France with the conclusion of the French and Indian War.

Table 3 Principle French Sites and Sites with French Components (Dobbs 1988:64; Spector 1993)

Site Name	Location
Fort St. Charles	Lake of the Woods
Fort St. Pierre	Rainy Lake
"Bourassa's Post"	Crane Lake
Grand Portage National Monument (Fort St. Charlotte)	(Mer de l'Ouest)
Savanna Portage	(Mer de l'Ouest)
"Houl's Post"	Crow Wing
Fort Duquesne (?) (21MO20)	Little Elk River near Little Falls
Fort St. Croix	St. Croix Headwaters (WI)
"Deruisseaux's Post"	Snake River Valley
La Verendrye's Sunrise Post	Sunrise River
Rice Creek Post	Rice Creek
Fort l'Huillier (Fort Vert)	Near Mankato
Isle Pelee Post	Prairie Island
Lake Pepin Posts	Lake Pepin (MN, WI)
Fort Bon Secours	Lake Pepin
Fort Beauharnois (Sioux Post)	Lake Pepin
Fort La Jonquiere (47PE22?)	Lake Pepin
Wabasha Area Posts	Wabasha Region
Trempeleau Area Posts	Trempeleau (WI)
Post at La Pointe	Madeline Island, Chequamegon Bay (WI)
Mille Lacs Lake Region Sites	Mille Lacs Lake
Hogback Site (21HU01)	Houston County
Little Rapids Site (21SC27)	Minnesota River

Investigations into the French presence in the Red Wing Locality have involved many of the major figures in Minnesota archaeology. Beginning in the late 1880s and continuing through the early part of the twentieth century, T.H. Lewis, Jacob Brower, and Warren Upham investigated potential French sites in the area. Elden Johnson's surveys and archaeological work in the 1960s found evidence of an early historic (French?) presence on Prairie Island. Many of the later studies into the French presence in the Red Wing Locality were performed by Doug Birk (1984, 1985, 1994; Birk and Poseley 1977). Clark Dobbs (1987) also briefly investigated the Sturgeon Lake Post (21GD88) for a Phase One compliance survey for the United States Army Corps. Most recent work does not specifically focus on the French presence but includes it in the overall interpretation of the area (e.g., Madigan and Schirmer 2001).

Lewis mapped a location that Birk (1984, 1985) hypothesized was either Fort Le Sueur or Fort La Jonquiere. This location, which has been given the site number 21GD88, is also currently known as the Sturgeon Lake Post. Lewis described the site as an "old palisaded work" that local residents were mining for stone from its foundations and fireplaces. It was located on a high bank near a mound (part of the 21GD75 group) overlooking Sturgeon Lake. A farmer had turned up wrought iron nails and two silver crosses, and Lewis' own (limited) excavation uncovered an unmarked iron trade axe (Birk 1984, 1985).

Sixteen years after Lewis mapped the palisaded work, Warren Upham, secretary for the Minnesota Historical Society, went to Prairie Island to re-locate the feature Lewis had mapped. Upham discovered a feature 400 feet north of Lewis' legal description, recorded the location of the site, and took at least one picture which was subsequently discovered in the MHS archives (Birk 1984:2). Jacob Brower, one of Minnesota's pioneer archaeologists, visited Prairie Island a year later and decided Upham's site (now termed the Upham Locus of 21GD75) was a pre-Contact pot kiln. Brower found his own site, an L-shaped mound, and concluded that this site was Le Sueur's fort (Birk 1984).

Winchell (1911) agreed with Brower and labeled Upham's site as an old pot kiln. In the *Aborigines of Minnesota* he wrote that "[t]he mound group [21GD75] at the west side of Sturgeon lake [sic] shows no visible indications of any fort or station built by Le Sueur or any other French trader, but only evidence of aboriginal occupation" (Winchell 1911). The "pot kiln" was deemed a collapsed Dakota earthlodge. Winchell agreed with

Brower that the L-shaped mound had the "appearance of having been constructed by Europeans" (Winchell 1911). Winchell, however, overlooked Lewis' notes on 21GD88, and in his publication he "enveloped the issue of [the] French presence on Prairie Island in a smoke screen of confusion" (Birk 1984:3). The search for 21GD88 will be detailed below.

Elden Johnson of the University of Minnesota was the next archaeologist in Minnesota to mention and seriously search for French forts on Prairie Island. In 1960 he surveyed a portion of Prairie Island prior to construction activities for the Prairie Island Nuclear Generating Plant (PINGP). Though he was aware of the fort's historically documented location, (e.g., NSP News September 1960) if Johnson discovered the site during this survey he did not actively publicize his findings. However, is was reported in a local newspaper (Red Wing Republican Eagle, 14 July 1960) that

> Dr. Johnson, working on a Minnesota Historical society project financed by a Northern States Power company grant, found evidences [sic] of a large Indian village of the Oneota era [21GD02] on the Nauer farm. The village was probably inhabited at the time the first French explorers came to Minnesota, for bits of beads and brass fragments were excavated.

Accompanying the article was a photo of Johnson looking at "[f]lint arrow fragments, part of a clay pipe, the handle of a pottery vessel, and small bits of brass." This information points to an as-yet unconfirmed historic component at the Bartron site.

Johnson returned to the area and conducted limited surveys and excavations at the Bartron site (21GD02) in 1967, 1968, and 1969. Though he continued expressing hope of finding Le Sueur's fort (September 1967, NSP News), Johnson either never encountered the fort structure or did not realize what the historical artifacts he had found represented. The location of those historic artifacts and Johnson's field notes from 1960 is unknown (Hildebrant Iffert 2010).

The most recent and comprehensive work tracking down Le Sueur's post on Prairie Island was done by the Institute of Minnesota Archaeology in the 1980s (Birk 1984, 1985; Dobbs 1987). Birk asked Amos Owen, a Dakota spiritual leader, to conduct field studies with him in 1983 and they re-located the site Upham thought was Le Sueur's Prairie Island post. Birk returned in 1984 and excavated some shovel tests and one by one meter units, placed after consultation with members of the Prairie Island Indian Community (PIIC) (Birk 1984:4-5).

Instead of affirming the location of Fort Le Sueur, the excavations found prehistoric, late historic, and modern historic components at the site. From the artifacts—both European- and Indian-associated items, including carved catlinite objects and tinkling cones—Birk concluded that the structure was probably a Métis or Indian cabin occupied circa 1810 to 1840. This work determined that Upham's location (the Upham Locus of 21GD75) was probably not the same as the palisaded work Lewis observed (Birk 1984) and confirmed with additional work (Birk 1985). Remote sensing by the IMA in 1986 near Lewis' mapped fort location did not find subsurface indications of Le Sueur's post, but the fort could still be located in an untested area (Dobbs 1987).

Despite these negative findings for a French presence on Prairie Island, a French fort has been discovered along the Wisconsin side of nearby Lake Pepin. Birk (1994) reported on the "Fort St. Antoine Archeological Project," which looked at three areas on the southeast shore of Lake Pepin for evidence of the French presence. One of these areas, 47PE22, had remnants of *bousillage*, French period artifacts, and evidence of buildings and Birk tentatively concluded that the site was Fort La Jonquiere. The 47PE22 site also had earlier Native American (Late Woodland) and later European settlement components. The site had been disturbed by homesteading activities and pothunting, but deposits were intact to a sufficient degree that Birk recommended further archaeological excavation but this has not yet occurred (Birk 1994b; Madigan and Schirmer 2001).

Despite no definitive early historic findings on Prairie Island, textual evidence points to an as-yet unconfirmed French and historic Dakota Contact era presence on Prairie Island. Additionally, previously discovered historic artifacts suggest an early historic component to the Bartron site.

CHAPTER 6: PROJECT DESIGN

During the first few weeks of the archaeology field season in May 2008, Xcel Energy contracted geophysicist Donald W. Johnson to perform a survey using magnetometry and electrical resistivity methods at the Bartron site (Johnson 2008). This survey sought to delineate the spatial extent and clarify the present condition of the Bartron site, as well as pinpoint anomalies for future archaeological investigations.

The archaeological field methods used in this project were surface pedestrian survey and block excavation. The purpose of the pedestrian survey was to make note of areas of high artifact concentration, especially in the cultivated field portion of the site. The block unit excavations focused on the initial and primary goal of re-excavating Feature 13 to clarify its function and other characteristics, and investigating one of the anomalies identified by the geophysical survey. The locations of the geophysical survey, pedestrian survey, and block excavation units were tied to permanent markers.

The project study area spanned both the southern border of the PINGP property (Section Eight) and the northern portion of a cultivated field farmed by a private landowner (Section Nine). The geophysical survey and pedestrian survey took place in both the cultivated field and in approximately 12 acres of the PINGP property; the archaeological excavation was more tightly focused in an area on the PINGP property of no more than 40 square meters total area.

The soil in this area is predominantly of the Sparta Series, which is well-drained, sandy, and formed in outwash areas (USDA 2008:56). The soil is very dark brown loamy sand on the surface, and may be unstable because of the high sand content. Aerial photos taken by the United States Department of Agriculture (1938) and the Minnesota

Department of Natural Resources (1949) demonstrate that the area around Block One was farmed for a brief time: the Bartron site was plowed in the 1938 photo, but appears to be pasture in the 1949 photo.

Site Mapping

Prior to the archaeological excavation or pedestrian survey, MSU, M archaeology field school students carefully mapped the project area and roughly estimated the surface contours. To facilitate accurate re-location of the season's survey and excavation work, care was taken to tie real world markers such as the section line fence and road to other attributes on the maps. Measurements were taken using meter tapes and directions were established with hand-held compasses.

Pedestrian Survey

The pedestrian survey was concentrated in the cultivated field (Section Nine) of the Bartron site. The field had been recently plowed and surface visibility was excellent (near 100%). Students kept approximately one meter intervals between each other and visually inspected the ground surface. A pin flag was placed where artifacts were encountered, and artifact/pin flag concentrations were noted and sketch mapped after the cultivated field had been completely surveyed. Artifacts were not collected.

Archaeological Excavation

The two archaeological block excavation units re-opened Johnson's 1968 excavation of Feature 13 (Block One) and investigated two anomalies identified by the geophysical survey (Blocks One and Two). Maps and measurements for Block One and Block Two are tied to the 1960s site datum. Methods varied slightly by each block and will be treated separately, below. Feature excavation methods will also be discussed separately, below.

The excavation of Block One, the investigation of Feature 13 from Johnson's 1968 excavation, began immediately after permission for excavation was granted by the Tribal Council and PINGP management. Feature 10 was re-plotted and marked with pin flags.

Because the 2008 Bartron site excavation targeted a previously excavated location and then expanded that area, there are two distinct types of assemblages. Here, they are termed primary and secondary contexts. These two contexts are considered separately as they have different proveniences and are therefore generally not comparable. "Primary contexts" are defined as those areas that had not been archaeologically excavated until the 2008 excavation.

"Secondary contexts" are defined as those areas that were archaeologically excavated in 1968 and re-excavated in 2008. Soil and artifacts in the secondary context went through a series of events in 1968: the soil was removed, screened through an unknown screen size, and artifacts discovered were retained. The "fill" soil, or that soil that passed through the screen, was returned to the excavated unit when the unit was later closed. Secondary context results are those artifacts and soil characteristics disturbed and reburied in 1968, and recovered in 2008.

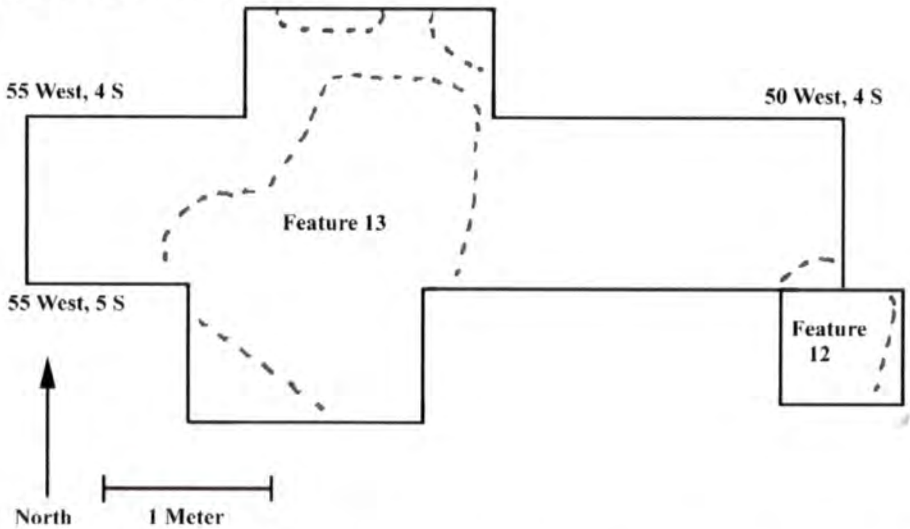
Table 4 2008 Primary and Secondary Contexts by Excavation Unit

Context	Excavation Unit or Feature	Depth
Primary	Excavation Unit One D, E	0 – 20 cmbd
	Excavation Unit Two D	0 – 30 cmbd
	Excavation Unit Two E	0 – 20 cmbd
	Excavation Unit Three A	40 – 50 cmbs
	Excavation Unit Three D	0 – 50 cmbd
	Excavation Unit Four A	40 – 50 cmbs
	Excavation Unit Four D	0 – 50 cmbd
	Excavation Unit Six	0 – 30 cmbd
	Excavation Unit Seven	0 – 35 cmbd
	Excavation Unit Eight	0 – 35 cmbd
	Excavation Unit Nine	0 – 30 cmbd
	Excavation Unit 10	0 – 30 cmbd
	Excavation Unit 11	0 – 30 cmbd
	Excavation Unit 12	0 – 30 cmbd
	Feature One	0 – 50 cmbd
	Feature Two	0 – 120 cmbs
	Feature Three/Five	0 – 105 cmbs
	Feature Four	0 – 45 cmbd
	Feature Six	0 – 60 cmbd
	Feature Seven	0 – 35 cmbd
Secondary	Excavation Unit One A, B, C	0 – 40 cmbs
	Excavation Unit Two A, B, C	0 – 40 cmbs
	Excavation Unit Three A, B, C	0 – 40 cmbs
	Excavation Unit Four A, B, C	0 – 40 cmbs
	Excavation Unit Five A, B, C	0 – 40 cmbs

Exploratory Trench Excavation Methods

According to the 1968 field notes and site forms, Feature 10 measured one meter (north-south) by five meters (east-west), with three extensions created as excavators followed features. Johnson labeled both features and excavation units as "features." Feature 10 was the excavation unit within which Feature 13 (the hypothesized Mississippian wall trench house or Le Sueur's overwintering post) was situated.

Figure 5 1968 Features 10, 12, and 13



Using shovels, four exploratory trenches were dug in a roughly north-south direction to determine if the reconstructed location of Feature 10 was correct. The trenches measured roughly 30 – 40 centimeters wide and were approximately three meters long. The trenches were labeled as Trenches One, Two, Three, and Four from east to west.

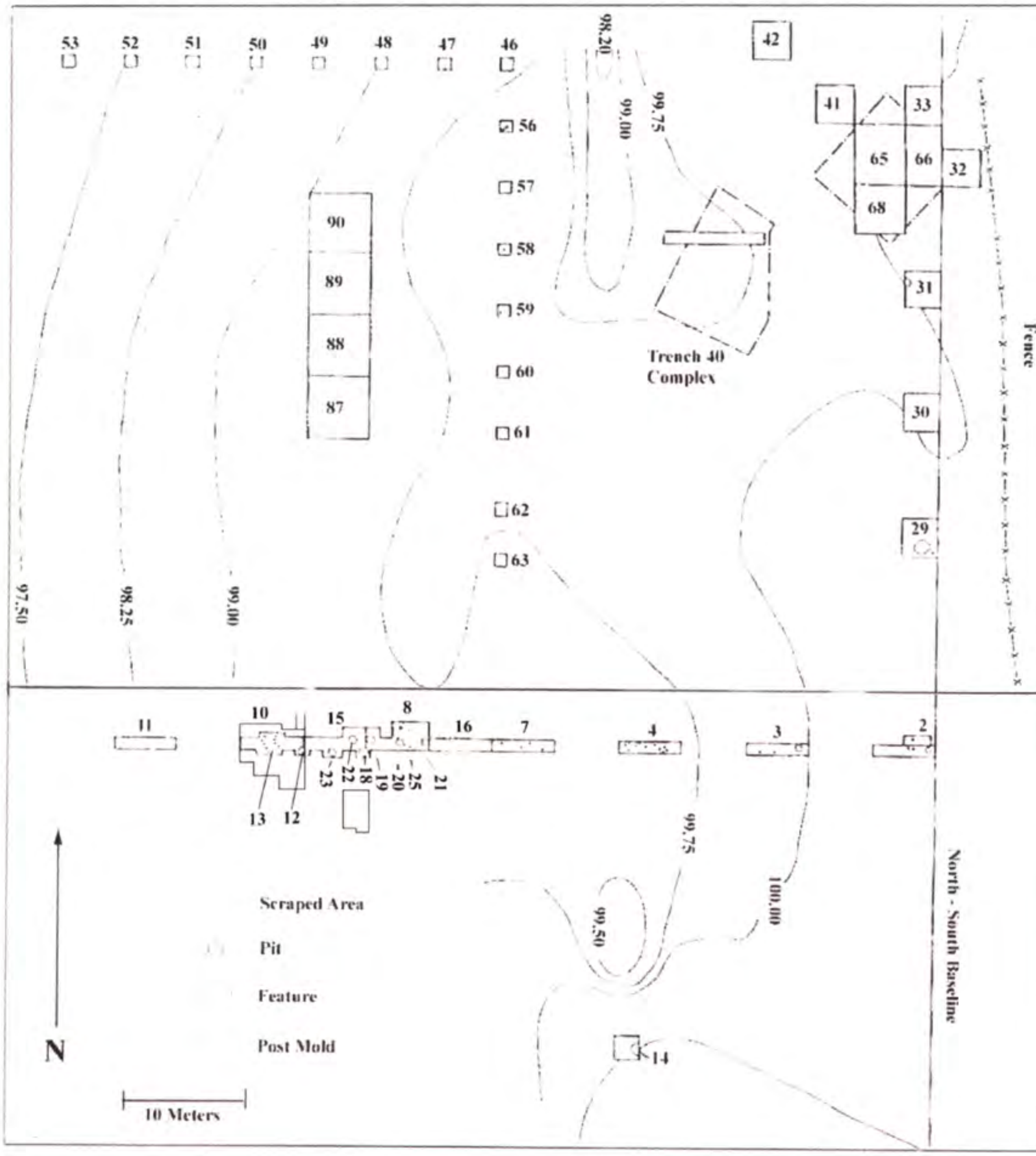
Shovel scrapes of approximately one to three centimeters of soil each were removed in arbitrary ten centimeter levels. Hand trowels were used to "clean" areas, unit wall sides, and/or unit floors to provide a clear surface for accurate mapping. Depths in the trenches were recorded as centimeters below the ground surface (cmbs). Shoveling activity in the trenches paused at 20 centimeters for the first floor map, and floor maps were made at 10 centimeter increments thereafter.

The soil was initially screened through 1/16 inch wire mesh and examined for cultural material. In order to more quickly screen the soil the screen size was changed to a larger 1/4 inch mesh on the second day of trench excavation. All artifacts were bagged separately by provenience; each ten centimeter level in each trench was considered a separate provenience.

The sandy soil at the Bartron site yielded confusing soil patterns in the exploratory trenches that were later clarified when a larger area was opened up and the trenches reached 30 centimeters below the surface (cmbs). The excavated outlines of Feature 10 were blurry—not sharply defined as an excavation unit should be—and the soil color patterning was contrary to initial expectations. The 1968 unit extensions and soil slump blurred the outline of Feature 10 encountered in the exploratory trenches. At 27 cmbs in Trench One a wooden (excavation unit) stake from the 1968 excavation unit was found, which confirmed the location of Feature 10.

One additional factor necessitated expanding the exploratory trenches. Mottled soil coloring usually indicates more recently disturbed soil, while homogenous soil coloring indicates either undisturbed (natural) areas or feature (cultural) soil. The projected Feature 10 area was emerging as homogenous soil, not the expected mottled soil coloring of recently disturbed soil. When the sandy soil was excavated and screened in 1968, it was thoroughly mixed and homogenized.

Figure 6 1968, 1969, and 2008 Excavation Units (Adapted from Gibbon 1979)

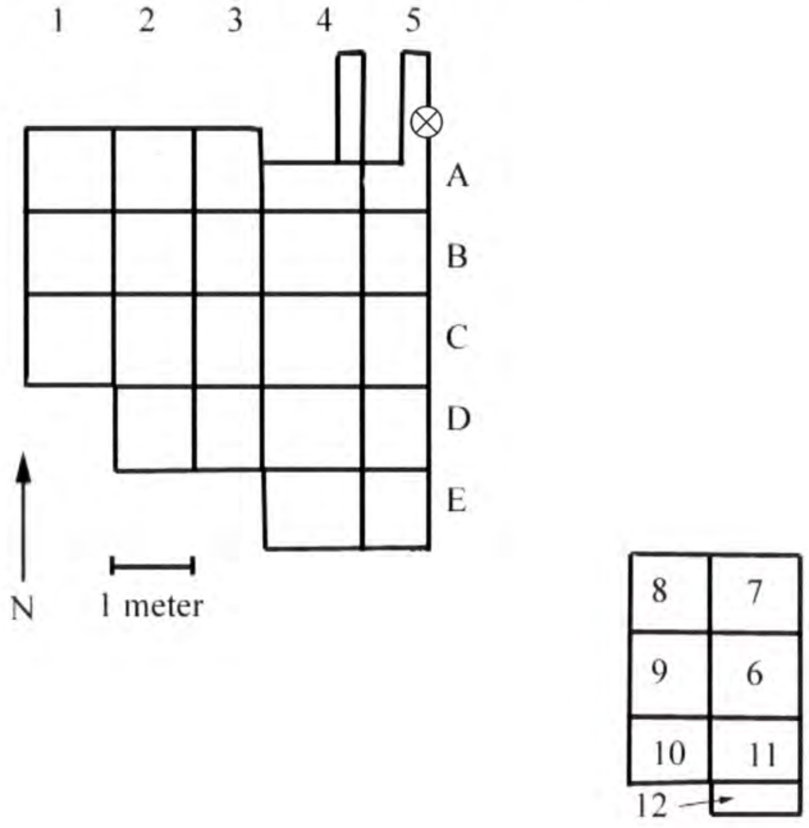


Block One Excavation Methods

With the increasingly clear Feature 10 outlines and because of the discovery of the wooden stake, our field methods changed from exploratory to intensive and targeted in nature at this depth. Block One began with the removal of balks between the exploratory trenches, and eventually grew to a five by five meter excavated area.

Methods also changed when Johnson's Feature 13 was identified in the ground and followed out into previously unexcavated soil.

Figure 7 2008 Excavation Units with the Project Datum at 0 North, 50 West



Formal excavation units for Block One were defined and labeled as Excavation Unit One through Five from east to west, and A through E north to south. From east to west, Excavation Unit One measured 115 centimeters and Excavation Units Two through Five measured one meter. It was slightly wider than the other units at the site because it combined Trench One and Two. The units measured one meter north to south.

Excavation Units One and Two, D through E were placed to investigate an anomaly identified by the geophysical survey. This anomaly was likely caused by Feature Four, a pit feature in Excavation Units One and Two D.

Block One was excavated in arbitrary 10 centimeter levels by shovels and trowels. Depths in this block were measured from the ground surface (cmbs), with some exceptions that resulted from the evolving field methods. Depths for Excavation Unit One D – E and Excavation Unit Two D – E were measured from a datum established in the southwest corner of Excavation Unit Two E. Depths for Excavation Unit Three D and Excavation Unit Four D were measured from a datum established in the southwest corner of Excavation Unit Four D.

All excavated soil was screened through 1/4 inch wire mesh for cultural materials and bagged according to provenience level. Culturally sterile soil emerged as orange colored soil with glacial pebbles. Four features were identified in this block and completely excavated according to the feature excavation methods detailed below. Excavation units in Block One were floor mapped at 10 centimeter levels, and unit walls were profile mapped.

As the excavation of Block One progressed, it became clear at 43 cmbs that Feature 13 was not "a section of a trench + post house wall." Instead, Feature 13 was closer to the other (and often overlooked) description Johnson penned in the field: "the center section of a very wide pit" (Johnson Field Notes on file at the MHS 7/8/1968). Feature 13, which had been excavated to 40 centimeters below the surface in 1968, was not a single corner-like feature but rather was "blur" from the tops of several adjacent pit features (at a minimum, Features Two and Three/Five, and possibly two unnumbered and unexcavated features identified in 2008). Because Johnson's Feature 13 did not exist as described and accepted in the literature (e.g., Gibbon 1979, 1991; see Chapter Five), focus shifted to excavating the four features discovered in Block One. Additionally, Excavation Units One D – E and Two D – E were placed to test a geophysical anomaly identified in the field.

At the conclusion of the field season the floor of Block One was covered with plastic tarps, and filled in with the screened backfill.

Figure 8 Block One, Excavation Units One through Five, Facing Southwest

Figure 9 Excavation Units One through Five, 30 cmbs

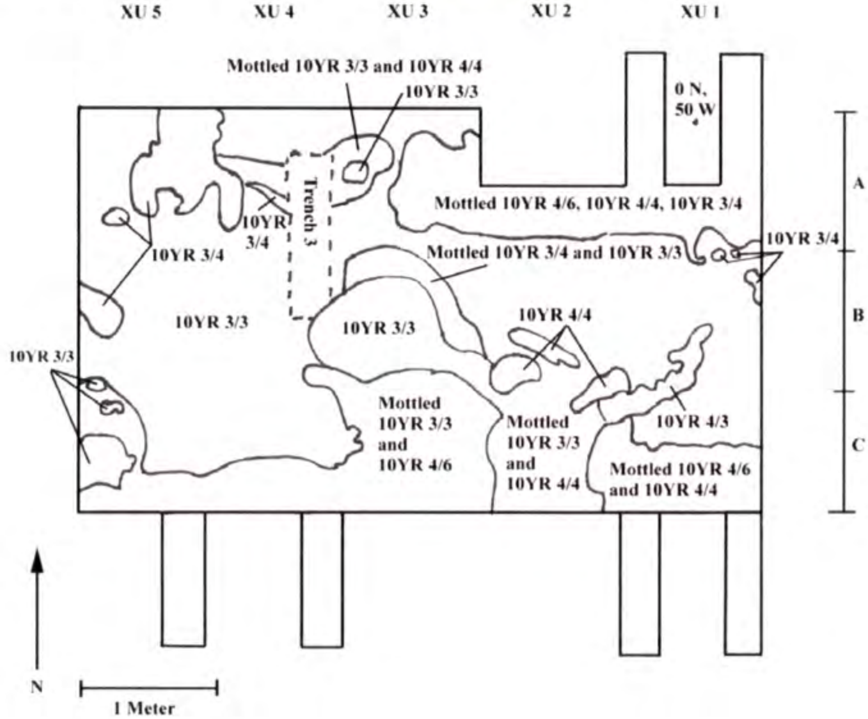
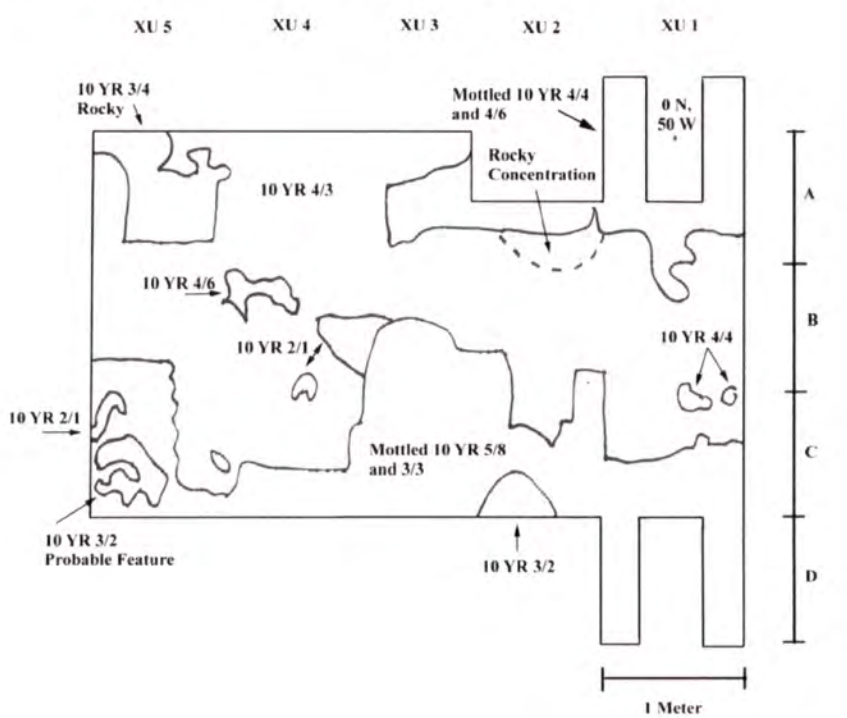


Figure 10 Excavation Units One through Five, 40 cmbs



Block Two Excavation Methods

Block Two began as an investigation with four one by one meter excavation units into a magnetic anomaly identified by the geophysical survey. Historic deposits often contain metal, which can provoke a magnetic high reading. Other causes of magnetic anomalies are the presence of materials that have been heated high enough to permanently change the magnetic properties, such as hearths and fired ceramics (Johnson 2008). Because the range of error for the methods used was approximately plus/minus 1 meter (maximum) (Donald Johnson, personal communication 2009), four (one by one meter) excavation units were placed in a block to test for the anomaly. Three units were added to continue the investigation for the anomaly and follow the two features that emerged through excavation.

The block was expanded into six one by one meter units and one partial unit to encompass a feature. Block Two was excavated in arbitrary 10 centimeter levels by shovels and trowels. Depths in this block were measured from a datum in the southwest corner of the block. Formal excavation units were defined and labeled as Excavation Unit Six through 12. From north to south and beginning with the easternmost units the excavation units are labeled Excavation Units Seven, Six, 11, and 12. The westernmost units, from north to south, are labeled Excavation Units Eight, Nine, and 10. Features Six and Seven were identified in Block Two.

All excavated soil was screened through 1/4 inch wire mesh for cultural materials and bagged according to provenience level. Culturally sterile soil emerged as reddish orange colored soil with glacial pebbles. Two features were identified in this block and completely excavated according to the feature excavation methods detailed below. There were a few possible features in this block: in the northeast corner of Excavation Unit Seven and the southeast corner of Excavation Unit 10. Because the block was excavated to 30 cmbd (and 35 cmbd in a few units) there is the possibility for future feature excavation to investigate these identified possibilities. Excavation units in Block Two were floor mapped at 10 centimeter levels, and unit walls were profile mapped.

At the conclusion of the field season the floor of Block Two was covered with plastic tarps, and filled in with the screened backfill.

Figure 11 Excavation Units Six through 12

Figure 12 Excavation Units 6 through 12, 20 cmbd

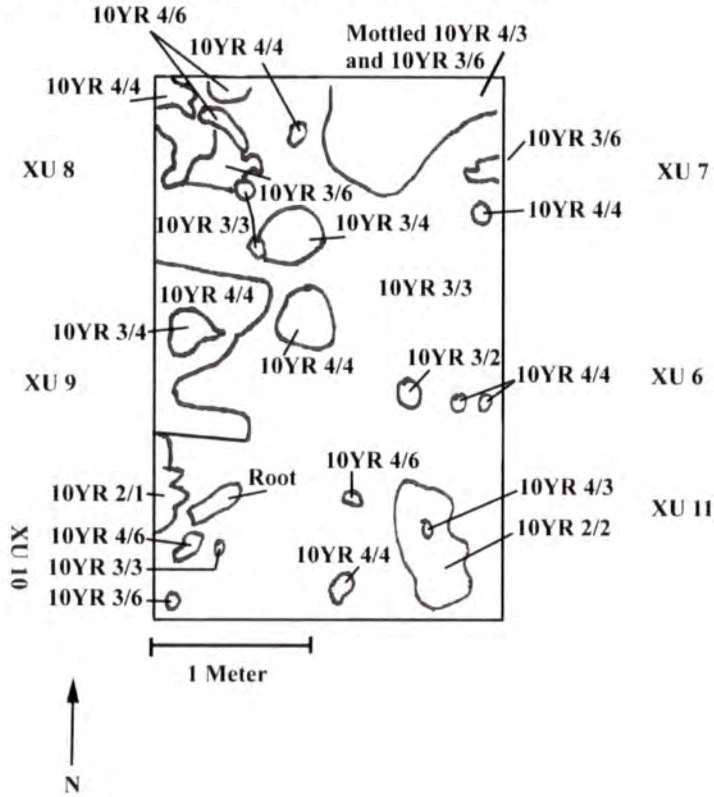
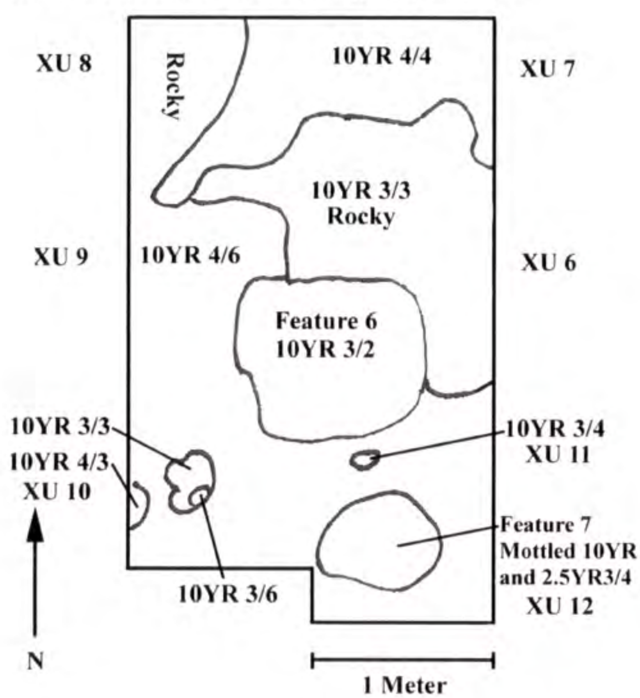


Figure 13 Excavation Units 6 through 12, 30 cmbd



Feature Excavation Methods

There were seven primary deposition features identified and excavated during the 2008 field work at the Bartron site. Dark soil staining was identified to the north of Feature Two, but was not fully uncovered with the open excavation units and thus was not pursued. When the diagnostic soil staining was identified during unit excavation, feature excavation methods were immediately applied to the feature. These feature excavation methods are consistent with those Schirmer (2002:143), following Dobbs (1991), uses in the Red Wing Locality, and will facilitate inter-site comparison.

The centerpoint of the feature was noted; initial depth, length and width measurements were taken; and shovel skimming of feature soil ceased in favor of hand troweling. Feature excavation began in the southeast quarter and proceeded down in five centimeter levels until the excavators encountered culturally sterile soil. The southwest quarter, northeast quarter, and northwest quarters were similarly excavated. All soil removed from the features was bagged in soil sample bags, labeled, and transported for future flotation analysis. Feature floors were mapped at five centimeter levels, and wall profiles were mapped after the southern half of the feature was excavated.

Depths for Features One, Four, Six, and Seven were measured from a datum staked in the ground. Depth measurements for Features Two and Three/Five were taken from the ground surface.

Backfill from the 1968 excavation of Feature 10 in Excavation Unit Four was apparent from the ground surface to 40 cmbs. Excavating a few centimeters further down to 43 cmbs, the backfill vanished and feature soil began emerging. Three features were identified that extended over Excavation Units Three A and B, Four B and C, and Five B and C. Feature Three/Five was at first thought to be two separate features but within five centimeters of excavating these apparently separate soil stains were determined to be the same feature (Feature 3 is a discrete deposit at the top visible margin within Feature Five).

The feature sampling design and lab methods will be discussed in the following subsection.

Figure 14 Block One, Features 1, 2, 3/5, and 4

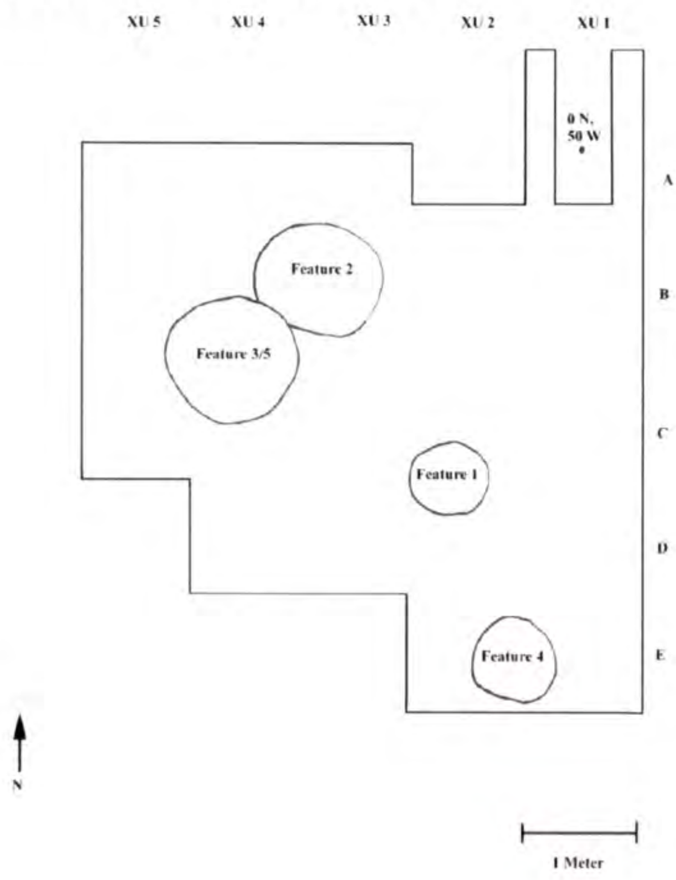


Figure 15 Block 2, Features 6 and 7

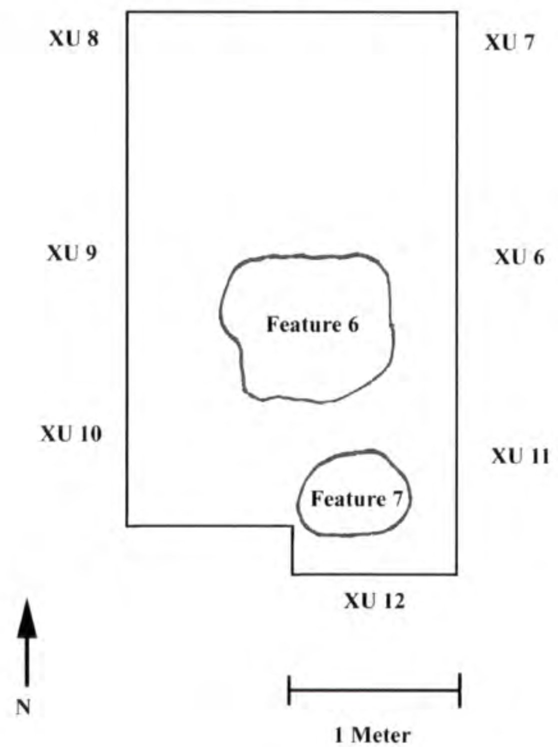


Figure 16 Plan View of Feature Three/Five at 45 cmbs

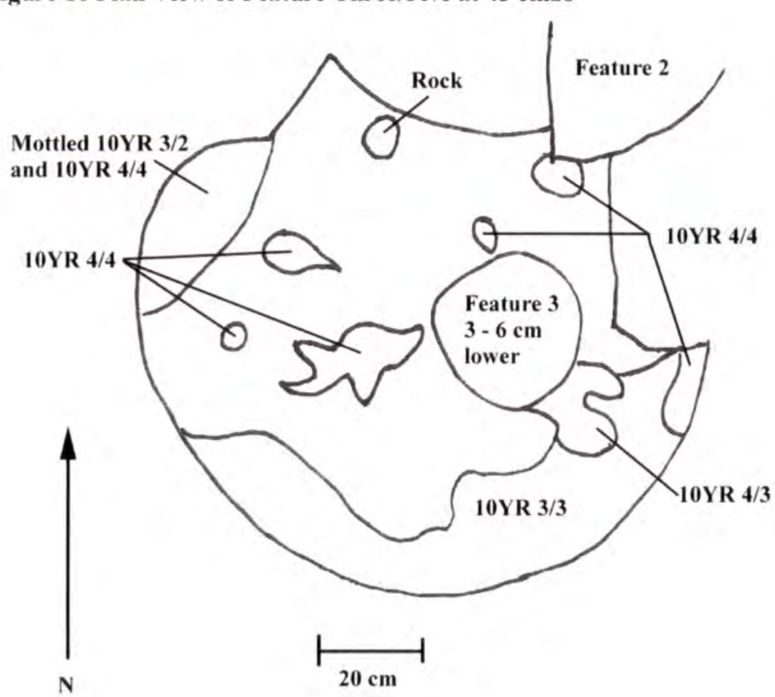


Figure 17 Feature Three/Five North Wall of the Southeast Quarter

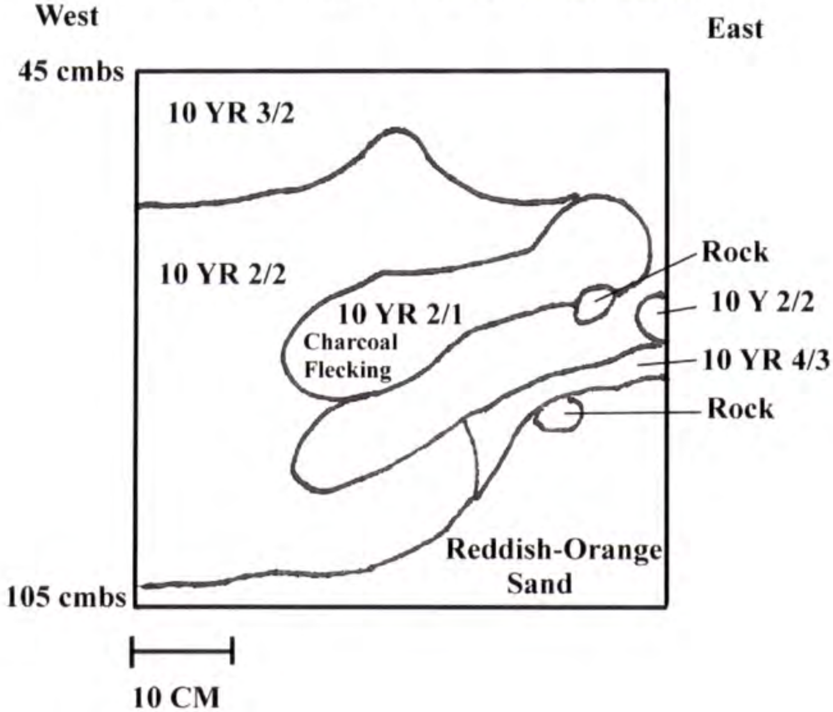


Figure 18 Plan View of Feature Seven, 23 cmbd

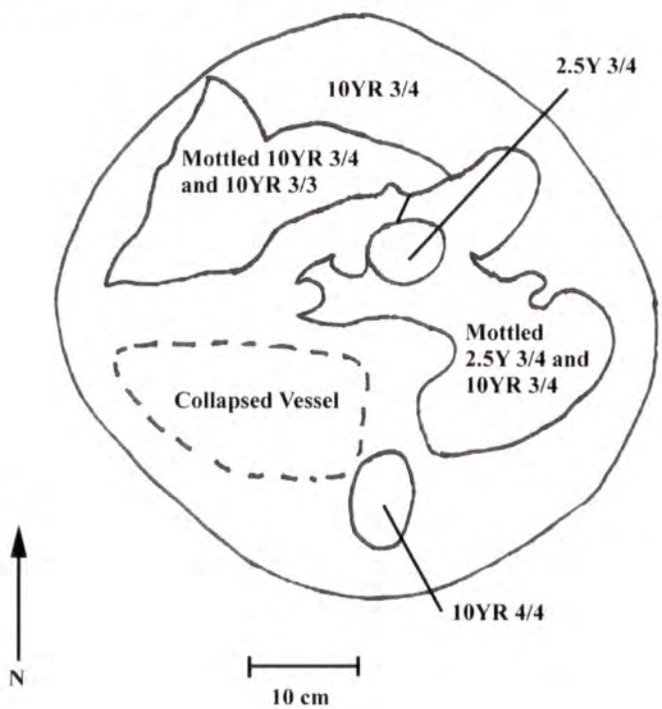
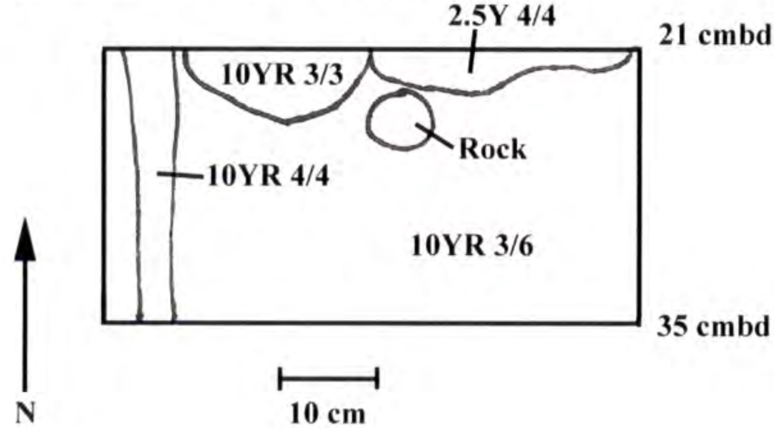


Figure 19 Feature Seven, North Wall Profile



Feature Sampling Design

As archaeologists refined their field methods, the amount of material they recovered from archaeological sites increased. This boost in recovery (especially in the 1960s with the New Archaeology methods) and a new focus on quantitative analysis spawned discussion of sampling designs, specifically focusing on the most appropriate sampling design (Orton 2000:149-150). There are several types of sampling designs in archaeology; most of the published literature has directed attention to designs for surface surveys (e.g., Betts and Friesen 2004; Bevan and Conolly 2009; Read 1986; Redman 1973, 1987) and subsurface surveys or shovel testing (e.g., Kintigh 1988; Lightfoot 1986, 1989; Nance and Ball 1986, 1989; Shott 1987, 1989).

Many of the same threads that run through these discussions are applicable to sampling designs in archaeological deposits; however, it is not regional archaeology writ small. Sampling from archaeological deposits is usually undertaken with an eye towards the recovery and analysis of a specific class of materials such as faunal specimens or paleobotanical materials. Generally, the most popular approaches (from the 1970s onward) that sample discrete archaeological deposits—such as features—are cumulative sampling (e.g., van der Veen and Fieller 1982), comparison of bulk (point) and scatter (pinch) samples (Lennstrom and Hastorf 1995), and column sampling (Casteel 1970, 1976; Rootenberg 1964). Column sampling may be thought of as stratified cluster sampling (Orton 2000:161), which divides the sampling universe into two or more strata (not to be confused with geological or archaeological strata) and then collecting a sample from each stratum (Rootenberg 1964).

For feature deposits, the standard archaeological field methodology in Red Wing consists of dividing the feature into quarters and excavating these quadrants in five centimeter levels. This field methodology lends itself well to column sampling, which is a "series of samples … taken one above another" (Orton 2000:155). It is important to column sample from each archaeological strata. A column sampling design may also be used for feature quadrants because this method of sampling is used to give an idea of the vertical variation in a feature deposit (Casteel 1972; Orton 2000).

Casteel (1970, 1976) was one of the first (but see Meighan et al. 1958; Rootenberg 1964) to articulate the possibility that column samples may give an acceptable representation of the faunal contents of a whole unit with densely packed contents (such as middens or features). He cautioned that this sampling does not replace wholesale analysis. The benefits of column sampling are its high degree of accuracy and efficiency (Casteel 1976:195). Column sampling may also generate many small samples, which is statistically more valid and representative of the sampled population during analysis than approaches with larger samples (Orton 2000:166-167). In the case of the Bartron site features, each quadrant is separated into five centimeter levels; each of these quartered five centimeter levels is a sample. Therefore, there are many small samples in these feature sample populations.

However, column sampling only recovers materials from that particular column or area of excavation (Pearsall 2000:71) and this may not totally represent other areas of the sampled deposit or of the site (cf. O'Neill 1993). Following Meighan et al.'s (1958) proscription, column sampling has largely been used for ecological and dietary analysis. Casteel's methodology focused on recovering a representative sample of faunal remains, and this remains the predominant use of this sampling design (e.g., Cannon 2000; Connolly 1995; Martindale et al. 2009; Quitmyer and Reitz 2006; Reeder and Rick 2009; Schreve et al. 2002). However, column sampling designs have also been successfully used in recovering paleobotanical remains (Lovis et al. 2001; Pearsall 2000:69-75; Wright 2005:19-20) and other artifacts (Dunnell and Stein 1989; Rootenberg 1964).

The objectives of this analysis are to estimate the proportions of artifacts and botanical materials (separated into wood and non-wood charcoal) by examining the relative frequency of occurrence and distribution of these items. This is a popular approach (Cochrane 2003:837) when examining deposits with floral and faunal materials, and gives information that can be used to make inferences about past behavior. The sampling frame for the two features under analysis is the sum of the five centimeter excavated levels. For both of these features, the sampling fraction is 0.25 (the southeast quadrant of the feature). Because the inter-feature comparison between Feature Three/Five and Feature Seven were sampled at the same intensity, the samples from the features may be considered comparable (Orton 2000:165).

In the corpus of archaeological sampling literature, adequate sample size has been mainly discussed regarding surface sampling designs, and more rarely for subsurface sampling designs (and even more rarely for feature sampling designs) (Orton 2000:148-149). Many of the same arguments for surface sampling adequacy are echoed in subsurface sampling: namely, that the representativeness of the sample (Discovery Model) and proportions of elements in the sample (Statistical Precision Model) correspond to the assemblage under consideration (Nance 1981; but see O'Neil 1993). Besides sampling to ensure adequate representation and proportions, sample size should be chosen to operate within parameters of efficiency (Orton 2000:152).

Adequate sample size discovery for discovery and representativeness was estimated by using a pilot sample of lithic raw material type counts in a randomly chosen five centimeter level from the southeast quadrant of Feature Three/Five (following Banning 2000:85, using an acceptable error range of +/- two lithic artifacts). Lithic raw material types were chosen for this sample because it is the most diverse measure with 11 possible variables. Calculations yielded a minimum sample size of 11 five centimeter levels. In order to implement the column sampling design used, the sample size in Feature Three/Five was increased to 12 five centimeter levels. For comparative purposes, Feature Seven was sampled to the same intensity as Feature Three/Five and thus the southeast quadrant was also sampled in this feature.

Sources of error in this column sampling design (Orton 2000:23) are possible from: faults in the sampling procedure, errors in observation or measurement, and differential artifact, faunal, and botanical concentrations in the analyzed features. The column sampling procedure employed here is used to give a representative picture of the vertical variation in the feature contents. Because it focuses on one quadrant, rare elements present in other areas in the feature may not emerge and thus will not be represented in this type of analysis.

The 1968 Feature 13 was deposited in one action and thus vertical variation is not the attribute of interest here. Rather, the size difference between the artifacts excavated in 1968 and those excavated in 2008 was the quantitative characteristic of interest. Therefore, information about the total set of artifacts was gathered and compared to infer the past behavior that contributed to the variation in artifact size. In contrast to the representative picture proposed from sampling Features Three/Five and Seven, the post-Contact component utilized the total set of artifacts excavated in 2008 from the 1968 Feature 13. Additionally, available data from the recovered and curated artifacts from the 1968 excavation was used to provide a methodological base for future analyses. The attribute of interest in the pre-Contact component was the vertical variation in Feature Three/Five, and then comparing that vertical variation to another pre-Contact feature (Seven). A comparison between these two features allows inferences about the behavior involved in deposition.

Laboratory Analysis Methods

Excavated artifacts and soil samples were temporarily stored at the Anderson Center in Red Wing, Minnesota during the field season and later moved to the Archaeology Lab at MSU, M for laboratory analysis. Artifacts were washed, sorted, identified, and catalogued. Soil samples, with a focus on those collected from the southeast quarter of Features Three/Five and Seven, were processed using water flotation and catalogued.

Soil Flotation

Soil flotation methods largely follow those outlined by Dobbs (1991:9-10) and Schirmer (2002:143-144). Soil samples were collected from all quarters and all levels of features in the field. The southeast quarter of two features, Feature Three/Five and Seven, was chosen for mechanical water flotation processing and comparative analysis. Several of the remaining soil samples remain to be processed at this time. Water flotation separates soil samples by agitation and recovers very small plant and animal remains that would otherwise be overlooked in the field (i.e., when screening through a 1/4 inch mesh only those macrobotanical remains larger than 1/4 inch would be recovered) (Ascher 1959; Cannon 1999; James 1997; Nagaoka 2005; Shaffer 1992; Shaffer and Baker 1999; Shaffer and Sanchez 1994; Struever 1968; Thomas 1969; Wright 2005).

In the field, all feature soil was collected in five centimeter provenience levels in each feature, and these samples were given a field soil sample number. Each provenience level (as recorded by the soil sample number) was kept separate in the flotation process. Soil volume was recorded in liters before the samples were processed. Using flowing water and mechanical agitation, the flotation machine separated the light fraction (charred botanical and faunal remains) from the heavy fraction (artifacts and faunal remains).

The light and heavy fractions were air dried in hanging fine mesh cloths and size graded through a graduated series of geological sieves. The No. 60 screen is the smallest size grade chosen because it recovers the smallest identifiable seeds (Dobbs 1991:10).

No. 10 Screen (>2 millimeters or >0.0787 inches)
No. 18 Screen (>1 millimeter or >0.0394 inches)
No. 35 Screen (>0.5 millimeters or >0.0197 inches)
No. 60 Screen (>0.25 millimeters or 0.0090 inches)

The heavy fraction was size graded through Nos. 10, 18, and 35 screens. Shell and other faunal materials, lithics, pottery, and other artifact types from the No. 10 screen were sorted and catalogued according to the artifact cataloguing procedures outlined below. Botanical materials from the Nos. 10 and 18 screens were removed from the heavy fraction and added to the appropriate light fraction sample for consolidation. The heavy fraction from the non-botanical No. 18 screen materials and No. 35 screen materials were bagged for possible future analysis.

The light fraction was size graded through Nos. 10, 18, 35, and 60 screens. Roots, rodent feces, and other non-cultural material were removed from the Nos. 10 and 18 samples. Botanical remains from the Nos. 10 and 18 screens (including those added to the samples from the heavy fraction) were sorted into wood and non-wood and each morphology class was weighed. The materials from the Nos. 35 and 60 screens were bagged for possible future analysis.

Artifact Processing and Cataloguing Procedures

After washing or dry brushing, artifacts were sorted according to provenience and material type (Pottery, Lithics, Historic, Special, Floral, and Faunal) and catalogued.

The purposes of these analytical cataloguing procedures were to 1) retain specific provenience information in the analytical numbering scheme (e.g., Redman 1973:66); 2) identify quantitative and qualitative data that could be useful in comparative analysis; and 3) prepare materials for eventual transference to a permanent storage location. The 2008 Bartron site artifacts were separated by provenience and artifact class (lithic, pottery, botanical, faunal, historic, and special); when a permanent curating institution is negotiated these groups will be numbered with the scheme used by the permanent curating institution.

In a fashion similar to that employed for the Bryan site assemblage (Dobbs 1991, the analytical cataloguing scheme for this project encoded provenience information in a tripartite artifact numbering scheme. The first variable is the type of context (exploratory trench, excavation unit, or feature) and the location within that context type, the second variable is the depth (level in centimeters), and the third variable is the specific artifact number. This cataloguing system facilitates the retrieval and analysis of provenience information (Redman 1973:66-67).

Exploratory trenches were labeled as "T" and the number of the particular trench. Excavation units were labeled as "XU" and the number and letter (if applicable) of the particular context. Features were labeled as "F" and the number of the particular feature. If the type of context was a feature, this was followed by the quadrant (SE, SW, NE, NW). Next, the depth range was labeled. Last, the specific artifact number was sequentially labeled.

For example, a shell-tempered shoulder sherd from Excavation Unit Three D found at a depth of 30 – 40 centimeters below datum is numbered XU3D.30-40.001. An example of a feature catalogue number is a mano from the southeast quadrant of Feature Five found at a depth of 70 – 75 centimeters below surface, which is numbered F5.SE.70-75.001.

Materials from the 2008 Bartron site excavation were described through basic quantitative and qualitative variables on a catalogue sheet (see Figure 17). The purpose of this descriptive cataloguing was to provide initial information on the site assemblage.

All artifacts were counted and weighed (in grams). The date excavated was noted in "Condition and Notes." Artifacts were separated into defined classes and catalogued according to class-specific procedures.

Figure 20 Sample Catalogue Sheet

EXCAVATION UNIT FEATURE DEPTH			QUAD ZONE								SITE: 21GD02 CATALOGED BY/DATE:				PAGE of
						LITHICS ONLY				CERAMICS ONLY					
Cat #	**Artifact Class**	**Artifact Name**	**Morph-ology**	**Count**	**Weight (g)**	**Raw Material**	**Heat Treat-ed?**	**Tool Dimen -sions**	**Debitage Size Grade**	**Temper**	**Surface Treatment**	**Wall Thickness**	**Decorated ?**	**Decoration Dimen-sions (width and depth)**	**Condition and Notes**
	Pottery	Sherd	Rim							Grit	Smooth		No		Worn
			Neck							Shell	Brushed		Yes-Trailed Line		Fragmentary
			Handle							Indeter-minate	Cord-marked		Incised Line		Exfoliated
			Shoulder								Smoothed Over Cord-Marked		Punctated		Date Excavated
			Body								Indeter-minate		Fingernail Impress-ions		Field Specimen Number
													Tool Impress-ions		Other
	Lithic	Debitage	Core			Basaltic	Yes		G1						Condition
			Fire Cracked Rock (FCR)			Burlington Chert	No		G2						Date Excavated
			Flake			Cedar Valley Chert			G3						Field Specimen Number
						Grand Meadow Chert			G4						Other
		Tool	Drill			Granitic									
			Projectile Point			Hixton Ortho-quartzite									
			Scraper			Knife River Flint (KRF)									
			Utilized Flake			Limestone									
						Prairie du Chien (PDC)									

						Chert									
						Quartz									
						Quartzite									
						Silicified Sandstone									
						Silicified Sediment									
						Unidentifi-ed Chert									
	Botanical	Charcoal	Wood												Lab Number
			Non-Wood												Field Number
															Size Grade: No. 10
															Size Grade: No. 18
	Faunal	Avian	Bone												Fragment-ary
		Piscid													Burned
		Mammal													Calcined
		Unidenti-fiable													Element
		---	Shell												Date Excavated
															Field Number
	Historic		Plastic												Condition
															Date Excavated
															Field Number
	Special					Galena			G1						Fragmenta ry
									G2						Ground
									G3						Date Excavated
									G4						Other

Artifact Class: Pottery

Within the same provenience, pottery sherds that shared morphology, temper, surface treatment, and decoration and were excavated on the same day were grouped and catalogued together. Pottery recovered from flotation analysis (No. 10 screen) was catalogued. All rim sherds and decorated sherds received an individual catalogue number.

The pottery artifact class had nine class-specific variables and four generally collected variable fields. Class-specific variables were: artifact class, artifact name, morphology, temper, surface treatment, wall thickness (in millimeters), decoration, and decoration dimensions (width and depth in millimeters), and size grade of each sherd (noted in the "Condition and Notes" field). Generally collected variables were: count, weight (in grams), condition, and other notes (including date excavated and pottery size grade).

Table 5 Pottery Definitions

Description	Definition	Citation
Body Sherd	Any sherd that did not contain other diagnostic features	Anfinson 1979:7, 219
Brushed	Closely spaced lines produced by dragging a comb-like or broom-like tool	Anfinson 1979:219
Cordmarked	Cord impressions that result from the manufacturing process (cordwrapped paddling or cord rolling)	Anfinson 1979:220
Exfoliated	Pieces of the surface of the sherd are peeling off	
Fragmentary	Sherds that exhibit fresh breaks post-deposition, either from field recovery or while being handled in the lab.	
Incised Lines	Lines cut by a sharp object into pliable paste and leave clay build-up on the edge of the depression	Anfinson 1979:6 (but see Holley, in preparation)
Punctates	Deep impressions that were impressed in a plastic paste. These may be circular, triangular, or other shapes	Anfinson 1979:6, 223
Smoothed Over Cordmarked	Cord impressions that have been partially smoothed but the original cord impressions are still evident	Anfinson 1979:220
Trailed Lines	Broad, shallow lines that are formed by dragging a blunt tool across a primarily plastic paste with no clay build-up on the edge of the depression	Anfinson 1979:6, 224 (but see Holley, in preparation)
Worn	Edges of the sherd are worn down peri- or post-deposition, and the worn surfaces exhibit a patina from age. This is different than fragmentary (newly broken) sherds.	

Artifact Class: Lithic

Lithic flakes or FCR that shared morphology, raw material type, presence/absence of heat treatment, and size grade within the same provenience were grouped and catalogued together. All tools, including utilized flakes, received an individual catalogue number. Lithics recovered from flotation analysis (No. 10 screen) were catalogued using these methods.

Lithics were separated by by the author according to morphology, raw material, presence/absence of heat treatment, and debitage size grade. Raw material type was determined by referencing the type collection at the Archaeology Lab at MSU, M. Ronald Schirmer examined and made a final determination on raw material type, morphology, and presence/absence of heat treatment for all lithics. This ensured that one person consistently classified these attributes and improved the accuracy of the classifications.

Lithic debitage (waste flakes from creating stone tools) was size graded in geological sieves, which is the most common method of classifying debitage in the Midwest (Dobbs 1991:12). The size grades are:

G1 (>25 millimeters or 1 inch)
G2 (>12.5 millimeters or 0.5 inch)
G3 (>5.6 millimeters or 0.223 inches)
G4 (>2.8 millimeters or 0.11 inches).

The lithic artifact class had seven class-specific variables and four generally collected variable fields. Class-specific variables were: artifact class, artifact name, morphology, raw material, presence/absence of heat treatment, tool dimensions (thickness, width, and length in millimeters), and debitage size grade. Generally collected variables were: count, weight (in grams), condition, and other notes (including date excavated). The morphology variable “Debitage” also encompassed cores and fire cracked rock.

Artifact Class: Botanical

Charred botanical remains were size graded, and the materials from the Nos. 10 and 18 screens were separated into wood and non-wood samples and weighed. Non-wood includes nutshell pieces, squash rind, seeds, etc. Wood and non-wood designations are the finest resolution chosen for this study; further work is needed to identify the genus and species of these samples to build a better understanding of the cultural role of plant use in the Red Wing Locality (cf. Schirmer 2002).

The botanical artifact class had three class-specific variables and two generally collected variable fields. Class-specific variables were: artifact class, artifact name, and morphology. Generally collected variables were: weight (in grams) and notes (including lab and field numbers, and the date excavated).

Artifact Class: Faunal

Within the same provenience, faunal remains that shared morphology were grouped and catalogued together. The faunal artifact class had three class-specific variables and three generally collected variable fields. Class-specific variables were: artifact class, artifact name, and morphology. Generally collected variables were: count, weight (in grams) and condition and notes (including if the bone was burned, the name of the element if known, and the date excavated). Faunal remains recovered from flotation analysis (No. 10 screen) were catalogued. *Artifact Class: Historic*

The historic artifact class had three class-specific variables and three generally collected variable fields. Class-specific variables were: artifact class, artifact name, and morphology. Generally collected variables were: count, weight (in grams) and condition and notes (including the date excavated).

Artifact Class: Special

The special artifact class is for artifacts that do not fit into other established archaeological classifications, but were clearly culturally used. Galena is one of these artifacts. The special artifact class had four class-specific variables and three generally collected variable fields. Class-specific variables were: artifact class, raw material, tool dimensions, and debitage size grade. Generally collected variables were: count, weight (in grams) and condition and notes (including if the material had been ground (processed), and the date excavated).

Features 10 and 13 Artifacts, MHS

According to the Minnesota Historical Society accession books, Feature 10 was assigned catalogue number 662-39. The accession books list "stone, sherds" as the artifacts from this provenience. There were no catalogued artifacts for Feature 13. Currently, the Bartron site collection is partially inventoried and therefore it is probable that not all artifacts from Feature 10 were available for study. For example, only one of the two sherds noted in Gibbon (1979) was available for examination. 21 lithic artifacts and pieces of (non-cultural) stone and one shell tempered sherd were in the MHS collections from Feature 10. There were no reported artifacts from Feature 13.

All available artifacts labeled 662-39 in the inventoried Bartron site collection were examined and length, width, and depth measurements were recorded. A size grade estimation was made based on the largest of these three measurements.

CHAPTER 7: RESULTS

In 2008, 2175 lithic and stone artifacts, 1719 pottery artifacts, 110.877 grams of botanical material, and 103.592 grams of faunal materials were excavated and catalogued in 2008. 128.9 liters of soil from the features selected for analysis were processed in the fall of 2008 by Emily Hildebrant, Jared Langseth, and Travis Hager, in addition to a number of other soil samples from the Bartron site. The number of artifacts and botanical and faunal materials from 2008 will increase when all soil samples from the site are processed and catalogued. A summary of the data is presented in this chapter; additional and more detailed data is presented in Appendix A. An overall picture of the site assemblage is outlined, followed by context-specific information from the primary and secondary contexts, Feature Three/Five, and Feature Seven. Analysis of the features and primary and secondary contexts is presented in Chapter Eight, Discussion.

Site Summary

Lithic Assemblage

From all units and features excavated in 2008, there were at least 17 different types of lithic raw materials. PDC (92.6%) dominated the lithic raw material assemblage by count. The distribution of the number of lithic raw material types was similar across the site, even when compared between primary and secondary contexts. Material types common in all contexts were Basaltic Rock, Burlington Chert, Grand Meadow Chert, Granitic Rock, Hixton Orthoquartzite, and Prairie du Chien Chert, with cherts predominating.

The 1948, 1967, 1968, and 1969 lithic assemblages were also overwhelmingly (98.9%) chert. Previous analyses (Gibbon 1979:103; McKusick 1953) did not separate cherts into types other than noting if the chert came from the Oneota Shakopee Formation and/or its color. The Oneota Shakopee Formation is one of two geological formations from which Prairie du Chien Chert originates. There were no lithic materials reported from the 1968 excavation of Feature 13 (Gibbon 1979).

Table 6 Lithic Raw Material Assemblage: 2008 Excavation Site Summary

Material	Count	Percentage
Basaltic	7	0.3%
Burlington Chert	43	2.1%
Burlington Chert?	3	0.1%
Cedar Valley Chert	1	0.05%
Galena Chert	1	0.05%
Grand Meadow Chert	63	3.0%
Granitic	4	0.2%
Hixton Orthoquartzite	5	0.2%
Knife River Flint	2	0.1%
Prairie du Chien Chert	1941	92.6%
Quartz	1	0.05%
Quartzite	20	1.0%
Sandstone (Burnt)	present	present
Silicified Sandstone	1	0.05%
Silicified Sediment	1	0.05%
Unidentified Chert	3	0.1%
Unidentified Glacial Till Flint	1	0.05%
Total	**2097**	**100.0%**

Fire cracked rock was also relatively evenly distributed between basaltic, granitic, and limestone materials. Sandstone and other sedimentary rocks exposed to fire were found in smaller quantities.

Table 7 Fire Cracked Rock Assemblage: 2008 Excavation Site Summary

Material	Count	Percentage
Basaltic	23	31.5%
Basaltic?	1	1.4%
Granitic	23	31.5%
Limestone	19	26.0%
Limestone?	4	5.5%
Sandstone	1	1.4%
Sedimentary	2	2.7%
Total	**73**	**100.0%**

There are 13 types of tools excavated from Bartron in 2008: bifaces, blades, grinding stones, hammerstones, knives, manos, metates, projectile points, scrapers, short-faced scrapers, unidentified (broken), unidentified (monofacial), and utilized flakes. Interestingly, the greatest diversity in tool types came from the secondary context (10 types) though the greatest number of tools came from the primary context in Excavation Units Six through 12 (58 out of 88 site total).

Table 8 Tool Assemblage: 2008 Excavation Site Summary

Description	Count	Percentage	Weight (g)	Percentage
Bifaces	1	1.1%	0.6	0.0%
Blades	4	4.5%	10.4	0.2%
Grinding Stones	1	1.1%	3375.0	59.4%
Hammerstones	2	2.3%	1104.0	19.4%
Knives	2	2.3%	19.3	0.3%
Manos	4	4.5%	644.4	11.3%
Metates	1	1.1%	253.0	4.5%
Projectile Points	5	5.7%	4.5	0.0%
Scrapers	3	3.4%	6.7	0.1%
Short-Faced Scrapers	1	1.1%	4.4	0.0%
Unidentified (Broken)	5	5.7%	6.8	0.1%
Unidentified (Monofacial)	1	1.1%	11.8	0.2%
Utilized Flakes	58	65.9%	242.6	4.3%
Total	**88**	**99.8%**	**5683.5**	**99.8%**

One tool, a chert chopper, was recovered in 1968 from Feature 10. Lithic and groundstone artifacts from the 1948, 1967, 1968, and 1969 surveys and excavations at the site included axes, blades, celts, choppers, cores, drills, "flake wedges" (bipolar cores or flakes), flakes, graters, gouges, gravers, groundstone disks, hammerstones, knives, manos, mauls, metates, pestles, pitted granite, pot-polishers, sandstone abraders, sandstone lumps, scrapers, stone net sinkers, and utilized flakes (Gibbon 1979:100-115).

Most of the tools from the 2008 assemblage were made from PDC (70 out of 88), including four out of five projectile points. The other projectile point was made from

Burlington Chert. All utilized flakes from Excavation Units One through Five were PDC; utilized flakes in Excavation Units Six through 12 were overwhelmingly PDC (40 out of 43 utilized flakes) but were also made from Burlington Chert (2 utilized flakes) and Grand Meadow Chert (1 utilized flake).

Overall, the 2008 lithic debitage assemblage was dominated by flakes in the G3 size grade (58.4%), followed by G4 (28.6%), G2 (12.1%), and G1 (0.9%). This trend is generally followed in all of the 2008 excavated units.

Special Mineral Assemblage

Two materials—galena and catlinite—stood out in the site assemblage because of their connections with specific past behaviors. Galena was found in both primary and secondary contexts. One large chunk (26.5 grams) was excavated from Excavation Unit One, 10 – 20 cmbs in the fill of the 1968 Feature 10, and two ground and fragmentary (partially processed) pieces of galena were recovered from Excavation Unit Three D, 25 – 30 cmbd. A piece of burned and shaped catlinite was excavated from Excavation Unit 12, 10 – 20 cmbd. This location was directly above Feature Seven, which was formally defined at 21 cmbd.

Table 9 Special Mineral Assemblage: 2008 Excavation Site Summary

Material	Count	Percentage
Galena	3	75.0%
Catlinite* (Burned and Shaped)	1	25.0%
Total	4	100.0%

Metal copper flakes, catlinite, and pieces of red ochre were recovered in 1968 and 1969 from the Bartron site (Gibbon 1979). A brief re-examination of the 1968 and 1969 assemblage at the MHS revealed a piece of galena that was previously catalogued as a rock.

Ceramic Assemblage

Due to the sandy, acidic soils of the southern end of Prairie Island (Johnson, Peterson, and Streiff 1969; Gibbon 1979; USDA 2008), most of the pottery from the 2008 excavation was badly exfoliated and of indeterminate decoration and surface treatment (67.5% of the total assemblage). Rim sherds and handles were not present in abundance; there were 36 rims and near rims (necks) and four handles. Approximately 7% of the 2008 site assemblage was cordmarked with no additional decoration. A small amount (0.4%) of the sherds were cordmarked and decorated, including five sherds from the secondary context that had cordmarked surface treatment with punctates. Pottery sherds were decorated with circular and tool punctates, incised lines, and trailed lines; several sherds had multiple rows of punctates.

Tightly temporally diagnostic pottery, such as the provisional "Bartron Phase" (Holley, in preparation) or any of the Late Woodland types noted in Chapter Four, from the 2008 excavations was also noticeably lacking but present in some contexts. Gibbon (1979) reported a ceramic handle and two rim sherds from Feature 10, but one of these rims is undecorated and the other rim is of an unknown type.

Table 10 Pottery Sherd Surface Treatment and Decoration: 2008 Excavation Site Summary

Description	Count	Percentage
Body- Cordmarked Surface Treatment	119	6.9%
Body- Cordmarked Surface Treatment?	5	0.3%
Body- Smoothed Over Cordmarked Surface Treatment	5	0.3%
Body- Undecorated (Smooth)	320	18.6%
Body- Indeterminate Decoration and Surface Treatment	1160	67.5%
Body- Decorated (Possible Incised Lines)	1	0.0%
Body- Decorated (Incised Lines)	15	0.9%
Body- Decorated (Incised Lines and Punctates)	1	0.0%
Body- Decorated (Trailed Lines)	27	1.6%
Body- Decorated (Trailed Lines)?	2	0.1%
Body- Cordmarked Surface Treatment and Decorated (Incised Lines)	2	0.1%
Body- Cordmarked Surface Treatment and Decorated (Punctates)	5	0.3%
Body- Decorated (Punctates)	6	0.3%
Body- Decorated (Punctates) (Incised Lines)	3	0.2%
Body- Decorated (Punctates) (Trailed Lines)	4	0.2%
Body- Indeterminate Surface Treatment and Decorated (Punctates)	3	0.2%
Body- Indeterminate Surface Treatment and Decorated (Trailed Lines)	1	0.0%
Rim and Near Rim (Neck)	36	2.1%
Handle	4	0.2%
Total	**1719**	**99.8%**

Of the 1719 pottery sherds excavated from the 12 excavation units, 80.7% of the sherds were shell tempered, 19.1% were grit tempered, and 0.2% were of indeterminate temper. From the 1948, 1967, 1968, and 1969 surveys and excavations, Gibbon (1979:111) reported 90 +/- 20 shell tempered vessels, and 10 grit tempered vessels. Of the four pottery traditions (Middle Mississippian, Oneota, Cambria, and Woodland) reported from these previous excavations, a minimum of two (Oneota and Woodland) pottery traditions were found in the 2008 field work and analysis. Of particular interest is the information that grit tempered Woodland sherds were present in Feature 10 (Gibbon

1979:116-117) because about half of the grit tempered sherds (50.3%) recovered in 2008 were present in the secondary context, or the artifacts the 1968 excavators missed.

Table 11 Pottery Temper: 2008 Excavation Site Summary

Temper	Count	Percentage	Weight (grams)	Percentage
Grit	328	19.1%	252.4	24.2%
Shell	1387	80.7%	791.5	75.8%
Indeterminate	4	0.2%	0.1	0.0%
Total	**1719**	**100.0%**	**1044.0**	**100.0%**

Floral and Faunal Assemblage

Small amounts of charred maize, wood charcoal, mammal bone, shell, and unidentified animal bone were recovered from Excavation Units One through Five (A – C). Wood charcoal came from Excavation Units One D, E; Two D, E; Three D; Four D. Wood charcoal, charred maize, avian bone, mammal bone, piscid bone, shell, and unidentified bone were excavated from Excavation Units Six through 12, which was both the most diverse and heaviest floral and faunal assemblage from 2008. Overall, a minimum of 35.677 grams of botanical material (largely wood charcoal) and 103.592 grams of faunal material (mostly shell) was excavated, which includes materials from the processed feature excavations.

One mostly complete deer scapula from Excavation Unit Nine (22 cmbd) was the only large faunal remain from the 2008 excavation. This is in contrast to the previous excavations, which yielded awls, a beaver tooth chisel, bison hoes and a possible elk scapula hoe, a diamond-headed bone shuttle, fishbone bodkins, perforated deer phalange, punches, spatulas, tubes, and worked bone and antler (Gibbon 1979:100-115). Overall, the amount of worked bone recovered from the site is relatively small when compared to other sites (Gibbon 1979:116).

Table 12 Botanical Assemblage: 2008 Excavation Site Summary

Material	Weight (grams)
Wood*	75.200
Charcoal- Wood	32.323
Charcoal- Non-Wood	3.354
Total	**110.877**

Wood*, the 1968 excavation stake recovered from Trench One at 20 – 30 cmbs, is catalogued as "Special" but is included here in the Botanical Assemblage.

Table 13 Faunal Assemblage: 2008 Excavation Site Summary

Material	Weight (grams)
Avian Bone	0.137
Avian? Bone	0.100
Mammal Bone	26.204
Piscid Bone	0.527
Shell	75.300
Unidentified Bone	1.324
Total	**103.592**

Primary Context

The artifact content of the primary context varied by excavation unit, but some general information about this context is presented here. Specific data from each primary context excavation unit is presented in Appendix A. The primary context included Excavation Units Six through 12, Two D – E, Three D – E, One through Five A – C (40 – 50 cmbs).

Lithic Assemblage

Similar to the overall site assemblage (above) and previously excavated lithic assemblages, PDC made up a large majority (92.9%) by count with 15 lithic raw material types (Gibbon 1979:103; McKusick 1953). Grand Meadow Chert made up the second most frequent category by count.

Table 14 Lithic Raw Material Types: Primary Context

Material	Count	Percentage
Basaltic	1	0.07%
Burlington Chert	32	2.1%
Burlington Chert?	1	0.07%
Cedar Valley Chert	2	0.1%
Galena Chert	1	0.07%
Grand Meadow Chert	50	3.3%
Granitic	2	0.1%
Hixton Orthoquartzite	3	0.2%
Knife River Flint	1	0.07%
Prairie du Chien Chert	1393	92.9%
Quartzite	10	0.7%
Sandstone (Burnt)	present	present
Silicified Sediment	1	0.07%
Unidentified Chert	1	0.07%
Unidentified Glacial Till Flint	1	0.07%
Total	**1499**	**99.89%**

Table 15 Fire Cracked Rock Assemblage: Primary Context

Material	Count	Percentage
Basaltic	11	25.0%
Basaltic?	1	2.3%
Granitic	16	36.4%
Limestone	15	34.1%
Sedimentary	1	2.3%
Total	**44**	**100.1%**

Out of the 13 tool types, eight were represented in the primary context. The greatest number of tools by count came from the primary context (62 out of 88 total). Forty-seven utilized flakes made up three-quarters of the primary context tool assemblage. All projectile points were small unnotched triangular points (e.g., XU8.20-30.001, XU11.10-20.001).

Figure 21 XU8.20-30.001

Table 16 Tool Assemblage: Primary Context

Description	Count	Percentage	Weight (g)	Percentage
Blades	2	3.2%	7.7	1.2%
Manos	2	3.2%	393.6	61.0%
Projectile Points	3	4.8%	2.6	0.4%
Scrapers	3	4.8%	6.7	1.0%
Short-Faced Scrapers	1	1.6%	4.4	0.7%
Unidentified (Broken)	3	4.8%	2.1	0.3%
Unidentified (Monofacial)	1	1.6%	11.8	1.8%
Utilized Flakes	47	75.8%	216.4	33.5%
Total	**62**	**99.8%**	**645.3**	**99.9%**

Special Mineral Assemblage

Both galena and catlinite were found in primary contexts. Two pieces of ground and partially processed fragments of galena (XU3D.25-30.013) were recovered from Excavation Unit Three D at 25 – 30 cmbd. A piece of burned and shaped broken piece of catlinite was found in Excavation Unit 12 at 10 – 20 cmbd (XU12.10-20.013), just above Feature Seven (formally defined at 23 cmbd though it began emerging at 21 cmbd). It was possibly a tablet or piece of a pipe. This piece was in the 10 centimeter level above Feature Seven, a hearth feature, which may explain why it is burned.

Figure 22 XU3D.25-30.013

Figure 23 XU12.10-20.013

Table 17 Special Mineral Assemblage: Primary Context

Material	Count	Percentage
Galena	2	66.7%
Catlinite (Burned and Shaped)	1	33.3%
Total	**3**	**100.0%**

Ceramic Assemblage

The primary contact ceramic assemblage is composed primarily of indeterminate decoration and surface treatment, and undecorated sherds by count. There were some decorated sherds, however. Most of the shell tempered sherds were exfoliated and the surface treatment and/or decoration were impossible to determine. In Excavation Unit Three, one shell tempered sherd had faint trailed lines (XU3D.20-30.004) and another had obliquely intersecting lines (XU3D.25-30.003).

Figure 24 XU3D.25-30.003

Excavation Unit Six, which contained Feature Six, had a shell tempered sherd with diagonal incised lines with a linear punctate that dragged slightly from its point of origin (XU6.10-20.007) and a shell tempered rim that exhibited notching on the lip (XU6.10-20.008). Another rim from Excavation Unit Seven (10 – 20 cmbd) had a notching with faint trailed oblique lines (XU7.10-20.002). Tool impressions notched a shell tempered rim from Excavation Unit 10 (20 – 30 cmbd) (XU10.20-30.001). There were even some exfoliated punctates from a shell tempered sherd (XU11.20-30.005; XU11.20-30.006; XU11.20-30.007).

Figure 25 XU6.10-20.007

Figure 26 XU7.10-20.002

Several grit tempered sherds were present in this context, including three notched rim sherds with triangular punctates assigned to the Angelo Punctated type (XU2E.0-20.001; XU2E.0-10.002; XU3D.10-20.001). A square punctate sherd was located in close proximity to Features Two and Three/Five (XU4A.40-50.003). One grit tempered sherd (XU3D.20-30.001) had a double row of triangular punctates, and another grit tempered rim (XU3D.10-20.002) had an oblique cord impression with triangular punctates. A neck sherd (XU4D.30-30.001) found at 30 cmbd had obliquely intersecting incised lines over triangular punctates with smoothed over cordmarking surface treatment. It is notable that most of these grit tempered sherds emerged from 0 to 20 cmbd; Johnson's field methods in 1968 and 1969 including blading to focus on deep pit features and he would have missed these sherds if those methods were employed in this area.

Figure 27 XU1D.0-10.005

Figure 28 XU2E.0-20.001

Figure 29 XU3D.10-20.002

Figure 30 XU3D.20-30.001

Figure 31 XU4A.40-50.003

There was some spatial differentiation in the decoration on the grit tempered sherds between blocks of excavation units. Circular punctates (combined with a trailed line) were also evident on one sherd (XU7.20-30.002), which is quite different than the triangular punctates (tool impressions) on the grit tempered sherds from Excavation Unit Three D. Interestingly, circular punctates on a grit tempered sherd with smoothed over cordmarking surface treatment came from Excavation Unit 11 (5 – 10 cmbd) (XU11.5-10.004).

Figure 32 XU7.20-30.002

Figure 33 XU11.5-10.004

Table 18 Pottery Surface Treatment and Decoration: Primary Context

Description	Count	Percentage
Body- Cordmarked Surface Treatment	51	7.4%
Body- Cordmarked Surface Treatment?	3	0.4%
Body- Smoothed Over Cordmarked Surface Treatment	4	0.6%
Body- Undecorated (Smooth)	197	28.6%
Body- Indeterminate Decoration and Surface Treatment	371	53.8%
Body- Decorated (Possible Incised Lines)	1	0.1%
Body- Decorated (Incised Lines)	2	0.3%
Body- Decorated (Incised Lines and Punctates)	1	0.1%
Body- Decorated (Trailed Lines)	19	2.8%
Body- Decorated (Trailed Lines)?	2	0.3%
Body- Cordmarked Surface Treatment and Decorated (Incised Lines)	2	0.3%
Body- Decorated (Punctates)	3	0.4%
Body- Decorated (Punctates) (Incised Lines)	3	0.4%
Body- Decorated (Punctates) (Trailed Lines)	4	0.6%
Body- Indeterminate Surface Treatment and Decorated (Punctates)	2	0.3%
Body- Indeterminate Surface Treatment and Decorated (Trailed Lines)	1	0.2%
Rim and Near Rim (Neck)	24	3.5%
Total	**690**	**100.1%**

Table 19 Pottery Temper Assemblage: Primary Context

Temper	Count	Percentage	Weight (grams)	Percentage
Grit	150	21.7%	129.4	22.1%
Shell	540	78.3%	455.4	77.9%
Total	**690**	**100.0%**	**584.8**	**100.0%**

Floral and Faunal Assemblage

A small amount of wood charcoal and charred maize came from the primary context. A small amount of shell was located in Excavation Unit Four B, 40 – 50 cmbs in close proximity to Features Two and Three/Five. A fragile and severely degraded deer scapula was uncovered in Excavation Unit Nine. This, along with a more varied faunal assemblage than the other 2008 excavated contexts, derived largely from the contents of and in the area around Feature Seven, a hearth feature.

Table 20 Botanical Assemblage: Primary Context

Material	Weight (grams)
Charcoal- Wood	1.6
Charcoal- Non-Wood	0.010
Total	**1.610**

Table 21 Faunal Assemblage: Primary Context

Material	Weight (grams)
Avian Bone	0.1
Mammal Bone	25.2
Piscid Bone	0.3
Shell	44.7
Unidentified Bone	1.0
Total	**71.3**

Historic Assemblage

A metal Pepsi can, circa late 1960s, was discovered in the top 10 centimeters of Excavation Unit Seven (XU7.0-10.001).

Secondary Context

1968 Lithic Assemblage

Twenty-one lithic artifacts from Feature 10 were available for this study. From this assemblage eight objects were rocks, one artifact was fire cracked rock, and there were 12 lithic flakes. The rocks were mostly in the G1 size grade, followed by G2. There were no rocks in the G3 or G4 size grades. The fire cracked rock was in the G1 size grade. Of the lithic flake debitage 8 flakes were in the G2 size grade, followed by 4 flakes in the G1 size grade. There were no flakes in the G3 or G4 size grades.

Table 22 Lithic Debitage Measurements and Estimated Size Grade: Feature 10

Material	Measurements (Centimeters) (Length x Width x Height)	Size Grade (Estimated)	
		G1	G2
Basalt	2.9 x 1.7 x 0.3	G1	
Chert	3.5 x 1.7 x 1.0	G1	
Chert	3.4 x 1.7 x 0.8	G1	
Chert	2.9 x 1.6 x 1.1	G1	
Chert	2.0 x 1.8 x 0.8		G2
Chert	2.3 x 1.5 x 0.8		G2
Chert	2.3 x 1.2 x 0.9		G2
Chert	2.2 x 1.7 x 0.9		G2
Chert	2.3 x 1.4 x 0.8		G2
Chert	2.4 x 1.4 x 0.5		G2
Chert	2.1 x 1.5 x 0.7		G2
Chert	2.3 x 1.4 x 0.7		G2
Total		**4**	**8**

Figure 34 Feature 10 Lithic Debitage Size Grades

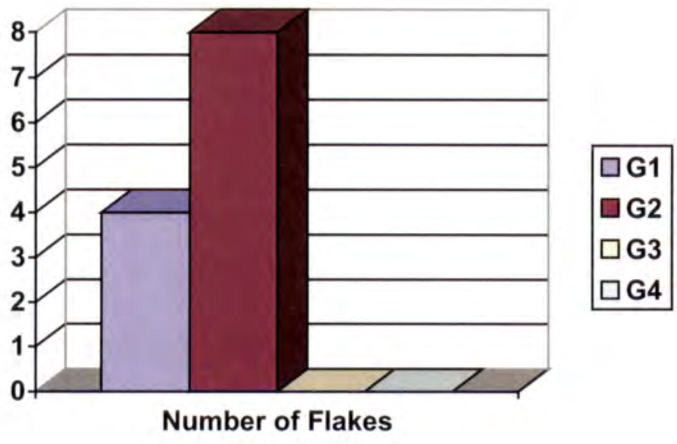
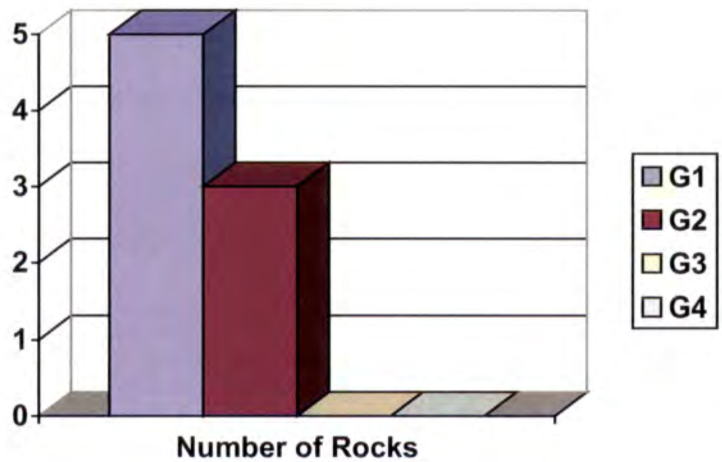


Table 23 Rock Size Grades: Feature 10

Material	Measurements (Centimeters) (Length x Width x Height)	Size Grade (Estimated)	
		G1	G2
Glacial Till	2.5 x 1.3 x 0.8	G1	
Glacial Till	3.4 x 3.2 x 1.2	G1	
Limestone	4.5 x 2.7 x 1.8	G1	
Limestone	3.3 x 2.6 x 1.9	G1	
Granite	1.8 x 1.8 x 1.3	G1	
Glacial Till	1.9 x 1.7 x 0.8		G2
Glacial Till	1.4 x 1.3 x 1.1		G2
Glacial Till	1.7 x 1.5 x 0.9		G2
Total		**5**	**3**

Figure 35 Feature 10 Rock Size Grades



2008 Lithic Assemblage

The diversity in the lithic raw material assemblage is comparable to that of the primary contexts; there were 11 different types of lithic raw materials. PDC made up 91.4% of the lithic raw material assemblage, which is also comparable to the PDC percentages of the primary contexts.

There were 23 tools, representing 10 different tool types (bifaces, blades, grinding stones, hammerstones, knives, manos, metates, projectile points, unidentified (broken), and utilized flakes). The majority of the tool types were utilized flakes (43.5%), which is comparable to the other contexts from the 2008 excavations. The projectile points were small, unnotched, and triangular; one was made from Burlington Chert and the other was fashioned from PDC. There were 495 debitage flakes.

Most (61.4%) of the lithic debitage was in the G3 size grade, followed by G4 (26.9%), G2 (11.3%), and G1 (0.4%).

Table 24 Lithic Raw Material Types: Secondary Context

Material	Count	Percentage
Basaltic	5	1.0%
Burlington Chert	9	1.8%
Burlington Chert?	2	0.4%
Grand Meadow Chert	11	2.2%
Granitic	2	0.4%
Hixton Orthoquartzite	2	0.4%
Knife River Flint	1	0.2%
Prairie du Chien Chert	459	91.4%
Quartzite	9	1.8%
Silicified Sediment	1	0.4%
Unidentified Chert	1	0.4%
Total	**502**	**100.4%**

Table 25 Fire Cracked Rock Assemblage: Secondary Context

Material	Count	Percentage
Basaltic	7	50.0%
Granitic	3	21.4%
Limestone	4	28.6%
Total	**14**	**100.0%**

Table 26 Tool Assemblage: Secondary Context

Description	Count	Percentage	Weight (g)	Percentage
Bifaces	1	4.3%	0.6	0.0%
Blades	2	8.7%	2.7	0.1%
Grinding Stones	1	4.3%	3375.0	70.5%
Hammerstones	2	8.7%	1104.0	23.1%
Knives	1	4.3%	5.7	0.1%
Manos	1	4.3%	15.8	0.3%
Metates	1	4.3%	253.0	5.3%
Projectile Points	2	8.7%	1.9	0.0%
Unidentified (Broken)	2	8.7%	4.7	0.1%
Utilized Flakes	10	43.5%	24.8	0.5%
Total	**23**	**99.8%**	**4788.2**	**100.0%**

Table 27 Lithic Debitage Size Grades: Secondary Context

Size Grade	Count	Percentage
G1 (>25 millimeters or 1 inch)	2	0.4%
G2 (>12.5 millimeters or 0.5 inch)	56	11.3%
G3 (>5.6 millimeters or 0.223 inches)	304	61.4%
G4 (>2.8 millimeters or 0.11 inches)	133	26.9%
Total	**495**	**100.0%**

Figure 36 Lithic Debitage Size Grades: Secondary Context

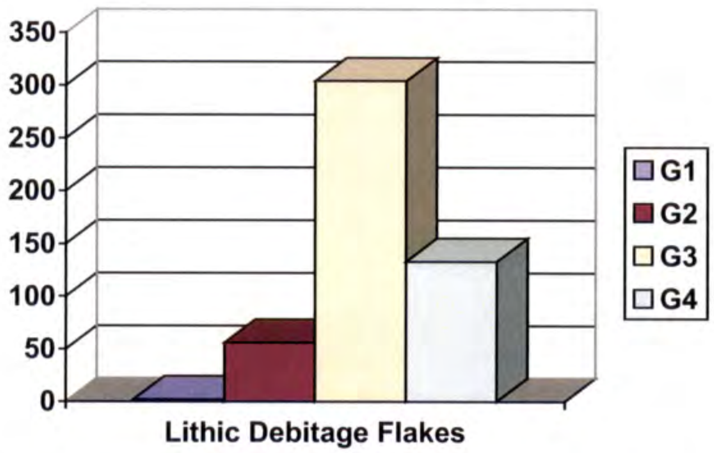
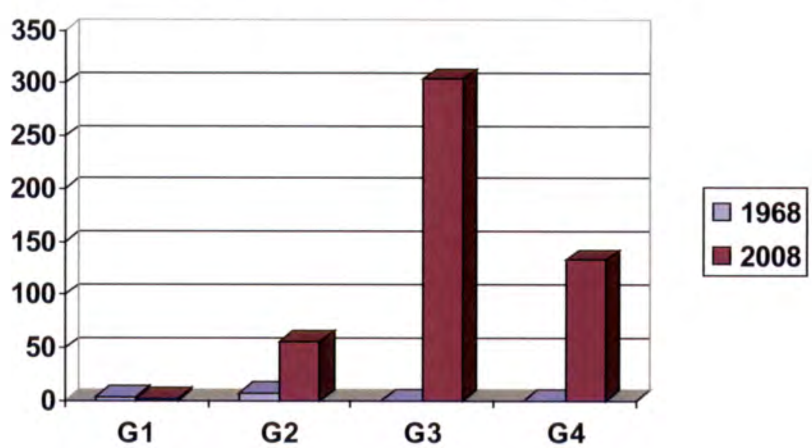


Figure 37 Comparison of 1968 and 2008 Lithic Debitage Size Grades



2008 Special Mineral Assemblage

A large chunk of galena (26.5 grams) (XU1S.10-20.003) was excavated from the 10 – 20 cmbs level.

1968 Ceramic Assemblage

Of those artifacts re-located for this study, only one of the two reported sherds was available for study. It was a shell tempered sherd, and its measurements place it in the G2 size grade. This was the second most populated ceramic size grade (out of the 2008 secondary context ceramic assemblage), regardless of tempering material. The other reported sherd was a grit tempered Late Woodland rim, and it was probably relatively large (in the G1 size grade?). There was a reported handle as well, which was probably also relatively large.

Table 28 Pottery Sherd Size Grade Assemblage: Feature 10

Morphology	Temper	Measurements (Centimeters) (Length x Width x Height)	Size Grade (Estimated)
Rim	Shell	1.9 x 1.4 x 0.5	G2
Total			1

2008 Ceramic Assemblage

Grit tempered sherds were prevalent (34.1%) in this context in greater amounts than most of the primary contexts (except for Excavation Units One D, E, Two D, E, Three D, and Four D). The majority of sherds were either undecorated and smooth (21.3%) or of indeterminate decoration and surface treatment (58.1%).

Decorated grit tempered sherds from this context were particularly interesting. Grit tempered and decorated sherds included designs with incised lines (XU1N.10-20.007) and trailed lines (XU3.20-30.005). Grit tempered, cordmarked sherds were decorated with punctates were either triangular or circular, and usually came in rows of two or three. Some of these sherds (e.g., XU4.0-10.001) resembled those found at the Mosquito Terrace site (21GD260) in 2006 (Kelly 2009).

Other grit tempered sherds looked like Angelo Punctated, such as XU4.10-20.001, with its notched rim and rows of triangular punctates. Angelo Punctated has incised or trailed lines in geometric patterns with triangular punctates, and rims are commonly tool impressed (Bozhardt 1996). This pottery type has never been dated, but is attributed to the Late Middle Woodland and is present on some Late Woodland sites. This sherd (XU4.10-20.001) resembles one Wendt reported from the Plum Creek site (47PI203), a Late Woodland campsite (Wendt, in preparation).

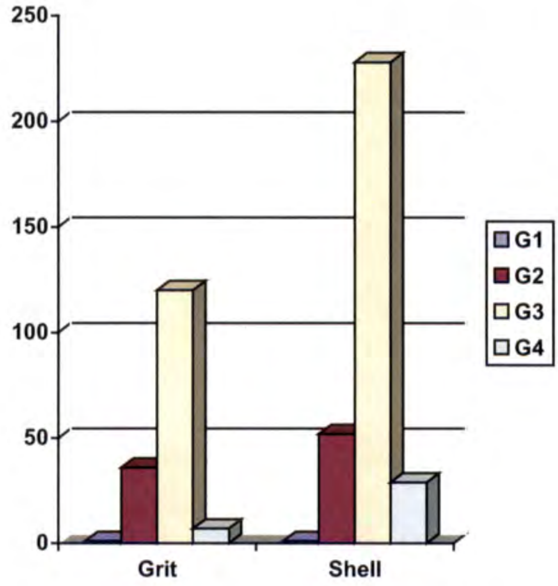
Another type of decorated sherds had a single row of circular punctates and trailed lines (XU4.30-40.002). At times, the punctates were accompanied by cordmarked surface treatment. One smooth, grit tempered sherd appeared to have a red slip or other red clay covering (XU3.20-30.011).

Figure 38 XU3.20-30.011

Table 29 Decorated Grit Tempered Sherds: Secondary Context

Catalogue Number	Rim or Body	Type of Punctate	# of Rows	Additional Decoration	Surface Treatment	Notes
XU4.10-20.001	Rim (notched)	Triangular	2		Smooth	Resembles Angelo Punctated
XU4.30-40.002	Body	Circular	1	Trailed Lines	Smooth	
XU4.30-40.001	Body	Circular	2		Cordmarked	
XU5.10-20.001	Body	Circular	2		Cordmarked	Interior exhibits cordwrapped stick impressions over cord impressions
XU5.10-20.002	Body	Circular	2		Cordmarked	Interior exhibits cord-wrapped stick impressions over cord impressions
XU4.0-10.001	Body	Circular	3		Cordmarked	Similar to Late Woodland sherds from the Mosquito Terrace site (21GD260)

Figure 39 Body Sherd Size Grades: Secondary Context



The shell tempered assemblage was mostly exfoliated and of indeterminate decoration and surface treatment. Interestingly, on this Oneota site there was only one shell tempered sherd from this context that was decorated with rectangular punctates (XU1N.20-30.001). There were four handles found in this excavation context.

Figure 40 XU4.10-20.001

Figure 41 XU4.0-10.001

Figure 42 XU4.30-40.002

Figure 43 XU5.10-20.001

Figure 44 XU1N.10-20.005

2008 Floral and Faunal Assemblage

The most notable artifact from the botanical assemblage was the wooden excavation unit stake from 1968 discovered early in the 2008 fieldwork (20 – 30 cmbs). With this discovery, we could conclusively identify the location of the 1968 excavation unit. Small amounts of wood charcoal (0.807 grams) and charred maize (0.100 grams) were also found in this context. Five animal bones and some shell emerged during excavation.

Comparison of 1968 Feature 10 and 2008 Secondary Context Assemblages

The artifact count varied enormously between those recovered, retained, and reported from 1968 with those from re-excavated from the same soil in 2008. Gibbon (1979:280, 291) reported four pebbles, two primary decortification flakes, four secondary decortification flakes, eight unworked flakes, one tool (a chert chopper), two rim sherds, and a handle from Feature 10.

Table 30 Comparison of 1968 Feature 10 and 2008 Secondary Context Lithic and Pottery Assemblages (Gibbon 1979:109, 279-280, 291, 311-317)

	Lithic Assemblage by Count		Pottery Assemblage by Count	
	1968	**2008**	**1968**	**2008**
Debitage	14	495		
Tools	1	23		
Rocks	4	0		
Sherds			3	484
Total	**19**	**518**	**3**	**484**

Feature Three/Five

A small portion of the top of Feature Three/Five was excavated in 1968, probably as "feature blur" before the soil distinctly showed the circular shape of the feature. Feature Three, a smaller and younger feature that intruded into Feature Five, was a concentration of shell and charcoal flecking. It emerged in the 2008 excavation at approximately 40 cmbs, the same depth Johnson concluded his excavation at in 1968, and ran about five centimeters deep. It was either a natural feature, a small depositional event from the 1968 excavation, or cultural feature soil that was incompletely excavated in 1968 and interpreted as a part of Feature 13 (Johnson Field Notes 1968; Gibbon 1979).

Feature Five was initially defined slightly to the north of Feature Three, and upon further excavation of a few centimeters it became clear that Feature Five subsumed Feature Three. The feature was thus combined into Feature Three/Five. Feature Three/Five was formally defined at 45 cmbs. It ran from 45 cmbs to 105 cmbs, and was a circular "bell-shaped" pit approximately 114 centimeters in diameter. It showed evidence of multiple deposition events. The assemblage from Feature Three/Five includes those materials excavated from Features Three and Five before it was determined that the two ran together, as well as data from the southeast quarter of Feature Three/Five.

Soil measuring 105.8 liters in volume was processed and analyzed from the southeast quarter (45 – 105 cmbs) of Feature Three/Five for this comparison. The lithic, ceramic, floral and faunal assemblages of the southeast quarter of the feature were analyzed in five centimeter levels.

The pit had a sterile basal layer from 100 – 105 cmbs, followed by a layer (95 – 100 cmbs) that contained a curated Archaic Period knife and a heavy amount (by weight) of charred wood. The heaviest amount (by weight) of charred non-wood remains (85 – 90 cmbs) was sandwiched between two sterile layers (90 – 95 cmbs and 80 – 85 cmbs). 7 5 – 80 cmbs exhibited the heaviest amount (by weight) of charred wood.

From this point, there are several layers that contain cultural debris and no more sterile layers. The 70 – 75 cmbs level contained the heaviest (by weight) lithic component with numerous fire cracked rocks and a discarded mano as well as the heaviest (by weight) ceramic presence. This level also had some faunal remains. The 65 – 70 cmbs level contained grit tempered sherds, some charred non-wood remains, and some faunal material. The 60 – 65 cmbs level had the largest amount of several artifacts: lithics (by count) (with 45 – 50 cmbs), most lithic raw material variety (with 55 – 60 cmbs), amount of sherds (by count), the only neck sherd from the entire feature along with a large decorated sherd, grit tempered sherds, and amount of faunal material (by count).

The 55 – 60 cmbs level continued the trend of lithic raw material variety from 60 – 65 cmbs. 55 – 60 cmbs and 50 – 55 cmbs have some heavy lithic materials. 45 – 50 cmbs, the uppermost level in the 2008 excavation of this feature, contained the largest amount of lithic artifacts (shared with the 60 – 65 cmbs level).

The heaviest materials do not consistently occupy the same layers as the most prevalent (by count) artifacts. The 70 – 75 cmbs level had both the heaviest lithic and ceramic assemblages, but the 60 – 65 cmbs level had the largest amount of faunal material and lithic and ceramic artifacts. Both levels are probably episodes of intentional dumps or cleaning. When combined with the distribution of botanical remains, the marked differences in artifact count and weight by level indicates that the pit has a high level of integrity and the vertical strata exhibit a very low level of mixing. The pottery sherds in the 60 – 65 cmbs level were heavily weathered, and probably sat on the ground surface prior to their disposal in Feature Three/Five.

Grit tempered sherds are only found in two levels (60 – 65 cmbs and 65 – 70 cmbs), which are contiguous. None of the grit tempered sherds showed any distinctive designs, though one sherd had incised lines (F5.SE.60-65.017).

Ninety-eight percent of the lithics were in the G3 and G4 size grades, the two smallest size grades in this analysis. These materials probably came from a nearby living surface or occupation area (such as a house floor).

Based on the sterile basal layer and the largely sterile layers in the bottom of the pit (105 - 75 cmbs), it appears it was open for a period of time—possibly over the winter—prior to its use as a place of refuse. There are two distinct bands of soil that intrude into the pit (10YR 3/2 and 10YR 2/1) beginning at 90 cmbs until 60 cmbs, and these bands show discrete dumping episodes.

The pit was possibly initially used as a storage pit over a winter and its contents were exhumed in the spring. This is supported by the sudden interruption of the 10YR 4/3 layer near the base of the pit. The curated Archaic knife was deposited in the 95 –

100 cmbs layer, and it is possible its latest holder meant to recover it at a later time and was never able to retrieve it. The most intensive use of Feature Three/Five for discard episodes was in the 60 – 75 cmbs levels.

The major amount of dumping activity ceased at 60 cmbs, as can be seen in both the artifact representation and the soil layering of Feature Three/Five. The pit is capped with a lighter layer of soil (10YR 3/2, 45 – 60 cmbs) that contains mostly lithic materials. The slight rise in the middle of the pit may indicate that this capping layer is a later cleaning episode or series of episodes that made use of settled areas of Feature Three/Five for discard (Arzigian et al. 1989:255).

Lithic Assemblage

The cumulative lithic assemblage for Feature Three/Five included both fire cracked rocks (igneous, metamorphic, and sedimentary) and flakes of various materials (Grand Meadow Chert, PDC, Quartz, and Quartzite). There were two tools, a mano made from basaltic rock (F5.SE.70-75.001) and an Archaic Period (Dobbs 1988) knife (F3/5.40-97.002) created from an unidentified fine-grained cream colored chert. Most of the chipped stone debitage was PDC (90.9% by count). A medium amount (22.0%) of the PDC by count was heat treated, and this was the only lithic raw material that was heat treated. Sixty-nine percent of the cumulative lithic assemblage was in the G4 size grade (>2.8 millimeters), which is the smallest grade.

Figure 45 F3/5.40-97.002

When the lithic assemblage is analyzed by five centimeter levels, it is apparent there are more "productive" levels than others, and that this productivity can vary depending on the measurements used. Most of the lithics (by count) were present from 45 to 75 centimeters, which coincides with a band of very dark soil (10YR 2/1) that extended from 55 to 75 cmbs and had charcoal flecking.

Because cleaning or another source of influx of materials may account for the dark and banded soil, the weight of the materials must be considered as well. The following conclusions are based on the assumption that heavy concentrations of materials, such as pottery sherds and lithics, need an additional force to move them into Feature Three/Five. That is, that either human or natural action moved the heavy materials into the pit; it was more than accidental inclusion.

There are a few levels that exhibit outstanding weights of lithic materials. In descending order 70 – 75 cmbs, 50 – 55 cmbs, and 55 – 60 cmbs have the heaviest lithic assemblages. Most of the weight is concentrated at the top of the pit, which also lends support to the idea that the pit was open for several periods that allowed some sediment accumulation prior to its final use as an area of refuse disposal (e.g., Arzigian et al. 1989:253). The lithic assemblage for the 70 – 75 cmbs level are largely basaltic rock, both fire cracked rock and a tool (mano). This is probably a discrete cleaning deposition episode, and coincides with the band of very dark soil with charcoal flecking (10YR 2/1).

Figure 46 Feature Three/Five Lithic Count by 5 Centimeter Levels, Southeast Quarter

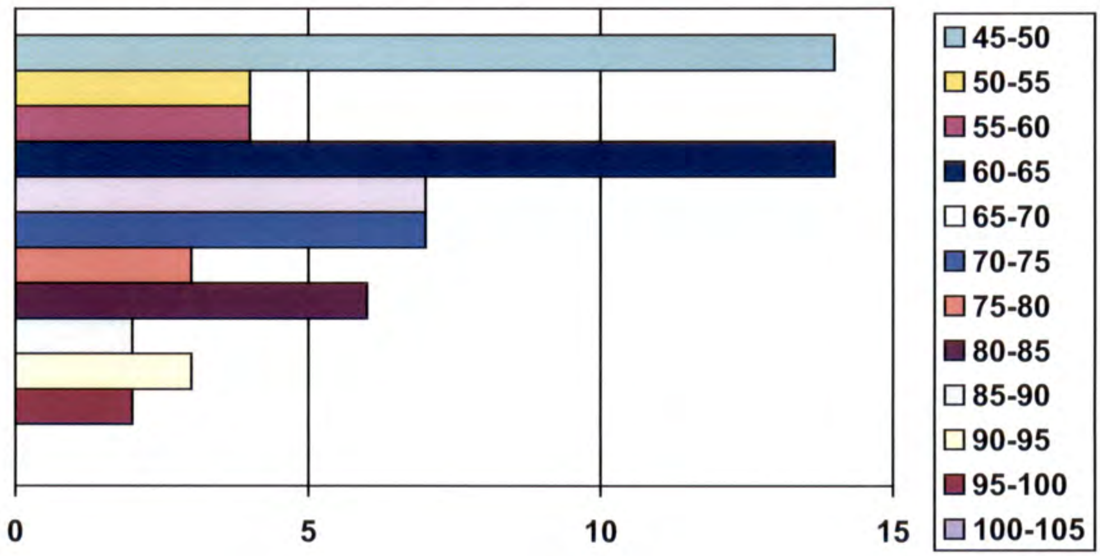


Figure 47 Feature Three/Five Lithic Varieties by 5 Centimeter Levels, Southeast Quarter

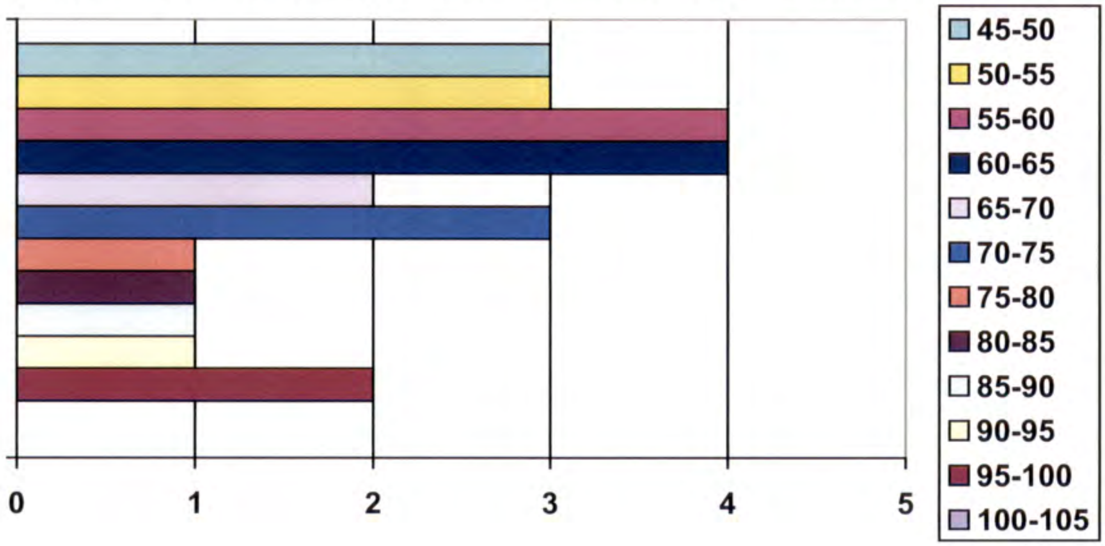
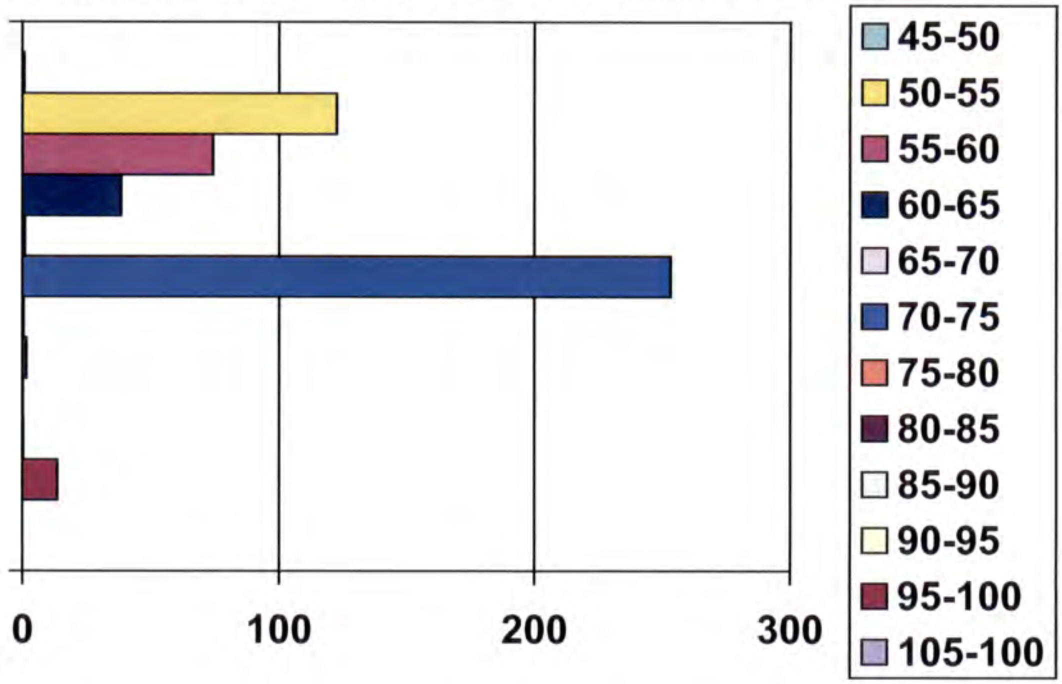


Figure 48 Feature Three/Five Lithic Weight (Grams) by 5 Centimeter Levels, Southeast Quarter



Ceramic Assemblage

The ceramic assemblage from Feature Three/Five is dominated by sherds exhibiting no discernable decoration and surface treatment (cumulatively 93.3% of the assemblage). Two sherds were decorated (incised and trailed lines). Additionally, there was one undecorated neck sherd. Sherd count and weight are used as the most meaningful measures of activity and will therefore be directed towards localized analysis.

Ceramic tempering in Feature Three/Five was 87.6% shell and 9.1% grit. Grit tempered sherds were concentrated in two levels, 60 – 65 cmbs and 65 – 70 cmbs. This 10 centimeter level (60 – 70 cmbs) coincides with part of the very dark band of soil that exhibited marked charcoal flecking (10YR 2/1) and a comparatively large number of lithic flakes and varieties of lithic raw materials.

The undecorated neck sherd and a large, decorated (trailed lines) sherd were present in the 60 – 65 cmbs level. Besides showing the presence of grit tempered sherds, the 60 – 65 level also has the highest number of sherds. This may indicate increased interaction between the residents of the Bartron village and other groups, or another period of cleaning.

Interestingly, the level in Feature Three/Five laden with the heaviest amount of ceramic material is the same 70 – 75 cmbs level that contained the heaviest amount of lithic material. The level at 60 – 65 cmbs, the second heaviest in ceramic materials, also shows a heavy deposition of lithic materials. This supports the above assertion that Feature Three/Five was left open for at least some time and was a place of refuse disposal from cleaning episodes. As mentioned above, this also demonstrates the integrity of the strata.

Figure 49 Feature Three/Five Sherd Count by 5 Centimeter Level, Southeast Quarter

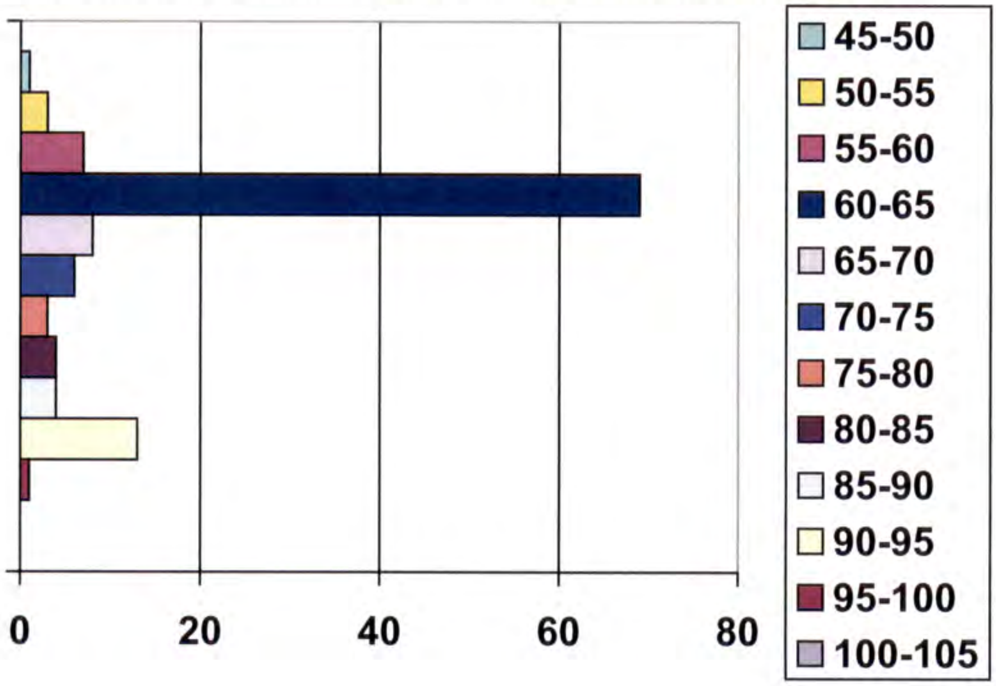
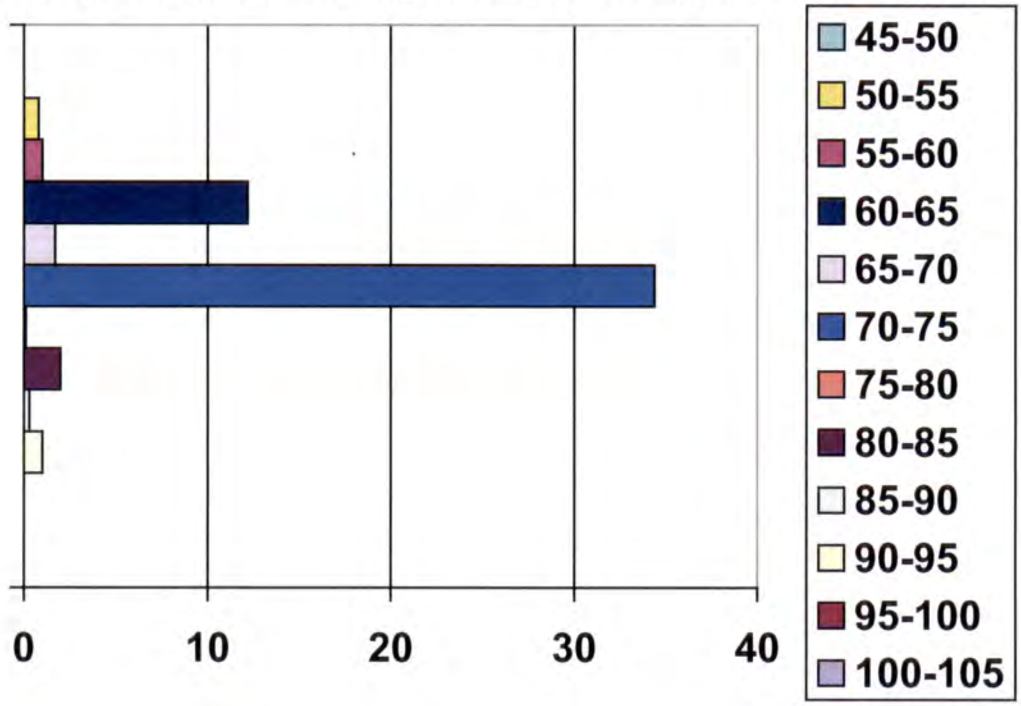


Figure 50 Feature Three/Five Sherd Weight (Grams) by 5 Centimeter Level, Southeast Quarter



Floral and Faunal Assemblage

In contrast to the fluctuations of lithic and ceramic artifacts in the top (45 – 75 cmbs) levels, the wood charcoal remains (by weight) show two peaks centered around 75 – 80 cmbs and 95 – 100 cmbs. Both of these levels have a low sherd and lithic artifact count, though the Archaic knife came from the 95 – 100 cmbs level.

Non-wood charcoal remains (by weight) also demonstrate two peaks, one at 65 – 70 cmbs and another at 85 – 90 cmbs. These do not coincide with the wood charcoal peaks. 65 – 70 cmbs has a moderate lithic count but no notable pottery presence; the 85 – 90 cmbs level has very little artifacts.

Feature Three/Five had very little faunal material. There was a total of 0.124 grams (7 pieces). Animal bone was present in levels 60 – 65 cmbs, 65 – 70 cmbs, 70 – 75 cmbs, and 95 – 100 cmbs. The 60 – 65 cmbs level contained the heaviest amount of bone with 0.013 grams (4 pieces), and the amounts decreased downward stratigraphically. 60 – 65 cmbs showed the largest amount of sherds and lithics by count, and was one of the levels that demonstrated the most lithic raw material variety.

Figure 51 Feature Three/Five Wood Assemblage Weight (Grams) by 5 Centimeter Level, Southeast Quarter

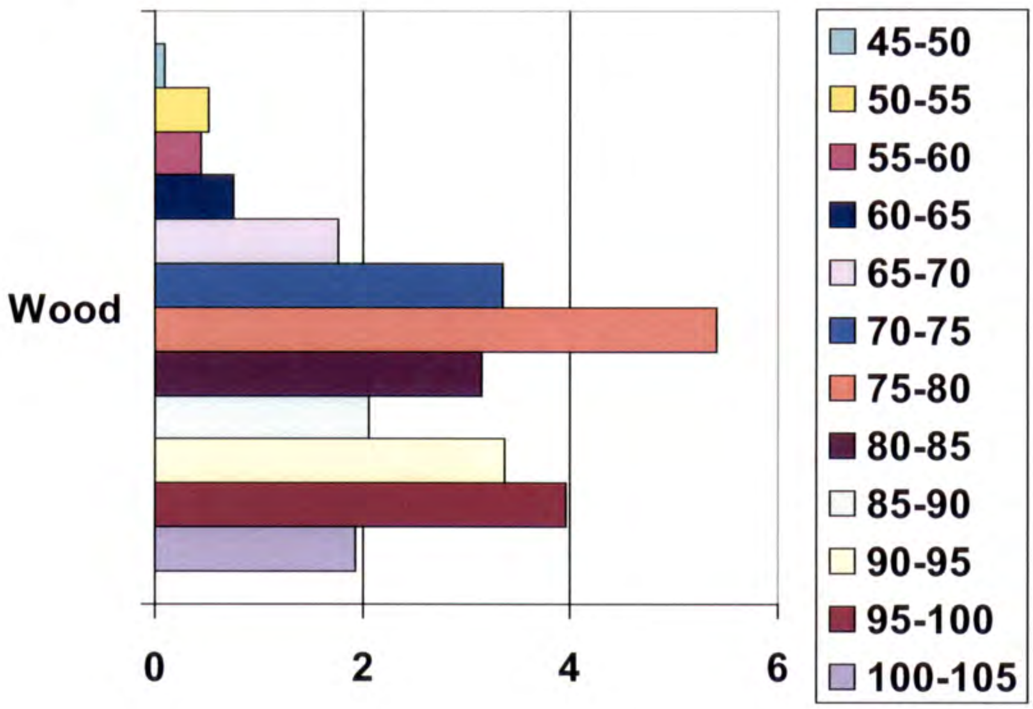


Figure 52 Feature Three/Five Non-Wood Assemblage Weight (Grams) by 5 Centimeter Level, Southeast Quarter

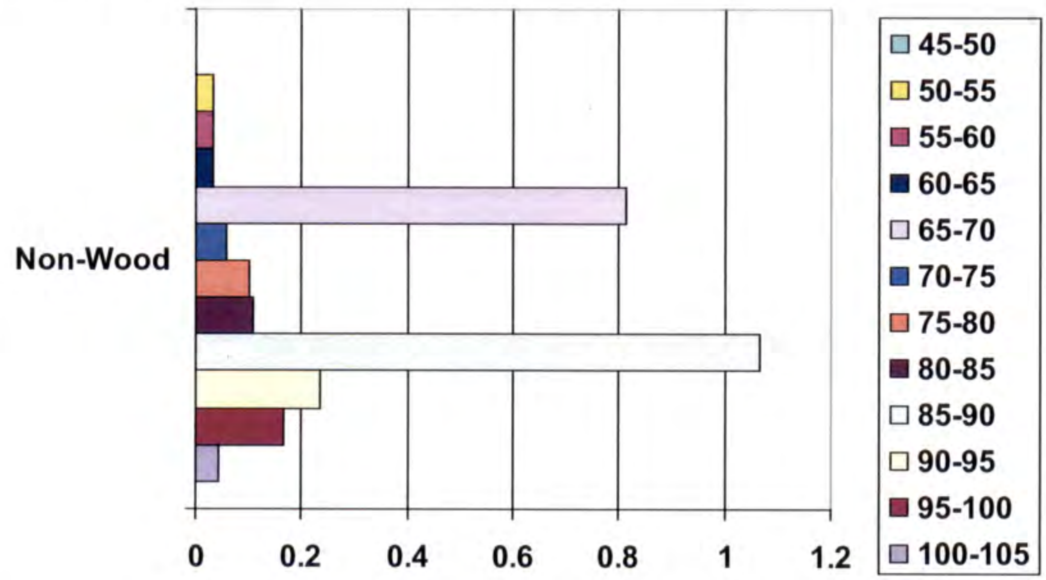
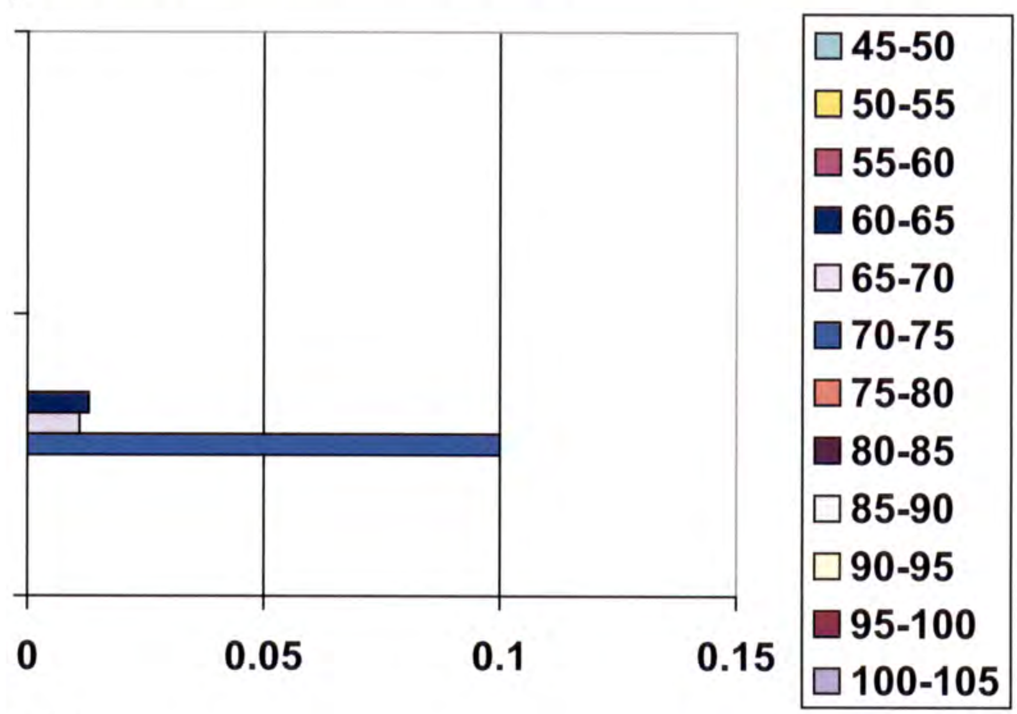


Figure 53 Feature Three/Five Faunal Assemblage Weight (Grams) by 5 Centimeter Level, Southeast Quarter



Feature Seven

A field consultation prompted the archaeological investigation of a magnetic anomaly centered in Excavation Units Six through 12. Feature Seven began emerging in

Excavation Unit 11 at 21 cmbd as a circular concentration (56 centimeters north-south and 60 centimeters east-west) of burned earth and mottled soil with a collapsed pottery vessel. Feature Seven was conclusively identified as a feature at 23 cmbd, and feature excavation methods were used at that point until its termination at 35 cmbd. A few centimeters above Feature Seven, a piece of burned and shaped catlinite emerged.

Feature Seven was a hearth that was used for a short period of time. Because the burned earth area was so well defined and discrete, this area was probably used at least four times though the majority of the debris was probably from its last use (Ronald Schirmer, personal communication 2009). There were only two fire cracked rocks in the analyzed assemblage. A probable rodent run is near the feature (10YR 4/4). Harvey (1979:70) reported a similar hearth feature in Iowa that also included a vessel that possibly broke near or in the fire.

Soil (15.1 liters) was processed from this feature (2.6 liters of soil from 21 to 23 cmbd, 10.3 liters of soil from the southeast quarter of the feature, and 2.2 liters of soil from the vicinity of the collapsed vessel). Because Feature Seven was used for such a short period of time and individual strata cannot be discerned, the artifact assemblages are reported together here.

Lithic Assemblage

Feature Seven had little lithic material with only 29 lithic artifacts and two fire cracked rocks. Both of the fire cracked rocks were in the lowest level of the feature, from 30 – 35 cmbs. PDC garnered the largest percentage of the assemblage with 90.3% of the total lithic raw materials; Grand Meadow Chert, Granitic fire cracked rock, and Sedimentary fire cracked rock each had 3.2% of the total lithic assemblage. Five of the

28 PDC flakes (17.9%) were heat treated. Most (65.5%) of the debitage was in the G4 size grade, followed by G3 (27.6%) and G2 (6.9%). There were no large flakes (G1 debitage), so the activities around the hearth did not include extensive knapping or production of stone tools. There were no lithic tools from this feature.

Ceramic Assemblage

Because of the collapsed vessel, the ceramic assemblage from this feature contains nine decorated sherds and three rim and near rim (neck) sherds. This assemblage is particularly interesting because one of the rim sherds appears to date to the provisionally defined Link Phase (A.D. 1175 – 1200) and the other decorated sherds with chevrons (and a different rim sherd with discrete superior notching) have characteristics consistent with the provisionally defined Bartron Phase (A.D. 1200 – 1275) (Holley, in preparation).

Two of the rim and near rim (neck) sherds were plain (F7.21-23.018; F7.21-23.019), and one rim sherd (F7.21-23.020) had a distinctive decoration described as a rim tab (Holley, in preparation). What makes this vessel particularly interesting is that the rim tab has two notches perpendicular to the rim, which creates a "bulb" effect in the middle of the rim tab. Although rim tabs are relatively common on Red Wing vessels dating between circa A.D. 1150 and 1200, this type of rim tab has only been seen on one other Red Wing vessel: the famous "Link Vessel" from the Bryan site (Ronald Schirmer, personal communication 2009) that dates to the provisional Link Phase (Holley, in preparation).

Three of the decorated sherds were exfoliated circular punctates (F7.21-23.011). The decorated sherds with broadly incised lines that intersected as chevrons (e.g., F7.21-

23.021) appear similar to those Holley (Figures 53, 57, in preparation) calls the provisional Bartron Phase, which dates later than the provisional Link Phase (see Chapter Eight).

Two sherds were grit tempered (F7.21-23.010), and the rest of the ceramic assemblage was shell tempered (386 sherds or 93.5% of cumulative total) or of indeterminate temper (25 sherds or 6.1% of cumulative total).

Figure 54 F7.21-23.016

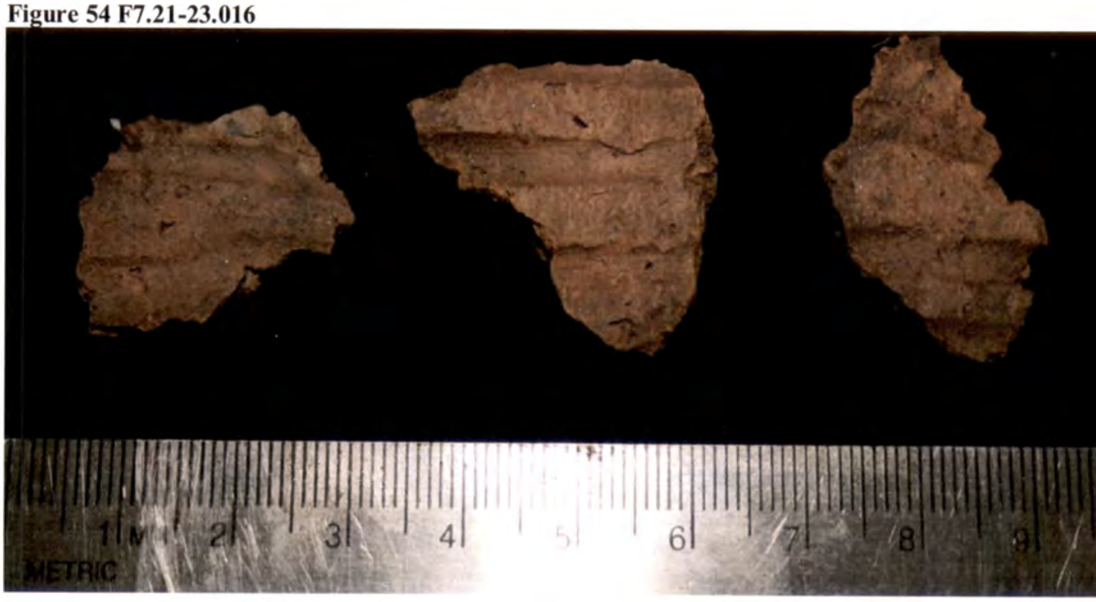
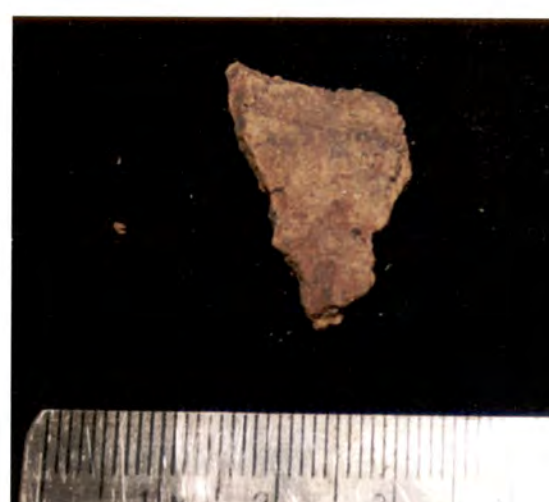


Figure 55 F7.21-23.020

Figure 56 F7.21-23.021



Floral and Faunal Assemblage

The botanical assemblage from Feature Seven is two-thirds wood charcoal (1.112 grams) to one-third non-wood charred remains (0.538 grams). This is a somewhat different ordering than that of Feature Three/Five, which was 92.5% charred wood and 8.6% non-wood. The difference in botanical assemblages is likely attributable to two different associated activities and corresponding material assemblage, and the different time span of feature use. It may also be from using dried grass and wood as fuel for the fire (Harvey 1979:70) though this determination can only be conclusively made if the seeds are identified.

There was a mix of faunal materials in this assemblage from possible avian bones, mammal bones, and piscid bones. The non-wood and faunal remains in this feature may have come from food cooked in the collapsed vessel.

CHAPTER 8: DISCUSSION

The excavation and analysis of the primary context has the potential to add information about the Oneota component at the Bartron site, specifically aspects of deliberate discard and unintentional loss behavior. The artifacts in the primary context moved from the creation/systemic context to the archival/archaeological context, and were brought back to the interpretive/systemic context by excavation in 2008. The secondary context, materials which were first excavated in 1968 and re-deposited, only to be brought to light again in 2008 have the potential to add information about the choices archaeologists make in the field, and the impact on interpretation these decisions have. Specifically, the process of reclamation is examined in terms of the secondary context.

Primary Context: Features Three/Five and Seven

Features Three/Five and Seven are features constructed by different types of depositional events and exhibit dissimilar deposition histories, artifact assemblages, and floral and faunal characteristics. A comparison of these two features demonstrates, in part, the varied character of the creation/systemic context at the Bartron site. Feature Three/Five is a deep Oneota "bell-shaped" pit that demonstrates discarding secondary refuse in the form of loss and refuse disposal behaviors, and Feature Seven is a shallow hearth feature (with a collapsed Oneota vessel) that demonstrates primary refuse disposal. Secondary refuse and associated behaviors connected with Feature Three/Five are discussed first, and a discussion of the primary refuse aspects of Feature Seven follows.

Feature Three/Five shows evidence of two discard behaviors: loss refuse and refuse disposal. People using the artifacts that eventually made their way into this feature procured raw materials, manufactured, used, maintained, and eventually discarded these items (or parts of these items) away from their primary locus of activity. Both the lost object (an Archaic period knife) and the refuse in the pit were secondary refuse (Schiffer 1972).

Schiffer (1987) outlined a number of factors to consider regarding lost refuse, including the object's portability, its condition and size, and characteristics of the soil matrix. The knife was highly portable, and had been collected, salvaged, and transported from an as yet-undetermined location to the Bartron site. (There are no known Archaic Period sites in the Red Wing Locality.) The knife was then curated, or brought for continued use at a different site. It showed no use-wear after its original owner/s had discarded it as the patina on the knife was intact. The knife potentially retained a techno-function or ideo-function, as it was not broken and had been curated for at least the travel from another, and older, site. These characteristics had the potential to make the knife an object with value attached to it.

The knife was found near the bottom of Feature Three/Five, very close to the surrounding sandy matrix. Looser substrates such as sand make it more difficult to retrieve an object once lost. There were no other artifacts in the level with the knife, which lends support to the hypothesis that it was unintentional loss. Additionally, the knife measured approximately five centimeters and its small size means it could have been easily lost in the sandy substrate. These conditions and characteristics of the artifact indicate it was probably unintentionally lost in the pit and covered with refuse, or may have possibly been intentionally disposed of if it had lost its previously perceived value.

The other discard behavior that Feature Three/Five shows evidence of is intentional secondary refuse disposal from regular and ad hoc maintenance episodes.

Culturally tolerated refuse size prior to disposal and types and schedules of maintenance activities influenced the location of disposal and amount of refuse. The soils in and around Feature Three/Five showed that the pit had been re-used over at least a few months and exhibited several depositional episodes. The small size of the debitage (the majority of the debitage was in the G4 size grade) supports the assertion that the refuse was cleaned from an occupation or use area. The layered bands of artifacts and the content of these bands supports the hypothesis that the feature was filled from regular and ad hoc cleaning episodes.

Discard behaviors are important for the archaeologist to understand because this is the usual mechanism by which artifacts and other remnants of human material existence move from the creation/systemic context to the archival/archaeological context. Additionally, discard is the terminal event on a behavioral chain (Gould 1978; Schiffer and Skibo 1997) of activities that manipulates material elements in the creation/systemic context.

Feature Seven, in contrast to Feature Three/Five, was formed from a limited series of uses and was deposited comparatively quickly. Feature Seven contained a collapsed vessel in the middle of a circular concentration of burned earth, and the burial of the broken vessel at its point of use is an example of ad hoc maintenance and primary refuse disposal. Ad hoc maintenance is unscheduled and frequently occurs in response to a breakage or spillage event (Schiffer 1987:65). This is the entrance of the broken materials into flow of the waste stream if the object is discarded because it is no longer mechanically effective (cannot perform its techno-function) and is not re-used.

Large amounts of primary refuse are uncommon and produced under limited conditions because the accumulation of scattered refuse would interfere with daily activities (Schiffer 1987:59). The primary refuse disposal of this collapsed vessel was therefore probably out of the current main area of activity at the Bartron site.

Interestingly, a piece of burned and shaped catlinite emerged in the 10 centimeter level directly above the hearth feature and is probably associated with the feature. The burned and broken piece of catlinite may also have been discarded when it reached the end of its perceived use-life; the location of the rest of the artifact is unknown.

Comparison between Features Three/Five and Seven to the Bryan Site (21GD04)

The Bryan site (21GD04), a Silvernale Phase village, is one of the largest and most studied sites in the Red Wing Locality. Dobbs (1991:3-4) believes the Bryan Site was a focal node in a long distance interaction (including trade) network that incorporated the Middle Mississippian sphere, the Plains, and possibly other regions. This site was intensively occupied for a brief period; radiocarbon dates indicate an occupation from approximately 1190 to 1220 A.D. (Dobbs 1993). As one of the most comprehensively excavated and reported sites in the Red Wing Locality, the Bryan Site is a useful comparison for other villages.

From the Bryan site, Schirmer (2002:139) reported Cedar Valley Chert as the most prevalent lithic raw material of the tool assemblage, followed by PDC (37.9%), Hixton Orthoquartzite (13.8%), and Kankakee dolomite (6.2%). Lithic raw materials from the previous excavations (1948, 1967, 1968, and 1969) at the Bartron site were not classified beyond a gross level (Gibbon 1979:103). Without this information, a complete comparison of the relationship of lithic raw materials and features at the Bartron site with the Bryan site cannot be completed.

However, some preliminary statements can be made. The two features studied here (Features Three/Five and Seven) show mostly local lithic raw materials, and the storage/refuse pit has the most diversity in these materials. Most of the artifacts in these features were utilitarian, which contrasts to the assemblage in some features at the Bryan site which showed non-local pottery, lithic raw materials, and non-utilitarian artifacts (Dobbs 1991:74-75). There were some grit tempered sherds in both analyzed features at the Bartron site, which is minimally a function of the multiple occupations at the Bartron site but may point to some form of interaction. The grit tempered pottery was concentrated in a period of time in the use of Feature Three/Five (60 – 70 cmbs), and was also present in the assemblage of Feature Seven. At the Bryan site, shell tempered sherds were 93.3% of the ceramic assemblage (Schirmer 2002:138), which compares to 87.6% (Feature Three/Five), 99.5% (Feature Seven), and 80.7% (2008 Bartron site assemblage).

The botanical evidence in Features Three/Five and Seven supports the artifactual evidence that the Bartron site, an Oneota village, is fundamentally different from the highly complex Bryan site (a Silvernale Phase village with an Oneota component). As an example of the differences, Schirmer offered (2002:127) a measurement of 0.5 grams of botanical remains per liter of soil that indicates "typical Mississippian-influenced plant use among Late Woodland people undergoing identity change in part through plant-use system alteration." Botanical remains in Feature Three/Five measure 0.277 grams/liter, and Feature Seven measures 0.109 grams/liter, which do not conform to this measurement.

A similar analysis should be done of the features in the area that seem to exhibit more Mississippian characteristics (Unit 65 – 66 complex) in the Bartron site to test the "Mississippian" character of that portion of the site (Gibbon 1979:117-119). The overall picture may change from this exploratory analysis if the total feature assemblage at the Bartron site is analyzed (but see Schirmer (2002:155).

Comparison between Features Three/Five and Seven and the Sheffield, Adams, and Armstrong Sites

A brief comparison of the site morphologies and assemblages between the Sheffield, Adams, Armstrong, and Bartron sites is fruitful here to give both a context to the Bartron site findings and to illuminate aspects of early Oneota peoples in and very close to the Red Wing Locality. Much of the older research used pottery styles and characteristics such as tempering to assign ethnic affiliation to sites. New research and ideas about the Silvernale Phase, Oneota, and Late Woodland peoples is redefining conceptions of both the interaction processes in the Red Wing Locality, and progressively illuminating the very fluid nature of these peoples (Schirmer 2002; Wendt, in preparation).

Gibbon (1973) hypothesized that the Sheffield site was occupied for a period of 10 to 20 years, possibly by returning groups; this is clearly at odds with the range of radiocarbon dates (above). The relationship of the Late Woodland component to the Oneota component at the Sheffield site is unclear. At the Bartron site, there is currently no understanding of the stratigraphic separation of Late Woodland pottery from Oneota pottery. There may be some horizontal differences (Gibbon 1979:118).

There are some differences in the environments exploited by the inhabitants of these sites for subsistence. Because of their close proximity riverine, lacustrine, open deciduous forest, and grassland resources were available. There are also some differences in the site types, which show the full range of subsistence options available to Oneota peoples. The Sheffield and Adams sites had more aquatic resources than the Bartron and Armstrong Sites, which showed evidence of relatively more grassland resources exploited (Gibbon 1979:151; Hurley 1978; Wendt 2001). Bartron site inhabitants emphasized meat as a greater proportion of the food available than horticulture, which is unlike some other Oneota sites (e.g., Bornick, Walker-Hooper) and the Bryan site (Gibbon 1979:155).

These preferences may represent difference in cultural choices over time or the occupation of different positions on the seasonal round. One example of this may be the difference in beaver skeletal elements present at each site: heads were the dominant body part at the Adams and Armstrong sites (villages), and more body elements were present at the Sheffield site (a hunting-fishing base camp, which may have acted as a procurement station for beaver). The data from the Bartron site (Gibbon 1979:173-174) is a bit unclear, but 13 beaver elements were present.

Each of the sites examined in this comparative section had site-specific patterning, and demonstrate the range of activities Oneota peoples were involved in. The Bartron site showed evidence of the importance of horticulture along with hunting and gathering activities, and botanical remains from this site show that corn was important in its economy, as was wild rice. Hunting was a larger proportion of subsistence to the Bartron site villagers than on other Oneota sites (Gibbon 1979). Activities at the Bartron site were concentrated in "differentiated work-activity loci" (Gibbon 1979:119), though the village was a general purpose one. Floral remains from the Armstrong site suggest it was a stable horticulture community (Hurley 1978). The Adams site was a large, central village with evidence of discrete activity areas (hunting, fishing, river mussel exploitation, agriculture, and raw material procurement) in the two kilometers around its periphery. The Sheffield site was a summer hunting-fishing base camp with little direct evidence of horticulture.

All of these four sites were surrounded by mounds, though the character of the mounds differed with each site. Mound groups in the Red Wing Locality typically surround the village sites, and these village sites are located on the edge of a terrace (Gibbon and Dobbs 1991; Schirmer 2002). The Bartron site is bordered to the north, south, and west by mounds, and the Birch Lake Mounds to the west show some evidence of Upper Mississippian artifacts (Johnson et al. 1969). The Adams site complex is similarly bordered by mounds, as is the Armstrong Site. At the Armstrong site, there were no diagnostic artifacts found in mound excavation so the mound builders are unknown. The Sheffield site is located near Woodland mounds. In the Red Wing Locality, mound building is associated with Woodland and other porpulations such as Oneota populations.

The ceramic assemblages at these sites have similarities in form and decoration, and dissimilarities in proportion of types of tempering. The Bartron site has shell tempered globular jars with out-flaring unmodified rims and round bases; this form is also found at the Sheffield, Adams, and Armstrong sites. These sites are also marked by a paucity of Silvernale Phase diagnostic pottery (Holley, in preparation). Significant differences do exist between these sites (Holley, in preparation) including a difference in paste color and temper particle size.

By material type, the inhabitants at the Adams and Armstrong sites chose similar materials (quartzite) for lithic tools. The Bartron site and the Sheffield site inhabitants had a preference for cherts, though it is difficult to make a more exact statement because of the nature of the lithic raw material data collected at these sites. The Bartron site has a large range of flaked and groundstone tools represented, with a predominance of scrapers and unnotched triangular points. This assemblage is very similar to the Sheffield, Armstrong, and Adams sites though the points at the Armstrong and Adams sites show more serration than those at the Sheffield and Bartron sites (Wendt, in preparation).

This follows the pattern delineated by Wendt (in preparation), who suggests that the site location is a greater predictor of lithic raw material and stylistic choice (e.g., serrated edges) than group affiliation, which is often based on pottery characteristics. The lithic artifact differences between the east and west sides of the Mississippi River were most pronounced in Oneota sites than Silvernale Phase sites and seem to have roots in Late Woodland preferences (Wendt, in preparation).

Galena has been reported throughout the Red Wing Locality (e.g., Energy Park, Mero, Adams, Bryan, Silvernale, and Bartron) and is an exotic material. The closest location of galena is in Grant County, Wisconsin, where it was mined by inhabitants of the Fred Edwards site (Finney 1993). One piece of galena was encountered in primary context at the Bartron site in 2008, two pieces of partially processed galena were discovered in the secondary context and another piece was encountered during a brief inventory of "rocks" from the 1968 Bartron site collections. These four pieces of galena, found at one site that has been excavated and previously reported, suggest that there may be more specimens in the Locality that have been overlooked. Galena is an exotic material and thus demonstrates some kind of relationship with an outside location, though its exact nature is unknown at present. Clearly, this is an area that could bear future exploration.

Another area of exploration is the presence and meaning of catlinite in the Red Wing Locality. Three pieces of catlinite are reported from the 1968 and 1969 excavations at the Bartron site, and one piece of shaped catlinite emerged immediately above a hearth feature (Feature Seven) in 2008. The presence of this material at the Bartron site is some of the strongest evidence that there may be two temporally distinct (early and late) Oneota components at the Bartron site (as well as the Late Woodland component). Currently, it is unknown when catlinite entered the Red Wing Locality, though Dobbs (1991:31) very tentatively places its entry circa A.D. 1300. This estimate needs to be revised to a slightly earlier date, given its presence in Feature Seven and the radiocarbon date of ca. cal. A.D. 1270 +/- 30 years from a few centimeters below the catlinite artifact.

The amount of worked bone at the Bartron site is small (Gibbon 1979:116), though this may be attributed to selective preservation from the acidic soil at the site. There is some evidence of the bone-tooth-antler complex at these four sites, which Gibbon and Dobbs (1991) give a Plains origin. A specific analysis which compares the presence of this complex to amount of meat weight of plains, woodland, and aquatic animals might shed light on interactions or orientations. Bison was the most prevalent animal at the Bartron site (by meat weight supplied, followed in descending order by elk, white-tailed deer, and beaver). The Bartron site, therefore, had a greater grassland orientation along with the Adams site whereas the Sheffield and Armstrong sites had more aquatic sources of meat (Gibbon 1979:151; Hurley 1978; Wendt 2001).

Though no formal studies on this phenomenon in the Red Wing Locality have been conducted, curated artifacts may put a more human face on the artifact assemblages archaeologists excavate and report like other "unusual" artifacts (cf. Fleming, in preparation). At the moment an Archaic Period knife was discovered in the bottom of an Oneota storage/refuse pit in 2008, it became apparent that interest in the material remnants of the past is a human fascination that crosses through time and reaches across many different peoples. A burnt fossil from the Adams site may also be a curated item; a fossil was recovered from Feature 14 at the Bartron site (Johnson 1968 Field Notes). Similar to the presence of galena, these items may have been overlooked at previous excavations and it would be interesting to see what a systematic study of these materials concludes.

Conclusions, Implications, and Directions for Future Work

A larger percentage of the pottery from the 2008 excavations was grit tempered and cordmarked or decorated in Late Woodland styles than emerged out of the previous excavations and argues for a larger Late Woodland presence at the Bartron site than has been previously recognized. More grit tempered sherds were probably recovered because of different field methods: the 2008 excavation saved all sherds instead of focusing on decorated sherds and rims, and a smaller screen size was also employed than used at earlier excavations. Additionally, no grader was used and thus shallow pits were more likely to be discovered. The locations targeted by the 2008 excavation probably also influenced the number of grit tempered Late Woodland sherds discovered and may argue for a spatially distinct Late Woodland component. Gibbon (1979) noted that there was no obvious vertical stratigraphy separation of the Late Woodland sherds at the Bartron site; the Late Woodland presence may be integrated through the site or may be concentrated in a few areas. The poorly known Late Woodland presence in the Red Wing Locality is only beginning to be addressed (e.g., Kelly 2009).

A re-investigation of the shallow pits excavated in 1968, and an investigation of the area around those features may shed some additional light on the Late Woodland presence at the Bartron site. Additionally, Feature One (2008) was a shallow and probably Late Woodland feature. An analysis of this feature could also add to knowledge about the Late Woodland presence at the Bartron site.

Gibbon (1979, 1991; Gibbon and Dobbs 1991) laid out the key characteristics (see Chapter Four) which demonstrated Mississippian influence/presence at the Bartron site. Briefly, these characteristics are:

1) Scroll motifs on some sherds (vessels also had high Oneota rims)
2) Angular shoulders on some vessels
3) One tri-notched Cahokia projectile point
4) Side notched triangular projectile points
5) Chunkey stones
6) Possible wall trench house
7) Nearby Woodland mound group (21GD58/61) with Mississippian-Oneota artifacts
8) Nearby (reported) circular flat topped mound

With the 2008 archaeological investigation into the nature of the possible wall trench structure—and its clarification as feature blur from three large pits instead of a coherent structure—it is now possible to re-examine the evidence offered for Middle Mississippian-related traits at the Bartron site, point by point (Schirmer 2008).

There is no indication from the pottery styles and forms at the Bartron site that its potters chose to adhere to Cahokia standards, or the definitive presence of any Middle Mississippian sherds. Additionally, the number of vessels showing possible Mississippian-related traits is quite low (two vessels with scroll motifs and high Oneota rims), and are confined to one (house) area of the site (Feature 32, 65, and 66). If these are Mississippian traits, they were largely confined to an area of the site that also had an Oneota artifact assemblage. The exact nature of these decorative traditions is also under serious reconsideration (Holley, in preparation).

One (each) tri-notched "Cahokia" projectile point has been reported at three (Bryan, Silvernale, and Energy Park sites) other sites in the Red Wing Locality. What is interesting is these three other sites are Silvernale Phase sites that also have an Oneota component (or, in the case of the Energy Park site, Oneota pottery). Projectile points are portable and were likely widely traded. Its presence at the Bartron site shows that the site inhabitants were involved in some kind of economic network, but its particular characteristics or even its general orientation are unknown. (Henning has re-assessed the "Cahokia" points as Harrell-related points, which are common in Plains-related assemblages and often mistaken for Cahokia points (Benn and Green 2000:477).) Additionally, side notched triangular points are not necessarily diagnostic of the Mississippian culture complex, and these points are found at the Silvernale and Bryan sites.

The presence of chunkey stones at the Bartron site is intriguing. Chunkey stones are also present at the Adams site (47PI12), a "pure" Oneota site, as well as the Silvernale site. Indeed, chunkey stones are found after the dissipation of the Silvernale Phase and are widespread in early Blue Earth Oneota contexts. However, Gibbon (1991:220) noted that chunkey stones were introduced in Minnesota with the "influx of other Middle Mississippian traits." This assertion is currently under reconsideration because chunkey stones have been found in both pre- and non-Mississippian contexts (Fleming 2009).

The 2008 Bartron site excavations focused on the possible wall trench structure reported by Johnson (MHS, Field Notes, 1968) and Gibbon (1979), and used as evidence for a Middle Mississippian presence (e.g., Gibbon 1979, 1991). The wall trench proved to be feature blur from deep Oneota storage/refuse pits (Features Two and Three/Five).

Circular, flat topped mounds have been linked to the Cambria peoples (Gibbon 1991:216), and cannot be considered definitely or solely Middle Mississippian at this time. Less clear is the relationship of Late Woodland, Middle Mississippian, and Oneota peoples in the construction of the Birch Lake Mound Group (21GD58/61).

Clearly, many of the characteristics previously considered diagnostic of a Middle Mississippian(-related) presence or influence are attributable to other groups, non-existent, or equivocal and widespread in the Prairie Peninsula and Plains. Mississippian traits in the Red Wing Locality seem to be restricted to the Bryan site (ceramic forms and motifs, ceramic earspool, chunkey stones, clay human figurines, thunderbird motifs, a rock with a carved "feline" face, and possibly some house structures) and the Mero site (small long-nosed god mask, small copper maces or batons, and pottery forms and motifs), with some characteristics also present at the Silvernale site (Gibbon 1991; Gibbon and Dobbs 1991). The Bryan and Mero sites were loci of special activities and have evidence of cult objects (see Fleming 2009). These characteristics are simply not present at the Bartron site.

Artifacts at the Bartron site that *may* indicate Mississippian contact or influence are small and portable, and are largely confined to one area in the site. These artifacts cannot be considered evidence of Mississippianization as it has previously been defined (e.g., Gibbon 1991:219) and this area merits additional testing to clarify its Mississippian character.

Why is this information important? The relationships between Mississippian, Oneota, Silvernale, Late Woodland, and other peoples are *still* debated at a basic level of the presence or absence of traits. Clarifying the relationships between these groups may shed light on ethnogenesis and other cultural processes exemplified by Silvernale and Oneota peoples in the Red Wing Locality.

Secondary Context

Historic artifacts in the 2008 excavations were confined to those deposited by the archaeologists in the 1968 or 1969 field seasons, either discarded inadvertently or deliberately. There was no evidence of the Historic artifacts such as the "small bits of brass" and clay pipe fragment Johnson found after his 1960 survey and limited excavations (Red Wing Republican Eagle, 14 July 1960). The artifacts encountered in the 2008 excavations do have meaning in the interpretation of the site, and were thus retained.

In addition, artifacts from the re-deposited excavation fill (Excavation Units One – Five, A – C from 0 – 40 cmbs), termed the "secondary context" in this thesis, were given historical meaning when they were excavated and re-deposited in 1968. These artifacts, analyzed using archaeological methods normally reserved for pre-Contact or Contact populations, illuminate the salvaging and collecting aspects of archaeological behavior in 1968. After the artifacts were recovered in 2008, they were first brought into the archaeological context, then the archival context, and are now being reincorporated into the interpretive/systemic context.

Viewing archaeological activities as part of the formation processes involved at a site was briefly discussed by Schiffer (1987) and Dibble et al. (2005, 2009). Schiffer examined the issue largely in the context of sampling procedures and less so on the physical impact recovery activities can leave to the archaeological record. Dibble et al. (2005, 2009) framed the issue of artifact recovery by contrasting their work with earlier archaeological work at sites in France. However, Dibble et al. did not view their experiences in terms of those general human behaviors anthropologists are interested in and search for in the contemporary ethnographic record and the archaeological record. The theoretical framework outlined in Chapter Two attempts to pull these two pieces together to support the comparison of the materials recovered in 1968 and 2008 in terms of generalized human behaviors, such as reclamation.

Though generally combined, the archival/archaeological context is really two separate arenas. As used here, the archaeological context is the field and lab processing context. The archival context is the preserving context (Galloway 2006), or the area where the artifacts are curated and displayed or otherwise used but largely outside of active use.

Reclamation is a general term that includes salvaging, collecting, and reincorporating behaviors. Salvaging and collecting behaviors disturb archaeological deposits in the field (archaeological context), and may also have depositional effects. Reincorporation is a behavior that impacts artifacts in the archival context. Artifacts do not always remain in the archival/archaeological context but may re-enter the systemic context. Artifacts and places are "potential resources that most societies exploit in one way or another" (Schiffer 1987:99) and thus may be returned to multiple times for many different reasons.

The 1968 archaeological excavation at the Bartron site illustrates several reclamation processes, most notably the selective salvaging or the reclamation of artifact and structures from earlier occupations by a different group of people (Schiffer 1987:106). Salvaging behavior is influenced by economic necessity and relative wealth of the society, storage capacity, and supply and demand. There is no indication that the artifacts were recovered for economic necessity or that storage capacity played a role in retention activities. However, supply and demand did play a role in the 1968 field activities. More information from the Bartron site was required for a more comprehensive analysis than those previously performed (McKusick 1953; Wilford 1955). The artifacts were also collected, or moved from the archival/archaeological context to the systemic context. Importantly, there were several silences in the 1968 and 1969 field notes that hindered analysis of the assemblage in Gibbon (1979) and other publications.

After the artifacts were salvaged by excavation and screening in 1968, some of these materials were re-deposited into the archaeological context. Some artifacts were retained and collected in the archival context as they were moved from the excavation unit to a temporary holding location. These artifacts then moved to the field station and then the Wilford Laboratory of Archaeology at the University of Minnesota. This latter group of artifacts was then incorporated into the interpretive/systemic context via publications that used information from the artifacts (e.g., Gibbon 1979). The difference between retention and re-deposition was the recognition during the 1968 excavation that the recovered artifacts were cultural in origin, could shed light on the nature of the site, and therefore should be retained by the excavators for further study. Screen size choice adds another avenue of artifact winnowing. The lead archaeologist typically determines the size of the mesh screen through which soil is filtered in the field.

As is widely recognized, different screen sizes recover different types and classes of materials (e.g., Betts and Friesen 2004; James 1997; Nagaoka 2004; Shaffer 1992; Shaffer and Sanchez 1994; Struever 1968; Vale and Gargett 2002; Zohar and Belmaker 2005). By identifying the screen size Johnson used in 1968, it is possible to begin examining past behavior that has little specific associated documentation. Johnson did not identify the screen size he used in his field notes, which sileneced an important piece of information to determine what classes and types of materials he was able to recover and which ones may be overlooked. Johnson also did not mention whether he instructed the students to retain diagnostic artifacts, although this may appear to have been the case (MHS, Field Notes, 1969). Situational factors may be important in this oversight in self-reporting in the creation/systemic context.

It is hypothesized that Johnson employed either one inch or half inch mesh to screen the excavation units in 1968. If one inch mesh was used, sherds and lithics should primarily fall into the G2, G3, and G4 size grades. If half inch mesh was used, sherds and lithics should primarily fall into the G3 and G4 size grades. The 2008 excavations used quarter inch wire mesh screens.

From a comparison of the lithic debitage size grades, it appears that one inch mesh was used in 1968. Comparing the sherd size grades in the primary context, sherds are largely in the G3 and G4 size grades; there are slightly larger numbers of sherds in the G2 size grade than in the lithic assemblage. Thus, while the lithic debitage size grade data supports use of a one inch screen, the ceramic assemblage data lends some support to use of a half inch screen. This conclusion should be considered preliminary as there was a small sample size (n=22) available for comparison from the 1968 Feature 10.

The differences between the 1968 and 2008 artifacts are significant. When the Feature 10 size grade information is compared to what was recovered in 2008 with 1/4 inch mesh screen, it is apparent that many more artifacts were recovered: 23 lithic tools, 14 FCR, 495 lithic flakes, 26.5 grams of galena, 484 sherds for a total of 1017 artifacts. After describing and analyzing these artifacts a much fuller picture of the Bartron site emerges. For example, grit tempered pottery and small, unnotched triangular points were present in more abundance in the 2008 assemblage than the 1968 assemblage.

The artifacts recovered in 1968 and 2008 were brought out of the archival/archaeological context, and re-incorporated into the interpretive/systemic context. The re-incorporation of the artifacts excavated into the interpretive/systemic context is briefly explored here, but an in-depth examination is out of the scope of this thesis. Schiffer (1987:104) postulated that extensive re-incorporation was practiced by non-sedentary peoples, but archaeologists extensively re-incorporate artifacts that have remaining use-life and those that have reached the end of practical use. Archaeologists remove artifacts and assign an ideo-function to the artifacts regardless of its immediate techno-function; archaeologists do not use scrapers in the same techno-function, as pre-Contact peoples did.

Re-incorporating artifacts that were initially created and used in the creation/systemic context, deposited into the archival/archaeological context, and finally emerge in the interpretive/systemic context follows the winnowing process described in Chapter Two. This process begins in the field with a literal screening for artifacts, which are then transported to a temporary location and eventually to a permanent curation facility. This is the chain of events that both the 1968 and 2008 assemblages followed. Now, it remains for the information from the 2008 excavation, notably the dismantling of the (at times questioned) wall trench structure interpretation generated from the 1968 data (Gibbon 1979; Gibbon and Dobbs 1991), to become incorporated into the archaeological interpretations (Schirmer 2008).

CHAPTER 9: CONCLUSION

The 2008 excavations at the Bartron site uncovered both primary and secondary context materials which clarified aspects of past interpretations of the site and its inhabitants. Further work clarifying the Oneota and Late Woodland components is still needed, as well as an analysis that examines the relationships between these two components.

Results from the 2008 excavations were reported and included significant new information. Among other findings, the reported wall trench structure proved to be surface blur from the tops of at least three Oneota pits. Long held to be evidence of a Middle Mississippian presence or influence at the site, its presence is now discredited (Schirmer 2008). A larger than expected Late Woodland presence was noted, especially in the secondary context. Additionally, pottery which may be Angelo Punctated, a poorly defined Woodland type, was recovered in primary context (Excavation Units Two E and Three D).

The contents and deposition of Feature Three/Five illustrated regular and ad hoc disposal of secondary refuse. A curated Archaic knife was found at the bottom of the feature, and provided a glimpse into past curation and loss behavior. This feature was radiocarbon dated to ca. cal. A.D. 1255 +/- 30 years and ca. cal. A.D. 1280 +/- 30 years.

Feature Seven provided additional clarification to the Bartron site interpretation. Radiocarbon dates for this feature indicate it was used ca. cal. A.D. 1265 +/- 30 years. Pottery in Feature Seven suggests that the Bartron site assemblage should be more intensively studied to provide information on the characteristics and timing of the Link and Bartron Phases (Holley, in preparation). A piece of burned and shaped catlinite was recovered directly above Feature Seven, and the previously suggested tentative date of circulation (Dobbs 1991) for this material needs to be revised a few years earlier in light of this finding and the feature's radiocarbon date. The contents and deposition of Feature Seven also illuminated past primary refuse discard behavior.

The secondary context, also termed the post-Contact component, was analyzed to provide insight into archaeological reclamation behavior. Archaeologists create and impact the archaeological/archival context in many of the same ways pre-Contact peoples did. Archaeologists also transform items of material culture from having a techno-function to an ideo-function through their actions.

In addition to the examination of past behavior, different elements of the Bartron site came to light with 2008 excavation. A size grade analysis of materials excavated and deposited in 1968, and re-excavated in 2008 determined that the 1968 excavation used either half inch or one inch mesh screens. Significantly, this re-excavation proved that one quarter inch screens recovered and the archaeologists retained far more material in 2008 than the 1968 excavation. This is overwhelmingly evident when the total numbers of artifacts from each excavation are compared: 22 artifacts from 1968 to 1017 artifacts from the same context in 2008. This large difference in retention has the potential to emphasize different aspects of the Bartron site than have been previously discussed, such as the larger Late Woodland component and the presence of more pieces of galena than previously reported (Gibbon 1979).

Lastly, there is still an as-yet undefined early Historic component to the Bartron site. The bits of brass and beads Elden Johnson recovered in 1960 have yet to be tied to a specific location within the Bartron site. The material signatures of early Historic activities on Prairie Island, such as the archaeological signature of the rendezvous behavior known to have occurred by 1700 in this area (Wedel 1974), has yet to be located and described. There is still much work that remains to be accomplished at the Bartron site, but this thesis clarified two of the puzzling characteristics from the past: the hypothesized Mississippian wall trench proved to be surface blur from at least three Oneota pit features, and aspects of past field methodology as demonstrated by the preliminary conclusion that Johnson used 1/2 or 1 inch mesh in 1968.

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APPENDIX A: TABULAR PRESENTATION OF 2008 BARTRON SITE ASSEMBLAGE DATA

Excavation Units One - Five (A, B, C)

Table 1 Lithic Raw Material Assemblage: Excavation Units One - Five (A, B, C)

Material	0 – 40 cmbs				40 – 50 cmbs			
	Count	Percentage	Weight (g)	Percentage	Count	Percentage	Weight (g)	Percentage
Basaltic	5	1.0%	1125.6	18.0%	0	0.0%	0.0	0.0%
Basaltic (FCR)	7	1.4%	735.1	11.7%	0	0.0%	0.0	0.0%
Burlington Chert	9	1.7%	11.0	0.2%	0	0.0%	0.0	0.0%
Burlington Chert?	2	0.4%	0.6	0.0%	0	0.0%	0.0	0.0%
Galena*	1	0.2%	26.5	0.4%	0	0.0%	0.0	0.0%
Grand Meadow Chert	11	2.1%	6.1	0.0%	0	0.0%	0.0	0.0%
Granitic	2	0.4%	3628.0	58.0%	0	0.0%	0.0	0.0%
Granitic (FCR)	3	0.6%	264.1	4.2%	0	0.0%	0.0	0.0%
Hixton Ortho-quartzite	2	0.4%	1.3	0.0%	0	0.0%	0.0	0.0%
Knife River Flint	1	0.2%	0.1	0.0%	0	0.0%	0.0	0.0%
Limestone (FCR)	4	0.8%	71.8	1.1%	2	18.2%	27.9	85.1%
Prairie du Chien Chert	459	88.8%	365.8	5.8%	9	81.8%	4.9	14.9%
Quartzite	9	1.7%	5.1	0.8%	0	0.0%	0.0	0.0%
Silicified Sandstone	1	0.2%	15.8	0.3%	0	0.0%	0.0	0.0%
Unidentified Chert	1	0.2%	0.1	0.0%	0	0.0%	0.0	0.0%
Total	**517**	**99.4%**	**6257.0**	**100.5%**	**11**	**100.0%**	**32.8**	**100.0%**

Galena* is catalogued under "Special" but is included here in the Lithic Assemblage

Table 2 Lithic Debitage (Flake) Size Grade Assemblage: Excavation Units One - Five (A, B, C)

Grade	0 – 40 cmbs				40 – 50 cmbs			
	Count	Percentage	Weight (g)	Percentage	Count	Percentage	Weight (g)	Percentage
G1 (>25 millimeters or 1 inch)	2	0.4%	33.4	9.0%	0	0.0%	0.0	0.0%
G2 (>12.5 millimeters or 0.5 inch)	56	11.3%	195.4	52.7%	1	11.1%	2.3	47.9%
G3 (>5.6 millimeters or 0.223 inches)	304	61.4%	133.2	35.9%	6	66.7%	2.5	52.1%
G4 (>2.8 millimeters or 0.11 inches)	133	26.9%	8.9	2.4%	2	22.2%	0.0	0.0%
Total	**495**	**100.0%**	**370.9**	**100.0%**	**9**	**100.0%**	**4.8**	**100.0%**

Table 3 Lithic Tool Assemblage: Excavation Units One - Five (A, B, C)

Description	0 – 40 cmbs				40 – 50 cmbs			
	Count	Percentage	Weight (g)	Percentage	Count	Percentage	Weight (g)	Percentage
Bifaces	1	4.3%	0.6	0.0%	0	0.0%	0	0.0%
Blades	2	8.7%	2.7	0.1%	0	0.0%	0	0.0%
Grinding Stones	1	4.3%	3375.0	70.5%	0	0.0%	0	0.0%
Hammerstones	2	8.7%	1104.0	23.1%	0	0.0%	0	0.0%
Knives	1	4.3%	5.7	0.1%	0	0.0%	0	0.0%
Manos	1	4.3%	15.8	0.3%	0	0.0%	0	0.0%
Metates	1	4.3%	253.0	5.3%	0	0.0%	0	0.0%
Projectile Points	2	8.7%	1.9	0.0%	0	0.0%	0	0.0%
Unidentified (Broken)	2	8.7%	4.7	0.1%	0	0.0%	0	0.0%
Utilized Flakes	10	43.5%	24.8	0.5%	0	0.0%	0	0.0%
Total	**23**	**99.8%**	**4788.2**	**100.0%**	**0**	**0.0%**	**0**	**0.0%**

Table 4 Lithic Tool Assemblage By Material Type: Excavation Units One - Five (A, B, C), 0 - 40 cmbs

Description	Basaltic		Burlington Chert		Grand Meadow Chert		Granitic		Prairie du Chien Chert		Silcified Sandstone	
	Count	Weight (g)	Count	Weight (g)	Count	Weight (g)	Count	Weight (g)	Count	Weight (g)	Count	Weight (g)
Bifaces	0	0.0	0	0.0	0	0.0	0	0.0	1	0.6	0	0.0
Blades	0	0.0	0	0.0	0	0.0	0	0.0	2	2.7	0	0.0
Grinding Stones	0	0.0	0	0.0	0	0.0	1	3375.0	0	0.0	0	0.0
Hammerstones	2	1104.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Knives	0	0.0	0	0.0	0	0.0	0	0.0	1	5.7	0	0.0
Manos	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	15.8
Metates	1	253.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Projectile Points	0	0.0	1	0.6	0	0.0	0	0.0	1	1.3	0	0.0
Unidentified (Broken)	0	0.0	0	0.0	1	0.5	0	0.0	1	4.2	0	0.0
Utilized Flakes	0	0.0	0	0.0	0	0.0	0	0.0	10	24.8	0	0.0
Total	**3**	**1357.0**	**1**	**0.6**	**1**	**0.5**	**1**	**3375.0**	**16**	**39.3**	**1**	**15.8**

No Lithic Tools from Excavation Units One - Five (A, B, C), 40 - 50 cmbs

Table 5 Ceramic Sherd Surface Treatment and Decoration Assemblage: Excavation Units One - Five (A, B, C)

Type	0 – 40 cmbs		40 – 50 cmbs	
	Count	Percentage	Count	Percentage
Body- Cordmarked Surface Treatment	68	14.0%	5	6.8%
Body- Cordmarked Surface Treatment?	2	0.4%	1	1.4%
Body- Smoothed Over Cordmarked Surface Treatment	1	0.2%	0	0.0%
Body- Undecorated (Smooth)	103	21.3%	18	24.3%
Body- Indeterminate Decoration and Surface Treatment	281	58.1%	43	58.1%
Body- Decorated (Incised Lines)	6	1.2%	0	0.0%
Body- Decorated (Trailed Lines)	6	1.2%	2	2.7%
Body- Cordmarked Surface Treatment and Decorated (Punctates)	5	1.0%	0	0.0%
Body- Decorated (Punctates)	0	0.0%	1	1.4%
Body- Indeterminate Surface Treatment (Punctates)	1	0.2%	0	0.0%
Rim and Near Rim (Neck)	7	1.4%	4	5.4%
Handle	4	0.8%	0	0.0%
Total	**484**	**99.8%**	**74**	**100.1%**

Table 6 Ceramic Sherd Temper Assemblage: Excavation Units One - Five (A, B, C)

Material	0 – 40 cmbs				40 – 50 cmbs			
	Count	Percentage	Weight (grams)	Percentage	Count	Percentage	Weight (grams)	Percentage
Grit Temper	165	34.1%	119.3	43.0%	14	18.9%	28.8	41.7%
Shell Temper	319	65.9%	158.4	57.0%	60	81.1%	40.3	58.3%
Total	**484**	**100.0%**	**277.7**	**100.0%**	**74**	**100.0%**	**69.1**	**100.0%**

Table 7 Ceramic Sherd Size Grade Assemblage: Excavation Units One – Five (A, B, C), 0 – 40 cmbs

Morphology	Temper	Surface Treatment	Decoration	Size Grade	Total
Body	Grit	Smooth	None	G1	1
				G2	9
				G3	20
				G4	0
Body	Grit	Smooth	Incised Lines	G1	0
				G2	1
				G3	6
				G4	0
Body	Grit	Smooth	Trailed Lines	G1	0
				G2	0
				G3	1
				G4	0
Body	Grit	Smooth	Punctates and Trailed Lines	G1	0
				G2	0
				G3	1
				G4	0
Body	Grit	Cordmarked	None	G1	0
				G2	19
				G3	49
				G4	0
Body	Grit	Cordmarked?	None	G1	0
				G2	0
				G3	2
				G4	0

Body	Grit	Cordmarked	Punctates	G1	0
				G2	5
				G3	0
				G4	0
Body	Grit	Smoothed Over Cordmarked	None	G1	0
				G2	1
				G3	0
				G4	0
Body	Grit	Indeterminate	None	G1	0
				G2	1
				G3	40
				G4	7
Body	Grit	Indeterminate	Punctates	G1	0
				G2	0
				G3	1
				G4	0
Rim	Grit	Smooth	None	G1	0
				G2	0
				G3	1
				G4	0
Rim	Grit	Smooth	Triangular Impressions	G1	0
				G2	1
				G3	0
				G4	0
Body	Shell	Smooth	None	G1	0
				G2	27
				G3	39
				G4	0

Body	Shell	Cordmarked	None	G1	0
				G2	0
				G3	1
				G4	0
Body	Shell	Indeterminate	None	G1	0
				G2	20
				G3	184
				G4	29
Body	Shell	Smooth	Incised Lines	G1	0
				G2	3
				G3	1
				G4	0
Body	Shell	Smooth	Trailed Lines	G1	1
				G2	2
				G3	3
				G4	0
Handle	Shell	Smooth	None	G1	0
				G2	4
				G3	0
				G4	0
Neck	Shell	Smooth	Incised Lines	G1	0
				G2	1
				G3	0
				G4	0
Neck	Shell	Smooth	None	G1	0
				G2	1
				G3	1
				G4	0
Rim	Shell	Smooth	Incised Lines	G1	1
				G2	0

				G3	0
				G4	0
Rim	Shell	Smooth	Punctates	G1	0
				G2	0
				G3	1
				G4	0

Table 8 Botanical Assemblage: Excavation Units One - Five (A, B, C)

Material	0 - 40 cmbs		40 - 50 cmbs	
	Count	Weight (grams)	Count	Weight (grams)
Wood*	1	75.200	0	0.0
Charcoal - Wood	8	0.807	0	0.0
Charcoal - Maize	2	0.100	0	0.0
Total	**11**	**76.107**	**0**	**0.0**

Wood*, the 1968 excavation stake recovered from Trench One at 20 - 30 cmbs, is catalogued as "Special" but is included here in the Botanical Assemblage

Table 9 Unmodified Faunal Assemblage: Excavation Units One - Five (A, B, C)

Name	0 – 40 cmbs		40 – 50 cmbs	
	Count	Weight (grams)	Count	Weight (grams)
Mammal Bone	1	0.1	0	0.0
Shell	4	0.1	--	21.2
Unidentified Bone	4	0.3	0	0.0
Total	**9**	**0.5**	**--**	**21.2**

Excavation Units One D, E; Two D, E; Three D; Four D: Primary Context

Table 10 Lithic Raw Material Assemblage: Excavation Units One D, E; Two D, E; Three D; Four D

Material	Count	Percentage	Weight (grams)	Percentage
Basaltic (FCR)	3	1.6%	65.1	7.4%
Burlington Chert	4	2.1%	2.1	0.2%
Burlington Chert?	1	0.5%	0.3	0.0%
Cedar Valley Chert	1	0.5%	0.2	0.0%
Galena*	2	1.1%	2.2	0.2%
Grand Meadow Chert	2	1.1%	0.7	0.0%
Granitic	1	0.5%	119.0	13.4%
Hixton Orthoquartzite	1	0.5%	0.2	0.0%
Limestone (FCR)	13	6.9%	304.5	34.4%
Prairie du Chien Chert	158	83.6%	361.7	40.9%
Silicified Sediment	1	0.5%	19.3	2.2%
Unidentified Chert	1	0.5%	6.0	0.7%
Unidentified Glacial Till Flint	1	0.5%	4.0	0.5%
Total	**189**	**99.9%**	**885.3**	**99.9%**

Galena* is catalogued under "Special" but is included here in the Lithic Assemblage

Table 11 Lithic Debitage (Flake) Size Grade Assemblage: Excavation Units One D, E; Two D, E; Three D; Four D

Grade	Count	Percentage	Weight (grams)	Percentage
G1 (>25 millimeters or 1 inch)	4	2.4%	246.5	69.4%
G2 (>12.5 millimeters or 0.5 inch)	17	10.3%	54.9	15.5%
G3 (>5.6 millimeters or 0.223 inches)	109	66.1%	50.1	14.1%
G4 (>2.8 millimeters or 0.11 inches)	35	21.2%	3.5	1.0%
Total	**165**	**100.0%**	**355.0**	**100.0%**

Table 12 Lithic Tool Assemblage: Excavation Units One D, E; Two D, E; Three D; Four D

Description	Count	Percentage	Weight (g)	Percentage
Utilized Flakes	4	100.0%	14.2	100.0%
Total	**4**	**100.0%**	**14.2**	**100.0%**

Table 13 Lithic Tool Assemblage By Material Type: Excavation Units One D, E; Two D, E; Three D; Four D

Description	Prairie du Chien Chert		Unidentified Glacial Till Flint	
	Count	Weight (g)	Count	Weight (g)
Utilized Flakes	10	24.8	1	4.0
Total	**10**	**24.8**	**2**	**4.0**

Table 14 Ceramic Sherd Surface Treatment and Decoration Assemblage: Excavation Units One D, E; Two D, E; Three D; Four D

Type	Count	Percentage
Body- Cordmarked Surface Treatment	15	6.0%
Body- Cordmarked Surface Treatment?	1	0.4%
Body- Smoothed Over Cordmarked Surface Treatment?	3	1.2%
Body- Undecorated (Smooth)	60	24.0%
Body- Indeterminate Decoration and Surface Treatment	148	59.2%
Body- Decorated (Incised Lines and Punctates)	1	0.4%
Body- Decorated (Trailed Lines)	7	2.8%
Body- Decorated (Trailed Lines)?	2	0.8%
Body- Cordmarked Surface Treatment and Decorated (Incised Lines)	2	0.8%
Rim and Near Rim (Neck)	11	4.4%
Total	**250**	**100.0%**

Table 15 Ceramic Sherd Temper Assemblage: Excavation Units One D, E; Two D, E; Three D; Four D

Material	Count	Percentage	Weight (grams)	Percentage
Grit Temper	74	29.6%	57.0	28.3%
Shell Temper	176	70.4%	144.3	71.7%
Total	**250**	**100.0%**	**201.3**	**100.0%**

Table 16 Botanical Assemblage: Excavation Units One D, E; Two D, E; Three D; Four D

Material	Count	Weight (grams)
Charcoal - Wood	21	1.1
Total	**21**	**1.1**

Excavation Units Six - 12

Table 17 Lithic Raw Material Assemblage: Excavation Units Six - 12

Material	**Count**	**Percentage**	**Weight (grams)**	**Percentage**
Basaltic	1	0.0%	82.6	3.0%
Basaltic (FCR)	8	0.6%	526.1	19.0%
Basaltic (FCR)?	1	0.0%	6.8	0.2%
Burlington Chert	28	2.1%	26.9	1.0%
Cedar Valley Chert	1	0.0%	0.7	0.0%
Galena Chert	1	0.0%	12.9	0.5%
Grand Meadow Chert	48	3.6%	41.5	1.5%
Granitic	1	0.0%	311.0	11.2%
Granitic (FCR)	16	1.2%	414.0	14.9%
Hixton Orthoquartzite	2	0.0%	0.9	0.0%
Knife River Flint	1	0.0%	0.6	0.0%
Catlinite* (Burnt and Shaped)	1	0.0%	1.4	0.1%
Prairie du Chien Chert	1226	91.1%	1335.2	48.1%
Quartzite	10	0.7%	5.5	0.2%
Sandstone (Burnt)	--	--	2.9	0.1%
Sedimentary (FCR)	1	0.0%	6.3	0.2%
Total	**1346**	**99.3%**	**2775.3**	**100.0%**

Catlinite* is catalogued under "Special" but is included here in the Lithic Assemblage

Table 18 Lithic Debitage (Flake) Size Grade Assemblage: Excavation Units Six - 12

Grade	Count	Percentage	Weight (grams)	Percentage
G1 (>25 millimeters or 1 inch)	10	0.9%	376.8	31.9%
G2 (>12.5 millimeters or 0.5 inch)	139	12.1%	425.0	36.0%
G3 (>5.6 millimeters or 0.223 inches)	673	58.4%	347.7	29.4%
G4 (>2.8 millimeters or 0.11 inches)	330	28.6%	31.5	2.7%
Total	**1152**	**100.0%**	**1181.0**	**100.0%**

Table 19 Lithic Tool Assemblage: Excavation Units Six - 12

Description	Count	Percentage	Weight (g)	Percentage
Blades	2	3.4%	7.7	1.2%
Manos	2	3.4%	393.6	62.4%
Projectile Points	3	5.2%	2.6	0.4%
Scrapers	3	5.2%	6.7	1.1%
Short-Faced Scrapers	1	1.7%	4.4	0.7%
Unidentified (Broken)	3	5.2%	2.1	0.3%
Unidentified (Monofacial)	1	1.7%	11.8	1.9%
Utilized Flakes	43	74.1%	202.2	32.0%
Total	**58**	**99.9%**	**631.1**	**100.0%**

Table 20 Lithic Tool Assemblage By Material Type: Excavation Units Six - 12

Description	Basaltic		Burlington Chert		Grand Meadow Chert		Granitic		Prairie du Chien Chert	
	Count	Weight (g)	Count	Weight (g)	Count	Weight (g)	Count	Weight (g)	Count	Weight (g)
Blades	0	0.0	0	0.0	0	0.0	0	0.0	2	7.7
Manos	1	82.6	0	0.0	0	0.0	1	311.0	0	0.0
Projectile Points	0	0.0	0	0.0	0	0.0	0	0.0	3	2.6
Scrapers	0	0.0	0	0.0	0	0.0	0	0.0	3	6.7
Short-Faced Scrapers	0	0.0	0	0.0	0	0.0	0	0.0	1	4.4
Unidentified (Broken)	0	0.0	0	0.0	1	0.6	0	0.0	2	1.5
Unidentified (Monofacial)	0	0.0	0	0.0	0	0.0	0	0.0	1	11.8
Utilized Flakes	0	0.0	2	9.2	1	1.0	0	0.0	40	192.0
Total	**1**	**82.6**	**2**	**9.2**	**2**	**1.6**	**1**	**311.0**	**52**	**226.7**

Table 21 Ceramic Sherd Surface Treatment and Decoration Assemblage: Excavation Units Six - 12

Type	Count	Percentage
Body- Cordmarked Surface Treatment	31	8.5%
Body- Cordmarked Surface Treatment?	1	0.3%
Body- Smoothed Over Cordmarked Surface Treatment	1	0.3%
Body- Undecorated (Smooth)	119	32.5%
Body- Indeterminate Decoration and Surface Treatment	180	49.2%
Body- Decorated (Possible Incised Line)	1	0.3%
Body- Decorated (Incised Lines)	2	0.5%
Body- Decorated (Trailed Lines)	10	2.7%
Body- Indeterminate Surface Treatment and Decorated (Trailed Lines)	1	0.3%
Body- Decorated (Punctates)	2	0.5%
Body- Decorated (Punctates) (Incised Lines)	3	0.8%
Body- Indeterminate Surface Treatment and Decorated (Punctates)	2	0.5%
Body- Decorated (Punctates) (Trailed Lines)	4	1.1%
Rim and Near Rim (Neck)	9	2.5%
Total	**366**	**100.0%**

Table 22 Ceramic Sherd Temper Assemblage: Excavation Units Six - 12

Material	Count	Percentage	Weight (grams)	Percentage
Grit Temper	62	16.9%	43.6	13.9%
Shell Temper	304	83.1%	270.8	86.1%
Total	**366**	**100.0%**	**314.4**	**100.0%**

Table 23 Botanical Assemblage: Excavation Units Six - 12

Material	Count	Weight (grams)
Charcoal - Wood	5	0.5
Charcoal - Maize	--	0.010
Total	**5**	**0.510**

Table 24 Unmodified Faunal Assemblage: Excavation Units Six - 12

Name	Count	Weight (grams)
Avian Bone	1	0.1
Mammal Bone	--	23.7
Mammal Bone	10	1.5
Piscid Bone	1	0.3
Shell	--	23.2
Shell	1	0.3
Unidentified Bone	10	1.0
Total	**23**	**49.6**

Feature One

Table 25 Ceramic Sherd Surface Treatment and Decoration Assemblage: Feature One

Type	Count	Percentage
Body- Undecorated (Smooth)	6	66.7%
Body- Indeterminate Surface Treatment	2	22.2%
Body- Decorated (Trailed Lines)	1	11.1%
Total	**9**	**100.0%**

Table 26 Ceramic Sherd Temper Assemblage: Feature One

Material	Count	Percentage	Weight (grams)	Percentage
Shell Temper	9	100.0%	8.3	100.0%
Total	**9**	**100.0%**	**8.3**	**100.0%**

Table 27 Unmodified Faunal Assemblage: Feature One

Name	Count	Weight (grams)
Mammal Bone	4	0.3
Total	**4**	**0.3**

Feature Two

Table 28 Ceramic Sherd Surface Treatment and Decoration Assemblage: Feature Two

Type	Count	Percentage
Rim	1	100.0%
Total	**1**	**100.0%**

Table 29 Ceramic Sherd Temper Assemblage: Feature Two

Material	Count	Percentage	Weight (grams)	Percentage
Shell Temper	1	100.0%	14.1	100.0%
Total	**1**	**100.0%**	**14.1**	**100.0%**

Feature Three/Five (Cumulative)

Table 30 Lithic Raw Material Assemblage: Feature Three/Five (Cumulative)

Material	Count	Count Percentage	Weight (grams)	Weight Percentage
Basaltic	1	1.5%	235.0	46.2%
Basaltic (FCR)	4	6.0%	71.5	14.1%
Grand Meadow Chert	1	1.5%	1.5	0.3%
Granitic (FCR)	3	4.5%	38.8	7.6%
Limestone? (FCR)	4	6.0%	73.8	14.5%
Prairie du Chien Chert	50	74.6%	5.4	1.1%
Quartz	1	1.5%	0.0	0.0%
Quartzite	1	1.5%	0.4	0.0%
Sandstone (FCR)	1	1.5%	68.7	13.5%
Unidentified Chert	1	1.5%	13.6	2.7%
Total	**67**	**100.1%**	**508.7**	**100.0%**

Table 31 Lithic Heat Treatment Assemblage: Feature Three/Five (Cumulative)

Material	Count	Count Percentage	Weight (grams)	Weight Percentage
Prairie du Chien Chert (Heat Treated)	11	22.0%	2.3	44.2%
Prairie du Chien Chert	39	78.0%	2.9	55.8%
Total	**50**	**100.0%**	**5.2**	**100.0%**

Table 32 Lithic Debitage (Flake) Size Grade Assemblage: Feature Three/Five (Cumulative)

Grade	Count	Percentage	Weight (grams)	Percentage
G1 (>25 millimeters or 1 inch)	0	0.0%	0.0	0.0%
G2 (>12.5 millimeters or 0.5 inch)	1	1.8%	1.3	17.6%
G3 (>5.6 millimeters or 0.223 inches)	16	29.1%	4.4	59.5%
G4 (>2.8 millimeters or 0.11 inches)	38	69.1%	1.7	23.0%
Total	**55**	**100.0%**	**7.4**	**100.1%**

Table 33 Lithic Tool Assemblage: Feature Three/Five (Cumulative)

Description	Count	Percentage	Weight (g)	Percentage
Knives	1	50.0%	13.6	5.5%
Manos	1	50.0%	235.0	94.5%
Total	**2**	**100.0%**	**248.6**	**100.0%**

Table 34 Lithic Tool Assemblage By Material Type: Feature Three/Five (Cumulative)

Description	Basaltic		Unidentified Chert	
	Count	Weight (g)	Count	Weight (g)
Knives	0	0.0	1	13.6
Manos	1	235.0	0	0.0
Total	**1**	**235.0**	**1**	**13.6**

Table 35 Ceramic Sherd Surface Treatment and Decoration Assemblage: Feature Three/Five (Cumulative)

Type	Count	Percentage
Body- Indeterminate Decoration and Surface Treatment	113	93.3%
Body- Undecorated (Smooth)	5	4.1%
Body- Decorated (Incised Lines)	1	0.8%
Body- Decorated (Trailed Lines)	1	0.8%
Rim and Near Rim (Neck)	1	0.8%
Total	**121**	**99.8%**

Table 36 Ceramic Sherd Temper Assemblage: Feature Three/Five (Cumulative)

Temper	Count	Percentage	Weight (grams)	Percentage
Grit	11	9.1%	3.5	3.9%
Shell	106	87.6%	84.2	95.9%
Indeterminate	4	3.3%	0.1	0.1%
Total	**121**	**100.0%**	**87.8**	**99.9%**

Table 37 Botanical Assemblage: Feature Three/Five (Cumulative)

Screen Size	Weight (grams)		
	Wood	Non-Wood	Total
No. 10	20.222	1.375	21.597
No. 18	8.582	1.331	9.913
Total	**28.804**	**2.706**	**31.510**

Table 38 Unmodified Faunal Assemblage: Feature Three/Five (Cumulative)

Name	Count	Weight
Avian Bone	2	0.037
Mammal Bone	5	0.104
Piscid Bone	7	0.027
Shell	--	30.5
Unidentified Bone	5	0.024
Total	**19**	**30.692**

Feature Three/Five, Southeast Quarter (By Level)

Table 39 Lithic Raw Material Assemblage: Feature Three/Five, Southeast Quarter (By Level)

Level (cmbs)	Basaltic		Basaltic (FCR)		Grand Meadow Chert		Granitic (FCR)		Limestone? (FCR)		Prairie du Chien Chert		Quartz		Quartzite		Sandstone (FCR)		Unidentified Chert	
	Count	Weight (grams)	Count	Weight (grams)	Count	Weight (grams)	Count	Weight (grams)	Count	Weight (grams)	Count	Weight (grams)	Count	Weight (grams)	Count	Weight (grams)	Count	Weight (grams)	Count	Weight (grams)
45-50	0	0.0	0	0.0	0	0.0	0	0.0	3	1.8	10	1.2	1	0.0	0	0.0	0	0.0	0	0.0
50-55	0	0.0	1	53.8	0	0.0	0	0.0	0	0.0	2	0.2	0	0.0	0	0.0	1	68.7	0	0.0
55-60	0	0.0	0	0.0	0	0.0	1	1.8	1	72.0	1	0.0	0	0.0	1	0.4	0	0.0	0	0.0
60-65	0	0.0	1	0.2	1	1.5	1	36.3	0	0.0	11	0.4	0	0.0	0	0.0	0	0.0	0	0.0
65-70	0	0.0	0	0.0	0	0.0	1	0.7	0	0.0	6	0.2	0	0.0	0	0.0	0	0.0	0	0.0
70-75	1	235.0	2	17.5	0	0.0	0	0.0	0	0.0	4	0.8	0	0.0	0	0.0	0	0.0	0	0.0
75-80	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	0.5	0	0.0	0	0.0	0	0.0	0	0.0
80-85	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	6	1.6	0	0.0	0	0.0	0	0.0	0	0.0
85-90	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	0.2	0	0.0	0	0.0	0	0.0	0	0.0
90-95	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	0.3	0	0.0	0	0.0	0	0.0	0	0.0
95-100	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0	0	0.0	0	0.0	0	0.0	1	13.6
100-105	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Total	**1**	**235.0**	**4**	**71.3**	**1**	**1.5**	**3**	**38.8**	**4**	**73.8**	**49**	**5.4**	**1**	**0.0**	**1**	**0.4**	**1**	**68.7**	**1**	**13.6**

Table 40 Lithic Heat Treatment Assemblage: Feature Three/Five, Southeast Quarter (By Level)

Level (cmbs)	Prairie du Chien Chert		Prairie du Chien Chert (HT)	
	Count	Weight (grams)	Count	Weight (grams)
45-50	5	1.0	5	0.2
50-55	2	0.2	0	0.0
55-60	1	0.0	0	0.0
60-65	10	0.3	1	0.1
65-70	5	0.1	1	0.1
70-75	3	0.5	1	0.3
75-80	3	0.5	0	0.0
80-85	4	0.2	2	1.4
85-90	2	0.2	0	0.0
90-95	2	0.1	1	0.2
95-100	1	0.0	0	0.0
100-105	0	0.0	0	0.0
Total	**38**	**3.1**	**11**	**2.3**

Table 41 Lithic Raw Material and Heat Treatment Assemblage: SE Quadrant of Feature Three/Five (By Level)

Level (cmbs)	Basaltic		Basaltic (FCR)		Grand Meadow Chert		Granitic (FCR)		Limestone? (FCR)		Prairie du Chien Chert		Prairie du Chien Chert (HT)		Quartz		Quartzite		Sandstone (FCR)		Unidentified Chert	
	Count	Weight (grams)	Count	Weight (grams)	Count	Weight (grams)	Count	Weight (grams)	Count	Weight (grams)	Count	Weight (grams)	Count	Weight (grams)	Count	Weight (grams)	Count	Weight (grams)	Count	Weight (grams)	Count	Weight (grams)
45-50	0	0.0	0	0.0	0	0.0	0	0.0	3	1.8	5	1.0	5	0.2	1	0.0	0	0.0	0	0.0	0	0.0
50-55	0	0.0	1	53.8	0	0.0	0	0.0	0	0.0	2	0.2	0	0.0	0	0.0	0	0.0	1	68.7	0	0.0
55-60	0	0.0	0	0.0	0	0.0	1	1.8	1	72.0	1	0.0	0	0.0	0	0.0	1	0.4	0	0.0	0	0.0
60-65	0	0.0	1	0.2	1	1.5	1	36.3	0	0.0	10	0.3	1	0.1	0	0.0	0	0.0	0	0.0	0	0.0
65-70	0	0.0	0	0.0	0	0.0	1	0.7	0	0.0	5	0.1	1	0.1	0	0.0	0	0.0	0	0.0	0	0.0
70-75	1	235.0	2	17.5	0	0.0	0	0.0	0	0.0	3	0.5	1	0.3	0	0.0	0	0.0	0	0.0	0	0.0
75-80	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	0.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
80-85	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	4	0.2	2	1.4	0	0.0	0	0.0	0	0.0	0	0.0
85-90	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	0.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
90-95	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	0.1	1	0.2	0	0.0	0	0.0	0	0.0	0	0.0
95-100	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	13.6
100-105	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Total	**1**	**235.0**	**3**	**71.5**	**1**	**1.5**	**3**	**38.8**	**4**	**73.8**	**38**	**2.6**	**11**	**2.3**	**1**	**0.0**	**1**	**0.4**	**1**	**68.7**	**1**	**13.6**

Table 42 Lithic Debitage (Flake) Size Grade Assemblage: Feature Three/Five, Southeast Quarter (By Level)

Level (cmbs)	G1 (>25 millimeters or 1 inch)		G2 (>12.5 millimeters or 0.5 inch)		G3 (>5.6 millimeters or 0.223 inches)		G4 (>2.8 millimeters or 0.11 inches)	
	Count	**Weight (grams)**	**Count**	**Weight (grams)**	**Count**	**Weight (grams)**	**Count**	**Weight (grams)**
45-50	0	0.0	0	0.0	3	0.8	8	0.4
50-55	0	0.0	0	0.0	1	0.2	1	0.0
55-60	0	0.0	0	0.0	1	0.0	1	0.4
60-65	0	0.0	0	0.0	2	1.7	10	0.2
65-70	0	0.0	0	0.0	0	0.0	6	0.2
70-75	0	0.0	0	0.0	2	0.5	2	0.3
75-80	0	0.0	0	0.0	2	0.5	1	0.0
80-85	0	0.0	1	1.3	1	0.2	4	0.1
85-90	0	0.0	0	0.0	1	0.2	1	0.0
90-95	0	0.0	0	0.0	3	0.3	0	0.0
95-100	0	0.0	0	0.0	0	0.0	1	0.0
100-105	0	0.0	0	0.0	0	0.0	0	0.0
Total	**0**	**0.0**	**1**	**1.3**	**16**	**4.4**	**35**	**1.6**

Table 43 Lithic Tool Assemblage: Feature Three/Five, Southeast Quarter (By Level)

Depth (cmbs)	Knife				Mano (Broken)			
	Count	Percentage	Weight (g)	Percentage	Count	Percentage	Weight (g)	Percentage
70-75	0	0.0%	0.0	0.0%	1	100.0%	235.0	100.0%
95-100 (97)	1	100.0%	13.6	100.0%	0	0.0%	0.0	0.0%
Total	**1**	**100.0%**	**13/6**	**100.0%**	**1**	**100.0%**	**235.0**	**100.0%**

Table 44 Lithic Tool Assemblage By Material Type: Feature Three/Five, Southeast Quarter (By Level)

Description	Basaltic		Unidentified Chert	
	Count	Weight (g)	Count	Weight (g)
Knives	0	0.0	1	13.6
Manos	1	235.0	0	0.0
Total	**1**	**235.0**	**1**	**13.6**

Table 45 Ceramic Sherd Surface Treatment and Decoration Assemblage: Feature Three/Five, Southeast Quarter (By Level)

Level (cmbs)	Body-Indeterminate Decoration and Surface Treatment		Body-Undecorated (Smooth)		Body-Decorated (Incised Lines)		Body-Decorated (Trailed Lines)		Rim and Near Rim (Neck)	
	Count	Weight (grams)	Count	Weight (grams)	Count	Weight (grams)	Count	Weight (grams)	Count	Weight (grams)
45-50	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0
50-55	3	0.8	0	0.0	0	0.0	0	0.0	0	0.0
55-60	7	1.0	0	0.0	0	0.0	0	0.0	0	0.0
60-65	66	4.3	1	2.9	1	1.1	0	0.0	1	3.9
65-70	5	0.2	3	1.5	0	0.0	0	0.0	0	0.0
70-75	5	0.8	0	0.0	0	0.0	1	33.6	0	0.0
75-80	3	0.1	0	0.0	0	0.0	0	0.0	0	0.0
80-85	3	0.1	1	1.9	0	0.0	0	0.0	0	0.0
85-90	4	0.3	0	0.0	0	0.0	0	0.0	0	0.0
90-95	13	1.0	0	0.0	0	0.0	0	0.0	0	0.0
95-100	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0
100-105	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Total	111	8.6	5	6.3	1	1.1	1	33.6	1	3.9

Table 46 Ceramic Sherd Temper Assemblage: Feature Three/Five, Southeast Quarter (By Level)

Level (cmbs)	Shell		Grit		Indeterminate	
	Count	Weight (grams)	Count	Weight (grams)	Count	Weight (grams)
45-50	1	0.0	0	0.0	0	0.0
50-55	3	0.8	0	0.0	0	0.0
55-60	6	0.7	1	0.3	0	0.0
60-65	62	9.6	7	2.6	0	0.0
65-70	6	1.5	2	0.2	0	0.0
70-75	6	34.4	0	0.0	0	0.0
75-80	0	0.0	0	0.0	3	0.1
80-85	4	2.0	0	0.0	0	0.0
85-90	4	0.3	0	0.0	0	0.0
90-95	12	0.6	1	0.4	0	0.0
95-100	0	0.0	0	0.0	1	0.0
100-105	0	0.0	0	0.0	0	0.0
Total	**104**	**49.9**	**11**	**3.5**	**4**	**0.1**

Table 47 Ceramic Sherd Surface Treatment and Decoration and Temper Assemblage: Feature Three/Five, Southeast Quarter (By Level)

Level (cmbs)	Body- Indeterminate Decoration				Body- Undecorated (Smooth)			Body- Decorated (Trailed or Incised Lines)			Rim and Near Rim (Neck)		
	Shell	Grit	Ind.	Total	Shell	Grit	Total	Shell	Grit	Total	Shell	Grit	Total
45-50	1	0	0	1	0	0	0	0	0	0	0	0	0
50-55	3	0	0	3	0	0	0	0	0	0	0	0	0
55-60	6	1	0	7	0	0	0	0	0	0	0	0	0
60-65	60	6	0	66	1	0	1	0	1	1	1	0	1
65-70	3	2	0	5	3	0	3	0	0	0	0	0	0
70-75	5	0	0	5	0	0	0	1	0	1	0	0	0
75-80	0	0	3	3	0	0	0	0	0	0	0	0	0
80-85	3	0	0	3	1	0	1	0	0	0	0	0	0
85-90	4	0	0	4	0	0	0	0	0	0	0	0	0
90-95	12	1	0	13	0	0	0	0	0	0	0	0	0
95-100	0	0	1	1	0	0	0	0	0	0	0	0	0
100-105	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**97**	**10**	**4**	**111**	**5**	**0**	**5**	**1**	**1**	**2**	**1**	**0**	**1**

Table 48 Botanical Assemblage: Feature Three/Five, Southeast Quarter (By Level)

Level (cmbs)	No. 10 Wood		No. 10 Non-Wood		No. 18 Wood		No. 18 Non-Wood	
	Weight (grams)	Percentage	Weight (grams)	Percentage	Weight (grams)	Percentage	Weight (grams)	Percentage
45-50	1.388	7.4%	0.024	1.8%	0.536	6.6%	0.020	1.6%
50-55	2.929	15.7%	0.040	3.0%	1.037	12.8%	0.031	2.5%
55-60	2.451	13.1%	0.106	7.9%	0.908	11.2%	0.128	10.3%
60-65	0.752	4.0%	1.001	74.3%	1.307	16.1%	0.065	5.2%
65-70	2.084	11.1%	0.054	4.0%	1.069	13.2%	0.053	4.3%
70-75	3.869	20.7%	0.041	3.0%	1.539	19.0%	0.060	4.8%
75-80	2.254	12.1%	0.016	1.2%	1.089	13.4%	0.042	3.4%
80-85	1.746	9.3%	0.029	2.2%	0.021	0.3%	0.783	62.8%
85-90	0.477	2.6%	0.000	0.0%	0.271	3.3%	0.034	2.7%
90-95	0.287	1.5%	0.009	0.7%	0.160	2.0%	0.025	2.0%
95-100	0.376	2.0%	0.027	2.0%	0.142	1.8%	0.005	0.4%
100-105	0.076	0.4%	0.000	0.0%	0.023	0.3%	0.001	0.0%
Total	**18.689**	**99.9%**	**1.347**	**100.1%**	**8.102**	**99.0%**	**1.247**	**100.0%**

Table 49 Unmodified Faunal Assemblage: Feature Three/Five, Southeast Quarter (By Level)

Level (cmbs)	Avian Bone		Mammal Bone		Piscid Bone		Shell		Unidentified Bone	
	Count	Weight (grams)	Count	Weight (grams)	Count	Weight (grams)	Count	Weight (grams)	Count	Weight (grams)
45-50	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000
50-55	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000
55-60	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000
60-65	0	0.000	0	0.000	0	0.000	0	0.000	4	0.013
65-70	0	0.000	0	0.000	0	0.000	0	0.000	1	0.011
70-75	0	0.000	0	0.000	1	0.100	0	0.000	0	0.000
75-80	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000
80-85	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000
85-90	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000
90-95	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000
95-100	0	0.000	0	0.000	1	0.000	0	0.000	0	0.000
100-105	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000
Total	**0**	**0.000**	**0**	**0.000**	**2**	**0.100**	**0**	**0.000**	**5**	**0.024**

Feature Six (Cumulative)

Table 50 Lithic Raw Material Assemblage: Feature Six (Cumulative)

Material	Count	Count Percentage	Weight (grams)	Weight Percentage
Basaltic (FCR)	1	7.1%	15.2	40.3%
Burlington Chert	2	14.3%	1.2	3.2%
Prairie du Chien Chert	11	78.6%	21.3	56.5%
Total	**14**	**100.0%**	**37.7**	**100.0%**

Table 51 Lithic Heat Treatment Assemblage: Feature Six (Cumulative)

Material	Count	Count Percentage	Weight (grams)	Weight Percentage
Burlington Chert (Heat Treated)	1	7.7%	0.5	2.2%
Burlington Chert	1	7.7%	0.7	3.1%
Prairie du Chien Chert (Heat Treated)	4	30.8%	17.3	76.9%
Prairie du Chien Chert	7	53.8%	4.0	17.8%
Total	**13**	**100.0%**	**22.5**	**100.0%**

Table 52 Lithic Debitage (Flake) Size Grade Assemblage: Feature Six (Cumulative)

Grade	Count	Percentage	Weight (grams)	Percentage
G1 (>25 millimeters or 1 inch)	1	8.3%	15.7	74.4%
G2 (>12.5 millimeters or 0.5 inch)	1	8.3%	0.9	4.3%
G3 (>5.6 millimeters or 0.223 inches)	10	83.3%	4.5	21.3%
G4 (>2.8 millimeters or 0.11 inches)	0	0.0%	0.0	0.0%
Total	**12**	**99.9%**	**21.1**	**100.0%**

Table 53 Lithic Tool Assemblage: Feature Six (Cumulative)

Description	Count	Percentage	Weight (g)	Percentage
Utilized Flakes	1	100.0%	1.4	100.0%
Total	**1**	**100.0%**	**1.4**	**100.0%**

Table 54 Lithic Tool Assemblage By Material Type: Feature Six (Cumulative)

Description	Prairie du Chien Chert	
	Count	Weight (g)
Utilized Flakes	1	1.4
Total	**1**	**1.4**

Table 55 Ceramic Sherd Surface Treatment and Decoration Assemblage: Feature Six (Cumulative)

Type	Count	Percentage
Body- Undecorated (Smooth)	1	100.0%
Total	**1**	**100.0%**

Table 56 Ceramic Sherd Temper Assemblage: Feature Six (Cumulative)

Temper	Count	Percentage	Weight (g)	Percentage
Shell	1	100.0%	1.0	100.0%
Total	**1**	**100.0%**	**1.0**	**100.0%**

Feature Seven (Cumulative)

Table 57 Lithic Raw Material Assemblage: Feature Seven (Cumulative)

Material	Count	Percentage	Weight (grams)	Percentage
Grand Meadow	1	3.2%	0.4	1.7%
Granitic (FCR)	1	3.2%	13.1	56.7%
Prairie du Chien Chert	28	90.3%	6.1	26.4%
Sedimentary (FCR)	1	3.2%	3.5	15.2%
Total	**31**	**99.9%**	**23.1**	**100.0%**

Table 58 Lithic Heat Treatment Assemblage: Feature Seven (Cumulative)

Material	Count	Count Percentage	Weight (grams)	Weight Percentage
Grand Meadow	1	16.7%	0.4	23.5%
Prairie du Chien Chert	5	83.3%	1.3	76.5%
Total	**6**	**100.0%**	**1.7**	**100.0%**

Table 59 Lithic Debitage (Flake) Size Grade Assemblage: Feature Seven (Cumulative)

Grade	Count	Percentage	Weight (grams)	Percentage
G1 (>25 millimeters or 1 inch)	0	0.0%	0.0	0.0%
G2 (>12.5 millimeters or 0.5 inch)	2	6.9%	4.1	63.1%
G3 (>5.6 millimeters or 0.223 inches)	8	27.6%	2.2	33.8%
G4 (>2.8 millimeters or 0.11 inches)	19	65.5%	0.2	3.1%
Total	**29**	**100.0%**	**6.5**	**100.0%**

Table 60 Ceramic Sherd Surface Treatment and Decoration Assemblage: Feature Seven (Cumulative)

Type	Count	Percentage
Body- Indeterminate Decoration and Surface Treatment	393	95.2%
Body- Undecorated (Smooth)	8	1.9%
Body- Decorated (Circular Punctate)	3	0.7%
Body- Decorated (Incised Lines)	6	1.5%
Rim and Near Rim (Neck)	3	0.7%
Total	**413**	**100.0%**

Table 61 Ceramic Sherd Temper Assemblage: Feature Seven (Cumulative)

Temper	Count	Percentage	Weight (g)	Percentage
Grit	2	0.5%	0.2	0.3%
Shell	411	99.5%	70.1	99.7%
Total	**413**	**100.0%**	**70.3**	**100.0%**

Table 62 Botanical Assemblage: Feature Seven (Cumulative)

Screen Size	Weight (grams)		
	Wood	Non-Wood	Total
No. 10	0.594	0.233	0.827
No. 18	0.518	0.305	0.823
Total	**1.112**	**0.538**	**1.650**

Table 63 Unmodified Faunal Assemblage: Feature Seven (Cumulative)

Name	Count	Weight
Avian? Bone	13	0.100
Mammal Bone	30	0.500
Piscid Bone	33	0.200
Shell	0	0.000
Unidentified Bone	0	0.000
Total	**76**	**0.800**

Feature Seven, Southeast Quarter (By Level)

Table 64 Lithic Raw Material Assemblage: Feature Seven, Southeast Quarter (By Level)

Level (cmbd)	Granitic (FCR)		Prairie du Chien Chert		Sedimentary (FCR)	
	Count	Weight (grams)	Count	Weight (grams)	Count	Weight (grams)
23-25	0	0.0	6	0.2	0	0.0
25-30	0	0.0	7	1.2	0	0.0
30-35	1	13.1	4	0.3	1	3.5
Total	**1**	**13.1**	**17**	**1.7**	**1**	**3.5**

Table 65 Lithic Heat Treatment Assemblage: Feature Seven, Southeast Quarter (By Level)

Level (cmbd)	Prairie du Chien Chert		Prairie du Chien Chert (HT)	
	Count	Weight (grams)	Count	Weight (grams)
23-25	4	0.2	2	0.0
25-30	6	0.1	1	1.1
30-35	4	0.3	0	0.0
Total	**14**	**0.6**	**3**	**1.1**

Table 66 Lithic Raw Material and Heat Treatment Assemblage: Feature Seven, Southeast Quarter (By Level)

Level (cmbd)	Granitic (FCR)		Prairie du Chien Chert		Prairie du Chien Chert (HT)		Sedimentary (FCR)	
	Count	Weight (grams)	Count	Weight (grams)	Count	Weight (grams)	Count	Weight (grams)
23-25	0	0.0	4	0.2	2	0.0	0	0.0
25-30	0	0.0	6	0.1	1	1.1	0	0.0
30-35	1	13.1	4	0.3	0	0.0	1	3.5
Total	**1**	**13.1**	**14**	**0.6**	**3**	**1.1**	**1**	**3.5**

Table 67 Lithic Debitage (Flake) Size Grade Assemblage: Feature Seven, Southeast Quarter (By Level)

Level (cmbd)	G1 (>25 millimeters or 1 inch)		G2 (>12.5 millimeters or 0.5 inch)		G3 (>5.6 millimeters or 0.223 inches)		G4 (>2.8 millimeters or 0.11 inches)	
	Count	Weight (grams)	Count	Weight (grams)	Count	Weight (grams)	Count	Weight (grams)
23-25	0	0.0	0	0.0	1	0.1	5	0.1
25-30	0	0.0	1	1.1	0	0.0	6	0.1
30-35	0	0.0	0	0.0	2	0.3	2	0.0
Total	**0**	**0.0**	**1**	**1.1**	**3**	**0.4**	**13**	**0.2**

Table 68 Ceramic Sherd Surface Treatment and Decoration Assemblage: Feature Seven, Southeast Quarter (By Level)

Level (cmbs)	Body- Indeterminate Decoration and Surface Treatment	
	Count	Weight (grams)
23-25	9	0.6
25-30	5	0.9
30-35	2	0.5
Total	**16**	**2.0**

Table 69 Ceramic Sherd Temper Assemblage: Feature Seven, Southeast Quarter (By Level)

Level (cmbs)	Shell	
	Count	Weight (grams)
23-25	9	0.6
25-30	5	0.9
30-35	2	0.5
Total	**16**	**2.0**

Table 70 Ceramic Sherd Surface Treatment and Decoration and Temper Assemblage: Feature Seven, Southeast Quarter (By Level)

Level (cmbd)	Body- Indeterminate Decoration				Body- Undecorated			Body- Decorated			Rim and Near Rim (Neck)		
	Shell	Grit	Ind.	Total	Shell	Grit	Total	Shell	Grit	Total	Shell	Grit	Total
23-25	9	0	0	9	0	0	0	0	0	0	0	0	0
25-30	5	0	0	5	0	0	0	0	0	0	0	0	0
30-35	2	0	0	2	0	0	0	0	0	0	0	0	0
Total	**16**	**0**	**0**	**16**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Table 71 Botanical Assemblage: Feature Seven, Southeast Quarter (By Level)

Level (cmbd)	No. 10 Wood		No. 10 Non-Wood		No. 18 Wood		No. 18 Non-Wood	
	Weight	Percentage	Weight	Percentage	Weight	Percentage	Weight	Percentage
23-25	0.135	39.7%	0.020	11.4%	0.120	44.1%	0.050	31.4%
25-30	0.078	22.9%	0.037	21.1%	0.086	31.6%	0.066	41.5%
30-35	0.127	37.4%	0.118	67.4%	0.066	24.3%	0.043	27.0%
Total	**0.340**	**100.0%**	**0.175**	**99.9%**	**0.272**	**100.0%**	**0.159**	**99.9%**

Table 72 Unmodified Faunal Assemblage: Feature Seven, Southeast Quarter (By Level)

Level (cmbd)	Avian Bone		Mammal Bone		Piscid Bone		Shell		Unidentified Bone	
	Count	**Weight (grams)**	**Count**	**Weight (grams)**	**Count**	**Weight (grams)**	**Count**	**Weight (grams)**	**Count**	**Weight (grams)**
23-25	0	0.0	6	0.1	12	0.1	0	0.0	0	0.0
25-30	0	0.0	0	0.0	24	0.2	0	0.0	5	0.0
30-35	0	0.0	0	0.0	7	0.1	0	0.0	1	0.1
Total	**0**	**0.0**	**6**	**0.1**	**43**	**0.4**	**0**	**0.0**	**6**	**0.1**

Table 73 Lithic Debitage Measurements and Estimated Size Grade: Feature 10

Material	Measurements (Centimeters) (Length x Width x Height)	Size Grade (Estimated)	
		G1	G2
Basalt	2.9 x 1.7 x 0.3	G1	
Chert	3.5 x 1.7 x 1.0	G1	
Chert	3.4 x 1.7 x 0.8	G1	
Chert	2.9 x 1.6 x 1.1	G1	
Chert	2.0 x 1.8 x 0.8		G2
Chert	2.3 x 1.5 x 0.8		G2
Chert	2.3 x 1.2 x 0.9		G2
Chert	2.2 x 1.7 x 0.9		G2
Chert	2.3 x 1.4 x 0.8		G2
Chert	2.4 x 1.4 x 0.5		G2
Chert	2.1 x 1.5 x 0.7		G2
Chert	2.3 x 1.4 x 0.7		G2
Total		**4**	**8**

Table 74 Rock Size Grades: Feature 10

Material	Measurements (Centimeters) (Length x Width x Height)	Size Grade (Estimated)	
		G1	G2
Glacial Till	2.5 x 1.3 x 0.8	G1	
Glacial Till	3.4 x 3.2 x 1.2	G1	
Limestone	4.5 x 2.7 x 1.8	G1	
Limestone	3.3 x 2.6 x 1.9	G1	
Granite	1.8 x 1.8 x 1.3	G1	
Glacial Till	1.9 x 1.7 x 0.8		G2
Glacial Till	1.4 x 1.3 x 1.1		G2
Glacial Till	1.7 x 1.5 x 0.9		G2
Total		**5**	**3**

Table 75 Ceramic Sherd Size Grade Assemblage: Feature 10

Morphology	Temper	Measurements (Centimeters) (Length x Width x Height)	Size Grade (Estimated)
Rim	Shell	1.9 x 1.4 x 0.5	G2
Total			1

Site Summary

Table 76 Lithic Raw Material Assemblage: Site Summary

Material	Count	Percentage	Weight	Percentage
Basaltic	7	0.3%	1443.2	13.7%
Basaltic (FCR)	23	1.1%	1413.0	13.4%
Basaltic (FCR)?	1	0.0%	6.8	0.0%
Burlington Chert	43	2.0%	41.2	0.4%
Burlington Chert?	3	0.1%	0.9	0.0%
Cedar Valley Chert	1	0.0%	0.7	0.0%
Galena*	3	0.1%	28.7	0.3%
Galena Chert	1	0.0%	12.9	0.1%
Grand Meadow Chert	63	2.9%	50.2	0.5%
Granitic	4	0.2%	4058.0	38.6%
Granitic (FCR)	23	1.1%	730.0	6.9%
Hixton Orthoquartzite	5	0.2%	2.4	0.0%
Knife River Flint	2	0.0%	0.7	0.0%
Limestone (FCR)	19	0.9%	404.2	3.8%
Limestone? (FCR)	4	0.2%	73.8	0.7%
Catlinite* (Burned and Shaped)	1	0.0%	1.4	0.0%
Prairie du Chien Chert	1941	89.3%	2100.4	20.0%
Quartz	1	0.0%	0.0	0.0%
Quartzite	20	0.9%	11.0	0.1%
Sandstone (Burnt)	--	--	2.9	0.0%
Sandstone (FCR)	1	0.0%	68.7	0.7%
Sedimentary (FCR)	2	0.0%	9.8	0.0%
Silicified Sandstone	1	0.0%	15.8	0.2%
Silicified Sediment	1	0.0%	19.3	0.2%
Unidentified Chert	3	0.1%	19.7	0.2%
Unidentified Glacial Till Flint	1	0.0%	4.0	0.0%
Total	**2174**	**99.4%**	**10519.7**	**98.6%**

Table 77 Lithic Debitage (Flake) Size Grade Assemblage: Site Summary

Grade	Count	Percentage	Weight (grams)	Percentage
G1 (>25 millimeters or 1 inch)	17	0.9%	672.4	34.5%
G2 (>12.5 millimeters or 0.5 inch)	217	11.3%	683.9	35.1%
G3 (>5.6 millimeters or 0.223 inches)	1126	58.7%	544.6	28.0%
G4 (>2.8 millimeters or 0.11 inches)	557	29.1%	45.8	2.4%
Total	**1917**	**100.0%**	**1946.7**	**100.0%**

Table 78 Lithic Tool Assemblage: Site Summary

Description	Count	Percentage	Weight (g)	Percentage
Bifaces	1	1.1%	0.6	0.0%
Blades	4	4.5%	10.4	0.2%
Grinding Stones	1	1.1%	3375.0	59.4%
Hammerstones	2	2.3%	1104.0	19.4%
Knives	2	2.3%	19.3	0.3%
Manos	4	4.5%	644.4	11.3%
Metates	1	1.1%	253.0	4.5%
Projectile Points	5	5.7%	4.5	0.0%
Scrapers	3	3.4%	6.7	0.1%
Short-Faced Scrapers	1	1.1%	4.4	0.0%
Unidentified (Broken)	5	5.7%	6.8	0.1%
Unidentified (Monofacial)	1	1.1%	11.8	0.2%
Utilized Flakes	58	65.9%	242.6	4.3%
Total	**88**	**99.8%**	**5683.5**	**99.8%**

Table 79 Lithic Tool Assemblage by Material Type: Site Summary

Description	Basaltic		Burlington Chert		Grand Meadow Chert		Granititc		Prairie du Chien Chert		Silicified Sandstone		Unidentified Chert		Unidentified Glacial Till Flint	
	Count	Weight (g)	Count	Weight (g)	Count	Weight (g)	Count	Weight (g)	Count	Weight (g)	Count	Weight (g)	Count	Weight (g)	Count	Weight (g)
Bifaces	0	0.0	0	0.0	0	0.0	0	0.0	1	0.6	0	0.0	0	0.0	0	0.0
Blades	0	0.0	0	0.0	0	0.0	0	0.0	4	10.4	0	0.0	0	0.0	0	0.0
Grinding Stones	0	0.0	0	0.0	0	0.0	1	3375.0	0	0.0	0	0.0	0	0.0	0	0.0
Hammer-stones	2	1104.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Knives	0	0.0	0	0.0	0	0.0	0	0.0	1	5.7	0	0.0	1	13.6	0	0.0
Manos	2	317.6	0	0.0	0	0.0	1	311.0	0	0.0	1	15.8	0	0.0	0	0.0
Metates	1	253.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Projectile Points	0	0.0	1	0.6	0	0.0	0	0.0	4	3.9	0	0.0	0	0.0	0	0.0
Scrapers	0	0.0	0	0.0	0	0.0	0	0.0	3	6.7	0	0.0	0	0.0	0	0.0
Short-Faced Scrapers	0	0.0	0	0.0	0	0.0	0	0.0	1	4.4	0	0.0	0	0.0	0	0.0
Unidentified (Broken)	0	0.0	0	0.0	2	1.1	0	0.0	3	5.7	0	0.0	0	0.0	0	0.0
Unidentified (Monofacial)	0	0.0	0	0.0	0	0.0	0	0.0	1	11.8	0	0.0	0	0.0	0	0.0
Utilized Flakes	0	0.0	2	9.2	1	1.0	0	0.0	52	243.0	0	0.0	0	0.0	1	4.0
Total	**5**	**1674.6**	**3**	**9.8**	**3**	**2.1**	**2**	**3686.0**	**70**	**292.2**	**1**	**15.8**	**1**	**13.6**	**1**	**4.0**

Table 80 Ceramic Sherd Surface Treatment and Decoration Assemblage: Site Summary

Description	Count	Percentage
Body- Cordmarked Surface Treatment	119	6.9%
Body- Cordmarked Surface Treatment?	5	0.3%
Body- Smoothed Over Cordmarked Surface Treatment	5	0.3%
Body- Undecorated (Smooth)	320	18.6%
Body- Indeterminate Decoration and Surface Treatment	1160	67.5%
Body- Decorated (Possible Incised Lines)	1	0.0%
Body- Decorated (Incised Lines)	15	0.9%
Body- Decorated (Incised Lines and Punctates)	1	0.0%
Body- Decorated (Trailed Lines)	27	1.6%
Body- Decorated (Trailed Lines)?	2	0.1%
Body- Cordmarked Surface Treatment and Decorated (Incised Lines)	2	0.1%
Body- Cordmarked Surface Treatment and Decorated (Punctates)	5	0.3%
Body- Decorated (Punctates)	6	0.3%
Body- Decorated (Punctates) (Incised Lines)	3	0.2%
Body- Decorated (Punctates) (Trailed Lines)	4	0.2%
Body- Indeterminate Surface Treatment and Decorated (Punctates)	3	0.2%
Body- Indeterminate Surface Treatment and Decorated (Trailed Lines)	1	0.0%
Rim and Near Rim (Neck)	36	2.1%
Handle	4	0.2%
Total	**1719**	**99.8%**

Table 81 Ceramic Sherd Temper Assemblage: Site Summary

Temper	Count	Percentage	Weight (grams)	Percentage
Grit	328	19.1%	252.4	24.2%
Shell	1387	80.7%	791.5	75.8%
Indeterminate	4	0.2%	0.1	0.0%
Total	**1719**	**100.0%**	**1044.0**	**100.0%**

Table 82 Botanical Assemblage: Site Summary

Material	Weight (grams)
Wood*	75.200
Charcoal- Wood	32.323
Charcoal- Non-Wood	3.354
Total	**110.877**

Wood*, the 1968 excavation stake recovered from Trench One at 20 – 30 cmbs, is catalogued as "Special" but is included here in the Botanical Assemblage.

Table 83 Faunal Assemblage: Site Summary

Material	Weight (grams)
Avian Bone	0.137
Avian? Bone	0.100
Mammal Bone	26.204
Piscid Bone	0.527
Shell	75.300
Unidentified Bone	1.324
Total	**103.592**

APPENDIX B: DESCRIPTION OF EXCAVATION METHODS BY UNIT

Excavation Unit One

Excavation Unit One measures five meters north to south and 115 centimeters east to west. It is broken into five (one meter) units, A through E, from north to south. Trenches One and Two extend 45 centimeters north of Excavation Unit One.

Depth measurements for Excavation Units One A, B, and C were taken from the surface and are noted as centimeters below surface (cmbs). Excavation Units One D and E were excavated as part of a separate strategy and using the methods that have become standard methods in Red Wing (Ronald Schirmer, personal communication 2009). Depth for Excavation Units One D and E was measured in centimeters below datum (cmbd). Cmbd was approximately 15 centimeters lower than the cmbs measurements since the surface sloped slightly.

The north 45 centimeters of Trenches One and Two terminated at 30 cmbs because it was not the focus of this research. Excavation Unit One encompassed Trenches One and Two; the northern 1/2 meter of Excavation Unit One A was left unexcavated except for the areas previously excavated as Trenches One and Two. Here, Trenches One and Two were excavated to 30 cmbs. The southern 1/2 meter of Excavation Unit One A was excavated to 40 cmbs. Excavation Units One B and C were excavated to 40 cmbs. Excavation Units One D and E were excavated to 20 cmbd (35 cmbs) and terminated in rocky and culturally-sterile soil.

Johnson's Feature 10 spanned Excavation Unit One A, B, and C. Feature Four was located in Excavation Unit One E and was excavated to its termination at 45 cmbd (60 cmbs).

Excavation Unit Two

Excavation Unit Two measures five meters north to south and one meter east to west. It is broken into five one meter square units, labeled A through E, from north to south.

Depth measurements for Excavation Units Two A, B, and C were taken from the surface and are noted as centimeters below surface (cmbs). Depth for Excavation Units Two D and E was measured in centimeters below datum (cmbd). Cmbd was 15 centimeters lower than the cmbs measurements.

The northern 1/2 meter of Excavation Unit Two A was left unexcavated, and the southern 1/2 meter was excavated to 40 cmbs. Excavation Units Two B and C were excavated to 40 cmbs, Excavation Unit Two D was excavated to 30 cmbd (45 cmbs), and Excavation Unit Two E terminated at 20 cmbd (35 cmbs) in rocky and culturally-sterile soil.

Johnson's Feature 10 spanned Excavation Unit Two A, B, and C. Feature One spanned both Excavation Units Two C and D and was excavated to its termination at 50 cmbd (65 cmbs). Feature Four was located in Excavation Units One E and Two E and was excavated to its termination at 45 cmbd (60 cmbs).

Excavation Unit Three

Excavation Unit Three measures four meters north to south and one meter east to west. It is broken into four (one meter) units, A through D, from north to south.

Depth measurements for Excavation Units Three A, B, and C were taken from the surface and are noted as centimeters below surface (cmbs). Depths for Excavation Units

Three D were measured in centimeters below datum (cmbd). Cmbd was 15 centimeters lower than the cmbs measurements.

Excavation Unit Three A was excavated to 50 cmbs, Excavation Units Three B and C were excavated to 40 cmbs, and Excavation Unit Three D terminated at 50 cmbd (65 cmbs).

Johnson's Feature 10 spanned Excavation Units Three A, B, and C. Feature Two, a large feature, occupied Excavation Units Three A and B and Excavation Units Four A and B. Feature Two was excavated to its termination at 120 cmbs.

Excavation Unit Four

Excavation Unit Four measures four meters north to south and one meter east to west. It is broken into four (one meter) units, A through D, from north to south.

Depth measurements for Excavation Units Four A, B, and C were taken from the surface and are noted as centimeters below surface (cmbs). Depths for Excavation Unit Four D were measured in centimeters below datum (cmbd). Cmbd was 15 centimeters lower than the cmbs measurements.

The initial exploration of Trench Three was completely subsumed when it was expanded into Excavation Unit Four. Excavation Unit Four A was excavated to 50 cmbs, Excavation Unit Four B and C was excavated to 40 cmbs, and Excavation Unit Four D terminated at 50 cmbd (65 cmbs).

Johnson's Feature 10 extended through Excavation Unit Four A, B, and C. Feature Two was located in Excavation Units Four A and B; Feature Three/Five was located in Excavation Units Four B and C. Feature Two was excavated to 120 cmbs, and Feature Three/Five was excavated to 105 cmbs.

Excavation Unit Five

Excavation Unit Five measures four meters north to south and one meter east to west. It is broken into three (one meter) units, A through C, from north to south.

Depth measurements for Excavation Units Five A, B, and C were taken from the surface and are noted as centimeters below surface (cmbs).

The initial exploration of Trench Four was completely subsumed when it was expanded into Excavation Unit Five. Excavation Units Five A, B, and C were excavated to 40 cmbs.

Johnson's Feature 10 extended through Excavation Units Five A, B, and C. Feature Three/Five, excavated to its termination at 105 cmbs, was located in Excavation Units Five B and C.

Excavation Unit Six

Excavation Unit Six measured one by one meter and was excavated to 30 cmbd. Feature Six was identified in the southwest corner of Excavation Unit Six, and excavated to its termination at 60 cmbd.

Excavation Unit Seven

Excavation Unit Seven measured one by one meter and was excavated to 35 cmbd. There was a possible feature in the northeast corner of this excavation unit.

Excavation Unit Eight

Excavation Unit Eight measured one by one meter and was excavated to 35 cmbd. There was a rocky concentration in the northwest corner; in Block One rocky areas showed natural (non-cultural) areas.

Excavation Unit Nine

Excavation Unit Nine measured one by one meter and was excavated to 30 cmbd. Feature Six was present in the southeast corner of this excavation unit, and was excavated to its termination at 60 cmbd.

Excavation Unit 10

Excavation Unit 10 measured one by one meter and was excavated to 30 cmbd. A small portion of Feature Six was in the northeast corner of the unit, and was excavated to its termination at 60 cmbd. There is another possible feature in the southeast corner of the unit.

Excavation Unit 11

Excavation Unit 11 measured one by one meter and was excavated to 30 cmbd. Feature Seven emerged in the southern portion of the unit and was excavated to its termination at 35 cmbd.

Excavation Unit 12

Excavation Unit 12 measured 25 centimeters north to south and one meter east to west, and was excavated to 30 cmbd. This unit was placed to provide context for Feature Seven, which was located in the center of this unit. Feature Seven was excavated to its termination at 35 cmbd.